

Resumen

Con la finalidad de completar todo lo expuesto en la Memoria se ha decidido adjuntar cierta información en un Anexo. También, ha sido necesario por el gran volumen de datos con los que se ha trabajado. La experimentación realizada para validar el modelo de Programación de Restricciones (PR) diseñado requería, por un lado, el diseño de cada uno de los experimentos a realizar y, por otro lado, la recogida de los resultados obtenidos por el modelo.

Todos estos datos se recogen en este volumen. Primero, el detalle de las réplicas utilizadas en la experimentación. Segundo, y para proporcionar el máximo de información posible a los lectores, se ha aprovechado para añadir un ejemplo del modelo en lenguaje ILOG OPL Studio. De esta forma se pueden ver las diferencias con el modelo en lenguaje matemático que hay en la Memoria. Y finalmente, los resultados de los experimentos realizados. Recordar que la experimentación se ha dividido en dos bloques: 1) el bloque de alta demanda y 2) el bloque de baja demanda. Además, en cada uno de los bloques se han realizado veinte réplicas. Así, que en total se han hecho cuarenta experimentos.





Sumario

Resumen	1
Sumario	3
A. Réplicas utilizadas en la experimentación	4
A.1 Datos conocidos y constantes.....	4
A.2 Datos variables	4
B. Modelos en lenguaje ILOG	24
B.1 Modelo de Asignación.....	24
B.2 Modelo de Scheduling.....	25
B.3 Precedencias de las actividades	29
C. Resultados de la experimentación.....	42
C.1 Resultados Modelo de Asignación.....	42
C.2 Resultados Modelo de Scheduling.....	45



A. Réplicas utilizadas en la experimentación

Los datos necesarios para la realización de la experimentación con el modelo diseñado se clasifican en dos grandes grupos: 1) Datos conocidos y constantes; y 2) Datos variables.

A.1 Datos conocidos y constantes

Los datos conocidos y constantes corresponden a parámetros característicos de la empresa productora de hormigón; y, por tanto, son conocidos e iguales para todos los experimentos. Estos datos son: 1) Número de plantas de producción; 2) Capacidad de producción de las plantas; 3) Coste de producción; 4) Tiempo de carga del vehículo; 5) Número de puntos de carga; 6) Velocidad media de los camiones; 7) Capacidad de los vehículos; 8) Costes de transporte y 9) Promedio de viajes diarios de los vehículos. Sin embargo, al estar explicados e incluidos en la Memoria del proyecto no se repetirán sus características y valores.

A.2 Datos variables

Los datos variables corresponden a aquellos que a priori no son conocidos y que sus valores no dependen de la empresa como características del cliente o impuestas por él. Al no disponer de suficientes datos reales para diseñar los experimentos se crearon de forma aleatoria. Este grupo está compuesto por: 1) Número de clientes; 2) Volumen demandado por cada cliente; 3) Tiempo de descarga de los camiones; 4) Hora de inicio del servicio; 5) Frecuencia de salida/llegada de los vehículos; 6) Márgenes llegada vehículos y 7) Distancias entre plantas y clientes.

A continuación, se presentan una serie de tablas que recogen los valores que se han asignado a los distintos experimentos para los distintos datos variables. Con excepción de las distancias entre plantas de producción y obras que se muestran inmediatamente después.

Experimento 1

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	10	4	1	307	20	13
2	10	4	1	55	20	36



Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
3	10	19	4	22	20	44
4	10	13	3	346	10	55
5	10	13	3	90	10	51
6	10	16	3	113	10	23
7	20	5	1	669	10	30
8	20	7	2	292	10	57
9	10	11	2	75	10	52
10	20	5	1	127	20	26
11	10	17	3	204	20	40
12	10	13	3	5	20	43
13	10	20	4	142	10	45
14	10	19	4	241	10	52
15	10	12	2	164	10	24
16	10	7	2	169	10	11
17	20	73	13	128	20	22
18	20	4	1	197	20	10
19	20	32	6	171	20	27
20	10	15	3	97	10	36

Experimento 2

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	10	14	3	704	10	58
2	10	3	1	64	10	24
3	20	9	2	305	20	18
4	10	18	3	300	20	34
5	10	12	2	234	10	22
6	20	9	2	146	20	38
7	20	19	4	161	20	16
8	20	72	12	377	10	30
9	10	14	3	432	10	12
10	10	10	2	299	20	39
11	10	13	3	513	20	17
12	20	16	3	190	20	59
13	10	38	7	196	10	11
14	10	10	2	217	10	54
15	20	6	1	80	20	16
16	20	14	3	228	20	52
17	20	185	31	83	20	18
18	20	4	1	156	10	14
19	20	24	4	218	20	25
20	10	25	5	376	20	19



Experimento 3

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	10	11	2	124	10	34
2	10	14	3	12	20	41
3	20	13	3	492	20	19
4	10	44	8	476	20	14
5	10	9	2	83	10	46
6	20	26	5	435	20	25
7	10	5	1	669	10	36
8	10	2	1	133	20	12
9	20	17	3	488	10	47
10	20	10	2	153	20	44
11	20	4	1	416	10	38
12	20	14	3	88	10	46
13	10	19	4	114	10	56
14	10	14	3	248	10	11
15	20	3	1	113	10	35
16	20	15	3	168	20	40
17	10	32	6	339	10	15
18	10	12	2	325	10	19
19	10	11	2	239	20	40
20	20	17	3	72	10	26

Experimento 4

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	20	121	21	403	10	15
2	10	3	1	661	10	32
3	20	60	10	171	20	30
4	20	19	4	259	10	52
5	10	24	4	215	20	15
6	10	9	2	173	10	29
7	20	32	6	208	20	21
8	10	13	3	696	20	39
9	10	11	2	13	10	32
10	10	11	2	269	20	52
11	20	8	2	113	10	35
12	10	12	2	599	20	19
13	20	26	5	517	10	20
14	10	11	2	312	20	29
15	20	39	7	113	20	29
16	10	15	3	391	10	19
17	10	6	1	425	20	29



Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
18	10	3	1	282	10	59
19	20	14	3	238	10	50
20	20	19	4	194	10	21

Experimento 5

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	20	3	1	389	10	29
2	10	18	3	64	20	59
3	20	17	3	106	10	38
4	10	65	11	352	20	13
5	10	2	1	318	20	19
6	10	62	11	430	10	19
7	20	62	11	297	20	13
8	20	6	1	166	10	22
9	10	19	4	678	10	20
10	10	8	2	155	20	17
11	20	31	6	171	20	19
12	20	4	1	228	10	32
13	20	18	3	439	10	27
14	10	3	1	121	10	45
15	10	3	1	671	20	17
16	20	19	4	130	20	58
17	20	38	7	1	10	27
18	20	16	3	431	20	33
19	20	57	10	524	10	18
20	10	5	1	703	20	21

Experimento 6

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	10	3	1	547	10	42
2	10	14	3	477	20	47
3	20	19	4	152	20	22
4	10	17	3	113	20	30
5	20	39	7	488	10	28
6	20	14	3	123	20	20
7	10	15	3	442	20	35
8	10	13	3	275	20	46
9	20	5	1	522	10	15



Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
10	20	20	4	654	10	30
11	20	6	1	484	20	51
12	10	8	2	718	20	44
13	10	18	3	283	10	31
14	20	17	3	542	10	37
15	10	29	5	132	20	15
16	20	69	12	468	10	21
17	20	17	3	148	10	18
18	10	11	2	422	20	14
19	20	53	9	518	20	14
20	10	18	3	5	20	53

Experimento 7

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	10	17	3	236	20	31
2	10	16	3	161	20	41
3	20	6	1	516	10	10
4	20	10	2	427	10	33
5	20	34	6	574	20	26
6	20	19	4	41	10	58
7	10	171	29	345	20	11
8	20	4	1	257	10	32
9	10	10	2	185	20	39
10	20	4	1	230	20	31
11	10	33	6	24	10	16
12	10	7	2	30	20	49
13	20	3	1	214	10	44
14	20	7	2	206	10	20
15	10	204	34	96	10	14
16	10	18	3	185	10	30
17	20	65	11	85	10	14
18	20	3	1	428	20	33
19	20	15	3	442	20	31
20	20	4	1	26	10	46

Experimento 8

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	20	10	2	679	10	39



Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
2	20	7	2	379	20	51
3	20	2	1	90	20	29
4	20	61	11	350	20	29
5	10	16	3	299	10	48
6	20	23	4	498	20	18
7	10	17	3	74	10	25
8	20	15	3	240	10	54
9	10	4	1	49	20	10
10	10	18	3	680	20	58
11	10	5	1	467	20	47
12	20	16	3	271	10	20
13	20	45	8	159	20	27
14	10	7	2	631	10	15
15	10	3	1	576	10	41
16	10	12	2	639	20	53
17	20	69	12	282	10	11
18	10	43	8	580	10	22
19	20	15	3	495	20	48
20	20	4	1	110	10	43

Experimento 9

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	10	17	3	480	10	28
2	10	6	1	627	20	50
3	20	121	21	209	20	19
4	10	65	11	241	20	25
5	10	3	1	386	20	43
6	10	57	10	145	10	22
7	20	17	3	34	10	42
8	10	5	1	72	10	53
9	20	5	1	279	10	25
10	20	8	2	239	20	36
11	10	12	2	222	20	53
12	20	13	3	225	10	46
13	20	7	2	190	10	38
14	10	15	3	55	20	20
15	20	7	2	157	10	32
16	20	3	1	560	10	42
17	20	19	4	649	20	30
18	10	20	4	635	10	15
19	10	143	24	323	10	11
20	10	61	11	472	20	23



Experimento 10

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	10	15	3	152	20	59
2	20	7	2	189	10	15
3	10	59	10	311	20	13
4	20	18	3	116	20	57
5	20	4	1	318	10	44
6	20	96	16	435	20	13
7	10	11	2	572	20	20
8	20	63	11	152	10	12
9	20	29	5	75	20	21
10	20	5	1	28	10	27
11	20	76	13	217	10	18
12	20	13	3	579	20	42
13	10	3	1	352	20	50
14	20	44	8	80	10	23
15	20	167	28	213	10	14
16	20	16	3	514	20	29
17	20	74	13	336	10	24
18	20	8	2	318	20	52
19	20	8	2	184	20	13
20	20	17	3	16	10	23

Experimento 11

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	10	64	11	35	10	20
2	10	78	13	251	20	15
3	10	58	10	30	10	19
4	20	18	3	484	10	33
5	10	77	13	375	20	23
6	20	65	11	206	10	29
7	20	5	1	405	20	20
8	20	9	2	454	20	16
9	20	16	3	60	20	26
10	10	13	3	285	20	56
11	20	14	3	133	10	51
12	10	8	2	40	20	54
13	20	74	13	157	20	27
14	10	18	3	452	10	54
15	10	13	3	197	10	36
16	20	54	9	643	10	24
17	10	9	2	456	10	28



Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
18	20	13	3	514	20	19
19	20	10	2	15	20	51
20	20	73	13	156	20	23
21	10	7	2	133	10	10
22	20	8	2	378	20	12
23	10	10	2	330	10	16
24	20	3	1	409	20	59
25	10	20	4	316	20	14
26	10	4	1	76	20	58
27	20	16	3	264	10	10
28	20	11	2	375	20	58
29	10	13	3	241	20	26
30	10	20	4	248	20	19
31	20	9	2	316	10	30
32	10	14	3	15	10	11
33	10	19	4	460	20	22
34	20	11	2	186	20	13
35	20	11	2	318	20	18
36	10	5	1	307	10	50
37	20	3	1	62	20	28
38	20	15	3	329	20	27
39	10	12	2	73	20	34
40	10	9	2	295	20	25

Experimento 12

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	10	19	4	21	20	27
2	20	5	1	137	20	39
3	20	5	1	387	10	37
4	10	14	3	354	10	26
5	20	75	13	238	10	24
6	10	42	7	406	10	17
7	10	8	2	30	20	19
8	20	47	8	204	20	21
9	20	3	1	323	20	53
10	10	5	1	118	20	43
11	10	7	2	351	20	50
12	20	17	3	393	20	40
13	10	18	3	198	10	31
14	20	17	3	20	20	54
15	20	4	1	59	10	58
16	10	10	2	587	20	11



Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
17	10	12	2	169	20	13
18	10	17	3	316	10	60
19	10	7	2	666	10	25
20	10	74	13	594	10	22
21	20	4	1	130	10	25
22	10	50	9	310	10	15
23	10	5	1	236	20	56
24	10	8	2	443	20	23
25	10	10	2	243	10	52
26	10	12	2	52	10	26
27	10	65	11	218	10	29
28	20	17	3	201	10	51
29	10	67	12	96	20	28
30	20	55	10	137	20	13
31	20	7	2	17	20	13
32	20	10	2	256	10	54
33	10	9	2	341	20	17
34	10	13	3	212	10	34
35	10	60	10	99	10	15
36	20	5	1	215	10	30
37	10	40	7	153	10	27
38	20	16	3	245	20	21
39	10	11	2	186	20	33
40	10	80	14	220	10	30

Experimento 13

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	10	2	1	22	20	12
2	20	13	3	343	10	47
3	20	6	1	386	20	37
4	20	18	3	198	20	49
5	10	14	3	486	20	19
6	10	6	1	518	20	27
7	10	17	3	36	20	16
8	10	3	1	111	10	26
9	10	37	7	173	10	28
10	10	5	1	457	20	44
11	20	13	3	331	10	49
12	10	38	7	336	10	22
13	20	3	1	470	20	31
14	20	36	6	107	20	23
15	10	3	1	346	10	30



Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
16	10	6	1	104	10	51
17	20	18	3	477	20	49
18	20	13	3	253	10	50
19	20	19	4	191	20	12
20	10	18	3	399	20	31
21	10	64	11	232	20	26
22	20	17	3	321	10	23
23	10	15	3	91	20	50
24	10	14	3	118	20	22
25	20	11	2	285	10	23
26	10	16	3	204	10	26
27	10	17	3	206	20	34
28	10	16	3	62	10	36
29	10	5	1	248	20	15
30	20	14	3	127	20	31
31	10	9	2	143	20	57
32	20	11	2	189	20	35
33	10	14	3	468	20	12
34	10	16	3	472	20	39
35	10	68	12	176	10	26
36	20	19	4	332	10	32
37	10	18	3	2	20	32
38	10	11	2	175	10	18
39	20	99	17	128	20	14
40	20	6	1	334	10	24

Experimento 14

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	10	38	7	714	20	26
2	20	2	1	260	20	35
3	20	3	1	387	10	57
4	10	2	1	521	10	43
5	20	16	3	271	10	56
6	10	3	1	474	20	26
7	10	5	1	145	20	47
8	10	12	2	422	20	33
9	20	6	1	91	10	29
10	20	11	2	600	20	58
11	20	19	4	121	10	22
12	10	10	2	526	10	55
13	20	61	11	129	20	26
14	20	27	5	55	10	18



Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
15	10	53	9	228	10	17
16	10	18	3	105	10	25
17	20	18	3	164	20	35
18	10	15	3	221	20	49
19	20	7	2	291	20	37
20	10	21	4	294	10	29
21	20	2	1	93	20	50
22	20	8	2	25	20	29
23	20	11	2	17	20	11
24	20	13	3	686	20	33
25	20	11	2	376	10	31
26	20	8	2	224	10	56
27	20	6	1	274	10	23
28	10	50	9	137	10	28
29	20	48	8	213	10	26
30	20	4	1	118	10	52
31	20	44	8	522	10	22
32	20	57	10	652	20	19
33	10	7	2	266	20	23
34	20	13	3	115	10	36
35	10	29	5	33	10	11
36	10	15	3	482	20	36
37	20	20	4	7	20	43
38	20	15	3	272	10	47
39	20	7	2	1	20	31
40	20	63	11	85	20	11

Experimento 15

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	20	15	3	533	20	23
2	20	4	1	306	20	52
3	10	26	5	244	20	30
4	10	8	2	439	10	34
5	10	14	3	466	10	51
6	20	32	6	24	10	17
7	10	16	3	502	20	36
8	20	10	2	390	20	38
9	20	53	9	305	10	22
10	10	9	2	261	20	22
11	10	15	3	203	10	23
12	20	10	2	128	20	24
13	20	5	1	76	20	12



Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
14	10	6	1	397	20	47
15	20	67	12	138	10	15
16	20	7	2	12	10	24
17	20	6	1	567	20	42
18	20	8	2	479	10	15
19	10	7	2	263	20	25
20	10	79	14	199	10	18
21	20	38	7	576	20	27
22	20	43	8	403	10	10
23	10	5	1	456	20	44
24	20	47	8	180	10	19
25	20	14	3	344	20	25
26	10	5	1	478	10	41
27	20	8	2	146	20	11
28	10	3	1	273	10	39
29	10	5	1	151	20	44
30	10	10	2	115	10	56
31	10	24	4	290	20	25
32	20	3	1	302	20	29
33	10	4	1	607	10	34
34	20	80	14	71	10	16
35	10	15	3	98	10	36
36	20	68	12	550	20	21
37	20	19	4	261	10	43
38	10	11	2	24	10	46
39	20	45	8	341	10	21
40	10	62	11	92	20	19

Experimento 16

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	20	18	3	407	10	58
2	20	69	12	203	10	13
3	20	15	3	313	10	23
4	10	16	3	179	10	17
5	10	40	7	469	20	22
6	10	74	13	103	20	14
7	20	14	3	139	10	59
8	20	28	5	425	10	15
9	20	6	1	11	10	34
10	20	58	10	235	20	18
11	10	3	1	331	20	14
12	10	76	13	106	20	18



Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
13	10	31	6	150	10	26
14	10	20	4	197	20	36
15	10	54	9	527	20	19
16	10	4	1	110	20	29
17	20	9	2	227	20	57
18	20	8	2	20	20	24
19	10	5	1	299	20	12
20	20	20	4	439	20	52
21	20	3	1	516	10	29
22	20	9	2	129	20	34
23	10	3	1	107	10	37
24	10	16	3	314	10	14
25	20	6	1	577	20	11
26	20	7	2	438	20	15
27	20	79	14	626	10	11
28	20	11	2	12	10	57
29	20	3	1	178	20	16
30	10	17	3	233	20	56
31	10	16	3	232	10	51
32	10	17	3	255	20	23
33	10	8	2	35	10	20
34	10	14	3	178	20	22
35	10	39	7	298	20	13
36	10	20	4	39	20	30
37	10	10	2	104	20	16
38	20	20	4	239	20	11
39	10	9	2	175	10	47
40	10	62	11	18	20	11

Experimento 17

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	20	14	3	96	10	33
2	10	12	2	451	10	35
3	10	17	3	349	20	30
4	10	4	1	433	20	46
5	10	7	2	258	20	45
6	10	19	4	511	10	10
7	10	9	2	490	10	51
8	10	11	2	496	20	46
9	10	17	3	531	10	44
10	20	16	3	197	20	35
11	20	73	13	191	10	15



Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
12	20	11	2	255	20	25
13	10	6	1	211	10	52
14	10	61	11	204	20	27
15	20	16	3	160	20	45
16	10	9	2	387	10	20
17	10	11	2	510	20	17
18	10	12	2	172	10	20
19	10	64	11	303	10	21
20	20	16	3	7	10	49
21	20	7	2	164	10	30
22	20	13	3	238	10	54
23	20	22	4	543	10	11
24	10	19	4	700	10	48
25	10	8	2	460	10	38
26	20	8	2	557	10	11
27	20	7	2	267	20	43
28	10	4	1	264	20	53
29	10	19	4	23	10	36
30	20	14	3	229	10	55
31	20	5	1	93	10	54
32	20	80	14	36	20	21
33	20	12	2	47	10	17
34	10	6	1	493	10	28
35	20	18	3	183	10	25
36	10	15	3	527	10	54
37	20	3	1	221	10	46
38	20	16	3	109	20	31
39	10	16	3	18	10	14
40	20	4	1	94	20	40

Experimento 18

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	20	4	1	17	10	42
2	20	44	8	140	20	12
3	10	73	13	143	20	16
4	10	65	11	5	20	16
5	10	15	3	343	10	46
6	10	19	4	443	20	32
7	20	18	3	29	20	54
8	20	15	3	224	10	18
9	10	8	2	535	20	16
10	20	34	6	242	20	29



Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
11	20	9	2	80	10	45
12	20	6	1	22	10	38
13	10	20	4	160	10	33
14	20	2	1	452	10	31
15	10	8	2	346	10	34
16	10	45	8	527	10	21
17	10	8	2	79	10	38
18	20	8	2	206	10	43
19	20	10	2	384	10	59
20	20	5	1	679	20	14
21	10	19	4	73	20	27
22	10	39	7	10	10	24
23	10	4	1	196	20	33
24	10	13	3	545	10	34
25	20	7	2	281	20	13
26	20	79	14	138	20	23
27	20	65	11	230	10	11
28	10	6	1	313	10	44
29	10	9	2	278	20	33
30	10	15	3	310	10	57
31	20	18	3	389	20	23
32	10	11	2	445	20	27
33	20	16	3	142	10	22
34	20	43	8	101	10	28
35	10	11	2	208	20	19
36	20	76	13	212	10	28
37	10	10	2	312	10	28
38	10	45	8	204	10	28
39	20	15	3	291	20	58
40	10	20	4	103	10	45

Experimento 19

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	10	14	3	422	10	37
2	10	18	3	45	10	40
3	10	15	3	233	20	35
4	10	5	1	381	10	50
5	20	7	2	659	10	49
6	20	18	3	250	20	56
7	20	58	10	220	20	20
8	20	33	6	278	20	11
9	20	4	1	116	10	21



Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
10	10	47	8	114	20	14
11	10	66	11	439	10	14
12	10	77	13	297	20	28
13	20	3	1	20	20	20
14	10	6	1	123	10	55
15	20	16	3	434	20	16
16	20	16	3	420	20	13
17	10	7	2	158	10	31
18	20	3	1	407	10	13
19	20	58	10	225	20	11
20	10	7	2	269	10	28
21	20	40	7	225	20	26
22	10	3	1	353	10	21
23	10	16	3	293	10	35
24	10	15	3	15	20	39
25	20	4	1	184	20	48
26	10	5	1	157	10	15
27	20	11	2	196	20	55
28	20	50	9	244	10	18
29	10	10	2	672	10	55
30	10	11	2	375	10	24
31	10	26	5	334	20	21
32	20	47	8	222	20	14
33	20	18	3	299	20	35
34	20	14	3	269	20	28
35	20	32	6	96	10	11
36	20	47	8	366	20	24
37	20	57	10	559	10	19
38	10	6	1	399	20	24
39	10	12	2	620	10	56
40	20	11	2	33	10	11

Experimento 20

Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
1	20	5	1	334	10	56
2	20	16	3	48	20	36
3	20	10	2	324	20	46
4	20	3	1	56	20	50
5	20	59	10	402	20	13
6	20	4	1	95	20	13
7	10	43	8	67	10	10
8	20	10	2	225	10	34



Obras	Tiempo Descarga (min)	Demanda Obras (m ³)	Número Trayectos	Hora Inicio Servicio (min)	Margen Salidas (min)	Frecuencia Salidas (min)
9	20	11	2	512	10	45
10	20	9	2	272	10	50
11	20	5	1	493	20	44
12	10	20	4	591	10	50
13	10	19	4	394	20	29
14	20	17	3	274	20	27
15	20	6	1	211	20	44
16	20	18	3	260	10	31
17	20	14	3	435	10	39
18	10	44	8	8	10	23
19	20	4	1	148	10	33
20	20	17	3	124	10	10
21	20	17	3	476	10	55
22	10	6	1	285	20	45
23	20	2	1	24	10	12
24	10	18	3	168	20	36
25	20	44	8	124	20	27
26	10	6	1	130	20	13
27	20	20	4	65	20	16
28	10	16	3	168	10	43
29	20	30	5	278	20	11
30	10	3	1	294	10	32
31	20	3	1	103	10	12
32	10	20	4	460	20	58
33	20	4	1	428	10	28
34	10	10	2	35	10	37
35	20	12	2	496	20	60
36	10	53	9	106	10	18
37	10	10	2	496	10	28
38	20	8	2	119	20	46
39	10	28	5	223	20	30
40	10	17	3	403	20	38

Las distancias entre plantas y obras se adjuntan en forma de matriz 3x20 para las réplicas de baja demanda y 3x40 para las de alta demanda. Los datos de distancias están expresados en kilómetros.

Experimento 1

[[4, 30, 12, 33, 2, 9, 44, 12, 5, 47, 1, 4, 3, 2, 4, 46, 4, 32, 6, 7],
 [5, 12, 4, 10, 3, 7, 7, 9, 6, 14, 3, 3, 48, 12, 14, 3, 50, 2, 2, 9],
 [14, 14, 9, 1, 8, 9, 28, 4, 9, 17, 13, 34, 13, 5, 4, 8, 3, 3, 7, 8]]



Experimento 2

[[14,9,10,14,7,14,10,2,6,1,15,7,6,4,15,7,7,3,5,7],
[4,6,9,38,8,36,3,49,7,17,3,35,46,9,8,13,5,11,2,8],
[9,9,4,30,2,42,48,11,13,46,15,1,12,10,14,3,25,7,20,35]]

Experimento 3

[[30,8,4,14,3,12,9,14,14,23,8,50,37,2,13,14,4,12,2,25],
[45,7,8,25,9,13,18,6,4,37,15,20,7,4,6,10,3,13,12,1],
[8,12,14,9,14,11,25,3,1,8,46,9,12,9,9,2,9,21,3,12]]

Experimento 4

[[6,5,27,48,5,13,48,12,21,3,14,2,3,14,21,4,48,7,3,6],
[15,3,22,11,6,6,42,9,9,1,7,18,46,39,1,37,7,31,33,15],
[2,7,49,9,8,10,33,16,44,9,5,46,35,8,15,9,6,16,14,25]]

Experimento 5

[[14,13,11,4,8,2,47,8,38,9,2,40,14,5,12,3,5,9,9,24],
[7,12,9,15,2,29,34,10,7,11,3,8,11,9,6,11,13,7,2,7],
[14,12,8,30,12,8,9,2,13,48,2,8,9,22,2,49,7,12,3,3]]

Experimento 6

[[14,5,15,43,31,9,31,13,10,17,23,4,47,47,12,4,3,6,23,8],
[3,7,48,39,6,16,27,7,10,10,8,1,50,12,2,17,24,3,6,15],
[17,11,26,8,7,6,11,6,14,4,12,43,6,47,13,10,3,48,18,2]]

Experimento 7

[[24,28,13,7,1,8,5,7,4,32,4,20,49,14,6,15,4,35,4,7],
[7,17,13,46,9,5,22,13,5,13,2,43,10,4,35,3,42,9,8,47],
[8,23,7,31,12,9,12,8,13,4,44,48,2,35,14,12,3,48,2,38]]

Experimento 8

[[12,9,13,10,49,12,8,10,39,2,9,12,3,12,4,13,42,6,2,13],
[9,8,14,7,13,38,14,11,9,31,40,5,14,2,8,50,37,6,13,6],
[14,13,21,7,4,10,33,7,39,10,14,3,4,6,6,29,49,44,27,8]]

Experimento 9

[[3,20,17,39,10,13,22,18,13,5,15,27,9,2,4,24,14,9,8,17],
[11,7,6,13,14,15,9,1,38,49,9,49,47,9,3,7,7,12,48,2],
[7,9,6,10,7,20,1,14,15,8,20,7,8,12,1,18,12,11,45,9]]



Experimento 10

[[14,20,37,9,4,49,9,14,6,7,2,15,14,8,1,8,4,13,6,33],
[33,8,8,25,2,4,5,46,7,9,2,46,13,12,7,8,9,15,12,8],
[34,15,9,7,18,8,9,42,44,7,14,724,2,9,4,7,47,5,20,3]]

Experimento 11

[[2, 11, 7, 22, 2, 43, 38, 1, 4, 10, 46, 11, 13, 14, 3, 18, 2, 5, 42, 6, 7, 4, 9, 10, 1, 9, 2, 15, 32, 12, 10, 2, 13, 9, 9, 41, 39, 14, 4, 11],
[14, 6, 8, 8, 13, 36, 14, 48, 10, 48, 13, 2, 3, 14, 3, 4, 7, 3, 34, 38, 6, 10, 5, 4, 7, 11, 10, 49, 42, 11, 13, 32, 11, 46, 39, 9, 10, 3, 9, 12],
[6, 8, 2, 26, 6, 7, 4, 37, 2, 26, 6, 12, 7, 14, 7, 3, 8, 10, 2, 14, 31, 12, 3, 13, 47, 8, 9, 21, 19, 14, 5, 13, 9, 9, 12, 8, 17, 50, 6, 18]]

Experimento 12

[[22, 5, 7, 6, 8, 12, 9, 6, 2, 8, 7, 6, 31, 2, 40, 6, 31, 11, 1, 8, 26, 38, 40, 7, 10, 25, 4, 35, 4, 2, 1, 6, 45, 8, 49, 12, 3, 41, 39, 17],
[10, 4, 13, 9, 39, 10, 6, 3, 14, 49, 13, 13, 14, 7, 11, 6, 3, 14, 35, 2, 46, 3, 14, 39, 15, 14, 6, 28, 46, 7, 3, 39, 3, 22, 12, 8, 33, 7, 12, 1],
[2, 3, 12, 1, 9, 7, 8, 12, 6, 28, 5, 10, 14, 12, 5, 8, 6, 9, 9, 26, 14, 35, 12, 4, 13, 24, 14, 16, 13, 5, 13, 39, 31, 12, 3, 19, 5, 15, 14, 9]]

Experimento 13

[[50, 1, 40, 35, 20, 12, 14, 3, 14, 23, 2, 5, 9, 13, 46, 7, 14, 4, 5, 6, 8, 9, 12, 33, 48, 18, 7, 3, 14, 2, 13, 6, 37, 8, 33, 6, 12, 31, 47, 7],
[5, 25, 22, 49, 3, 11, 6, 11,12 , 9, 7, 48, 14, 7, 14, 7, 4, 6, 47, 12, 5, 14, 3, 14, 29, 9, 7, 6, 9, 6, 8, 37, 18, 3, 7, 8, 9, 32, 11, 20],
[1, 13, 2, 8, 2, 9, 24, 9, 1, 14, 9, 11, 6, 14, 7, 8, 3, 6, 10, 14, 8, 15, 34, 7, 7, 3, 26, 7, 33, 23, 8, 12, 9, 38, 7, 3, 8, 13, 12, 1]]

Experimento 14

[[17, 10, 4, 22, 8, 14, 9, 6, 13, 3, 2, 19, 1, 10, 24, 47, 42, 34, 7, 24, 3, 3, 10, 15, 12, 7, 11, 2, 13, 2, 39, 4, 7, 7, 12, 4, 48, 17, 15, 37],
[8, 20, 9, 45, 37, 43, 3, 10, 47, 6, 12, 8, 14, 36, 15, 9, 48, 12, 13, 40, 9, 10, 11, 9, 8, 8, 2, 15, 2, 13, 13, 9, 48, 21, 9, 1, 9, 12, 6, 14],
[12, 4, 43, 12, 14, 7, 2, 14, 10, 39, 2, 26, 2, 11, 1, 28, 4, 7, 10, 15, 22, 39, 13, 7, 13, 7, 9, 14, 14, 9, 3, 15, 47, 13, 13, 43, 20, 10, 4, 15]]

Experimento 15

[[1, 4, 26, 7, 22, 15, 8, 6, 7, 14, 6, 31, 26, 8, 38, 29, 4, 7, 29, 19, 12, 15, 42, 34, 13, 5, 2, 28, 7, 12, 19, 11, 36, 7, 40, 37, 48, 8, 13, 2],
[40, 12, 15, 14, 4, 3, 7, 35, 49, 12, 42, 14, 42, 11, 20, 37, 13, 11, 12, 4, 6, 29, 25, 1, 23, 7, 5, 22, 12, 14, 3, 2, 23, 44, 27, 47, 22, 13, 1, 11],



[5, 11, 31, 25, 9, 2, 24, 6, 2, 43, 9, 15, 8, 23, 29, 8, 24, 5, 10, 8, 10, 11, 3, 13, 4, 43, 2, 4, 4, 14, 7, 9, 38, 32, 12, 23, 8, 4, 3, 9]]

Experimento 16

[[14, 32, 14, 8, 43, 14, 12, 15, 7, 7, 1, 6, 12, 5, 7, 6, 25, 3, 3, 15, 3, 31, 5, 9, 7, 8, 12, 3, 4, 18, 30, 12, 1, 13, 42, 9, 10, 10, 7, 14],
[13, 3, 7, 17, 13, 14, 2, 35, 16, 3, 15, 16, 3, 11, 22, 10, 36, 11, 15, 3, 13, 26, 15, 7, 7, 13, 6, 34, 19, 6, 9, 19, 6, 38, 8, 4, 3, 42, 1, 22],
[11, 14, 48, 3, 9, 12, 8, 47, 50, 29, 20, 13, 23, 21, 16, 7, 8, 13, 18, 28, 19, 30, 2, 10, 30, 45, 17, 6, 7, 25, 13, 23, 5, 1, 34, 7, 46, 24, 9, 44]]

Experimento 17

[[7, 39, 20, 28, 39, 20, 9, 19, 31, 7, 6, 8, 17, 8, 41, 37, 43, 11, 10, 7, 3, 13, 30, 7, 15, 23, 7, 23, 9, 14, 11, 47, 35, 4, 28, 17, 12, 39, 45, 9],
[7, 1, 7, 37, 6, 3, 9, 4, 20, 3, 10, 13, 12, 10, 14, 9, 7, 8, 24, 3, 9, 44, 7, 40, 8, 22, 12, 4, 44, 8, 21, 9, 9, 7, 12, 35, 16, 2, 10, 2],
[11, 6, 6, 14, 25, 37, 32, 1, 4, 13, 5, 7, 26, 22, 41, 11, 8, 12, 8, 3, 14, 35, 10, 19, 6, 21, 10, 9, 5, 6, 10, 9, 12, 2, 3, 4, 31, 12, 7, 2]]

Experimento 18

[[7, 24, 4, 14, 31, 13, 6, 6, 11, 8, 31, 5, 9, 41, 7, 47, 10, 2, 2, 47, 26, 3, 38, 7, 42, 8, 8, 11, 10, 1, 2, 9, 9, 7, 14, 2, 8, 9, 7, 7],
[9, 6, 18, 7, 4, 7, 37, 29, 39, 9, 2, 9, 1, 7, 38, 19, 14, 43, 7, 10, 9, 9, 4, 6, 1, 23, 7, 6, 2, 6, 13, 25, 4, 13, 33, 10, 15, 14, 32, 12],
[7, 31, 9, 4, 8, 2, 9, 9, 12, 6, 46, 12, 21, 43, 37, 14, 16, 14, 34, 7, 35, 7, 21, 22, 8, 9, 9, 29, 9, 7, 20, 8, 13, 5, 3, 11, 21, 5, 7, 8]]

Experimento 19

[[3, 21, 41, 44, 9, 2, 13, 5, 13, 8, 12, 35, 5, 11, 1, 21, 24, 3, 37, 9, 7, 19, 4, 7, 8, 11, 10, 14, 7, 11, 44, 9, 3, 2, 8, 9, 35, 12, 4, 13],
[19, 3, 13, 8, 7, 37, 10, 38, 5, 5, 17, 8, 46, 8, 10, 46, 15, 43, 49, 6, 3, 34, 43, 6, 42, 6, 25, 7, 9, 1, 31, 48, 41, 17, 4, 4, 12, 3, 12, 11],
[3, 35, 11, 12, 27, 2, 5, 7, 8, 7, 35, 40, 49, 1, 8, 43, 37, 3, 47, 13, 23, 4, 3, 7, 34, 9, 12, 18, 2, 25, 33, 7, 14, 4, 7, 10, 10, 9, 3, 42]]

Experimento 20

[[8, 13, 8, 13, 7, 8, 15, 29, 12, 25, 5, 25, 15, 2, 8, 14, 45, 6, 50, 10, 25, 10, 9, 8, 14, 7, 2, 10, 2, 9, 13, 36, 4, 2, 14, 13, 40, 12, 2, 48],
[34, 6, 14, 13, 41, 27, 8, 15, 38, 4, 13, 6, 15, 12, 42, 15, 14, 4, 30, 7, 7, 6, 9, 14, 45, 12, 1, 12, 10, 14, 7, 7, 7, 50, 26, 1, 30, 9, 41, 8],
[15, 7, 5, 3, 22, 6, 9, 15, 13, 3, 2, 4, 39, 33, 7, 3, 18, 2, 2, 13, 8, 7, 8, 9, 40, 3, 12, 3, 47, 33, 40, 13, 6, 35, 3, 40, 15, 8, 2, 3]]



B. Modelos en lenguaje ILOG

En este apartado del Anexo se va a adjuntar un ejemplo del modelo completo, *Modelo de Asignación y Modelo de Scheduling*, en lenguaje ILOG OPL Studio. También aquí se darán los pares de precedencias entre actividades de todos los experimentos realizados a lo largo del proyecto.

B.1 Modelo de Asignación

A continuación se presenta el *Modelo de Asignación* en lenguaje ILOG OPL Studio. Se ha escogido como ejemplo el correspondiente a la réplica 1; por tanto, es un caso de baja demanda. Sin embargo, no difiere mucho de las réplicas de alta demanda, las cuales en lugar de 20 obras tienen 40.

Se ha modelado por separado el modelo, archivo .mod, de los datos que no se leen del Excel, archivo .dat.

```
SheetConnection sheet ("F:\PFC\Programa OPL_02\EXP_1_Hoja Datos-Resultados.xls");

range Plantas 1..3;
range Obras 1..20;

int CapacidadVehiculos = ...;
int CapacidadProduccion [Plantas] from SheetRead(sheet, "C6:C8");
int CosteProduccion [Plantas] from SheetRead(sheet, "D6:D8");
int DemandaObras [Obras] from SheetRead(sheet, "D15:D34");
int CosteFijoVehPropio = ...;
int CosteVariableVehPropio = ...;
int Costem3 = ...;
int PromedioViajes = ...;
int DistPlantaObra [Plantas, Obras] = ...;
int NumTrayectos [o in Obras] = ftoi (ceil(DemandaObras [o] /
    CapacidadVehiculos));
int TiempoCarga [Plantas] from SheetRead(sheet, "E6:E8");
int TiempoDescarga [Obras] from SheetRead(sheet, "C15:C34");
int VelocidadMediaCamiones [Plantas] from SheetRead(sheet, "F6:F8");

var Plantas Suministrador [Obras];

minimize
    sum (o in Obras) (DemandaObras [o] * (CosteProduccion
    [Suministrador[o]] + Costem3) +
    sum (o in Obras) (CosteFijoVehPropio * (NumTrayectos [o] /
    PromedioViajes)) +
    sum (o in Obras) (2 * CosteVariableVehPropio * DistPlantaObra
    [Suministrador [o], o] * NumTrayectos [o])
```




```
subject to {
  forall (p in Plantas)
    sum (o in Obras) (DemandaObras [o] * (Suministrador [o] = p)) <=
      CapacidadProduccion [p];
};

int VolumenTotalDemandado = sum (o in Obras) DemandaObras [o];
SheetWrite (sheet, "B2") (VolumenTotalDemandado);

display Suministrador;
SheetWrite (sheet, "I15:I34") (Suministrador);

int NumTotalTrayectos [p in Plantas] = sum (o in Obras) (NumTrayectos[o] *
  (Suministrador[o] = p));
SheetWrite (sheet, "G6:G8") (NumTotalTrayectos);

int TiempoViajePlantaObra [o in Obras] = ((TiempoCarga[Suministrador[o]]) +
  (ftoi (ceil(120 * (DistPlantaObra [Suministrador[o], o] /
  (VelocidadMediaCamiones [Suministrador[o]])))))) + (TiempoDescarga
  [o]));
display TiempoViajePlantaObra;statement
SheetWrite (sheet, "J15:J34") (TiempoViajePlantaObra);

int NumVehiculos [p in Plantas] = ftoi (ceil((NumTotalTrayectos [p])/4));
SheetWrite (sheet, "H6:H8") (NumVehiculos);
```

Modelo de Asignación (EXP_1_Asignacion.mod)

```
CapacidadVehiculos = 6;
CosteFijoVehPropio = 15;
CosteVariableVehPropio = 1;
Costem3 = 9;
PromedioViajes = 4;
DistPlantaObra = [[4, 30, 12, 33, 2, 9, 44, 12, 5, 47, 1, 4, 3, 2, 4, 46,
  4, 32, 6, 7],
  [5, 12, 4, 10, 3, 7, 7, 9, 6, 14, 3, 3, 48, 12, 14, 3,
  50, 2, 2, 9],
  [14, 14, 9, 1, 8, 9, 28, 4, 9, 17, 13, 34, 13, 5, 4, 8,
  3, 3, 7, 8]];
```

Modelo de Asignación (EXP_1_Asignacion.dat)

B.2 Modelo de Scheduling

Para el *Modelo de Scheduling* únicamente hay archivo .mod. Al tratarse por separado cada una de las plantas de producción; cada réplica tiene tres archivos, uno para cada planta.

```
SheetConnection sheet ("F:\PFC\Programa OPL_02\EXP_1_Hoja Datos-
Resultados.xls");
```

```
range Plantas 1..3;
```



```
int nbCamiones [Plantas] from SheetRead (sheet, "H6:H8");
int nbPuntosCarga [Plantas] from SheetRead (sheet, "I6:I8");

int n = 1;

int nbTasks [Plantas] from SheetRead (sheet, "G6:G8");
range Tasks 1..nbTasks[n];

int tTask [Tasks] from SheetRead (sheet, "P15:P28");
int tCarga [Tasks] from SheetRead (sheet, "T15:T28");
int HoraInicio [Tasks] from SheetRead (sheet, "Q15:Q28");
int MaxMargen [Tasks] from SheetRead (sheet, "R15:R28");

struct Precedences {
    int before;
    int after;
};

{Precedences} setOfPrecedences = {
    <2,3>, <3,4>, <5,6>, <6,7>, <8,9>, <9,10>, <11,12>, <12,13>, <13,14>
};

range Comida 1..nbCamiones[n];

scheduleOrigin = 0;
scheduleHorizon = 840;

Activity a [t in Tasks] (tTask[t]);
Activity Carga [t in Tasks] (tCarga[t]);
Activity ParadaComida [c in Comida] (60);
Activity makespan (0);

DiscreteResource Truck (nbCamiones[n]);
DiscreteResource PuntoCarga (nbPuntosCarga[n]);

var int Margen [t in Tasks] in 0..MaxMargen[t];

minimize

    makespan.end

subject to {
    forall (t in Tasks)
        Carga[t] requires(1) PuntoCarga
    forall (t in Tasks)
        a[t] precedes makespan;
    forall (p in setOfPrecedences)
        Carga[p.before] precedes Carga[p.after];
    forall (t in Tasks)
        HoraInicio [t] - Margen [t] <= Carga[t].start <= HoraInicio
        [t] + Margen [t];
    forall (t in Tasks)
        a[t].start = Carga[t].start;
    forall (t in Tasks)
        a[t] requires(1) Truck;
```



```
forall (c in Comida)
    ParadaComida[c] requires(1) Truck;
forall (c in Comida)
    ParadaComida[c].start >= 300;
forall (c in Comida)
    ParadaComida[c].end <= 480;
};
Modelo de Scheduling para la Planta 1 (EXP_1_1_Scheduling.mod)
```

```
SheetConnection sheet ("F:\PFC\02_Programa OPL\EXP_1_Hoja Datos-
Resultados.xls");
```

```
range Plantas 1..3;
```

```
int nbCamiones [Plantas] from SheetRead (sheet, "H6:H8");
int nbPuntosCarga [Plantas] from SheetRead (sheet, "I6:I8");
```

```
int n = 2;
```

```
int nbTasks [Plantas] from SheetRead (sheet, "G6:G8");
range Tasks 1..nbTasks[n];
```

```
int tTask [Tasks] from SheetRead (sheet, "P29");
int tCarga [Tasks] from SheetRead (sheet, "T29");
int HoraInicio [Tasks] from SheetRead (sheet, "Q29");
int MaxMargen [Tasks] from SheetRead (sheet, "R29");
```

```
struct Precedences {
    int before;
    int after;
};
```

```
{Precedences} setOfPrecedences = {
};
```

```
range Comida 1..nbCamiones[n];
```

```
scheduleOrigin = 0;
scheduleHorizon = 840;
```

```
Activity a [t in Tasks] (tTask[t]);
Activity Carga [t in Tasks] (tCarga[t]);
Activity ParadaComida [c in Comida] (60);
Activity makespan (0);
```

```
DiscreteResource Truck (nbCamiones[n]);
DiscreteResource PuntoCarga (nbPuntosCarga[n]);
```

```
var int Margen [t in Tasks] in 0..MaxMargen[t];
```

```
minimize
    makespan.end
```

```
subject to {
```



```
forall (t in Tasks)
  Carga[t] requires(1) PuntoCarga;
forall (t in Tasks)
  a[t] precedes makespan;
forall (p in setOfPrecedences)
  Carga[p.before] precedes Carga[p.after];
forall (t in Tasks)
  HoraInicio [t] - Margen [t] <= Carga[t].start <= HoraInicio [t] +
  Margen [t];
forall (t in Tasks)
  a[t].start = Carga[t].start;
forall (t in Tasks)
  a[t] requires(1) Truck;
forall (c in Comida)
  ParadaComida[c] requires(1) Truck;
forall (c in Comida)
  ParadaComida[c].start >= 300;
forall (c in Comida)
  ParadaComida[c].end <= 480;
};
```

Modelo de Scheduling para la Planta 2 (EXP_1_1_Scheduling.mod)

```
SheetConnection sheet ("F:\PFC\02_Programa OPL\EXP_1_Hoja Datos-Resultados.xls");
```

```
range Plantas 1..3;
```

```
int nbCamiones [Plantas] from SheetRead (sheet, "H6:H8");
```

```
int nbPuntosCarga [Plantas] from SheetRead (sheet, "I6:I8");
```

```
int n = 3;
```

```
int nbTasks [Plantas] from SheetRead (sheet, "G6:G8");
```

```
range Tasks 1..nbTasks[n];
```

```
int tTask [Tasks] from SheetRead (sheet, "P30:P76");
```

```
int tCarga [Tasks] from SheetRead (sheet, "T30:T76");
```

```
int HoraInicio [Tasks] from SheetRead (sheet, "Q30:Q76");
```

```
int MaxMargen [Tasks] from SheetRead (sheet, "R30:R76");
```

```
struct Precedences {
```

```
  int before;
```

```
  int after;
```

```
};
```

```
{Precedences} setOfPrecedences = {
```

```
  <2,3>, <3,4>, <4,5>, <6,7>, <7,8>, <9,10>, <10,11>, <12,13>, <14,15>,
```

```
  <17,18>, <18,19>, <19,20>, <21,22>,
```

```
  <23,24>, <25,26>, <26,27>, <27,28>, <28,29>, <29,30>, <30,31>, <31,32>,
```

```
  <32,33>, <33,34>, <34,35>, <35,36>,
```

```
  <36,37>, <39,40>, <40,41>, <41,42>, <42,43>, <43,44>, <45,46>, <46,47>
```

```
};
```

```
range Comida 1..nbCamiones[n];
```

```
scheduleOrigin = 0;
```



```
scheduleHorizon = 840;

Activity a [t in Tasks] (tTask[t]);
Activity Carga [t in Tasks] (tCarga[t]);
Activity ParadaComida [c in Comida] (60);
Activity makespan (0);

DiscreteResource Truck (nbCamiones[n]);
DiscreteResource PuntoCarga (nbPuntosCarga[n]);

var int Margen [t in Tasks] in 0..MaxMargen[t];

minimize

    makespan.end

subject to {
    forall (t in Tasks)
        Carga[t] requires(1) PuntoCarga;
    forall (t in Tasks)
        a[t] precedes makespan;
    forall (p in setOfPrecedences)
        Carga[p.before] precedes Carga[p.after];
    forall (t in Tasks)
        HoraInicio [t] - Margen [t] <= Carga[t].start <= HoraInicio [t] +
        Margen [t];
    forall (t in Tasks)
        a[t].start = Carga[t].start;
    forall (t in Tasks)
        a[t] requires(1) Truck;
    forall (c in Comida)
        ParadaComida[c] requires(1) Truck;
    forall (c in Comida)
        ParadaComida[c].start >= 300;
    forall (c in Comida)
        ParadaComida[c].end <= 480;
};
```

Modelo de Scheduling para la Planta 3 (EXP_1_1_Scheduling.mod)

B.3 Precedencias de las actividades

Finalmente, se adjuntan los pares de preferencias (i, j) entre actividades de cada uno de los experimentos.

Precedencias 1.1

<2,3>, <3,4>, <5,6>, <6,7>, <8,9>, <9,10>, <11,12>, <12,13>, <13,14>

Precedencias 1.2

Non





Precedencias 1.3

<2,3>, <3,4>, <4,5>, <6,7>, <7,8>, <9,10>, <10,11>, <12,13>, <14,15>, <17,18>, <18,19>, <19,20>, <21,22>, <23,24>, <25,26>, <26,27>, <27,28>, <28,29>, <29,30>, <30,31>, <31,32>, <32,33>, <33,34>, <34,35>, <35,36>, <36,37>, <39,40>, <40,41>, <41,42>, <42,43>, <43,44>, <45,46>, <46,47>

Precedencias 2.1

<1,2>, <2,3>, <4,5>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <11,12>, <12,13>, <13,14>, <14,15>, <15,16>, <16,17>, <18,19>, <19,20>, <21,22>, <23,24>, <24,25>, <25,26>, <26,27>, <27,28>, <28,29>, <30,31>, <32,33>, <33,34>, <34,35>, <35,36>, <36,37>, <37,38>, <38,39>, <39,40>, <40,41>, <41,42>, <42,43>, <43,44>, <44,45>, <45,46>, <46,47>, <47,48>, <48,49>, <49,50>, <50,51>, <51,52>, <52,53>, <53,54>, <54,55>, <55,56>, <56,57>, <57,58>, <58,59>, <59,60>, <60,61>, <61,62>, <64,65>, <65,66>, <66,67>, <68,69>, <69,70>, <70,71>, <71,72>

Precedencias 2.2

<1,2>, <2,3>, <3,4>, <5,6>, <6,7>

Precedencias 2.3

<1,2>, <2,3>, <5,6>, <7,8>, <9,10>, <10,11>, <13,14>, <14,15>

Precedencias 3.1

<1,2>, <2,3>, <4,5>, <8,9>, <9,10>, <11,12>

Precedencias 3.2

<1,2>, <2,3>

Precedencias 3.3

<1,2>, <3,4>, <4,5>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <11,12>, <12,13>, <14,15>, <15,16>, <16,17>, <17,18>, <20,21>, <21,22>, <23,24>, <25,26>, <26,27>, <28,29>, <29,30>, <30,31>, <33,34>, <34,35>, <36,37>, <37,38>, <38,39>, <39,40>, <40,41>, <42,43>



Precedencias 4.1

<1,2>, <3,4>, <5,6>, <6,7>, <7,8>, <8,9>, <10,11>, <11,12>, <14,15>, <15,16>, <17,18>, <18,19>, <19,20>

Precedencias 4.2

<1,2>, <2,3>, <3,4>, <4,5>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <11,12>, <12,13>, <14,15>, <16,17>, <17,18>, <18,19>, <19,20>, <20,21>, <21,22>

Precedencias 4.3

<1,2>, <2,3>, <3,4>, <4,5>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <11,12>, <12,13>, <13,14>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <20,21>, <23,24>, <24,25>, <25,26>, <27,28>, <28,29>, <29,30>, <31,32>, <33,34>, <34,35>, <35,36>, <36,37>, <37,38>, <39,40>, <41,42>

Precedencias 5.1

<1,2>, <2,3>, <3,4>, <4,5>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <12,13>, <13,14>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <20,21>, <21,22>, <23,24>, <26,27>, <27,28>, <28,29>

Precedencias 5.2

Non

Precedencias 5.3

<1,2>, <2,3>, <4,5>, <5,6>, <7,8>, <8,9>, <9,10>, <10,11>, <11,12>, <12,13>, <13,14>, <14,15>, <15,16>, <16,17>, <19,20>, <20,21>, <21,22>, <23,24>, <24,25>, <25,26>, <26,27>, <27,28>, <30,31>, <31,32>, <34,35>, <35,36>, <36,37>, <37,38>, <38,39>, <39,40>, <41,42>, <42,43>, <44,45>, <45,46>, <46,47>, <47,48>, <48,49>, <49,50>, <50,51>, <51,52>, <52,53>

Precedencias 6.1

<1,2>, <2,3>, <4,5>, <5,6>, <6,7>, <8,9>, <9,10>, <10,11>, <11,12>, <12,13>, <13,14>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>



Precedencias 6.2

<2,3>, <4,5>, <5,6>, <7,8>, <8,9>, <9,10>, <10,11>, <12,13>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <20,21>, <21,22>

Precedencias 6.3

<1,2>, <2,3>, <4,5>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <11,12>, <12,13>, <14,15>, <15,16>, <21,22>, <22,23>, <23,24>, <26,27>,<27,28>, <29,30>, <30,31>, <32,33>, <33,34>

Precedencias 7.1

<1,2>, <3,4>, <4,5>, <5,6>, <6,7>, <7,8>, <9,10>, <10,11>, <11,12>, <12,13>, <13,14>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <20,21>, <21,22>, <22,23>, <23,24>, <24,25>, <25,26>, <26,27>, <27,28>, <28,29>, <29,30>, <30,31>, <31,32>, <32,33>, <33,34>, <34,35>, <35,36>, <36,37>, <38,39>, <40,41>, <41,42>, <42,43>, <43,44>, <44,45>, <46,47>, <48,49>, <49,50>, <50,51>, <51,52>, <52,53>, <53,54>, <54,55>, <55,56>, <56,57>, <57,58>, <58,59>, <59,60>, <60,61>, <61,62>, <62,63>, <63,64>, <64,65>, <65,66>, <66,67>, <67,68>, <68,69>, <69,70>, <70,71>, <71,72>, <72,73>, <73,74>, <74,75>, <75,76>, <76,77>, <77,78>, <78,79>, <79,80>, <80,81>

Precedencias 7.2

<1,2>, <3,4>, <4,5>

Precedencias 7.3

<1,2>, <2,3>, <4,5>, <5,6>, <8,9>, <9,10>, <10,11>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <20,21>, <21,22>, <22,23>, <23,24>, <24,25>, <26,27>, <27,28>

Precedencias 8.1

<1,2>, <4,5>, <5,6>, <7,8>, <8,9>, <11,12>, <13,14>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <21,22>, <22,23>

Precedencias 8.2

<2,3>, <3,4>, <4,5>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <11,12>, <12,13>



Precedencias 8.3

<1,2>, <3,4>, <4,5>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <11,12>, <12,13>, <14,15>, <15,16>, <17,18>, <18,19>, <19,20>, <21,22>, <22,23>, <24,25>, <25,26>, <27,28>, <28,29>, <29,30>, <30,31>, <31,32>, <32,33>, <33,34>, <35,36>

Precedencias 9.1

<1,2>, <2,3>, <3,4>, <4,5>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <11,12>, <12,13>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <20,21>, <21,22>, <22,23>, <23,24>, <24,25>, <25,26>, <26,27>, <27,28>, <28,29>, <29,30>, <30,31>, <31,32>, <32,33>, <33,34>, <34,35>, <35,36>, <36,37>

Precedencias 9.2

<2,3>

Precedencias 9.3

<1,2>, <2,3>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <11,12>, <12,13>, <13,14>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <20,21>, <21,22>, <22,23>, <23,24>, <24,25>

Precedencias 10.1

<1,2>, <2,3>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <11,12>, <12,13>, <13,14>, <14,15>, <16,17>, <17,18>, <18,19>, <19,20>, <21,22>, <22,23>, <23,24>, <24,25>, <25,26>, <26,27>, <27,28>, <28,29>, <29,30>, <30,31>, <31,32>, <32,33>, <34,35>, <35,36>, <37,38>, <38,39>, <39,40>, <40,41>, <41,42>, <42,43>, <43,44>, <44,45>, <45,46>, <46,47>, <47,48>, <48,49>, <50,51>

Precedencias 10.2

<1,2>

Precedencias 10.3

<1,2>, <2,3>, <3,4>, <4,5>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <11,12>, <12,13>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <20,21>, <21,22>, <22,23>, <23,24>



<24,25>, <25,26>, <26,27>, <27,28>, <28,29>, <30,31>, <34,35>, <35,36>, <36,37>, <37,38>, <38,39>, <39,40>, <40,41>, <42,43>, <43,44>, <44,45>, <45,46>, <46,47>, <47,48>, <48,49>, <49,50>, <50,51>, <51,52>, <52,53>, <53,54>, <54,55>, <55,56>, <56,57>, <57,58>, <58,59>, <59,60>, <60,61>, <61,62>, <62,63>, <63,64>, <64,65>, <65,66>, <66,67>, <67,68>, <68,69>, <70,71>, <71,72>, <73,74>, <75,76>, <76,77>

Precedencias 11.1

<1,2>, <2,3>, <3,4>, <4,5>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <12,13>, <13,14>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <20,21>, <21,22>, <22,23>, <23,24>, <25,26>, <26,27>, <27,28>, <28,29>, <29,30>, <30,31>, <31,32>, <32,33>, <33,34>, <35,36>, <36,37>, <38,39>, <39,40>, <40,41>, <41,42>, <42,43>, <43,44>, <44,45>, <45,46>, <46,47>, <47,48>, <48,49>, <49,50>, <51,52>, <52,53>, <53,54>, <54,55>, <55,56>, <56,57>, <57,58>, <58,59>, <59,60>, <60,61>, <63,64>, <65,66>, <66,67>, <68,69>, <69,70>, <71,72>, <73,74>, <74,75>, <76,77>, <77,78>, <79,80>, <81,82>, <82,83>, <84,85>, <85,86>, <86,87>, <87,88>, <88,89>, <89,90>, <90,91>, <91,92>, <92,93>, <93,94>, <94,95>, <95,96>, <97,98>, <99,100>, <101,102>, <102,103>, <103,104>, <105,106>, <106,107>, <108,109>, <110,111>, <111,112>, <113,114>

Precedencias 11.2

<1,2>, <2,3>, <6,7>, <7,8>

Precedencias 11.3

<1,2>, <2,3>, <3,4>, <4,5>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <11,12>, <12,13>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <20,21>, <21,22>, <23,24>, <25,26>, <28,29>, <29,30>, <31,32>, <32,33>, <33,34>, <35,36>, <37,38>, <38,39>, <39,40>, <41,42>, <43,44>, <46,47>

Precedencias 12.1

<1,2>, <2,3>, <3,4>, <7,8>, <8,9>, <10,11>, <11,12>, <12,13>, <13,14>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <20,21>, <21,22>, <23,24>, <24,25>, <25,26>, <26,27>, <27,28>, <28,29>, <30,31>, <32,33>, <33,34>, <34,35>, <35,36>, <36,37>, <37,38>, <38,39>, <42,43>, <44,45>, <45,46>, <47,48>, <49,50>, <50,51>, <51,52>, <52,53>, <53,54>, <54,55>, <55,56>, <56,57>, <57,58>, <58,59>, <60,61>, <61,62>



<62,63>, <63,64>, <64,65>, <65,66>, <66,67>, <67,68>, <69,70>, <70,71>, <72,73>, <74,75>

Precedencias 12.2

<1,2>, <2,3>, <3,4>, <4,5>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <11,12>, <12,13>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <20,21>, <21,22>, <23,24>, <25,26>, <28,29>, <29,30>

Precedencias 12.3

<1,2>, <2,3>, <4,5>, <5,6>, <8,9>, <10,11>, <12,13>, <13,14>, <17,18>, <19,20>, <21,22>, <22,23>, <24,25>, <25,26>, <26,27>, <27,28>, <28,29>, <29,30>, <30,31>, <31,32>, <32,33>, <34,35>, <35,36>, <37,38>, <38,39>, <39,40>, <40,41>, <41,42>, <42,43>, <43,44>, <44,45>, <45,46>, <47,48>, <48,49>, <49,50>, <50,51>, <51,52>, <52,53>, <54,55>, <56,57>, <57,58>, <58,59>, <59,60>, <60,61>, <61,62>, <62,63>, <63,64>, <64,65>, <65,66>, <66,67>, <67,68>, <68,69>

Precedencias 13.1

<2,3>, <3,4>, <6,7>, <7,8>, <9,10>, <10,11>, <13,14>, <14,15>, <17,18>, <18,19>, <20,21>, <21,22>, <22,23>, <23,24>, <24,25>, <25,26>, <27,28>, <28,29>, <29,30>, <31,32>, <32,33>, <34,35>, <35,36>, <37,38>, <38,39>, <40,41>, <41,42>, <43,44>

Precedencias 13.2

<1,2>, <2,3>, <5,6>, <6,7>

Precedencias 13.3

<1,2>, <2,3>, <3,4>, <4,5>, <5,6>, <6,7>, <10,11>, <11,12>, <12,13>, <13,14>, <14,15>, <18,19>, <19,20>, <21,22>, <22,23>, <24,25>, <25,26>, <26,27>, <27,28>, <28,29>, <29,30>, <30,31>, <31,32>, <32,33>, <33,34>, <35,36>, <36,37>, <38,39>, <40,41>, <41,42>, <43,44>, <44,45>, <46,47>, <48,49>, <49,50>, <51,52>, <52,53>, <53,54>, <54,55>, <55,56>, <56,57>, <57,58>, <58,59>, <59,60>, <61,62>, <63,64>, <64,65>, <65,66>, <67,68>, <68,69>, <70,71>, <72,73>, <73,74>, <74,75>, <75,76>, <76,77>, <77,78>, <78,79>, <79,80>, <80,81>, <81,82>, <82,83>, <83,84>, <84,85>, <85,86>, <86,87>, <87,88>



Precedencias 14.1

<1,2>, <2,3>, <3,4>, <4,5>, <5,6>, <6,7>, <11,12>, <12,13>, <16,17>, <19,20>, <21,22>, <24,25>, <26,27>, <27,28>, <28,29>, <29,30>, <30,31>, <31,32>, <32,33>, <33,34>, <36,37>, <37,38>, <38,39>, <39,40>, <40,41>, <41,42>, <42,43>, <43,44>, <44,45>, <46,47>, <48,49>, <49,50>

Precedencias 14.2

<1,2>, <2,3>, <4,5>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <12,13>, <13,14>, <15,16>, <16,17>, <17,18>

Precedencias 14.3

<1,2>, <2,3>, <3,4>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <11,12>, <12,13>, <13,14>, <14,15>, <16,17>, <17,18>, <18,19>, <19,20>, <21,22>, <22,23>, <23,24>, <24,25>, <25,26>, <26,27>, <27,28>, <28,29>, <30,31>, <31,32>, <33,34>, <34,35>, <36,37>, <38,39>, <39,40>, <40,41>, <42,43>, <44,45>, <45,46>, <47,48>, <49,50>, <52,53>, <53,54>, <54,55>, <55,56>, <56,57>, <57,58>, <58,59>, <60,61>, <61,62>, <62,63>, <63,64>, <65,66>, <66,67>, <68,69>, <70,71>, <71,72>, <72,73>, <73,74>, <74,75>, <75,76>, <76,77>, <77,78>, <78,79>, <79,80>

Precedencias 15.1

<1,2>, <2,3>, <5,6>, <6,7>, <7,8>, <8,9>, <10,11>, <12,13>, <13,14>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <21,22>, <22,23>, <24,25>, <26,27>, <27,28>, <28,29>, <29,30>, <30,31>, <31,32>, <32,33>, <33,34>, <35,36>, <37,38>, <38,39>, <40,41>, <45,46>, <46,47>, <47,48>, <48,49>, <49,50>, <50,51>, <51,52>, <52,53>, <53,54>, <54,55>, <55,56>, <56,57>, <57,58>, <59,60>, <60,61>, <61,62>, <62,63>, <63,64>, <64,65>, <65,66>, <66,67>, <67,68>, <68,69>

Precedencias 15.2

<1,2>, <2,3>, <3,4>, <4,5>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <11,12>, <13,14>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>



Precedencias 15.3

<2,3>, <4,5>, <6,7>, <8,9>, <9,10>, <10,11>, <11,12>, <12,13>, <13,14>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <20,21>, <22,23>, <23,24>, <24,25>, <25,26>, <26,27>, <27,28>, <29,30>, <30,31>, <31,32>, <32,33>, <33,34>, <34,35>, <35,36>, <38,39>, <39,40>, <41,42>, <45,46>, <47,48>, <48,49>, <49,50>, <51,52>, <52,53>, <54,55>, <55,56>, <56,57>, <57,58>, <58,59>, <59,60>, <60,61>, <61,62>, <62,63>, <63,64>, <64,65>, <66,67>, <67,68>, <68,69>, <70,71>, <72,73>, <73,74>, <74,75>, <75,76>, <76,77>, <77,78>, <78,79>

Precedencias 16.1

<1,2>, <2,3>, <4,5>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <11,12>, <12,13>, <13,14>, <14,15>, <16,17>, <17,18>, <19,20>, <20,21>, <22,23>, <23,24>, <24,25>, <25,26>, <26,27>, <27,28>, <29,30>, <30,31>, <31,32>, <32,33>, <33,34>, <34,35>, <35,36>, <36,37>, <37,38>, <38,39>, <39,40>, <40,41>, <42,43>, <43,44>, <45,46>, <46,47>, <47,48>, <48,49>, <51,52>, <52,53>, <53,54>, <54,55>, <55,56>, <56,57>, <57,58>, <58,59>, <59,60>, <62,63>, <63,64>, <64,65>, <65,66>, <66,67>, <67,68>, <68,69>, <69,70>, <70,71>, <71,72>, <72,73>, <73,74>, <75,76>, <76,77>, <77,78>, <79,80>, <81,82>, <82,83>, <83,84>, <84,85>, <85,86>, <86,87>, <88,89>, <93,94>, <96,97>, <97,98>, <99,100>, <101,102>, <102,103>, <103,104>, <105,106>, <106,107>, <107,108>, <108,109>, <109,110>, <110,111>, <111,112>, <112,113>, <113,114>, <114,115>

Precedencias 16.2

<1,2>, <2,3>, <3,4>, <4,5>, <5,6>, <7,8>, <8,9>, <9,10>, <11,12>, <12,13>, <13,14>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <20,21>, <21,22>, <22,23>, <23,24>, <25,26>, <26,27>, <28,29>, <29,30>, <30,31>, <31,32>, <32,33>, <33,34>, <35,36>, <37,38>

Precedencias 16.3

<2,3>, <4,5>, <7,8>, <8,9>, <10,11>, <12,13>, <13,14>, <15,16>, <16,17>, <18,19>, <19,20>, <20,21>



Precedencias 17.1

<1,2>, <2,3>, <4,5>, <6,7>, <7,8>, <10,11>, <12,13>, <13,14>, <14,15>, <16,17>, <18,19>, <19,20>, <20,21>, <21,22>, <22,23>, <23,24>, <24,25>, <25,26>, <26,27>, <27,28>, <29,30>, <31,32>, <32,33>, <34,35>, <35,36>, <36,37>

Precedencias 17.2

<1,2>, <2,3>, <5,6>, <6,7>, <8,9>, <9,10>

Precedencias 17.3

<1,2>, <3,4>, <4,5>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <11,12>, <12,13>, <13,14>, <14,15>, <15,16>, <16,17>, <17,18>, <19,20>, <21,22>, <23,24>, <25,26>, <27,28>, <28,29>, <29,30>, <30,31>, <31,32>, <32,33>, <33,34>, <34,35>, <35,36>, <36,37>, <38,39>, <39,40>, <41,42>, <42,43>, <43,44>, <45,46>, <47,48>, <49,50>, <52,53>, <53,54>, <54,55>, <56,57>, <57,58>, <60,61>, <61,62>, <62,63>, <63,64>, <64,65>, <64,66>, <66,67>, <67,68>, <68,69>, <69,70>, <70,71>, <71,72>, <72,73>, <74,75>, <77,78>, <78,79>, <80,81>, <81,82>, <83,84>, <84,85>

Precedencias 18.1

<2,3>, <3,4>, <4,5>, <5,6>, <6,7>, <7,8>, <8,9>, <10,11>, <11,12>, <12,13>, <13,14>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <20,21>, <21,22>, <23,24>, <24,25>, <25,26>, <26,27>, <27,28>, <28,29>, <29,30>, <30,31>, <31,32>, <32,33>, <34,35>, <35,36>, <37,38>, <38,39>, <39,40>, <41,42>, <42,43>, <44,45>, <45,46>, <47,48>, <49,50>, <50,51>, <51,52>, <52,53>, <53,54>, <55,56>, <58,59>, <59,60>, <60,61>, <62,63>, <64,65>, <66,67>, <68,69>, <70,71>, <71,72>, <73,74>, <74,75>, <76,77>, <77,78>, <79,80>, <80,81>, <81,82>, <82,83>, <83,84>, <84,85>, <85,86>, <86,87>, <87,88>, <88,89>, <89,90>, <90,91>, <92,93>

Precedencias 18.2

<2,3>, <3,4>, <4,5>, <7,8>, <10,11>, <12,13>, <13,14>



Precedencias 18.3

<1,2>, <2,3>, <3,4>, <4,5>, <5,6>, <6,7>, <7,8>, <10,11>, <11,12>, <12,13>, <13,14>, <14,15>, <15,16>, <17,18>, <18,19>, <19,20>, <20,21>, <21,22>, <22,23>, <23,24>, <24,25>, <25,26>, <26,27>, <27,28>, <28,29>, <29,30>, <31,32>, <32,33>, <33,34>, <34,35>, <35,36>, <36,37>, <37,38>, <38,39>, <39,40>, <40,41>, <42,43>, <44,45>, <45,46>, <46,47>, <47,48>, <48,49>, <49,50>, <50,51>, <52,53>, <54,55>, <55,56>, <56,57>, <57,58>, <58,59>, <59,60>, <60,61>, <62,63>, <63,64>, <65,66>, <66,67>, <67,68>

Precedencias 19.1

<1,2>, <2,3>, <4,5>, <5,6>, <7,8>, <8,9>, <11,12>, <13,14>, <14,15>, <16,17>, <17,18>, <18,19>, <19,20>, <20,21>, <21,22>, <22,23>, <23,24>, <24,25>, <26,27>, <27,28>, <28,29>, <29,30>, <30,31>, <33,34>, <34,35>, <35,36>, <36,37>, <37,38>, <38,39>, <39,40>, <41,42>, <42,43>, <43,44>, <44,45>, <45,46>, <46,47>, <47,48>, <48,49>, <49,50>, <50,51>, <52,53>, <53,54>, <54,55>, <55,56>, <56,57>, <57,58>, <58,59>, <59,60>, <60,61>, <61,62>, <62,63>, <63,64>, <66,67>, <67,68>, <69,70>, <70,71>, <72,73>, <73,74>, <74,75>, <75,76>, <76,77>, <77,78>, <78,79>, <79,80>, <80,81>, <83,84>, <84,85>, <86,87>

Precedencias 19.2

<1,2>, <3,4>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>, <10,11>, <12,13>, <13,14>, <14,15>, <15,16>, <16,17>, <17,18>, <18,19>, <19,20>, <21,22>

Precedencias 19.3

<4,5>, <5,6>, <7,8>, <8,9>, <11,12>, <13,14>, <15,16>, <16,17>, <17,18>, <18,19>, <20,21>, <21,22>, <22,23>, <23,24>, <24,25>, <25,26>, <26,27>, <28,29>, <29,30>, <31,32>, <32,33>, <33,34>, <34,35>, <35,36>, <37,38>, <38,39>, <39,40>, <40,41>, <41,42>, <42,43>, <43,44>, <45,46>, <46,47>, <47,48>, <48,49>, <49,50>, <50,51>, <51,52>, <52,53>, <53,54>, <56,57>



Precedencias 20.1

<2,3>, <3,4>, <5,6>, <8,9>, <9,10>, <10,11>, <11,12>, <12,13>, <13,14>, <14,15>, <15,16>, <16,17>, <19,20>, <20,21>, <21,22>, <23,24>, <24,25>, <26,27>, <27,28>, <28,29>, <29,30>, <30,31>, <31,32>, <32,33>, <34,35>, <35,36>, <36,37>, <38,39>, <39,40>, <40,41>, <41,42>, <44,45>

Precedencias 20.2

<2,3>, <3,4>, <4,5>, <5,6>, <6,7>, <7,8>, <8,9>, <9,10>

Precedencias 20.3

<1,2>, <2,3>, <3,4>, <4,5>, <5,6>, <6,7>, <7,8>, <9,10>, <11,12>, <13,14>, <16,17>, <17,18>, <18,19>, <21,22>, <22,23>, <24,25>, <25,26>, <27,28>, <28,29>, <29,30>, <30,31>, <31,32>, <32,33>, <33,34>, <36,37>, <37,38>, <39,40>, <40,41>, <44,45>, <45,46>, <48,49>, <49,50>, <51,52>, <52,53>, <53,54>, <56,57>, <58,59>, <60,61>, <62,63>, <63,64>, <64,65>, <65,66>, <67,68>, <68,69>



C. Resultados de la experimentación

Este apartado del Anexo recoge todos los resultados que se han obtenido en la experimentación. Se han dividido en dos subapartados, correspondientes a cada uno de los modelos diseñados.

C.1 Resultados Modelo de Asignación

Tabla de asignaciones Planta-Obra de las réplicas de baja demanda

Asignación baja demanda										
Obras	Exp. 1	Exp. 2	Exp. 3	Exp. 4	Exp. 5	Exp. 6	Exp. 7	Exp. 8	Exp. 9	Exp. 10
1	1	3	3	3	2	2	3	3	3	1
2	3	3	3	3	3	1	3	1	3	2
3	3	3	1	2	3	1	3	1	3	3
4	3	1	3	3	1	3	1	3	3	3
5	1	3	1	3	2	3	1	3	3	1
6	3	1	3	3	1	3	3	3	1	3
7	2	2	1	3	3	3	1	1	3	3
8	3	1	3	2	3	3	3	3	2	1
9	3	1	3	2	3	3	1	2	3	1
10	3	1	3	1	1	3	3	1	3	3
11	1	2	1	3	3	3	1	1	2	1
12	1	3	3	1	3	2	1	3	3	1
13	1	1	3	1	3	3	3	3	3	3
14	3	1	1	3	1	2	2	3	1	3
15	3	3	3	2	3	2	1	3	3	3
16	3	3	3	1	1	1	2	1	2	3
17	3	1	3	3	3	3	3	2	3	1
18	3	1	1	1	3	2	2	1	3	3
19	3	1	3	1	3	2	3	1	1	1
20	3	1	2	1	3	3	1	3	3	3

Tabla de asignaciones Planta-Obra de las réplicas de alta demanda

Asignación alta demanda										
Obras	Exp. 11	Exp. 12	Exp. 13	Exp. 14	Exp. 15	Exp. 16	Exp. 17	Exp. 18	Exp. 19	Exp. 20
1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	3



Obras	Asignación alta demanda									
	Exp. 11	Exp. 12	Exp. 13	Exp. 14	Exp. 15	Exp. 16	Exp. 17	Exp. 18	Exp. 19	Exp. 20
8	1	1	1	1	1	1	3	1	1	3
9	1	1	3	1	1	1	3	1	1	3
10	1	1	3	1	1	1	2	1	1	3
11	2	1	1	3	1	1	3	1	1	3
12	1	3	1	1	1	1	3	1	1	3
13	3	3	3	3	3	2	2	1	1	1
14	1	1	3	3	1	1	1	2	3	1
15	1	3	3	3	2	1	2	1	1	3
16	3	3	3	2	3	3	3	3	1	3
17	1	3	3	3	1	3	3	1	2	3
18	1	3	3	3	3	1	3	1	3	3
19	3	1	1	3	3	1	3	1	1	3
20	1	2	1	3	3	2	3	3	2	3
21	1	3	3	1	3	1	1	2	2	3
22	1	2	1	1	3	3	1	3	3	3
23	3	3	2	3	3	3	3	2	3	3
24	2	3	3	3	2	3	1	1	3	3
25	1	3	3	3	3	1	3	2	1	1
26	3	2	3	3	1	1	3	3	3	3
27	1	1	1	3	3	2	3	3	3	1
28	1	3	3	1	3	3	3	2	2	3
29	3	1	2	2	3	1	3	2	3	1
30	3	3	1	1	3	2	3	1	2	1
31	3	1	3	3	3	3	3	1	3	2
32	1	1	1	1	2	1	3	3	3	3
33	3	2	3	1	2	1	3	2	1	3
34	3	3	2	1	1	3	3	3	3	1
35	3	3	3	3	3	2	3	3	3	3
36	3	2	3	2	3	3	3	1	3	2
37	2	3	3	2	3	2	1	1	3	3
38	2	2	3	3	3	1	2	3	3	3
39	3	3	3	3	3	2	3	3	3	3
40	1	3	3	3	1	1	3	3	1	3

Tabla de tiempos de los viajes Planta-Obra-Planta de las réplicas de baja demanda

Obras	Tiempos de los viajes Planta-Obra-Planta (min) baja demanda									
	Exp. 1	Exp. 2	Exp. 3	Exp. 4	Exp. 5	Exp. 6	Exp. 7	Exp. 8	Exp. 9	Exp. 10
1	27	37	35	29	42	23	35	61	32	54
2	51	37	45	32	45	30	75	50	37	44
3	37	34	37	74	45	66	42	61	39	37
4	16	54	37	47	27	35	45	42	40	42
5	22	19	24	35	21	42	29	24	32	37
6	37	64	53	40	22	39	47	50	51	45
7	42	33	40	111	47	43	30	38	26	37
8	34	32	21	36	29	29	45	42	19	64



Tiempos de los viajes Planta-Obra-Planta (min) baja demanda										
Obras	Exp. 1	Exp. 2	Exp. 3	Exp. 4	Exp. 5	Exp. 6	Exp. 7	Exp. 8	Exp. 9	Exp. 10
9	37	32	26	36	48	61	27	36	63	42
10	69	19	45	24	40	34	34	22	45	42
11	19	23	48	37	29	55	27	40	36	32
12	27	26	47	22	45	19	70	31	42	66
13	24	32	45	34	47	29	29	34	45	19
14	27	27	22	35	30	53	35	29	22	47
15	24	61	47	29	19	21	32	29	26	34
16	35	31	29	27	34	37	23	51	42	42
17	31	45	37	29	42	31	31	107	55	37
18	31	34	48	35	55	23	46	32	43	37
19	42	40	21	34	31	40	29	32	38	42
20	35	35	29	42	21	19	45	45	37	31

Tabla de tiempos de los viajes Planta-Obra-Planta de las réplicas de alta demanda

Tiempos de los viajes Planta-Obra-Planta (min) alta demanda										
Obras	Exp. 11	Exp. 12	Exp. 13	Exp. 14	Exp. 15	Exp. 16	Exp. 17	Exp. 18	Exp. 19	Exp. 20
1	22	75	150	62	29	64	45	45	24	48
2	46	40	29	53	37	112	120	90	72	61
3	35	45	133	37	86	64	70	27	126	48
4	85	32	120	75	35	38	91	54	134	61
5	22	48	70	48	75	131	120	99	50	45
6	141	48	48	54	66	54	70	51	32	48
7	128	40	54	40	38	58	40	42	61	37
8	29	42	24	32	42	66	16	42	40	63
9	37	32	16	61	45	45	24	46	61	58
10	43	38	51	34	54	45	33	48	38	31
11	55	35	32	29	32	19	37	109	48	29
12	46	50	30	67	109	32	42	40	110	24
13	42	51	39	29	45	23	43	40	40	56
14	54	32	61	53	38	30	38	42	16	32
15	24	37	32	16	70	35	57	35	29	42
16	31	35	35	36	45	32	43	51	82	31
17	22	29	31	34	37	45	35	43	49	71
18	40	37	39	32	37	34	45	32	31	19
19	29	19	40	50	40	24	35	32	125	29
20	42	21	32	53	35	33	31	42	30	58
21	35	61	35	34	50	34	34	36	33	45
22	37	23	50	34	53	103	61	32	24	32
23	21	45	23	58	21	19	50	25	21	45
24	35	24	32	42	29	40	35	35	32	37
25	19	48	42	58	34	45	29	29	48	64
26	35	47	21	42	30	48	79	47	37	21
27	32	27	35	47	29	40	50	47	55	32
28	66	66	32	22	24	39	37	30	42	21
29	64	27	36	31	24	37	27	21	19	32



Tiempos de los viajes Planta-Obra-Planta (min) alta demanda										
Obras	Exp. 11	Exp. 12	Exp. 13	Exp. 14	Exp. 15	Exp. 16	Exp. 17	Exp. 18	Exp. 19	Exp. 20
30	51	37	32	32	51	30	39	19	19	40
31	37	29	35	31	32	48	50	32	101	42
32	22	42	42	37	31	48	47	35	42	48
33	37	23	37	35	67	19	55	35	34	39
34	47	45	23	45	45	16	19	37	34	22
35	55	21	32	48	45	34	31	21	42	31
36	35	44	31	19	85	32	24	32	50	19
37	48	27	35	46	45	23	58	38	50	53
38	33	42	48	50	24	53	31	27	37	45
39	29	51	55	34	31	19	32	42	21	19
40	46	37	26	63	22	54	29	35	61	21

C.2 Resultados Modelo de Scheduling

Los resultados del Modelo de Scheduling se dan tal y como los muestra el software ILOG OPL Studio. Dentro de cada experimento se dan los resultados de las tres plantas de producción con las que se ha trabajado. Y para cada planta se ofrece la siguiente información: 1) Valor de la Función Objetivo (*makespan*); 2) Hora de inicio, duración y hora de fin de cada actividad; 3) Hora de inicio, duración y hora de fin para los periodos de carga de los vehículos; 4) Hora de inicio, duración y hora de fin para las paradas de la comida; 5) Hora de inicio, duración y hora de fin del *makespan*; 6) Las ocupaciones de los camiones; 7) Las ocupaciones de los puntos de carga; y 8) Los márgenes de las actividades.

Todos los valores corresponden a tiempos y vienen expresados en minutos.

Scheduling 1.1

Optimal Solution with Objective Value: 314

a[1] = [287 -- 27 --> 314]
a[2] = [90 -- 22 --> 112]
a[3] = [141 -- 22 --> 163]
a[4] = [192 -- 22 --> 214]
a[5] = [204 -- 19 --> 223]
a[6] = [244 -- 19 --> 263]
a[7] = [281 -- 19 --> 300]
a[8] = [0 -- 27 --> 27]
a[9] = [48 -- 27 --> 75]
a[10] = [96 -- 27 --> 123]
a[11] = [147 -- 24 --> 171]
a[12] = [186 -- 24 --> 210]
a[13] = [232 -- 24 --> 256]
a[14] = [275 -- 24 --> 299]

Carga[1] = [287 -- 6 --> 293]
Carga[2] = [90 -- 6 --> 96]
Carga[3] = [141 -- 6 --> 147]
Carga[4] = [192 -- 6 --> 198]
Carga[5] = [204 -- 6 --> 210]
Carga[6] = [244 -- 6 --> 250]
Carga[7] = [281 -- 6 --> 287]
Carga[8] = [0 -- 6 --> 6]
Carga[9] = [48 -- 6 --> 54]
Carga[10] = [96 -- 6 --> 102]
Carga[11] = [147 -- 6 --> 153]
Carga[12] = [186 -- 6 --> 192]
Carga[13] = [232 -- 6 --> 238]
Carga[14] = [275 -- 6 --> 281]

ParadaComida[1] = [300 -- 60 --> 360]



ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [314 -- 60 --> 374]

makespan = [314 -- 0 --> 314]
Truck = Discrete Resource
 required by ParadaComida[4] over [314,374] in capacity 1
 required by ParadaComida[3] over [300,360] in capacity 1
 required by ParadaComida[2] over [300,360] in capacity 1
 required by ParadaComida[1] over [300,360] in capacity 1
 required by a[14] over [275,299] in capacity 1
 required by a[13] over [232,256] in capacity 1
 required by a[12] over [186,210] in capacity 1
 required by a[11] over [147,171] in capacity 1
 required by a[10] over [96,123] in capacity 1
 required by a[9] over [48,75] in capacity 1
 required by a[8] over [0,27] in capacity 1
 required by a[7] over [281,300] in capacity 1
 required by a[6] over [244,263] in capacity 1
 required by a[5] over [204,223] in capacity 1
 required by a[4] over [192,214] in capacity 1
 required by a[3] over [141,163] in capacity 1
 required by a[2] over [90,112] in capacity 1
 required by a[1] over [287,314] in capacity 1

PuntoCarga = Discrete Resource
 required by Carga[14] over [275,281] in capacity 1
 required by Carga[13] over [232,238] in capacity 1
 required by Carga[12] over [186,192] in capacity 1
 required by Carga[11] over [147,153] in capacity 1
 required by Carga[10] over [96,102] in capacity 1
 required by Carga[9] over [48,54] in capacity 1
 required by Carga[8] over [0,6] in capacity 1
 required by Carga[7] over [281,287] in capacity 1
 required by Carga[6] over [244,250] in capacity 1
 required by Carga[5] over [204,210] in capacity 1
 required by Carga[4] over [192,198] in capacity 1
 required by Carga[3] over [141,147] in capacity 1
 required by Carga[2] over [90,96] in capacity 1
 required by Carga[1] over [287,293] in capacity 1

Margen[1] = 20
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 3
Margen[8] = 5
Margen[9] = 0
Margen[10] = 5
Margen[11] = 5
Margen[12] = 1
Margen[13] = 0
Margen[14] = 2

Scheduling 1.2

Optimal Solution with Objective Value: 701
a[1] = [659 -- 42 --> 701]

Carga[1] = [659 -- 6 --> 665]

ParadaComida[1] = [300 -- 60 --> 360]

makespan = [701 -- 0 --> 701]
Truck = Discrete Resource
 required by ParadaComida[1] over [300,360] in capacity 1
 required by a[1] over [659,701] in capacity 1

PuntoCarga = Discrete Resource
 required by Carga[1] over [659,665] in capacity 1

Margen[1] = 10

Scheduling 1.3

Optimal Solution with Objective Value: 467

a[1] = [55 -- 51 --> 106]
a[2] = [22 -- 37 --> 59]
a[3] = [66 -- 37 --> 103]
a[4] = [110 -- 37 --> 147]
a[5] = [154 -- 37 --> 191]
a[6] = [346 -- 16 --> 362]
a[7] = [401 -- 16 --> 417]
a[8] = [451 -- 16 --> 467]
a[9] = [113 -- 37 --> 150]
a[10] = [136 -- 37 --> 173]
a[11] = [159 -- 37 --> 196]
a[12] = [292 -- 34 --> 326]
a[13] = [349 -- 34 --> 383]
a[14] = [75 -- 37 --> 112]
a[15] = [127 -- 37 --> 164]
a[16] = [127 -- 69 --> 196]
a[17] = [241 -- 27 --> 268]



a[18] = [293 -- 27 --> 320]
a[19] = [345 -- 27 --> 372]
a[20] = [397 -- 27 --> 424]
a[21] = [164 -- 24 --> 188]
a[22] = [188 -- 24 --> 212]
a[23] = [169 -- 35 --> 204]
a[24] = [180 -- 35 --> 215]
a[25] = [130 -- 31 --> 161]
a[26] = [150 -- 31 --> 181]
a[27] = [172 -- 31 --> 203]
a[28] = [194 -- 31 --> 225]
a[29] = [216 -- 31 --> 247]
a[30] = [238 -- 31 --> 269]
a[31] = [260 -- 31 --> 291]
a[32] = [282 -- 31 --> 313]
a[33] = [304 -- 31 --> 335]
a[34] = [326 -- 31 --> 357]
a[35] = [348 -- 31 --> 379]
a[36] = [370 -- 31 --> 401]
a[37] = [392 -- 31 --> 423]
a[38] = [197 -- 31 --> 228]
a[39] = [171 -- 42 --> 213]
a[40] = [198 -- 42 --> 240]
a[41] = [225 -- 42 --> 267]
a[42] = [252 -- 42 --> 294]
a[43] = [279 -- 42 --> 321]
a[44] = [306 -- 42 --> 348]
a[45] = [97 -- 35 --> 132]
a[46] = [133 -- 35 --> 168]
a[47] = [168 -- 35 --> 203]

Carga[1] = [55 -- 3 --> 58]
Carga[2] = [22 -- 3 --> 25]
Carga[3] = [66 -- 3 --> 69]
Carga[4] = [110 -- 3 --> 113]
Carga[5] = [154 -- 3 --> 157]
Carga[6] = [346 -- 3 --> 349]
Carga[7] = [401 -- 3 --> 404]
Carga[8] = [451 -- 3 --> 454]
Carga[9] = [113 -- 3 --> 116]
Carga[10] = [136 -- 3 --> 139]
Carga[11] = [159 -- 3 --> 162]
Carga[12] = [292 -- 3 --> 295]
Carga[13] = [349 -- 3 --> 352]
Carga[14] = [75 -- 3 --> 78]
Carga[15] = [127 -- 3 --> 130]
Carga[16] = [127 -- 3 --> 130]
Carga[17] = [241 -- 3 --> 244]
Carga[18] = [293 -- 3 --> 296]
Carga[19] = [345 -- 3 --> 348]
Carga[20] = [397 -- 3 --> 400]
Carga[21] = [164 -- 3 --> 167]
Carga[22] = [188 -- 3 --> 191]
Carga[23] = [169 -- 3 --> 172]
Carga[24] = [180 -- 3 --> 183]
Carga[25] = [130 -- 3 --> 133]
Carga[26] = [150 -- 3 --> 153]

Carga[27] = [172 -- 3 --> 175]
Carga[28] = [194 -- 3 --> 197]
Carga[29] = [216 -- 3 --> 219]
Carga[30] = [238 -- 3 --> 241]
Carga[31] = [260 -- 3 --> 263]
Carga[32] = [282 -- 3 --> 285]
Carga[33] = [304 -- 3 --> 307]
Carga[34] = [326 -- 3 --> 329]
Carga[35] = [348 -- 3 --> 351]
Carga[36] = [370 -- 3 --> 373]
Carga[37] = [392 -- 3 --> 395]
Carga[38] = [197 -- 3 --> 200]
Carga[39] = [171 -- 3 --> 174]
Carga[40] = [198 -- 3 --> 201]
Carga[41] = [225 -- 3 --> 228]
Carga[42] = [252 -- 3 --> 255]
Carga[43] = [279 -- 3 --> 282]
Carga[44] = [306 -- 3 --> 309]
Carga[45] = [97 -- 3 --> 100]
Carga[46] = [133 -- 3 --> 136]
Carga[47] = [168 -- 3 --> 171]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [313 -- 60 --> 373]
ParadaComida[8] = [357 -- 60 --> 417]
ParadaComida[9] = [360 -- 60 --> 420]
ParadaComida[10] = [360 -- 60 --> 420]
ParadaComida[11] = [360 -- 60 --> 420]
ParadaComida[12] = [360 -- 60 --> 420]

makespan = [467 -- 0 --> 467]

Truck = Discrete Resource

required by ParadaComida[12] over [360,420]
in capacity 1

required by ParadaComida[11] over [360,420]
in capacity 1

required by ParadaComida[10] over [360,420]
in capacity 1

required by ParadaComida[9] over [360,420]
in capacity 1

required by ParadaComida[8] over [357,417]
in capacity 1

required by ParadaComida[7] over [313,373]
in capacity 1

required by ParadaComida[6] over [300,360]
in capacity 1

required by ParadaComida[5] over [300,360]
in capacity 1

required by ParadaComida[4] over [300,360]
in capacity 1

required by ParadaComida[3] over [300,360]
in capacity 1



required by ParadaComida[2] over [300,360] in capacity 1
required by ParadaComida[1] over [300,360] in capacity 1
required by a[47] over [168,203] in capacity 1
required by a[46] over [133,168] in capacity 1
required by a[45] over [97,132] in capacity 1
required by a[44] over [306,348] in capacity 1
required by a[43] over [279,321] in capacity 1
required by a[42] over [252,294] in capacity 1
required by a[41] over [225,267] in capacity 1
required by a[40] over [198,240] in capacity 1
required by a[39] over [171,213] in capacity 1
required by a[38] over [197,228] in capacity 1
required by a[37] over [392,423] in capacity 1
required by a[36] over [370,401] in capacity 1
required by a[35] over [348,379] in capacity 1
required by a[34] over [326,357] in capacity 1
required by a[33] over [304,335] in capacity 1
required by a[32] over [282,313] in capacity 1
required by a[31] over [260,291] in capacity 1
required by a[30] over [238,269] in capacity 1
required by a[29] over [216,247] in capacity 1
required by a[28] over [194,225] in capacity 1
required by a[27] over [172,203] in capacity 1
required by a[26] over [150,181] in capacity 1
required by a[25] over [130,161] in capacity 1
required by a[24] over [180,215] in capacity 1
required by a[23] over [169,204] in capacity 1
required by a[22] over [188,212] in capacity 1
required by a[21] over [164,188] in capacity 1
required by a[20] over [397,424] in capacity 1
required by a[19] over [345,372] in capacity 1
required by a[18] over [293,320] in capacity 1
required by a[17] over [241,268] in capacity 1
required by a[16] over [127,196] in capacity 1
required by a[15] over [127,164] in capacity 1
required by a[14] over [75,112] in capacity 1
required by a[13] over [349,383] in capacity 1
required by a[12] over [292,326] in capacity 1
required by a[11] over [159,196] in capacity 1
required by a[10] over [136,173] in capacity 1
required by a[9] over [113,150] in capacity 1
required by a[8] over [451,467] in capacity 1
required by a[7] over [401,417] in capacity 1
required by a[6] over [346,362] in capacity 1
required by a[5] over [154,191] in capacity 1
required by a[4] over [110,147] in capacity 1
required by a[3] over [66,103] in capacity 1
required by a[2] over [22,59] in capacity 1
required by a[1] over [55,106] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[47] over [168,171] in capacity 1
required by Carga[46] over [133,136] in capacity 1

required by Carga[45] over [97,100] in capacity 1
required by Carga[44] over [306,309] in capacity 1
required by Carga[43] over [279,282] in capacity 1
required by Carga[42] over [252,255] in capacity 1
required by Carga[41] over [225,228] in capacity 1
required by Carga[40] over [198,201] in capacity 1
required by Carga[39] over [171,174] in capacity 1
required by Carga[38] over [197,200] in capacity 1
required by Carga[37] over [392,395] in capacity 1
required by Carga[36] over [370,373] in capacity 1
required by Carga[35] over [348,351] in capacity 1
required by Carga[34] over [326,329] in capacity 1
required by Carga[33] over [304,307] in capacity 1
required by Carga[32] over [282,285] in capacity 1
required by Carga[31] over [260,263] in capacity 1
required by Carga[30] over [238,241] in capacity 1
required by Carga[29] over [216,219] in capacity 1
required by Carga[28] over [194,197] in capacity 1
required by Carga[27] over [172,175] in capacity 1
required by Carga[26] over [150,153] in capacity 1
required by Carga[25] over [130,133] in capacity 1
required by Carga[24] over [180,183] in capacity 1
required by Carga[23] over [169,172] in capacity 1
required by Carga[22] over [188,191] in capacity 1
required by Carga[21] over [164,167] in capacity 1
required by Carga[20] over [397,400] in capacity 1
required by Carga[19] over [345,348] in capacity 1
required by Carga[18] over [293,296] in capacity 1



required by Carga[17] over [241,244] in capacity 1
 required by Carga[16] over [127,130] in capacity 1
 required by Carga[15] over [127,130] in capacity 1
 required by Carga[14] over [75,78] in capacity 1
 required by Carga[13] over [349,352] in capacity 1
 required by Carga[12] over [292,295] in capacity 1
 required by Carga[11] over [159,162] in capacity 1
 required by Carga[10] over [136,139] in capacity 1
 required by Carga[9] over [113,116] in capacity 1
 required by Carga[8] over [451,454] in capacity 1
 required by Carga[7] over [401,404] in capacity 1
 required by Carga[6] over [346,349] in capacity 1
 required by Carga[5] over [154,157] in capacity 1
 required by Carga[4] over [110,113] in capacity 1
 required by Carga[3] over [66,69] in capacity 1
 required by Carga[2] over [22,25] in capacity 1
 required by Carga[1] over [55,58] in capacity 1

Margen[1] = 0
 Margen[2] = 0
 Margen[3] = 0
 Margen[4] = 0
 Margen[5] = 0
 Margen[6] = 0
 Margen[7] = 0
 Margen[8] = 5
 Margen[9] = 0
 Margen[10] = 0
 Margen[11] = 0
 Margen[12] = 0
 Margen[13] = 0
 Margen[14] = 0
 Margen[15] = 0
 Margen[16] = 0
 Margen[17] = 0
 Margen[18] = 0
 Margen[19] = 0
 Margen[20] = 0
 Margen[21] = 0
 Margen[22] = 0

Margen[23] = 0
 Margen[24] = 0
 Margen[25] = 2
 Margen[26] = 0
 Margen[27] = 0
 Margen[28] = 0
 Margen[29] = 0
 Margen[30] = 0
 Margen[31] = 0
 Margen[32] = 0
 Margen[33] = 0
 Margen[34] = 0
 Margen[35] = 0
 Margen[36] = 0
 Margen[37] = 0
 Margen[38] = 0
 Margen[39] = 0
 Margen[40] = 0
 Margen[41] = 0
 Margen[42] = 0
 Margen[43] = 0
 Margen[44] = 0
 Margen[45] = 0
 Margen[46] = 0
 Margen[47] = 1

Scheduling 2.1

Optimal Solution with Objective Value: 734

a[1] = [300 -- 54 --> 354]
 a[2] = [334 -- 54 --> 388]
 a[3] = [368 -- 54 --> 422]
 a[4] = [146 -- 64 --> 210]
 a[5] = [184 -- 64 --> 248]
 a[6] = [377 -- 32 --> 409]
 a[7] = [407 -- 32 --> 439]
 a[8] = [437 -- 32 --> 469]
 a[9] = [467 -- 32 --> 499]
 a[10] = [497 -- 32 --> 529]
 a[11] = [527 -- 32 --> 559]
 a[12] = [557 -- 32 --> 589]
 a[13] = [587 -- 32 --> 619]
 a[14] = [617 -- 32 --> 649]
 a[15] = [647 -- 32 --> 679]
 a[16] = [677 -- 32 --> 709]
 a[17] = [702 -- 32 --> 734]
 a[18] = [432 -- 32 --> 464]
 a[19] = [444 -- 32 --> 476]
 a[20] = [456 -- 32 --> 488]
 a[21] = [299 -- 19 --> 318]
 a[22] = [338 -- 19 --> 357]
 a[23] = [196 -- 32 --> 228]
 a[24] = [207 -- 32 --> 239]
 a[25] = [218 -- 32 --> 250]
 a[26] = [229 -- 32 --> 261]
 a[27] = [240 -- 32 --> 272]
 a[28] = [251 -- 32 --> 283]



a[29] = [262 -- 32 --> 294]
a[30] = [217 -- 27 --> 244]
a[31] = [271 -- 27 --> 298]
a[32] = [83 -- 45 --> 128]
a[33] = [101 -- 45 --> 146]
a[34] = [119 -- 45 --> 164]
a[35] = [137 -- 45 --> 182]
a[36] = [155 -- 45 --> 200]
a[37] = [173 -- 45 --> 218]
a[38] = [191 -- 45 --> 236]
a[39] = [209 -- 45 --> 254]
a[40] = [227 -- 45 --> 272]
a[41] = [245 -- 45 --> 290]
a[42] = [263 -- 45 --> 308]
a[43] = [281 -- 45 --> 326]
a[44] = [299 -- 45 --> 344]
a[45] = [317 -- 45 --> 362]
a[46] = [335 -- 45 --> 380]
a[47] = [353 -- 45 --> 398]
a[48] = [371 -- 45 --> 416]
a[49] = [389 -- 45 --> 434]
a[50] = [407 -- 45 --> 452]
a[51] = [425 -- 45 --> 470]
a[52] = [443 -- 45 --> 488]
a[53] = [461 -- 45 --> 506]
a[54] = [479 -- 45 --> 524]
a[55] = [497 -- 45 --> 542]
a[56] = [515 -- 45 --> 560]
a[57] = [533 -- 45 --> 578]
a[58] = [551 -- 45 --> 596]
a[59] = [569 -- 45 --> 614]
a[60] = [587 -- 45 --> 632]
a[61] = [605 -- 45 --> 650]
a[62] = [623 -- 45 --> 668]
a[63] = [156 -- 34 --> 190]
a[64] = [223 -- 40 --> 263]
a[65] = [246 -- 40 --> 286]
a[66] = [268 -- 40 --> 308]
a[67] = [293 -- 40 --> 333]
a[68] = [376 -- 35 --> 411]
a[69] = [395 -- 35 --> 430]
a[70] = [414 -- 35 --> 449]
a[71] = [431 -- 35 --> 466]
a[72] = [452 -- 35 --> 487]

Carga[1] = [300 -- 6 --> 306]
Carga[2] = [334 -- 6 --> 340]
Carga[3] = [368 -- 6 --> 374]
Carga[4] = [146 -- 6 --> 152]
Carga[5] = [184 -- 6 --> 190]
Carga[6] = [377 -- 6 --> 383]
Carga[7] = [407 -- 6 --> 413]
Carga[8] = [437 -- 6 --> 443]
Carga[9] = [467 -- 6 --> 473]
Carga[10] = [497 -- 6 --> 503]
Carga[11] = [527 -- 6 --> 533]
Carga[12] = [557 -- 6 --> 563]

Carga[13] = [587 -- 6 --> 593]
Carga[14] = [617 -- 6 --> 623]
Carga[15] = [647 -- 6 --> 653]
Carga[16] = [677 -- 6 --> 683]
Carga[17] = [707 -- 6 --> 713]
Carga[18] = [737 -- 6 --> 743]
Carga[19] = [767 -- 6 --> 773]
Carga[20] = [797 -- 6 --> 803]
Carga[21] = [827 -- 6 --> 833]
Carga[22] = [857 -- 6 --> 863]
Carga[23] = [887 -- 6 --> 893]
Carga[24] = [917 -- 6 --> 923]
Carga[25] = [947 -- 6 --> 953]
Carga[26] = [977 -- 6 --> 983]
Carga[27] = [1007 -- 6 --> 1013]
Carga[28] = [1037 -- 6 --> 1043]
Carga[29] = [1067 -- 6 --> 1073]
Carga[30] = [1097 -- 6 --> 1103]
Carga[31] = [1127 -- 6 --> 1133]
Carga[32] = [83 -- 6 --> 89]
Carga[33] = [101 -- 6 --> 107]
Carga[34] = [119 -- 6 --> 125]
Carga[35] = [137 -- 6 --> 143]
Carga[36] = [155 -- 6 --> 161]
Carga[37] = [173 -- 6 --> 179]
Carga[38] = [191 -- 6 --> 197]
Carga[39] = [209 -- 6 --> 215]
Carga[40] = [227 -- 6 --> 233]
Carga[41] = [245 -- 6 --> 251]
Carga[42] = [263 -- 6 --> 269]
Carga[43] = [281 -- 6 --> 287]
Carga[44] = [299 -- 6 --> 305]
Carga[45] = [317 -- 6 --> 323]
Carga[46] = [335 -- 6 --> 341]
Carga[47] = [353 -- 6 --> 359]
Carga[48] = [371 -- 6 --> 377]
Carga[49] = [389 -- 6 --> 395]
Carga[50] = [407 -- 6 --> 413]
Carga[51] = [425 -- 6 --> 431]
Carga[52] = [443 -- 6 --> 449]
Carga[53] = [461 -- 6 --> 467]
Carga[54] = [479 -- 6 --> 485]
Carga[55] = [497 -- 6 --> 503]
Carga[56] = [515 -- 6 --> 521]
Carga[57] = [533 -- 6 --> 539]
Carga[58] = [551 -- 6 --> 557]
Carga[59] = [569 -- 6 --> 575]
Carga[60] = [587 -- 6 --> 593]
Carga[61] = [605 -- 6 --> 611]
Carga[62] = [623 -- 6 --> 629]
Carga[63] = [156 -- 6 --> 162]
Carga[64] = [223 -- 6 --> 229]
Carga[65] = [246 -- 6 --> 252]
Carga[66] = [268 -- 6 --> 274]
Carga[67] = [293 -- 6 --> 299]
Carga[68] = [376 -- 6 --> 382]
Carga[69] = [395 -- 6 --> 401]



Carga[70] = [414 -- 6 --> 420]
Carga[71] = [431 -- 6 --> 437]
Carga[72] = [452 -- 6 --> 458]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [300 -- 60 --> 360]
ParadaComida[9] = [300 -- 60 --> 360]
ParadaComida[10] = [300 -- 60 --> 360]
ParadaComida[11] = [300 -- 60 --> 360]
ParadaComida[12] = [308 -- 60 --> 368]
ParadaComida[13] = [354 -- 60 --> 414]
ParadaComida[14] = [357 -- 60 --> 417]
ParadaComida[15] = [360 -- 60 --> 420]
ParadaComida[16] = [360 -- 60 --> 420]
ParadaComida[17] = [360 -- 60 --> 420]
ParadaComida[18] = [360 -- 60 --> 420]

makespan = [734 -- 0 --> 734]
Truck = Discrete Resource
required by ParadaComida[18] over [360,420]
in capacity 1
required by ParadaComida[17] over [360,420]
in capacity 1
required by ParadaComida[16] over [360,420]
in capacity 1
required by ParadaComida[15] over [360,420]
in capacity 1
required by ParadaComida[14] over [357,417]
in capacity 1
required by ParadaComida[13] over [354,414]
in capacity 1
required by ParadaComida[12] over [308,368]
in capacity 1
required by ParadaComida[11] over [300,360]
in capacity 1
required by ParadaComida[10] over [300,360]
in capacity 1
required by ParadaComida[9] over [300,360]
in capacity 1
required by ParadaComida[8] over [300,360]
in capacity 1
required by ParadaComida[7] over [300,360]
in capacity 1
required by ParadaComida[6] over [300,360]
in capacity 1
required by ParadaComida[5] over [300,360]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1

required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[72] over [452,487] in capacity 1
required by a[71] over [431,466] in capacity 1
required by a[70] over [414,449] in capacity 1
required by a[69] over [395,430] in capacity 1
required by a[68] over [376,411] in capacity 1
required by a[67] over [293,333] in capacity 1
required by a[66] over [268,308] in capacity 1
required by a[65] over [246,286] in capacity 1
required by a[64] over [223,263] in capacity 1
required by a[63] over [156,190] in capacity 1
required by a[62] over [623,668] in capacity 1
required by a[61] over [605,650] in capacity 1
required by a[60] over [587,632] in capacity 1
required by a[59] over [569,614] in capacity 1
required by a[58] over [551,596] in capacity 1
required by a[57] over [533,578] in capacity 1
required by a[56] over [515,560] in capacity 1
required by a[55] over [497,542] in capacity 1
required by a[54] over [479,524] in capacity 1
required by a[53] over [461,506] in capacity 1
required by a[52] over [443,488] in capacity 1
required by a[51] over [425,470] in capacity 1
required by a[50] over [407,452] in capacity 1
required by a[49] over [389,434] in capacity 1
required by a[48] over [371,416] in capacity 1
required by a[47] over [353,398] in capacity 1
required by a[46] over [332,377] in capacity 1
required by a[45] over [317,362] in capacity 1
required by a[44] over [294,339] in capacity 1
required by a[43] over [281,326] in capacity 1
required by a[42] over [263,308] in capacity 1
required by a[41] over [245,290] in capacity 1
required by a[40] over [227,272] in capacity 1
required by a[39] over [209,254] in capacity 1
required by a[38] over [191,236] in capacity 1
required by a[37] over [173,218] in capacity 1
required by a[36] over [155,200] in capacity 1
required by a[35] over [137,182] in capacity 1
required by a[34] over [119,164] in capacity 1
required by a[33] over [101,146] in capacity 1
required by a[32] over [83,128] in capacity 1
required by a[31] over [271,298] in capacity 1
required by a[30] over [217,244] in capacity 1
required by a[29] over [262,294] in capacity 1
required by a[28] over [251,283] in capacity 1
required by a[27] over [240,272] in capacity 1
required by a[26] over [229,261] in capacity 1
required by a[25] over [218,250] in capacity 1
required by a[24] over [207,239] in capacity 1
required by a[23] over [196,228] in capacity 1
required by a[22] over [338,357] in capacity 1
required by a[21] over [299,318] in capacity 1
required by a[20] over [456,488] in capacity 1



required by a[19] over [444,476] in capacity 1
required by a[18] over [432,464] in capacity 1
required by a[17] over [702,734] in capacity 1
required by a[16] over [677,709] in capacity 1
required by a[15] over [647,679] in capacity 1
required by a[14] over [617,649] in capacity 1
required by a[13] over [587,619] in capacity 1
required by a[12] over [557,589] in capacity 1
required by a[11] over [527,559] in capacity 1
required by a[10] over [497,529] in capacity 1
required by a[9] over [467,499] in capacity 1
required by a[8] over [437,469] in capacity 1
required by a[7] over [407,439] in capacity 1
required by a[6] over [377,409] in capacity 1
required by a[5] over [184,248] in capacity 1
required by a[4] over [146,210] in capacity 1
required by a[3] over [368,422] in capacity 1
required by a[2] over [334,388] in capacity 1
required by a[1] over [300,354] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[72] over [452,458] in capacity 1
required by Carga[71] over [431,437] in capacity 1
required by Carga[70] over [414,420] in capacity 1
required by Carga[69] over [395,401] in capacity 1
required by Carga[68] over [376,382] in capacity 1
required by Carga[67] over [293,299] in capacity 1
required by Carga[66] over [268,274] in capacity 1
required by Carga[65] over [246,252] in capacity 1
required by Carga[64] over [223,229] in capacity 1
required by Carga[63] over [156,162] in capacity 1
required by Carga[62] over [623,629] in capacity 1
required by Carga[61] over [605,611] in capacity 1
required by Carga[60] over [587,593] in capacity 1
required by Carga[59] over [569,575] in capacity 1
required by Carga[58] over [551,557] in capacity 1
required by Carga[57] over [533,539] in capacity 1
required by Carga[56] over [515,521] in capacity 1
required by Carga[55] over [497,503] in capacity 1

required by Carga[54] over [479,485] in capacity 1
required by Carga[53] over [461,467] in capacity 1
required by Carga[52] over [443,449] in capacity 1
required by Carga[51] over [425,431] in capacity 1
required by Carga[50] over [407,413] in capacity 1
required by Carga[49] over [389,395] in capacity 1
required by Carga[48] over [371,377] in capacity 1
required by Carga[47] over [353,359] in capacity 1
required by Carga[46] over [332,338] in capacity 1
required by Carga[45] over [317,323] in capacity 1
required by Carga[44] over [294,300] in capacity 1
required by Carga[43] over [281,287] in capacity 1
required by Carga[42] over [263,269] in capacity 1
required by Carga[41] over [245,251] in capacity 1
required by Carga[40] over [227,233] in capacity 1
required by Carga[39] over [209,215] in capacity 1
required by Carga[38] over [191,197] in capacity 1
required by Carga[37] over [173,179] in capacity 1
required by Carga[36] over [155,161] in capacity 1
required by Carga[35] over [137,143] in capacity 1
required by Carga[34] over [119,125] in capacity 1
required by Carga[33] over [101,107] in capacity 1
required by Carga[32] over [83,89] in capacity 1
required by Carga[31] over [271,277] in capacity 1
required by Carga[30] over [217,223] in capacity 1
required by Carga[29] over [262,268] in capacity 1
required by Carga[28] over [251,257] in capacity 1
required by Carga[27] over [240,246] in capacity 1



required by Carga[26] over [229,235] in capacity 1
required by Carga[25] over [218,224] in capacity 1
required by Carga[24] over [207,213] in capacity 1
required by Carga[23] over [196,202] in capacity 1
required by Carga[22] over [338,344] in capacity 1
required by Carga[21] over [299,305] in capacity 1
required by Carga[20] over [456,462] in capacity 1
required by Carga[19] over [444,450] in capacity 1
required by Carga[18] over [432,438] in capacity 1
required by Carga[17] over [702,708] in capacity 1
required by Carga[16] over [677,683] in capacity 1
required by Carga[15] over [647,653] in capacity 1
required by Carga[14] over [617,623] in capacity 1
required by Carga[13] over [587,593] in capacity 1
required by Carga[12] over [557,563] in capacity 1
required by Carga[11] over [527,533] in capacity 1
required by Carga[10] over [497,503] in capacity 1
required by Carga[9] over [467,473] in capacity 1
required by Carga[8] over [437,443] in capacity 1
required by Carga[7] over [407,413] in capacity 1
required by Carga[6] over [377,383] in capacity 1
required by Carga[5] over [184,190] in capacity 1
required by Carga[4] over [146,152] in capacity 1
required by Carga[3] over [368,374] in capacity 1
required by Carga[2] over [334,340] in capacity 1
required by Carga[1] over [300,306] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0

Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 5
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 0
Margen[38] = 0
Margen[39] = 0
Margen[40] = 0
Margen[41] = 0
Margen[42] = 0
Margen[43] = 0
Margen[44] = 5
Margen[45] = 0
Margen[46] = 3
Margen[47] = 0
Margen[48] = 0
Margen[49] = 0
Margen[50] = 0
Margen[51] = 0
Margen[52] = 0
Margen[53] = 0
Margen[54] = 0
Margen[55] = 0
Margen[56] = 0
Margen[57] = 0
Margen[58] = 0
Margen[59] = 0
Margen[60] = 0
Margen[61] = 0



Margen[62] = 0
Margen[63] = 0
Margen[64] = 5
Margen[65] = 3
Margen[66] = 0
Margen[67] = 0
Margen[68] = 0
Margen[69] = 0
Margen[70] = 0
Margen[71] = 2
Margen[72] = 0

Scheduling 2.2

Optimal Solution with Objective Value: 565

a[1] = [161 -- 33 --> 194]
a[2] = [177 -- 33 --> 210]
a[3] = [194 -- 33 --> 227]
a[4] = [210 -- 33 --> 243]
a[5] = [513 -- 23 --> 536]
a[6] = [530 -- 23 --> 553]
a[7] = [542 -- 23 --> 565]

Carga[1] = [161 -- 6 --> 167]
Carga[2] = [177 -- 6 --> 183]
Carga[3] = [194 -- 6 --> 200]
Carga[4] = [210 -- 6 --> 216]
Carga[5] = [513 -- 6 --> 519]
Carga[6] = [530 -- 6 --> 536]
Carga[7] = [542 -- 6 --> 548]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]

makespan = [565 -- 0 --> 565]
Truck = Discrete Resource
required by ParadaComida[2] over [300,360] in capacity 1
required by ParadaComida[1] over [300,360] in capacity 1
required by a[7] over [542,565] in capacity 1
required by a[6] over [530,553] in capacity 1
required by a[5] over [513,536] in capacity 1
required by a[4] over [210,243] in capacity 1
required by a[3] over [194,227] in capacity 1
required by a[2] over [177,210] in capacity 1
required by a[1] over [161,194] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[7] over [542,548] in capacity 1
required by Carga[6] over [530,536] in capacity 1
required by Carga[5] over [513,519] in capacity 1
required by Carga[4] over [210,216] in capacity 1

required by Carga[3] over [194,200] in capacity 1
required by Carga[2] over [177,183] in capacity 1
required by Carga[1] over [161,167] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 1
Margen[4] = 1
Margen[5] = 0
Margen[6] = 0
Margen[7] = 5

Scheduling 2.3

Optimal Solution with Objective Value: 358

a[1] = [204 -- 37 --> 241]
a[2] = [262 -- 37 --> 299]
a[3] = [320 -- 37 --> 357]
a[4] = [64 -- 37 --> 101]
a[5] = [293 -- 34 --> 327]
a[6] = [323 -- 34 --> 357]
a[7] = [234 -- 19 --> 253]
a[8] = [256 -- 19 --> 275]
a[9] = [190 -- 26 --> 216]
a[10] = [249 -- 26 --> 275]
a[11] = [308 -- 26 --> 334]
a[12] = [80 -- 61 --> 141]
a[13] = [228 -- 31 --> 259]
a[14] = [280 -- 31 --> 311]
a[15] = [327 -- 31 --> 358]

Carga[1] = [204 -- 3 --> 207]
Carga[2] = [262 -- 3 --> 265]
Carga[3] = [320 -- 3 --> 323]
Carga[4] = [64 -- 3 --> 67]
Carga[5] = [293 -- 3 --> 296]
Carga[6] = [323 -- 3 --> 326]
Carga[7] = [234 -- 3 --> 237]
Carga[8] = [256 -- 3 --> 259]
Carga[9] = [190 -- 3 --> 193]
Carga[10] = [249 -- 3 --> 252]
Carga[11] = [308 -- 3 --> 311]
Carga[12] = [80 -- 3 --> 83]
Carga[13] = [228 -- 3 --> 231]
Carga[14] = [280 -- 3 --> 283]
Carga[15] = [327 -- 3 --> 330]

ParadaComida[1] = [334 -- 60 --> 394]
ParadaComida[2] = [357 -- 60 --> 417]
ParadaComida[3] = [357 -- 60 --> 417]
ParadaComida[4] = [358 -- 60 --> 418]

makespan = [358 -- 0 --> 358]
Truck = Discrete Resource



required by ParadaComida[4] over [358,418] in capacity 1
required by ParadaComida[3] over [357,417] in capacity 1
required by ParadaComida[2] over [357,417] in capacity 1
required by ParadaComida[1] over [334,394] in capacity 1
required by a[15] over [327,358] in capacity 1
required by a[14] over [280,311] in capacity 1
required by a[13] over [228,259] in capacity 1
required by a[12] over [80,141] in capacity 1
required by a[11] over [308,334] in capacity 1
required by a[10] over [249,275] in capacity 1
required by a[9] over [190,216] in capacity 1
required by a[8] over [256,275] in capacity 1
required by a[7] over [234,253] in capacity 1
required by a[6] over [323,357] in capacity 1
required by a[5] over [293,327] in capacity 1
required by a[4] over [64,101] in capacity 1
required by a[3] over [320,357] in capacity 1
required by a[2] over [262,299] in capacity 1
required by a[1] over [204,241] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[15] over [327,330] in capacity 1
required by Carga[14] over [280,283] in capacity 1
required by Carga[13] over [228,231] in capacity 1
required by Carga[12] over [80,83] in capacity 1
required by Carga[11] over [308,311] in capacity 1
required by Carga[10] over [249,252] in capacity 1
required by Carga[9] over [190,193] in capacity 1
required by Carga[8] over [256,259] in capacity 1
required by Carga[7] over [234,237] in capacity 1
required by Carga[6] over [323,326] in capacity 1
required by Carga[5] over [293,296] in capacity 1
required by Carga[4] over [64,67] in capacity 1
required by Carga[3] over [320,323] in capacity 1
required by Carga[2] over [262,265] in capacity 1
required by Carga[1] over [204,207] in capacity 1

Margen[1] = 0

Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 12
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 5

Scheduling 3.1

Optimal Solution with Objective Value: 699

a[1] = [492 -- 37 --> 529]
a[2] = [512 -- 37 --> 549]
a[3] = [518 -- 37 --> 555]
a[4] = [83 -- 24 --> 107]
a[5] = [129 -- 24 --> 153]
a[6] = [659 -- 40 --> 699]
a[7] = [416 -- 48 --> 464]
a[8] = [248 -- 22 --> 270]
a[9] = [259 -- 22 --> 281]
a[10] = [270 -- 22 --> 292]
a[11] = [325 -- 48 --> 373]
a[12] = [344 -- 48 --> 392]

Carga[1] = [492 -- 6 --> 498]
Carga[2] = [512 -- 6 --> 518]
Carga[3] = [518 -- 6 --> 524]
Carga[4] = [83 -- 6 --> 89]
Carga[5] = [129 -- 6 --> 135]
Carga[6] = [659 -- 6 --> 665]
Carga[7] = [416 -- 6 --> 422]
Carga[8] = [248 -- 6 --> 254]
Carga[9] = [259 -- 6 --> 265]
Carga[10] = [270 -- 6 --> 276]
Carga[11] = [325 -- 6 --> 331]
Carga[12] = [344 -- 6 --> 350]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [360 -- 60 --> 420]
ParadaComida[3] = [373 -- 60 --> 433]

makespan = [699 -- 0 --> 699]

Truck = Discrete Resource

required by ParadaComida[3] over [373,433] in capacity 1
required by ParadaComida[2] over [360,420] in capacity 1
required by ParadaComida[1] over [300,360] in capacity 1
required by a[12] over [344,392] in capacity 1



required by a[11] over [325,373] in capacity 1
required by a[10] over [270,292] in capacity 1
required by a[9] over [259,281] in capacity 1
required by a[8] over [248,270] in capacity 1
required by a[7] over [416,464] in capacity 1
required by a[6] over [659,699] in capacity 1
required by a[5] over [129,153] in capacity 1
required by a[4] over [83,107] in capacity 1
required by a[3] over [518,555] in capacity 1
required by a[2] over [512,549] in capacity 1
required by a[1] over [492,529] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[12] over [344,350] in capacity 1

required by Carga[11] over [325,331] in capacity 1

required by Carga[10] over [270,276] in capacity 1

required by Carga[9] over [259,265] in capacity 1

required by Carga[8] over [248,254] in capacity 1

required by Carga[7] over [416,422] in capacity 1

required by Carga[6] over [659,665] in capacity 1

required by Carga[5] over [129,135] in capacity 1

required by Carga[4] over [83,89] in capacity 1

required by Carga[3] over [518,524] in capacity 1

required by Carga[2] over [512,518] in capacity 1

required by Carga[1] over [492,498] in capacity 1

Margen[1] = 0

Margen[2] = 0

Margen[3] = 1

Margen[4] = 0

Margen[5] = 0

Margen[6] = 10

Margen[7] = 0

Margen[8] = 0

Margen[9] = 0

Margen[10] = 0

Margen[11] = 0

Margen[12] = 0

Scheduling 3.2

Optimal Solution with Objective Value: 151

a[1] = [64 -- 29 --> 93]

a[2] = [93 -- 29 --> 122]

a[3] = [122 -- 29 --> 151]

Carga[1] = [64 -- 6 --> 70]

Carga[2] = [93 -- 6 --> 99]

Carga[3] = [122 -- 6 --> 128]

ParadaComida[1] = [300 -- 60 --> 360]

makespan = [151 -- 0 --> 151]

Truck = Discrete Resource

required by ParadaComida[1] over [300,360] in capacity 1

required by a[3] over [122,151] in capacity 1

required by a[2] over [93,122] in capacity 1

required by a[1] over [64,93] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[3] over [122,128] in capacity 1

required by Carga[2] over [93,99] in capacity 1

required by Carga[1] over [64,70] in capacity 1

Margen[1] = 8

Margen[2] = 5

Margen[3] = 2

Scheduling 3.3

Optimal Solution with Objective Value: 606

a[1] = [124 -- 35 --> 159]

a[2] = [158 -- 35 --> 193]

a[3] = [0 -- 45 --> 45]

a[4] = [53 -- 45 --> 98]

a[5] = [94 -- 45 --> 139]

a[6] = [476 -- 37 --> 513]

a[7] = [490 -- 37 --> 527]

a[8] = [504 -- 37 --> 541]

a[9] = [518 -- 37 --> 555]

a[10] = [532 -- 37 --> 569]

a[11] = [546 -- 37 --> 583]

a[12] = [560 -- 37 --> 597]

a[13] = [569 -- 37 --> 606]

a[14] = [435 -- 53 --> 488]

a[15] = [460 -- 53 --> 513]

a[16] = [485 -- 53 --> 538]

a[17] = [510 -- 53 --> 563]

a[18] = [535 -- 53 --> 588]

a[19] = [133 -- 21 --> 154]

a[20] = [488 -- 26 --> 514]

a[21] = [535 -- 26 --> 561]

a[22] = [580 -- 26 --> 606]

a[23] = [153 -- 45 --> 198]

a[24] = [197 -- 45 --> 242]

a[25] = [88 -- 47 --> 135]

a[26] = [134 -- 47 --> 181]

a[27] = [180 -- 47 --> 227]



a[28] = [114 -- 45 --> 159]
a[29] = [170 -- 45 --> 215]
a[30] = [226 -- 45 --> 271]
a[31] = [282 -- 45 --> 327]
a[32] = [113 -- 47 --> 160]
a[33] = [168 -- 29 --> 197]
a[34] = [208 -- 29 --> 237]
a[35] = [248 -- 29 --> 277]
a[36] = [339 -- 37 --> 376]
a[37] = [354 -- 37 --> 391]
a[38] = [369 -- 37 --> 406]
a[39] = [384 -- 37 --> 421]
a[40] = [399 -- 37 --> 436]
a[41] = [414 -- 37 --> 451]
a[42] = [239 -- 21 --> 260]
a[43] = [279 -- 21 --> 300]

Carga[1] = [124 -- 3 --> 127]
Carga[2] = [158 -- 3 --> 161]
Carga[3] = [0 -- 3 --> 3]
Carga[4] = [53 -- 3 --> 56]
Carga[5] = [94 -- 3 --> 97]
Carga[6] = [476 -- 3 --> 479]
Carga[7] = [490 -- 3 --> 493]
Carga[8] = [504 -- 3 --> 507]
Carga[9] = [518 -- 3 --> 521]
Carga[10] = [532 -- 3 --> 535]
Carga[11] = [546 -- 3 --> 549]
Carga[12] = [560 -- 3 --> 563]
Carga[13] = [569 -- 3 --> 572]
Carga[14] = [435 -- 3 --> 438]
Carga[15] = [460 -- 3 --> 463]
Carga[16] = [485 -- 3 --> 488]
Carga[17] = [510 -- 3 --> 513]
Carga[18] = [535 -- 3 --> 538]
Carga[19] = [133 -- 3 --> 136]
Carga[20] = [488 -- 3 --> 491]
Carga[21] = [535 -- 3 --> 538]
Carga[22] = [580 -- 3 --> 583]
Carga[23] = [153 -- 3 --> 156]
Carga[24] = [197 -- 3 --> 200]
Carga[25] = [88 -- 3 --> 91]
Carga[26] = [134 -- 3 --> 137]
Carga[27] = [180 -- 3 --> 183]
Carga[28] = [114 -- 3 --> 117]
Carga[29] = [170 -- 3 --> 173]
Carga[30] = [226 -- 3 --> 229]
Carga[31] = [282 -- 3 --> 285]
Carga[32] = [113 -- 3 --> 116]
Carga[33] = [168 -- 3 --> 171]
Carga[34] = [208 -- 3 --> 211]
Carga[35] = [248 -- 3 --> 251]
Carga[36] = [339 -- 3 --> 342]
Carga[37] = [354 -- 3 --> 357]
Carga[38] = [369 -- 3 --> 372]
Carga[39] = [384 -- 3 --> 387]
Carga[40] = [399 -- 3 --> 402]

Carga[41] = [414 -- 3 --> 417]
Carga[42] = [239 -- 3 --> 242]
Carga[43] = [279 -- 3 --> 282]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [300 -- 60 --> 360]
ParadaComida[9] = [300 -- 60 --> 360]
ParadaComida[10] = [360 -- 60 --> 420]
ParadaComida[11] = [360 -- 60 --> 420]

makespan = [606 -- 0 --> 606]

Truck = Discrete Resource

required by ParadaComida[11] over [360,420]
in capacity 1
required by ParadaComida[10] over [360,420]
in capacity 1
required by ParadaComida[9] over [300,360]
in capacity 1
required by ParadaComida[8] over [300,360]
in capacity 1
required by ParadaComida[7] over [300,360]
in capacity 1
required by ParadaComida[6] over [300,360]
in capacity 1
required by ParadaComida[5] over [300,360]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[43] over [279,300] in capacity 1
required by a[42] over [239,260] in capacity 1
required by a[41] over [414,451] in capacity 1
required by a[40] over [399,436] in capacity 1
required by a[39] over [384,421] in capacity 1
required by a[38] over [369,406] in capacity 1
required by a[37] over [354,391] in capacity 1
required by a[36] over [339,376] in capacity 1
required by a[35] over [248,277] in capacity 1
required by a[34] over [208,237] in capacity 1
required by a[33] over [168,197] in capacity 1
required by a[32] over [113,160] in capacity 1
required by a[31] over [282,327] in capacity 1
required by a[30] over [226,271] in capacity 1
required by a[29] over [170,215] in capacity 1
required by a[28] over [114,159] in capacity 1
required by a[27] over [180,227] in capacity 1



required by a[26] over [134,181] in capacity 1
required by a[25] over [88,135] in capacity 1
required by a[24] over [197,242] in capacity 1
required by a[23] over [153,198] in capacity 1
required by a[22] over [580,606] in capacity 1
required by a[21] over [535,561] in capacity 1
required by a[20] over [488,514] in capacity 1
required by a[19] over [133,154] in capacity 1
required by a[18] over [535,588] in capacity 1
required by a[17] over [510,563] in capacity 1
required by a[16] over [485,538] in capacity 1
required by a[15] over [460,513] in capacity 1
required by a[14] over [435,488] in capacity 1
required by a[13] over [569,606] in capacity 1
required by a[12] over [560,597] in capacity 1
required by a[11] over [546,583] in capacity 1
required by a[10] over [532,569] in capacity 1
required by a[9] over [518,555] in capacity 1
required by a[8] over [504,541] in capacity 1
required by a[7] over [490,527] in capacity 1
required by a[6] over [476,513] in capacity 1
required by a[5] over [94,139] in capacity 1
required by a[4] over [53,98] in capacity 1
required by a[3] over [0,45] in capacity 1
required by a[2] over [158,193] in capacity 1
required by a[1] over [124,159] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[43] over [279,282] in capacity 1
required by Carga[42] over [239,242] in capacity 1
required by Carga[41] over [414,417] in capacity 1
required by Carga[40] over [399,402] in capacity 1
required by Carga[39] over [384,387] in capacity 1
required by Carga[38] over [369,372] in capacity 1
required by Carga[37] over [354,357] in capacity 1
required by Carga[36] over [339,342] in capacity 1
required by Carga[35] over [248,251] in capacity 1
required by Carga[34] over [208,211] in capacity 1
required by Carga[33] over [168,171] in capacity 1
required by Carga[32] over [113,116] in capacity 1
required by Carga[31] over [282,285] in capacity 1
required by Carga[30] over [226,229] in capacity 1

required by Carga[29] over [170,173] in capacity 1
required by Carga[28] over [114,117] in capacity 1
required by Carga[27] over [180,183] in capacity 1
required by Carga[26] over [134,137] in capacity 1
required by Carga[25] over [88,91] in capacity 1
required by Carga[24] over [197,200] in capacity 1
required by Carga[23] over [153,156] in capacity 1
required by Carga[22] over [580,583] in capacity 1
required by Carga[21] over [535,538] in capacity 1
required by Carga[20] over [488,491] in capacity 1
required by Carga[19] over [133,136] in capacity 1
required by Carga[18] over [535,538] in capacity 1
required by Carga[17] over [510,513] in capacity 1
required by Carga[16] over [485,488] in capacity 1
required by Carga[15] over [460,463] in capacity 1
required by Carga[14] over [435,438] in capacity 1
required by Carga[13] over [569,572] in capacity 1
required by Carga[12] over [560,563] in capacity 1
required by Carga[11] over [546,549] in capacity 1
required by Carga[10] over [532,535] in capacity 1
required by Carga[9] over [518,521] in capacity 1
required by Carga[8] over [504,507] in capacity 1
required by Carga[7] over [490,493] in capacity 1
required by Carga[6] over [476,479] in capacity 1
required by Carga[5] over [94,97] in capacity 1
required by Carga[4] over [53,56] in capacity 1
required by Carga[3] over [0,3] in capacity 1
required by Carga[2] over [158,161] in capacity 1
required by Carga[1] over [124,127] in capacity 1



Margen[1] = 0
Margen[2] = 0
Margen[3] = 12
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 5
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 2
Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 0
Margen[38] = 0
Margen[39] = 0
Margen[40] = 0
Margen[41] = 0
Margen[42] = 0
Margen[43] = 0

Scheduling 4.1

Optimal Solution with Objective Value: 635

a[1] = [269 -- 24 --> 293]
a[2] = [321 -- 24 --> 345]
a[3] = [599 -- 22 --> 621]
a[4] = [613 -- 22 --> 635]
a[5] = [517 -- 34 --> 551]
a[6] = [537 -- 34 --> 571]
a[7] = [557 -- 34 --> 591]
a[8] = [577 -- 34 --> 611]
a[9] = [593 -- 34 --> 627]

a[10] = [391 -- 27 --> 418]
a[11] = [410 -- 27 --> 437]
a[12] = [429 -- 27 --> 456]
a[13] = [282 -- 35 --> 317]
a[14] = [238 -- 34 --> 272]
a[15] = [288 -- 34 --> 322]
a[16] = [338 -- 34 --> 372]
a[17] = [194 -- 42 --> 236]
a[18] = [215 -- 42 --> 257]
a[19] = [232 -- 42 --> 274]
a[20] = [257 -- 42 --> 299]

Carga[1] = [269 -- 6 --> 275]
Carga[2] = [321 -- 6 --> 327]
Carga[3] = [599 -- 6 --> 605]
Carga[4] = [613 -- 6 --> 619]
Carga[5] = [517 -- 6 --> 523]
Carga[6] = [537 -- 6 --> 543]
Carga[7] = [557 -- 6 --> 563]
Carga[8] = [577 -- 6 --> 583]
Carga[9] = [593 -- 6 --> 599]
Carga[10] = [391 -- 6 --> 397]
Carga[11] = [410 -- 6 --> 416]
Carga[12] = [429 -- 6 --> 435]
Carga[13] = [282 -- 6 --> 288]
Carga[14] = [238 -- 6 --> 244]
Carga[15] = [288 -- 6 --> 294]
Carga[16] = [338 -- 6 --> 344]
Carga[17] = [194 -- 6 --> 200]
Carga[18] = [215 -- 6 --> 221]
Carga[19] = [232 -- 6 --> 238]
Carga[20] = [257 -- 6 --> 263]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [345 -- 60 --> 405]
ParadaComida[5] = [360 -- 60 --> 420]

makespan = [635 -- 0 --> 635]

Truck = Discrete Resource

required by ParadaComida[5] over [360,420]
in capacity 1

required by ParadaComida[4] over [345,405]
in capacity 1

required by ParadaComida[3] over [300,360]
in capacity 1

required by ParadaComida[2] over [300,360]
in capacity 1

required by ParadaComida[1] over [300,360]
in capacity 1

required by a[20] over [257,299] in capacity 1

required by a[19] over [232,274] in capacity 1

required by a[18] over [215,257] in capacity 1

required by a[17] over [194,236] in capacity 1

required by a[16] over [338,372] in capacity 1

required by a[15] over [288,322] in capacity 1



required by a[14] over [238,272] in capacity 1
required by a[13] over [282,317] in capacity 1
required by a[12] over [429,456] in capacity 1
required by a[11] over [410,437] in capacity 1
required by a[10] over [391,418] in capacity 1
required by a[9] over [593,627] in capacity 1
required by a[8] over [577,611] in capacity 1
required by a[7] over [557,591] in capacity 1
required by a[6] over [537,571] in capacity 1
required by a[5] over [517,551] in capacity 1
required by a[4] over [613,635] in capacity 1
required by a[3] over [599,621] in capacity 1
required by a[2] over [321,345] in capacity 1
required by a[1] over [269,293] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[20] over [257,263] in capacity 1
required by Carga[19] over [232,238] in capacity 1
required by Carga[18] over [215,221] in capacity 1
required by Carga[17] over [194,200] in capacity 1
required by Carga[16] over [338,344] in capacity 1
required by Carga[15] over [288,294] in capacity 1
required by Carga[14] over [238,244] in capacity 1
required by Carga[13] over [282,288] in capacity 1
required by Carga[12] over [429,435] in capacity 1
required by Carga[11] over [410,416] in capacity 1
required by Carga[10] over [391,397] in capacity 1
required by Carga[9] over [593,599] in capacity 1
required by Carga[8] over [577,583] in capacity 1
required by Carga[7] over [557,563] in capacity 1
required by Carga[6] over [537,543] in capacity 1
required by Carga[5] over [517,523] in capacity 1
required by Carga[4] over [613,619] in capacity 1
required by Carga[3] over [599,605] in capacity 1
required by Carga[2] over [321,327] in capacity 1
required by Carga[1] over [269,275] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 5
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 4
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 4
Margen[20] = 0

Scheduling 4.2

Optimal Solution with Objective Value: 805

a[1] = [172 -- 74 --> 246]
a[2] = [201 -- 74 --> 275]
a[3] = [231 -- 74 --> 305]
a[4] = [261 -- 74 --> 335]
a[5] = [291 -- 74 --> 365]
a[6] = [321 -- 74 --> 395]
a[7] = [351 -- 74 --> 425]
a[8] = [381 -- 74 --> 455]
a[9] = [411 -- 74 --> 485]
a[10] = [441 -- 74 --> 515]
a[11] = [696 -- 36 --> 732]
a[12] = [735 -- 36 --> 771]
a[13] = [769 -- 36 --> 805]
a[14] = [13 -- 36 --> 49]
a[15] = [45 -- 36 --> 81]
a[16] = [113 -- 29 --> 142]
a[17] = [142 -- 29 --> 171]
a[18] = [166 -- 29 --> 195]
a[19] = [195 -- 29 --> 224]
a[20] = [225 -- 29 --> 254]
a[21] = [255 -- 29 --> 284]
a[22] = [285 -- 29 --> 314]

Carga[1] = [172 -- 6 --> 178]
Carga[2] = [201 -- 6 --> 207]
Carga[3] = [231 -- 6 --> 237]
Carga[4] = [261 -- 6 --> 267]
Carga[5] = [291 -- 6 --> 297]
Carga[6] = [321 -- 6 --> 327]
Carga[7] = [351 -- 6 --> 357]
Carga[8] = [381 -- 6 --> 387]
Carga[9] = [411 -- 6 --> 417]
Carga[10] = [441 -- 6 --> 447]



Carga[11] = [696 -- 6 --> 702]
Carga[12] = [735 -- 6 --> 741]
Carga[13] = [769 -- 6 --> 775]
Carga[14] = [13 -- 6 --> 19]
Carga[15] = [45 -- 6 --> 51]
Carga[16] = [113 -- 6 --> 119]
Carga[17] = [142 -- 6 --> 148]
Carga[18] = [166 -- 6 --> 172]
Carga[19] = [195 -- 6 --> 201]
Carga[20] = [225 -- 6 --> 231]
Carga[21] = [255 -- 6 --> 261]
Carga[22] = [285 -- 6 --> 291]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [305 -- 60 --> 365]
ParadaComida[4] = [360 -- 60 --> 420]
ParadaComida[5] = [360 -- 60 --> 420]
ParadaComida[6] = [365 -- 60 --> 425]

makespan = [805 -- 0 --> 805]
Truck = Discrete Resource
required by ParadaComida[6] over [365,425] in capacity 1
required by ParadaComida[5] over [360,420] in capacity 1
required by ParadaComida[4] over [360,420] in capacity 1
required by ParadaComida[3] over [305,365] in capacity 1
required by ParadaComida[2] over [300,360] in capacity 1
required by ParadaComida[1] over [300,360] in capacity 1
required by a[22] over [285,314] in capacity 1
required by a[21] over [255,284] in capacity 1
required by a[20] over [225,254] in capacity 1
required by a[19] over [195,224] in capacity 1
required by a[18] over [166,195] in capacity 1
required by a[17] over [142,171] in capacity 1
required by a[16] over [113,142] in capacity 1
required by a[15] over [45,81] in capacity 1
required by a[14] over [13,49] in capacity 1
required by a[13] over [769,805] in capacity 1
required by a[12] over [735,771] in capacity 1
required by a[11] over [696,732] in capacity 1
required by a[10] over [441,515] in capacity 1
required by a[9] over [411,485] in capacity 1
required by a[8] over [381,455] in capacity 1
required by a[7] over [351,425] in capacity 1
required by a[6] over [321,395] in capacity 1
required by a[5] over [291,365] in capacity 1
required by a[4] over [261,335] in capacity 1
required by a[3] over [231,305] in capacity 1
required by a[2] over [201,275] in capacity 1
required by a[1] over [172,246] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[22] over [285,291] in capacity 1
required by Carga[21] over [255,261] in capacity 1
required by Carga[20] over [225,231] in capacity 1
required by Carga[19] over [195,201] in capacity 1
required by Carga[18] over [166,172] in capacity 1
required by Carga[17] over [142,148] in capacity 1
required by Carga[16] over [113,119] in capacity 1
required by Carga[15] over [45,51] in capacity 1
required by Carga[14] over [13,19] in capacity 1
required by Carga[13] over [769,775] in capacity 1
required by Carga[12] over [735,741] in capacity 1
required by Carga[11] over [696,702] in capacity 1
required by Carga[10] over [441,447] in capacity 1
required by Carga[9] over [411,417] in capacity 1
required by Carga[8] over [381,387] in capacity 1
required by Carga[7] over [351,357] in capacity 1
required by Carga[6] over [321,327] in capacity 1
required by Carga[5] over [291,297] in capacity 1
required by Carga[4] over [261,267] in capacity 1
required by Carga[3] over [231,237] in capacity 1
required by Carga[2] over [201,207] in capacity 1
required by Carga[1] over [172,178] in capacity 1

Margen[1] = 1
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0



Margen[12] = 0
Margen[13] = 5
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 5
Margen[19] = 5
Margen[20] = 4
Margen[21] = 3
Margen[22] = 2

Scheduling 4.3

Optimal Solution with Objective Value: 727

a[1] = [403 -- 29 --> 432]
a[2] = [418 -- 29 --> 447]
a[3] = [433 -- 29 --> 462]
a[4] = [448 -- 29 --> 477]
a[5] = [463 -- 29 --> 492]
a[6] = [478 -- 29 --> 507]
a[7] = [493 -- 29 --> 522]
a[8] = [508 -- 29 --> 537]
a[9] = [523 -- 29 --> 552]
a[10] = [538 -- 29 --> 567]
a[11] = [553 -- 29 --> 582]
a[12] = [568 -- 29 --> 597]
a[13] = [583 -- 29 --> 612]
a[14] = [598 -- 29 --> 627]
a[15] = [613 -- 29 --> 642]
a[16] = [628 -- 29 --> 657]
a[17] = [643 -- 29 --> 672]
a[18] = [658 -- 29 --> 687]
a[19] = [673 -- 29 --> 702]
a[20] = [688 -- 29 --> 717]
a[21] = [698 -- 29 --> 727]
a[22] = [661 -- 32 --> 693]
a[23] = [259 -- 47 --> 306]
a[24] = [311 -- 47 --> 358]
a[25] = [363 -- 47 --> 410]
a[26] = [415 -- 47 --> 462]
a[27] = [215 -- 35 --> 250]
a[28] = [230 -- 35 --> 265]
a[29] = [245 -- 35 --> 280]
a[30] = [260 -- 35 --> 295]
a[31] = [173 -- 40 --> 213]
a[32] = [202 -- 40 --> 242]
a[33] = [208 -- 111 --> 319]
a[34] = [229 -- 111 --> 340]
a[35] = [250 -- 111 --> 361]
a[36] = [271 -- 111 --> 382]
a[37] = [292 -- 111 --> 403]
a[38] = [313 -- 111 --> 424]
a[39] = [113 -- 37 --> 150]
a[40] = [148 -- 37 --> 185]
a[41] = [310 -- 35 --> 345]
a[42] = [341 -- 35 --> 376]

a[43] = [425 -- 29 --> 454]

Carga[1] = [403 -- 3 --> 406]
Carga[2] = [418 -- 3 --> 421]
Carga[3] = [433 -- 3 --> 436]
Carga[4] = [448 -- 3 --> 451]
Carga[5] = [463 -- 3 --> 466]
Carga[6] = [478 -- 3 --> 481]
Carga[7] = [493 -- 3 --> 496]
Carga[8] = [508 -- 3 --> 511]
Carga[9] = [523 -- 3 --> 526]
Carga[10] = [538 -- 3 --> 541]
Carga[11] = [553 -- 3 --> 556]
Carga[12] = [568 -- 3 --> 571]
Carga[13] = [583 -- 3 --> 586]
Carga[14] = [598 -- 3 --> 601]
Carga[15] = [613 -- 3 --> 616]
Carga[16] = [628 -- 3 --> 631]
Carga[17] = [643 -- 3 --> 646]
Carga[18] = [658 -- 3 --> 661]
Carga[19] = [673 -- 3 --> 676]
Carga[20] = [688 -- 3 --> 691]
Carga[21] = [698 -- 3 --> 701]
Carga[22] = [661 -- 3 --> 664]
Carga[23] = [259 -- 3 --> 262]
Carga[24] = [311 -- 3 --> 314]
Carga[25] = [363 -- 3 --> 366]
Carga[26] = [415 -- 3 --> 418]
Carga[27] = [215 -- 3 --> 218]
Carga[28] = [230 -- 3 --> 233]
Carga[29] = [245 -- 3 --> 248]
Carga[30] = [260 -- 3 --> 263]
Carga[31] = [173 -- 3 --> 176]
Carga[32] = [202 -- 3 --> 205]
Carga[33] = [208 -- 3 --> 211]
Carga[34] = [229 -- 3 --> 232]
Carga[35] = [250 -- 3 --> 253]
Carga[36] = [271 -- 3 --> 274]
Carga[37] = [292 -- 3 --> 295]
Carga[38] = [313 -- 3 --> 316]
Carga[39] = [113 -- 3 --> 116]
Carga[40] = [148 -- 3 --> 151]
Carga[41] = [310 -- 3 --> 313]
Carga[42] = [341 -- 3 --> 344]
Carga[43] = [425 -- 3 --> 428]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [319 -- 60 --> 379]
ParadaComida[5] = [345 -- 60 --> 405]
ParadaComida[6] = [358 -- 60 --> 418]
ParadaComida[7] = [360 -- 60 --> 420]
ParadaComida[8] = [360 -- 60 --> 420]
ParadaComida[9] = [360 -- 60 --> 420]
ParadaComida[10] = [376 -- 60 --> 436]
ParadaComida[11] = [379 -- 60 --> 439]



makespan = [727 -- 0 --> 727]
Truck = Discrete Resource
required by ParadaComida[11] over [379,439] in capacity 1
required by ParadaComida[10] over [376,436] in capacity 1
required by ParadaComida[9] over [360,420] in capacity 1
required by ParadaComida[8] over [360,420] in capacity 1
required by ParadaComida[7] over [360,420] in capacity 1
required by ParadaComida[6] over [358,418] in capacity 1
required by ParadaComida[5] over [345,405] in capacity 1
required by ParadaComida[4] over [319,379] in capacity 1
required by ParadaComida[3] over [300,360] in capacity 1
required by ParadaComida[2] over [300,360] in capacity 1
required by ParadaComida[1] over [300,360] in capacity 1
required by a[43] over [425,454] in capacity 1
required by a[42] over [341,376] in capacity 1
required by a[41] over [310,345] in capacity 1
required by a[40] over [148,185] in capacity 1
required by a[39] over [113,150] in capacity 1
required by a[38] over [313,424] in capacity 1
required by a[37] over [292,403] in capacity 1
required by a[36] over [271,382] in capacity 1
required by a[35] over [250,361] in capacity 1
required by a[34] over [229,340] in capacity 1
required by a[33] over [208,319] in capacity 1
required by a[32] over [202,242] in capacity 1
required by a[31] over [173,213] in capacity 1
required by a[30] over [260,295] in capacity 1
required by a[29] over [245,280] in capacity 1
required by a[28] over [230,265] in capacity 1
required by a[27] over [215,250] in capacity 1
required by a[26] over [415,462] in capacity 1
required by a[25] over [363,410] in capacity 1
required by a[24] over [311,358] in capacity 1
required by a[23] over [259,306] in capacity 1
required by a[22] over [661,693] in capacity 1
required by a[21] over [698,727] in capacity 1
required by a[20] over [688,717] in capacity 1
required by a[19] over [673,702] in capacity 1
required by a[18] over [658,687] in capacity 1
required by a[17] over [643,672] in capacity 1
required by a[16] over [628,657] in capacity 1
required by a[15] over [613,642] in capacity 1
required by a[14] over [598,627] in capacity 1
required by a[13] over [583,612] in capacity 1
required by a[12] over [568,597] in capacity 1

required by a[11] over [553,582] in capacity 1
required by a[10] over [538,567] in capacity 1
required by a[9] over [523,552] in capacity 1
required by a[8] over [508,537] in capacity 1
required by a[7] over [493,522] in capacity 1
required by a[6] over [478,507] in capacity 1
required by a[5] over [463,492] in capacity 1
required by a[4] over [448,477] in capacity 1
required by a[3] over [433,462] in capacity 1
required by a[2] over [418,447] in capacity 1
required by a[1] over [403,432] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[43] over [425,428] in capacity 1
required by Carga[42] over [341,344] in capacity 1
required by Carga[41] over [310,313] in capacity 1
required by Carga[40] over [148,151] in capacity 1
required by Carga[39] over [113,116] in capacity 1
required by Carga[38] over [313,316] in capacity 1
required by Carga[37] over [292,295] in capacity 1
required by Carga[36] over [271,274] in capacity 1
required by Carga[35] over [250,253] in capacity 1
required by Carga[34] over [229,232] in capacity 1
required by Carga[33] over [208,211] in capacity 1
required by Carga[32] over [202,205] in capacity 1
required by Carga[31] over [173,176] in capacity 1
required by Carga[30] over [260,263] in capacity 1
required by Carga[29] over [245,248] in capacity 1
required by Carga[28] over [230,233] in capacity 1
required by Carga[27] over [215,218] in capacity 1
required by Carga[26] over [415,418] in capacity 1
required by Carga[25] over [363,366] in capacity 1
required by Carga[24] over [311,314] in capacity 1
required by Carga[23] over [259,262] in capacity 1
required by Carga[22] over [661,664] in capacity 1



required by Carga[21] over [698,701] in capacity 1
 required by Carga[20] over [688,691] in capacity 1
 required by Carga[19] over [673,676] in capacity 1
 required by Carga[18] over [658,661] in capacity 1
 required by Carga[17] over [643,646] in capacity 1
 required by Carga[16] over [628,631] in capacity 1
 required by Carga[15] over [613,616] in capacity 1
 required by Carga[14] over [598,601] in capacity 1
 required by Carga[13] over [583,586] in capacity 1
 required by Carga[12] over [568,571] in capacity 1
 required by Carga[11] over [553,556] in capacity 1
 required by Carga[10] over [538,541] in capacity 1
 required by Carga[9] over [523,526] in capacity 1
 required by Carga[8] over [508,511] in capacity 1
 required by Carga[7] over [493,496] in capacity 1
 required by Carga[6] over [478,481] in capacity 1
 required by Carga[5] over [463,466] in capacity 1
 required by Carga[4] over [448,451] in capacity 1
 required by Carga[3] over [433,436] in capacity 1
 required by Carga[2] over [418,421] in capacity 1
 required by Carga[1] over [403,406] in capacity 1

Margen[1] = 0
 Margen[2] = 0
 Margen[3] = 0
 Margen[4] = 0
 Margen[5] = 0
 Margen[6] = 0
 Margen[7] = 0
 Margen[8] = 0
 Margen[9] = 0
 Margen[10] = 0
 Margen[11] = 0
 Margen[12] = 0
 Margen[13] = 0
 Margen[14] = 0

Margen[15] = 0
 Margen[16] = 0
 Margen[17] = 0
 Margen[18] = 0
 Margen[19] = 0
 Margen[20] = 0
 Margen[21] = 5
 Margen[22] = 0
 Margen[23] = 0
 Margen[24] = 0
 Margen[25] = 0
 Margen[26] = 0
 Margen[27] = 0
 Margen[28] = 0
 Margen[29] = 0
 Margen[30] = 0
 Margen[31] = 0
 Margen[32] = 0
 Margen[33] = 0
 Margen[34] = 0
 Margen[35] = 0
 Margen[36] = 0
 Margen[37] = 0
 Margen[38] = 0
 Margen[39] = 0
 Margen[40] = 0
 Margen[41] = 2
 Margen[42] = 0
 Margen[43] = 0

Scheduling 5.1

Optimal Solution with Objective Value: 637

a[1] = [352 -- 27 --> 379]
 a[2] = [365 -- 27 --> 392]
 a[3] = [378 -- 27 --> 405]
 a[4] = [391 -- 27 --> 418]
 a[5] = [404 -- 27 --> 431]
 a[6] = [417 -- 27 --> 444]
 a[7] = [430 -- 27 --> 457]
 a[8] = [443 -- 27 --> 470]
 a[9] = [456 -- 27 --> 483]
 a[10] = [469 -- 27 --> 496]
 a[11] = [482 -- 27 --> 509]
 a[12] = [424 -- 22 --> 446]
 a[13] = [449 -- 22 --> 471]
 a[14] = [463 -- 22 --> 485]
 a[15] = [488 -- 22 --> 510]
 a[16] = [506 -- 22 --> 528]
 a[17] = [525 -- 22 --> 547]
 a[18] = [544 -- 22 --> 566]
 a[19] = [563 -- 22 --> 585]
 a[20] = [582 -- 22 --> 604]
 a[21] = [601 -- 22 --> 623]
 a[22] = [615 -- 22 --> 637]
 a[23] = [155 -- 40 --> 195]
 a[24] = [172 -- 40 --> 212]



a[25] = [121 -- 30 --> 151]
a[26] = [130 -- 34 --> 164]
a[27] = [188 -- 34 --> 222]
a[28] = [246 -- 34 --> 280]
a[29] = [304 -- 34 --> 338]

Carga[1] = [352 -- 6 --> 358]
Carga[2] = [365 -- 6 --> 371]
Carga[3] = [378 -- 6 --> 384]
Carga[4] = [391 -- 6 --> 397]
Carga[5] = [404 -- 6 --> 410]
Carga[6] = [417 -- 6 --> 423]
Carga[7] = [430 -- 6 --> 436]
Carga[8] = [443 -- 6 --> 449]
Carga[9] = [456 -- 6 --> 462]
Carga[10] = [469 -- 6 --> 475]
Carga[11] = [482 -- 6 --> 488]
Carga[12] = [495 -- 6 --> 501]
Carga[13] = [508 -- 6 --> 514]
Carga[14] = [521 -- 6 --> 527]
Carga[15] = [534 -- 6 --> 540]
Carga[16] = [547 -- 6 --> 553]
Carga[17] = [560 -- 6 --> 566]
Carga[18] = [573 -- 6 --> 579]
Carga[19] = [586 -- 6 --> 592]
Carga[20] = [599 -- 6 --> 605]
Carga[21] = [612 -- 6 --> 618]
Carga[22] = [625 -- 6 --> 631]
Carga[23] = [155 -- 6 --> 161]
Carga[24] = [172 -- 6 --> 178]
Carga[25] = [121 -- 6 --> 127]
Carga[26] = [130 -- 6 --> 136]
Carga[27] = [188 -- 6 --> 194]
Carga[28] = [246 -- 6 --> 252]
Carga[29] = [304 -- 6 --> 310]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [360 -- 60 --> 420]

makespan = [637 -- 0 --> 637]
Truck = Discrete Resource
required by ParadaComida[8] over [360,420]
in capacity 1
required by ParadaComida[7] over [300,360]
in capacity 1
required by ParadaComida[6] over [300,360]
in capacity 1
required by ParadaComida[5] over [300,360]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1

required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[29] over [304,338] in capacity 1
required by a[28] over [246,280] in capacity 1
required by a[27] over [188,222] in capacity 1
required by a[26] over [130,164] in capacity 1
required by a[25] over [121,151] in capacity 1
required by a[24] over [172,212] in capacity 1
required by a[23] over [155,195] in capacity 1
required by a[22] over [615,637] in capacity 1
required by a[21] over [601,623] in capacity 1
required by a[20] over [582,604] in capacity 1
required by a[19] over [563,585] in capacity 1
required by a[18] over [544,566] in capacity 1
required by a[17] over [525,547] in capacity 1
required by a[16] over [506,528] in capacity 1
required by a[15] over [488,510] in capacity 1
required by a[14] over [463,485] in capacity 1
required by a[13] over [449,471] in capacity 1
required by a[12] over [424,446] in capacity 1
required by a[11] over [482,509] in capacity 1
required by a[10] over [469,496] in capacity 1
required by a[9] over [456,483] in capacity 1
required by a[8] over [443,470] in capacity 1
required by a[7] over [430,457] in capacity 1
required by a[6] over [417,444] in capacity 1
required by a[5] over [404,431] in capacity 1
required by a[4] over [391,418] in capacity 1
required by a[3] over [378,405] in capacity 1
required by a[2] over [365,392] in capacity 1
required by a[1] over [352,379] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[29] over [304,310] in
capacity 1
required by Carga[28] over [246,252] in
capacity 1
required by Carga[27] over [188,194] in
capacity 1
required by Carga[26] over [130,136] in
capacity 1
required by Carga[25] over [121,127] in
capacity 1
required by Carga[24] over [172,178] in
capacity 1
required by Carga[23] over [155,161] in
capacity 1
required by Carga[22] over [615,621] in
capacity 1
required by Carga[21] over [601,607] in
capacity 1
required by Carga[20] over [582,588] in
capacity 1



required by Carga[19] over [563,569] in capacity 1
required by Carga[18] over [544,550] in capacity 1
required by Carga[17] over [525,531] in capacity 1
required by Carga[16] over [506,512] in capacity 1
required by Carga[15] over [488,494] in capacity 1
required by Carga[14] over [463,469] in capacity 1
required by Carga[13] over [449,455] in capacity 1
required by Carga[12] over [424,430] in capacity 1
required by Carga[11] over [482,488] in capacity 1
required by Carga[10] over [469,475] in capacity 1
required by Carga[9] over [456,462] in capacity 1
required by Carga[8] over [443,449] in capacity 1
required by Carga[7] over [430,436] in capacity 1
required by Carga[6] over [417,423] in capacity 1
required by Carga[5] over [404,410] in capacity 1
required by Carga[4] over [391,397] in capacity 1
required by Carga[3] over [378,384] in capacity 1
required by Carga[2] over [365,371] in capacity 1
required by Carga[1] over [352,358] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 6
Margen[13] = 0
Margen[14] = 5
Margen[15] = 1
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0

Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 5
Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0

Scheduling 5.2

Optimal Solution with Objective Value: 421

a[1] = [379 -- 42 --> 421]

a[2] = [298 -- 21 --> 319]

Carga[1] = [379 -- 6 --> 385]

Carga[2] = [298 -- 6 --> 304]

ParadaComida[1] = [319 -- 60 --> 379]

makespan = [421 -- 0 --> 421]

Truck = Discrete Resource

required by ParadaComida[1] over [319,379] in capacity 1

required by a[2] over [298,319] in capacity 1

required by a[1] over [379,421] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[2] over [298,304] in capacity 1

required by Carga[1] over [379,385] in capacity 1

Margen[1] = 10

Margen[2] = 20

Scheduling 5.3

Optimal Solution with Objective Value: 781

a[1] = [64 -- 45 --> 109]

a[2] = [123 -- 45 --> 168]

a[3] = [182 -- 45 --> 227]

a[4] = [106 -- 45 --> 151]

a[5] = [144 -- 45 --> 189]

a[6] = [182 -- 45 --> 227]

a[7] = [297 -- 47 --> 344]

a[8] = [310 -- 47 --> 357]

a[9] = [323 -- 47 --> 370]

a[10] = [336 -- 47 --> 383]

a[11] = [349 -- 47 --> 396]

a[12] = [362 -- 47 --> 409]

a[13] = [375 -- 47 --> 422]

a[14] = [388 -- 47 --> 435]

a[15] = [401 -- 47 --> 448]



a[16] = [414 -- 47 --> 461]
a[17] = [427 -- 47 --> 474]
a[18] = [166 -- 29 --> 195]
a[19] = [678 -- 48 --> 726]
a[20] = [698 -- 48 --> 746]
a[21] = [718 -- 48 --> 766]
a[22] = [733 -- 48 --> 781]
a[23] = [171 -- 29 --> 200]
a[24] = [190 -- 29 --> 219]
a[25] = [209 -- 29 --> 238]
a[26] = [228 -- 29 --> 257]
a[27] = [247 -- 29 --> 276]
a[28] = [266 -- 29 --> 295]
a[29] = [228 -- 45 --> 273]
a[30] = [439 -- 47 --> 486]
a[31] = [466 -- 47 --> 513]
a[32] = [493 -- 47 --> 540]
a[33] = [671 -- 19 --> 690]
a[34] = [0 -- 42 --> 42]
a[35] = [28 -- 42 --> 70]
a[36] = [55 -- 42 --> 97]
a[37] = [82 -- 42 --> 124]
a[38] = [109 -- 42 --> 151]
a[39] = [136 -- 42 --> 178]
a[40] = [163 -- 42 --> 205]
a[41] = [431 -- 55 --> 486]
a[42] = [464 -- 55 --> 519]
a[43] = [497 -- 55 --> 552]
a[44] = [524 -- 31 --> 555]
a[45] = [542 -- 31 --> 573]
a[46] = [560 -- 31 --> 591]
a[47] = [578 -- 31 --> 609]
a[48] = [596 -- 31 --> 627]
a[49] = [614 -- 31 --> 645]
a[50] = [632 -- 31 --> 663]
a[51] = [650 -- 31 --> 681]
a[52] = [668 -- 31 --> 699]
a[53] = [686 -- 31 --> 717]
a[54] = [703 -- 21 --> 724]

Carga[1] = [64 -- 3 --> 67]
Carga[2] = [123 -- 3 --> 126]
Carga[3] = [182 -- 3 --> 185]
Carga[4] = [106 -- 3 --> 109]
Carga[5] = [144 -- 3 --> 147]
Carga[6] = [182 -- 3 --> 185]
Carga[7] = [297 -- 3 --> 300]
Carga[8] = [310 -- 3 --> 313]
Carga[9] = [323 -- 3 --> 326]
Carga[10] = [336 -- 3 --> 339]
Carga[11] = [349 -- 3 --> 352]
Carga[12] = [362 -- 3 --> 365]
Carga[13] = [375 -- 3 --> 378]
Carga[14] = [388 -- 3 --> 391]
Carga[15] = [401 -- 3 --> 404]
Carga[16] = [414 -- 3 --> 417]
Carga[17] = [427 -- 3 --> 430]

Carga[18] = [166 -- 3 --> 169]
Carga[19] = [678 -- 3 --> 681]
Carga[20] = [698 -- 3 --> 701]
Carga[21] = [718 -- 3 --> 721]
Carga[22] = [733 -- 3 --> 736]
Carga[23] = [171 -- 3 --> 174]
Carga[24] = [190 -- 3 --> 193]
Carga[25] = [209 -- 3 --> 212]
Carga[26] = [228 -- 3 --> 231]
Carga[27] = [247 -- 3 --> 250]
Carga[28] = [266 -- 3 --> 269]
Carga[29] = [228 -- 3 --> 231]
Carga[30] = [439 -- 3 --> 442]
Carga[31] = [466 -- 3 --> 469]
Carga[32] = [493 -- 3 --> 496]
Carga[33] = [671 -- 3 --> 674]
Carga[34] = [0 -- 3 --> 3]
Carga[35] = [28 -- 3 --> 31]
Carga[36] = [55 -- 3 --> 58]
Carga[37] = [82 -- 3 --> 85]
Carga[38] = [109 -- 3 --> 112]
Carga[39] = [136 -- 3 --> 139]
Carga[40] = [163 -- 3 --> 166]
Carga[41] = [431 -- 3 --> 434]
Carga[42] = [464 -- 3 --> 467]
Carga[43] = [497 -- 3 --> 500]
Carga[44] = [524 -- 3 --> 527]
Carga[45] = [542 -- 3 --> 545]
Carga[46] = [560 -- 3 --> 563]
Carga[47] = [578 -- 3 --> 581]
Carga[48] = [596 -- 3 --> 599]
Carga[49] = [614 -- 3 --> 617]
Carga[50] = [632 -- 3 --> 635]
Carga[51] = [650 -- 3 --> 653]
Carga[52] = [668 -- 3 --> 671]
Carga[53] = [686 -- 3 --> 689]
Carga[54] = [703 -- 3 --> 706]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [300 -- 60 --> 360]
ParadaComida[9] = [300 -- 60 --> 360]
ParadaComida[10] = [300 -- 60 --> 360]
ParadaComida[11] = [357 -- 60 --> 417]
ParadaComida[12] = [360 -- 60 --> 420]
ParadaComida[13] = [360 -- 60 --> 420]
ParadaComida[14] = [360 -- 60 --> 420]

makespan = [781 -- 0 --> 781]
Truck = Discrete Resource
required by ParadaComida[14] over [360,420]
in capacity 1



required by ParadaComida[13] over [360,420] in capacity 1
required by ParadaComida[12] over [360,420] in capacity 1
required by ParadaComida[11] over [357,417] in capacity 1
required by ParadaComida[10] over [300,360] in capacity 1
required by ParadaComida[9] over [300,360] in capacity 1
required by ParadaComida[8] over [300,360] in capacity 1
required by ParadaComida[7] over [300,360] in capacity 1
required by ParadaComida[6] over [300,360] in capacity 1
required by ParadaComida[5] over [300,360] in capacity 1
required by ParadaComida[4] over [300,360] in capacity 1
required by ParadaComida[3] over [300,360] in capacity 1
required by ParadaComida[2] over [300,360] in capacity 1
required by ParadaComida[1] over [300,360] in capacity 1
required by a[54] over [703,724] in capacity 1
required by a[53] over [686,717] in capacity 1
required by a[52] over [668,699] in capacity 1
required by a[51] over [650,681] in capacity 1
required by a[50] over [632,663] in capacity 1
required by a[49] over [614,645] in capacity 1
required by a[48] over [596,627] in capacity 1
required by a[47] over [578,609] in capacity 1
required by a[46] over [560,591] in capacity 1
required by a[45] over [542,573] in capacity 1
required by a[44] over [524,555] in capacity 1
required by a[43] over [497,552] in capacity 1
required by a[42] over [464,519] in capacity 1
required by a[41] over [431,486] in capacity 1
required by a[40] over [163,205] in capacity 1
required by a[39] over [136,178] in capacity 1
required by a[38] over [109,151] in capacity 1
required by a[37] over [82,124] in capacity 1
required by a[36] over [55,97] in capacity 1
required by a[35] over [28,70] in capacity 1
required by a[34] over [0,42] in capacity 1
required by a[33] over [671,690] in capacity 1
required by a[32] over [493,540] in capacity 1
required by a[31] over [466,513] in capacity 1
required by a[30] over [439,486] in capacity 1
required by a[29] over [228,273] in capacity 1
required by a[28] over [266,295] in capacity 1
required by a[27] over [247,276] in capacity 1
required by a[26] over [228,257] in capacity 1
required by a[25] over [209,238] in capacity 1
required by a[24] over [190,219] in capacity 1

required by a[23] over [171,200] in capacity 1
required by a[22] over [733,781] in capacity 1
required by a[21] over [718,766] in capacity 1
required by a[20] over [698,746] in capacity 1
required by a[19] over [678,726] in capacity 1
required by a[18] over [166,195] in capacity 1
required by a[17] over [427,474] in capacity 1
required by a[16] over [414,461] in capacity 1
required by a[15] over [401,448] in capacity 1
required by a[14] over [388,435] in capacity 1
required by a[13] over [375,422] in capacity 1
required by a[12] over [362,409] in capacity 1
required by a[11] over [349,396] in capacity 1
required by a[10] over [336,383] in capacity 1
required by a[9] over [323,370] in capacity 1
required by a[8] over [310,357] in capacity 1
required by a[7] over [297,344] in capacity 1
required by a[6] over [182,227] in capacity 1
required by a[5] over [144,189] in capacity 1
required by a[4] over [106,151] in capacity 1
required by a[3] over [182,227] in capacity 1
required by a[2] over [123,168] in capacity 1
required by a[1] over [64,109] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[54] over [703,706] in capacity 1
required by Carga[53] over [686,689] in capacity 1
required by Carga[52] over [668,671] in capacity 1
required by Carga[51] over [650,653] in capacity 1
required by Carga[50] over [632,635] in capacity 1
required by Carga[49] over [614,617] in capacity 1
required by Carga[48] over [596,599] in capacity 1
required by Carga[47] over [578,581] in capacity 1
required by Carga[46] over [560,563] in capacity 1
required by Carga[45] over [542,545] in capacity 1
required by Carga[44] over [524,527] in capacity 1
required by Carga[43] over [497,500] in capacity 1
required by Carga[42] over [464,467] in capacity 1
required by Carga[41] over [431,434] in capacity 1
required by Carga[40] over [163,166] in capacity 1
required by Carga[39] over [136,139] in capacity 1



required by Carga[38] over [109,112] in capacity 1
required by Carga[37] over [82,85] in capacity 1
required by Carga[36] over [55,58] in capacity 1
required by Carga[35] over [28,31] in capacity 1
required by Carga[34] over [0,3] in capacity 1
required by Carga[33] over [671,674] in capacity 1
required by Carga[32] over [493,496] in capacity 1
required by Carga[31] over [466,469] in capacity 1
required by Carga[30] over [439,442] in capacity 1
required by Carga[29] over [228,231] in capacity 1
required by Carga[28] over [266,269] in capacity 1
required by Carga[27] over [247,250] in capacity 1
required by Carga[26] over [228,231] in capacity 1
required by Carga[25] over [209,212] in capacity 1
required by Carga[24] over [190,193] in capacity 1
required by Carga[23] over [171,174] in capacity 1
required by Carga[22] over [733,736] in capacity 1
required by Carga[21] over [718,721] in capacity 1
required by Carga[20] over [698,701] in capacity 1
required by Carga[19] over [678,681] in capacity 1
required by Carga[18] over [166,169] in capacity 1
required by Carga[17] over [427,430] in capacity 1
required by Carga[16] over [414,417] in capacity 1
required by Carga[15] over [401,404] in capacity 1
required by Carga[14] over [388,391] in capacity 1
required by Carga[13] over [375,378] in capacity 1
required by Carga[12] over [362,365] in capacity 1
required by Carga[11] over [349,352] in capacity 1
required by Carga[10] over [336,339] in capacity 1

required by Carga[9] over [323,326] in capacity 1
required by Carga[8] over [310,313] in capacity 1
required by Carga[7] over [297,300] in capacity 1
required by Carga[6] over [182,185] in capacity 1
required by Carga[5] over [144,147] in capacity 1
required by Carga[4] over [106,109] in capacity 1
required by Carga[3] over [182,185] in capacity 1
required by Carga[2] over [123,126] in capacity 1
required by Carga[1] over [64,67] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 5
Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 1
Margen[35] = 0
Margen[36] = 0
Margen[37] = 0
Margen[38] = 0



Margen[39] = 0
Margen[40] = 0
Margen[41] = 0
Margen[42] = 0
Margen[43] = 0
Margen[44] = 0
Margen[45] = 0
Margen[46] = 0
Margen[47] = 0
Margen[48] = 0
Margen[49] = 0
Margen[50] = 0
Margen[51] = 0
Margen[52] = 0
Margen[53] = 0
Margen[54] = 0

Scheduling 6.1

Optimal Solution with Objective Value: 731

a[1] = [477 -- 30 --> 507]
a[2] = [524 -- 30 --> 554]
a[3] = [571 -- 30 --> 601]
a[4] = [152 -- 66 --> 218]
a[5] = [174 -- 66 --> 240]
a[6] = [196 -- 66 --> 262]
a[7] = [218 -- 66 --> 284]
a[8] = [468 -- 37 --> 505]
a[9] = [489 -- 37 --> 526]
a[10] = [510 -- 37 --> 547]
a[11] = [531 -- 37 --> 568]
a[12] = [552 -- 37 --> 589]
a[13] = [577 -- 37 --> 614]
a[14] = [594 -- 37 --> 631]
a[15] = [615 -- 37 --> 652]
a[16] = [636 -- 37 --> 673]
a[17] = [657 -- 37 --> 694]
a[18] = [678 -- 37 --> 715]
a[19] = [694 -- 37 --> 731]

Carga[1] = [477 -- 6 --> 483]
Carga[2] = [524 -- 6 --> 530]
Carga[3] = [571 -- 6 --> 577]
Carga[4] = [152 -- 6 --> 158]
Carga[5] = [174 -- 6 --> 180]
Carga[6] = [196 -- 6 --> 202]
Carga[7] = [218 -- 6 --> 224]
Carga[8] = [468 -- 6 --> 474]
Carga[9] = [489 -- 6 --> 495]
Carga[10] = [510 -- 6 --> 516]
Carga[11] = [531 -- 6 --> 537]
Carga[12] = [552 -- 6 --> 558]
Carga[13] = [577 -- 6 --> 583]
Carga[14] = [594 -- 6 --> 600]
Carga[15] = [615 -- 6 --> 621]
Carga[16] = [636 -- 6 --> 642]
Carga[17] = [657 -- 6 --> 663]

Carga[18] = [678 -- 6 --> 684]
Carga[19] = [694 -- 6 --> 700]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]

makespan = [731 -- 0 --> 731]

Truck = Discrete Resource

required by ParadaComida[5] over [300,360]
in capacity 1

required by ParadaComida[4] over [300,360]
in capacity 1

required by ParadaComida[3] over [300,360]
in capacity 1

required by ParadaComida[2] over [300,360]
in capacity 1

required by ParadaComida[1] over [300,360]
in capacity 1

required by a[19] over [694,731] in capacity 1

required by a[18] over [678,715] in capacity 1

required by a[17] over [657,694] in capacity 1

required by a[16] over [636,673] in capacity 1

required by a[15] over [615,652] in capacity 1

required by a[14] over [594,631] in capacity 1

required by a[13] over [577,614] in capacity 1

required by a[12] over [552,589] in capacity 1

required by a[11] over [531,568] in capacity 1

required by a[10] over [510,547] in capacity 1

required by a[9] over [489,526] in capacity 1

required by a[8] over [468,505] in capacity 1

required by a[7] over [218,284] in capacity 1

required by a[6] over [196,262] in capacity 1

required by a[5] over [174,240] in capacity 1

required by a[4] over [152,218] in capacity 1

required by a[3] over [571,601] in capacity 1

required by a[2] over [524,554] in capacity 1

required by a[1] over [477,507] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[19] over [694,700] in
capacity 1

required by Carga[18] over [678,684] in
capacity 1

required by Carga[17] over [657,663] in
capacity 1

required by Carga[16] over [636,642] in
capacity 1

required by Carga[15] over [615,621] in
capacity 1

required by Carga[14] over [594,600] in
capacity 1

required by Carga[13] over [577,583] in
capacity 1



required by Carga[12] over [552,558] in capacity 1
required by Carga[11] over [531,537] in capacity 1
required by Carga[10] over [510,516] in capacity 1
required by Carga[9] over [489,495] in capacity 1
required by Carga[8] over [468,474] in capacity 1
required by Carga[7] over [218,224] in capacity 1
required by Carga[6] over [196,202] in capacity 1
required by Carga[5] over [174,180] in capacity 1
required by Carga[4] over [152,158] in capacity 1
required by Carga[3] over [571,577] in capacity 1
required by Carga[2] over [524,530] in capacity 1
required by Carga[1] over [477,483] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 4
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 5

Scheduling 6.2

Optimal Solution with Objective Value: 776

a[1] = [538 -- 23 --> 561]
a[2] = [718 -- 19 --> 737]
a[3] = [757 -- 19 --> 776]
a[4] = [535 -- 53 --> 588]
a[5] = [541 -- 53 --> 594]
a[6] = [547 -- 53 --> 600]
a[7] = [132 -- 21 --> 153]
a[8] = [147 -- 21 --> 168]
a[9] = [162 -- 21 --> 183]

a[10] = [177 -- 21 --> 198]
a[11] = [192 -- 21 --> 213]
a[12] = [422 -- 23 --> 445]
a[13] = [436 -- 23 --> 459]
a[14] = [507 -- 40 --> 547]
a[15] = [532 -- 40 --> 572]
a[16] = [546 -- 40 --> 586]
a[17] = [561 -- 40 --> 601]
a[18] = [574 -- 40 --> 614]
a[19] = [588 -- 40 --> 628]
a[20] = [602 -- 40 --> 642]
a[21] = [616 -- 40 --> 656]
a[22] = [630 -- 40 --> 670]

Carga[1] = [538 -- 6 --> 544]
Carga[2] = [718 -- 6 --> 724]
Carga[3] = [757 -- 6 --> 763]
Carga[4] = [535 -- 6 --> 541]
Carga[5] = [541 -- 6 --> 547]
Carga[6] = [547 -- 6 --> 553]
Carga[7] = [132 -- 6 --> 138]
Carga[8] = [147 -- 6 --> 153]
Carga[9] = [162 -- 6 --> 168]
Carga[10] = [177 -- 6 --> 183]
Carga[11] = [192 -- 6 --> 198]
Carga[12] = [422 -- 6 --> 428]
Carga[13] = [436 -- 6 --> 442]
Carga[14] = [507 -- 6 --> 513]
Carga[15] = [532 -- 6 --> 538]
Carga[16] = [546 -- 6 --> 552]
Carga[17] = [561 -- 6 --> 567]
Carga[18] = [574 -- 6 --> 580]
Carga[19] = [588 -- 6 --> 594]
Carga[20] = [602 -- 6 --> 608]
Carga[21] = [616 -- 6 --> 622]
Carga[22] = [630 -- 6 --> 636]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]

makespan = [776 -- 0 --> 776]

Truck = Discrete Resource

required by ParadaComida[6] over [300,360] in capacity 1
required by ParadaComida[5] over [300,360] in capacity 1
required by ParadaComida[4] over [300,360] in capacity 1
required by ParadaComida[3] over [300,360] in capacity 1
required by ParadaComida[2] over [300,360] in capacity 1



required by ParadaComida[1] over [300,360] in capacity 1
required by a[22] over [630,670] in capacity 1
required by a[21] over [616,656] in capacity 1
required by a[20] over [602,642] in capacity 1
required by a[19] over [588,628] in capacity 1
required by a[18] over [574,614] in capacity 1
required by a[17] over [561,601] in capacity 1
required by a[16] over [546,586] in capacity 1
required by a[15] over [532,572] in capacity 1
required by a[14] over [507,547] in capacity 1
required by a[13] over [436,459] in capacity 1
required by a[12] over [422,445] in capacity 1
required by a[11] over [192,213] in capacity 1
required by a[10] over [177,198] in capacity 1
required by a[9] over [162,183] in capacity 1
required by a[8] over [147,168] in capacity 1
required by a[7] over [132,153] in capacity 1
required by a[6] over [547,600] in capacity 1
required by a[5] over [541,594] in capacity 1
required by a[4] over [535,588] in capacity 1
required by a[3] over [757,776] in capacity 1
required by a[2] over [718,737] in capacity 1
required by a[1] over [538,561] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[22] over [630,636] in capacity 1
required by Carga[21] over [616,622] in capacity 1
required by Carga[20] over [602,608] in capacity 1
required by Carga[19] over [588,594] in capacity 1
required by Carga[18] over [574,580] in capacity 1
required by Carga[17] over [561,567] in capacity 1
required by Carga[16] over [546,552] in capacity 1
required by Carga[15] over [532,538] in capacity 1
required by Carga[14] over [507,513] in capacity 1
required by Carga[13] over [436,442] in capacity 1
required by Carga[12] over [422,428] in capacity 1
required by Carga[11] over [192,198] in capacity 1
required by Carga[10] over [177,183] in capacity 1
required by Carga[9] over [162,168] in capacity 1
required by Carga[8] over [147,153] in capacity 1

required by Carga[7] over [132,138] in capacity 1
required by Carga[6] over [547,553] in capacity 1
required by Carga[5] over [541,547] in capacity 1
required by Carga[4] over [535,541] in capacity 1
required by Carga[3] over [757,763] in capacity 1
required by Carga[2] over [718,724] in capacity 1
required by Carga[1] over [538,544] in capacity 1

Margen[1] = 9
Margen[2] = 0
Margen[3] = 5
Margen[4] = 7
Margen[5] = 1
Margen[6] = 5
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 11
Margen[15] = 0
Margen[16] = 0
Margen[17] = 1
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0

Scheduling 6.3

Optimal Solution with Objective Value: 773

a[1] = [113 -- 35 --> 148]
a[2] = [143 -- 35 --> 178]
a[3] = [173 -- 35 --> 208]
a[4] = [488 -- 42 --> 530]
a[5] = [516 -- 42 --> 558]
a[6] = [544 -- 42 --> 586]
a[7] = [572 -- 42 --> 614]
a[8] = [600 -- 42 --> 642]
a[9] = [628 -- 42 --> 670]
a[10] = [656 -- 42 --> 698]
a[11] = [123 -- 39 --> 162]
a[12] = [143 -- 39 --> 182]
a[13] = [163 -- 39 --> 202]
a[14] = [442 -- 43 --> 485]
a[15] = [477 -- 43 --> 520]
a[16] = [512 -- 43 --> 555]



a[17] = [275 -- 29 --> 304]
a[18] = [321 -- 29 --> 350]
a[19] = [367 -- 29 --> 396]
a[20] = [522 -- 61 --> 583]
a[21] = [654 -- 34 --> 688]
a[22] = [684 -- 34 --> 718]
a[23] = [714 -- 34 --> 748]
a[24] = [739 -- 34 --> 773]
a[25] = [484 -- 55 --> 539]
a[26] = [283 -- 29 --> 312]
a[27] = [314 -- 29 --> 343]
a[28] = [345 -- 29 --> 374]
a[29] = [148 -- 31 --> 179]
a[30] = [166 -- 31 --> 197]
a[31] = [184 -- 31 --> 215]
a[32] = [0 -- 19 --> 19]
a[33] = [58 -- 19 --> 77]
a[34] = [111 -- 19 --> 130]

Carga[1] = [113 -- 3 --> 116]
Carga[2] = [143 -- 3 --> 146]
Carga[3] = [173 -- 3 --> 176]
Carga[4] = [488 -- 3 --> 491]
Carga[5] = [516 -- 3 --> 519]
Carga[6] = [544 -- 3 --> 547]
Carga[7] = [572 -- 3 --> 575]
Carga[8] = [600 -- 3 --> 603]
Carga[9] = [628 -- 3 --> 631]
Carga[10] = [656 -- 3 --> 659]
Carga[11] = [123 -- 3 --> 126]
Carga[12] = [143 -- 3 --> 146]
Carga[13] = [163 -- 3 --> 166]
Carga[14] = [442 -- 3 --> 445]
Carga[15] = [477 -- 3 --> 480]
Carga[16] = [512 -- 3 --> 515]
Carga[17] = [275 -- 3 --> 278]
Carga[18] = [321 -- 3 --> 324]
Carga[19] = [367 -- 3 --> 370]
Carga[20] = [522 -- 3 --> 525]
Carga[21] = [654 -- 3 --> 657]
Carga[22] = [684 -- 3 --> 687]
Carga[23] = [714 -- 3 --> 717]
Carga[24] = [739 -- 3 --> 742]
Carga[25] = [484 -- 3 --> 487]
Carga[26] = [283 -- 3 --> 286]
Carga[27] = [314 -- 3 --> 317]
Carga[28] = [345 -- 3 --> 348]
Carga[29] = [148 -- 3 --> 151]
Carga[30] = [166 -- 3 --> 169]
Carga[31] = [184 -- 3 --> 187]
Carga[32] = [0 -- 3 --> 3]
Carga[33] = [58 -- 3 --> 61]
Carga[34] = [111 -- 3 --> 114]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]

ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [350 -- 60 --> 410]
ParadaComida[9] = [360 -- 60 --> 420]

makespan = [773 -- 0 --> 773]
Truck = Discrete Resource
required by ParadaComida[9] over [360,420]
in capacity 1
required by ParadaComida[8] over [350,410]
in capacity 1
required by ParadaComida[7] over [300,360]
in capacity 1
required by ParadaComida[6] over [300,360]
in capacity 1
required by ParadaComida[5] over [300,360]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[34] over [111,130] in capacity 1
required by a[33] over [58,77] in capacity 1
required by a[32] over [0,19] in capacity 1
required by a[31] over [184,215] in capacity 1
required by a[30] over [166,197] in capacity 1
required by a[29] over [148,179] in capacity 1
required by a[28] over [345,374] in capacity 1
required by a[27] over [314,343] in capacity 1
required by a[26] over [283,312] in capacity 1
required by a[25] over [484,539] in capacity 1
required by a[24] over [739,773] in capacity 1
required by a[23] over [714,748] in capacity 1
required by a[22] over [684,718] in capacity 1
required by a[21] over [654,688] in capacity 1
required by a[20] over [522,583] in capacity 1
required by a[19] over [367,396] in capacity 1
required by a[18] over [321,350] in capacity 1
required by a[17] over [275,304] in capacity 1
required by a[16] over [512,555] in capacity 1
required by a[15] over [477,520] in capacity 1
required by a[14] over [442,485] in capacity 1
required by a[13] over [163,202] in capacity 1
required by a[12] over [143,182] in capacity 1
required by a[11] over [123,162] in capacity 1
required by a[10] over [656,698] in capacity 1
required by a[9] over [628,670] in capacity 1
required by a[8] over [600,642] in capacity 1
required by a[7] over [572,614] in capacity 1
required by a[6] over [544,586] in capacity 1
required by a[5] over [516,558] in capacity 1



required by a[4] over [488,530] in capacity 1
required by a[3] over [173,208] in capacity 1
required by a[2] over [143,178] in capacity 1
required by a[1] over [113,148] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[34] over [111,114] in capacity 1
required by Carga[33] over [58,61] in capacity 1
required by Carga[32] over [0,3] in capacity 1
required by Carga[31] over [184,187] in capacity 1
required by Carga[30] over [166,169] in capacity 1
required by Carga[29] over [148,151] in capacity 1
required by Carga[28] over [345,348] in capacity 1
required by Carga[27] over [314,317] in capacity 1
required by Carga[26] over [283,286] in capacity 1
required by Carga[25] over [484,487] in capacity 1
required by Carga[24] over [739,742] in capacity 1
required by Carga[23] over [714,717] in capacity 1
required by Carga[22] over [684,687] in capacity 1
required by Carga[21] over [654,657] in capacity 1
required by Carga[20] over [522,525] in capacity 1
required by Carga[19] over [367,370] in capacity 1
required by Carga[18] over [321,324] in capacity 1
required by Carga[17] over [275,278] in capacity 1
required by Carga[16] over [512,515] in capacity 1
required by Carga[15] over [477,480] in capacity 1
required by Carga[14] over [442,445] in capacity 1
required by Carga[13] over [163,166] in capacity 1
required by Carga[12] over [143,146] in capacity 1
required by Carga[11] over [123,126] in capacity 1
required by Carga[10] over [656,659] in capacity 1
required by Carga[9] over [628,631] in capacity 1

required by Carga[8] over [600,603] in capacity 1
required by Carga[7] over [572,575] in capacity 1
required by Carga[6] over [544,547] in capacity 1
required by Carga[5] over [516,519] in capacity 1
required by Carga[4] over [488,491] in capacity 1
required by Carga[3] over [173,176] in capacity 1
required by Carga[2] over [143,146] in capacity 1
required by Carga[1] over [113,116] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0
Margen[24] = 5
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 5
Margen[33] = 0
Margen[34] = 0

Scheduling 7.1

Optimal Solution with Objective Value: 728

a[1] = [427 -- 45 --> 472]

a[2] = [460 -- 45 --> 505]



a[3] = [574 -- 29 --> 603]
a[4] = [600 -- 29 --> 629]
a[5] = [626 -- 29 --> 655]
a[6] = [652 -- 29 --> 681]
a[7] = [678 -- 29 --> 707]
a[8] = [699 -- 29 --> 728]
a[9] = [345 -- 30 --> 375]
a[10] = [356 -- 30 --> 386]
a[11] = [367 -- 30 --> 397]
a[12] = [378 -- 30 --> 408]
a[13] = [389 -- 30 --> 419]
a[14] = [400 -- 30 --> 430]
a[15] = [411 -- 30 --> 441]
a[16] = [422 -- 30 --> 452]
a[17] = [433 -- 30 --> 463]
a[18] = [444 -- 30 --> 474]
a[19] = [455 -- 30 --> 485]
a[20] = [466 -- 30 --> 496]
a[21] = [477 -- 30 --> 507]
a[22] = [488 -- 30 --> 518]
a[23] = [499 -- 30 --> 529]
a[24] = [510 -- 30 --> 540]
a[25] = [521 -- 30 --> 551]
a[26] = [532 -- 30 --> 562]
a[27] = [543 -- 30 --> 573]
a[28] = [554 -- 30 --> 584]
a[29] = [565 -- 30 --> 595]
a[30] = [576 -- 30 --> 606]
a[31] = [587 -- 30 --> 617]
a[32] = [598 -- 30 --> 628]
a[33] = [609 -- 30 --> 639]
a[34] = [620 -- 30 --> 650]
a[35] = [631 -- 30 --> 661]
a[36] = [642 -- 30 --> 672]
a[37] = [653 -- 30 --> 683]
a[38] = [185 -- 27 --> 212]
a[39] = [224 -- 27 --> 251]
a[40] = [24 -- 27 --> 51]
a[41] = [40 -- 27 --> 67]
a[42] = [56 -- 27 --> 83]
a[43] = [72 -- 27 --> 99]
a[44] = [88 -- 27 --> 115]
a[45] = [104 -- 27 --> 131]
a[46] = [30 -- 70 --> 100]
a[47] = [79 -- 70 --> 149]
a[48] = [96 -- 32 --> 128]
a[49] = [110 -- 32 --> 142]
a[50] = [124 -- 32 --> 156]
a[51] = [138 -- 32 --> 170]
a[52] = [152 -- 32 --> 184]
a[53] = [166 -- 32 --> 198]
a[54] = [180 -- 32 --> 212]
a[55] = [194 -- 32 --> 226]
a[56] = [208 -- 32 --> 240]
a[57] = [222 -- 32 --> 254]
a[58] = [236 -- 32 --> 268]
a[59] = [250 -- 32 --> 282]

a[60] = [264 -- 32 --> 296]
a[61] = [278 -- 32 --> 310]
a[62] = [292 -- 32 --> 324]
a[63] = [306 -- 32 --> 338]
a[64] = [320 -- 32 --> 352]
a[65] = [334 -- 32 --> 366]
a[66] = [348 -- 32 --> 380]
a[67] = [362 -- 32 --> 394]
a[68] = [376 -- 32 --> 408]
a[69] = [390 -- 32 --> 422]
a[70] = [404 -- 32 --> 436]
a[71] = [418 -- 32 --> 450]
a[72] = [432 -- 32 --> 464]
a[73] = [446 -- 32 --> 478]
a[74] = [461 -- 32 --> 493]
a[75] = [474 -- 32 --> 506]
a[76] = [488 -- 32 --> 520]
a[77] = [502 -- 32 --> 534]
a[78] = [516 -- 32 --> 548]
a[79] = [530 -- 32 --> 562]
a[80] = [544 -- 32 --> 576]
a[81] = [558 -- 32 --> 590]
a[82] = [26 -- 45 --> 71]

Carga[1] = [427 -- 6 --> 433]
Carga[2] = [460 -- 6 --> 466]
Carga[3] = [574 -- 6 --> 580]
Carga[4] = [600 -- 6 --> 606]
Carga[5] = [626 -- 6 --> 632]
Carga[6] = [652 -- 6 --> 658]
Carga[7] = [678 -- 6 --> 684]
Carga[8] = [699 -- 6 --> 705]
Carga[9] = [345 -- 6 --> 351]
Carga[10] = [356 -- 6 --> 362]
Carga[11] = [367 -- 6 --> 373]
Carga[12] = [378 -- 6 --> 384]
Carga[13] = [389 -- 6 --> 395]
Carga[14] = [400 -- 6 --> 406]
Carga[15] = [411 -- 6 --> 417]
Carga[16] = [422 -- 6 --> 428]
Carga[17] = [433 -- 6 --> 439]
Carga[18] = [444 -- 6 --> 450]
Carga[19] = [455 -- 6 --> 461]
Carga[20] = [466 -- 6 --> 472]
Carga[21] = [477 -- 6 --> 483]
Carga[22] = [488 -- 6 --> 494]
Carga[23] = [499 -- 6 --> 505]
Carga[24] = [510 -- 6 --> 516]
Carga[25] = [521 -- 6 --> 527]
Carga[26] = [532 -- 6 --> 538]
Carga[27] = [543 -- 6 --> 549]
Carga[28] = [554 -- 6 --> 560]
Carga[29] = [565 -- 6 --> 571]
Carga[30] = [576 -- 6 --> 582]
Carga[31] = [587 -- 6 --> 593]
Carga[32] = [598 -- 6 --> 604]
Carga[33] = [609 -- 6 --> 615]



Carga[34] = [620 -- 6 --> 626]
Carga[35] = [631 -- 6 --> 637]
Carga[36] = [642 -- 6 --> 648]
Carga[37] = [653 -- 6 --> 659]
Carga[38] = [185 -- 6 --> 191]
Carga[39] = [224 -- 6 --> 230]
Carga[40] = [24 -- 6 --> 30]
Carga[41] = [40 -- 6 --> 46]
Carga[42] = [56 -- 6 --> 62]
Carga[43] = [72 -- 6 --> 78]
Carga[44] = [88 -- 6 --> 94]
Carga[45] = [104 -- 6 --> 110]
Carga[46] = [30 -- 6 --> 36]
Carga[47] = [79 -- 6 --> 85]
Carga[48] = [96 -- 6 --> 102]
Carga[49] = [110 -- 6 --> 116]
Carga[50] = [124 -- 6 --> 130]
Carga[51] = [138 -- 6 --> 144]
Carga[52] = [152 -- 6 --> 158]
Carga[53] = [166 -- 6 --> 172]
Carga[54] = [180 -- 6 --> 186]
Carga[55] = [194 -- 6 --> 200]
Carga[56] = [208 -- 6 --> 214]
Carga[57] = [222 -- 6 --> 228]
Carga[58] = [236 -- 6 --> 242]
Carga[59] = [250 -- 6 --> 256]
Carga[60] = [264 -- 6 --> 270]
Carga[61] = [278 -- 6 --> 284]
Carga[62] = [292 -- 6 --> 298]
Carga[63] = [306 -- 6 --> 312]
Carga[64] = [320 -- 6 --> 326]
Carga[65] = [334 -- 6 --> 340]
Carga[66] = [348 -- 6 --> 354]
Carga[67] = [362 -- 6 --> 368]
Carga[68] = [376 -- 6 --> 382]
Carga[69] = [390 -- 6 --> 396]
Carga[70] = [404 -- 6 --> 410]
Carga[71] = [418 -- 6 --> 424]
Carga[72] = [432 -- 6 --> 438]
Carga[73] = [446 -- 6 --> 452]
Carga[74] = [461 -- 6 --> 467]
Carga[75] = [474 -- 6 --> 480]
Carga[76] = [488 -- 6 --> 494]
Carga[77] = [502 -- 6 --> 508]
Carga[78] = [516 -- 6 --> 522]
Carga[79] = [530 -- 6 --> 536]
Carga[80] = [544 -- 6 --> 550]
Carga[81] = [558 -- 6 --> 564]
Carga[82] = [26 -- 6 --> 32]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]

ParadaComida[8] = [300 -- 60 --> 360]
ParadaComida[9] = [300 -- 60 --> 360]
ParadaComida[10] = [300 -- 60 --> 360]
ParadaComida[11] = [300 -- 60 --> 360]
ParadaComida[12] = [300 -- 60 --> 360]
ParadaComida[13] = [300 -- 60 --> 360]
ParadaComida[14] = [300 -- 60 --> 360]
ParadaComida[15] = [300 -- 60 --> 360]
ParadaComida[16] = [300 -- 60 --> 360]
ParadaComida[17] = [300 -- 60 --> 360]
ParadaComida[18] = [360 -- 60 --> 420]
ParadaComida[19] = [360 -- 60 --> 420]
ParadaComida[20] = [360 -- 60 --> 420]
ParadaComida[21] = [360 -- 60 --> 420]

makespan = [728 -- 0 --> 728]

Truck = Discrete Resource

required by ParadaComida[21] over [360,420]
in capacity 1
required by ParadaComida[20] over [360,420]
in capacity 1
required by ParadaComida[19] over [360,420]
in capacity 1
required by ParadaComida[18] over [360,420]
in capacity 1
required by ParadaComida[17] over [300,360]
in capacity 1
required by ParadaComida[16] over [300,360]
in capacity 1
required by ParadaComida[15] over [300,360]
in capacity 1
required by ParadaComida[14] over [300,360]
in capacity 1
required by ParadaComida[13] over [300,360]
in capacity 1
required by ParadaComida[12] over [300,360]
in capacity 1
required by ParadaComida[11] over [300,360]
in capacity 1
required by ParadaComida[10] over [300,360]
in capacity 1
required by ParadaComida[9] over [300,360]
in capacity 1
required by ParadaComida[8] over [300,360]
in capacity 1
required by ParadaComida[7] over [300,360]
in capacity 1
required by ParadaComida[6] over [300,360]
in capacity 1
required by ParadaComida[5] over [300,360]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1



required by ParadaComida[1] over [300,360] in capacity 1
required by a[82] over [26,71] in capacity 1
required by a[81] over [558,590] in capacity 1
required by a[80] over [544,576] in capacity 1
required by a[79] over [530,562] in capacity 1
required by a[78] over [516,548] in capacity 1
required by a[77] over [502,534] in capacity 1
required by a[76] over [488,520] in capacity 1
required by a[75] over [474,506] in capacity 1
required by a[74] over [461,493] in capacity 1
required by a[73] over [446,478] in capacity 1
required by a[72] over [432,464] in capacity 1
required by a[71] over [418,450] in capacity 1
required by a[70] over [404,436] in capacity 1
required by a[69] over [390,422] in capacity 1
required by a[68] over [376,408] in capacity 1
required by a[67] over [362,394] in capacity 1
required by a[66] over [348,380] in capacity 1
required by a[65] over [334,366] in capacity 1
required by a[64] over [320,352] in capacity 1
required by a[63] over [306,338] in capacity 1
required by a[62] over [292,324] in capacity 1
required by a[61] over [278,310] in capacity 1
required by a[60] over [264,296] in capacity 1
required by a[59] over [250,282] in capacity 1
required by a[58] over [236,268] in capacity 1
required by a[57] over [222,254] in capacity 1
required by a[56] over [208,240] in capacity 1
required by a[55] over [194,226] in capacity 1
required by a[54] over [180,212] in capacity 1
required by a[53] over [166,198] in capacity 1
required by a[52] over [152,184] in capacity 1
required by a[51] over [138,170] in capacity 1
required by a[50] over [124,156] in capacity 1
required by a[49] over [110,142] in capacity 1
required by a[48] over [96,128] in capacity 1
required by a[47] over [79,149] in capacity 1
required by a[46] over [30,100] in capacity 1
required by a[45] over [104,131] in capacity 1
required by a[44] over [88,115] in capacity 1
required by a[43] over [72,99] in capacity 1
required by a[42] over [56,83] in capacity 1
required by a[41] over [40,67] in capacity 1
required by a[40] over [24,51] in capacity 1
required by a[39] over [224,251] in capacity 1
required by a[38] over [185,212] in capacity 1
required by a[37] over [653,683] in capacity 1
required by a[36] over [642,672] in capacity 1
required by a[35] over [631,661] in capacity 1
required by a[34] over [620,650] in capacity 1
required by a[33] over [609,639] in capacity 1
required by a[32] over [598,628] in capacity 1
required by a[31] over [587,617] in capacity 1
required by a[30] over [576,606] in capacity 1
required by a[29] over [565,595] in capacity 1
required by a[28] over [554,584] in capacity 1

required by a[27] over [543,573] in capacity 1
required by a[26] over [532,562] in capacity 1
required by a[25] over [521,551] in capacity 1
required by a[24] over [510,540] in capacity 1
required by a[23] over [499,529] in capacity 1
required by a[22] over [488,518] in capacity 1
required by a[21] over [477,507] in capacity 1
required by a[20] over [466,496] in capacity 1
required by a[19] over [455,485] in capacity 1
required by a[18] over [444,474] in capacity 1
required by a[17] over [433,463] in capacity 1
required by a[16] over [422,452] in capacity 1
required by a[15] over [411,441] in capacity 1
required by a[14] over [400,430] in capacity 1
required by a[13] over [389,419] in capacity 1
required by a[12] over [378,408] in capacity 1
required by a[11] over [367,397] in capacity 1
required by a[10] over [356,386] in capacity 1
required by a[9] over [345,375] in capacity 1
required by a[8] over [699,728] in capacity 1
required by a[7] over [678,707] in capacity 1
required by a[6] over [652,681] in capacity 1
required by a[5] over [626,655] in capacity 1
required by a[4] over [600,629] in capacity 1
required by a[3] over [574,603] in capacity 1
required by a[2] over [460,505] in capacity 1
required by a[1] over [427,472] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[82] over [26,32] in capacity 1
required by Carga[81] over [558,564] in capacity 1
required by Carga[80] over [544,550] in capacity 1
required by Carga[79] over [530,536] in capacity 1
required by Carga[78] over [516,522] in capacity 1
required by Carga[77] over [502,508] in capacity 1
required by Carga[76] over [488,494] in capacity 1
required by Carga[75] over [474,480] in capacity 1
required by Carga[74] over [461,467] in capacity 1
required by Carga[73] over [446,452] in capacity 1
required by Carga[72] over [432,438] in capacity 1
required by Carga[71] over [418,424] in capacity 1
required by Carga[70] over [404,410] in capacity 1
required by Carga[69] over [390,396] in capacity 1



required by Carga[68] over [376,382] in capacity 1
required by Carga[67] over [362,368] in capacity 1
required by Carga[66] over [348,354] in capacity 1
required by Carga[65] over [334,340] in capacity 1
required by Carga[64] over [320,326] in capacity 1
required by Carga[63] over [306,312] in capacity 1
required by Carga[62] over [292,298] in capacity 1
required by Carga[61] over [278,284] in capacity 1
required by Carga[60] over [264,270] in capacity 1
required by Carga[59] over [250,256] in capacity 1
required by Carga[58] over [236,242] in capacity 1
required by Carga[57] over [222,228] in capacity 1
required by Carga[56] over [208,214] in capacity 1
required by Carga[55] over [194,200] in capacity 1
required by Carga[54] over [180,186] in capacity 1
required by Carga[53] over [166,172] in capacity 1
required by Carga[52] over [152,158] in capacity 1
required by Carga[51] over [138,144] in capacity 1
required by Carga[50] over [124,130] in capacity 1
required by Carga[49] over [110,116] in capacity 1
required by Carga[48] over [96,102] in capacity 1
required by Carga[47] over [79,85] in capacity 1
required by Carga[46] over [30,36] in capacity 1
required by Carga[45] over [104,110] in capacity 1
required by Carga[44] over [88,94] in capacity 1
required by Carga[43] over [72,78] in capacity 1
required by Carga[42] over [56,62] in capacity 1
required by Carga[41] over [40,46] in capacity 1

required by Carga[40] over [24,30] in capacity 1
required by Carga[39] over [224,230] in capacity 1
required by Carga[38] over [185,191] in capacity 1
required by Carga[37] over [653,659] in capacity 1
required by Carga[36] over [642,648] in capacity 1
required by Carga[35] over [631,637] in capacity 1
required by Carga[34] over [620,626] in capacity 1
required by Carga[33] over [609,615] in capacity 1
required by Carga[32] over [598,604] in capacity 1
required by Carga[31] over [587,593] in capacity 1
required by Carga[30] over [576,582] in capacity 1
required by Carga[29] over [565,571] in capacity 1
required by Carga[28] over [554,560] in capacity 1
required by Carga[27] over [543,549] in capacity 1
required by Carga[26] over [532,538] in capacity 1
required by Carga[25] over [521,527] in capacity 1
required by Carga[24] over [510,516] in capacity 1
required by Carga[23] over [499,505] in capacity 1
required by Carga[22] over [488,494] in capacity 1
required by Carga[21] over [477,483] in capacity 1
required by Carga[20] over [466,472] in capacity 1
required by Carga[19] over [455,461] in capacity 1
required by Carga[18] over [444,450] in capacity 1
required by Carga[17] over [433,439] in capacity 1
required by Carga[16] over [422,428] in capacity 1
required by Carga[15] over [411,417] in capacity 1
required by Carga[14] over [400,406] in capacity 1
required by Carga[13] over [389,395] in capacity 1



required by Carga[12] over [378,384] in capacity 1
required by Carga[11] over [367,373] in capacity 1
required by Carga[10] over [356,362] in capacity 1
required by Carga[9] over [345,351] in capacity 1
required by Carga[8] over [699,705] in capacity 1
required by Carga[7] over [678,684] in capacity 1
required by Carga[6] over [652,658] in capacity 1
required by Carga[5] over [626,632] in capacity 1
required by Carga[4] over [600,606] in capacity 1
required by Carga[3] over [574,580] in capacity 1
required by Carga[2] over [460,466] in capacity 1
required by Carga[1] over [427,433] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 5
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0

Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 0
Margen[38] = 0
Margen[39] = 0
Margen[40] = 0
Margen[41] = 0
Margen[42] = 0
Margen[43] = 0
Margen[44] = 0
Margen[45] = 0
Margen[46] = 0
Margen[47] = 0
Margen[48] = 0
Margen[49] = 0
Margen[50] = 0
Margen[51] = 0
Margen[52] = 0
Margen[53] = 0
Margen[54] = 0
Margen[55] = 0
Margen[56] = 0
Margen[57] = 0
Margen[58] = 0
Margen[59] = 0
Margen[60] = 0
Margen[61] = 0
Margen[62] = 0
Margen[63] = 0
Margen[64] = 0
Margen[65] = 0
Margen[66] = 0
Margen[67] = 0
Margen[68] = 0
Margen[69] = 0
Margen[70] = 0
Margen[71] = 0
Margen[72] = 0
Margen[73] = 0
Margen[74] = 1
Margen[75] = 0
Margen[76] = 0
Margen[77] = 0
Margen[78] = 0
Margen[79] = 0
Margen[80] = 0
Margen[81] = 0
Margen[82] = 0

Scheduling 7.2

Optimal Solution with Objective Value: 431
a[1] = [196 -- 35 --> 231]
a[2] = [231 -- 35 --> 266]
a[3] = [185 -- 23 --> 208]



a[4] = [215 -- 23 --> 238]
a[5] = [245 -- 23 --> 268]
a[6] = [408 -- 23 --> 431]

Carga[1] = [196 -- 6 --> 202]
Carga[2] = [231 -- 6 --> 237]
Carga[3] = [185 -- 6 --> 191]
Carga[4] = [215 -- 6 --> 221]
Carga[5] = [245 -- 6 --> 251]
Carga[6] = [408 -- 6 --> 414]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]

makespan = [431 -- 0 --> 431]
Truck = Discrete Resource
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[6] over [408,431] in capacity 1
required by a[5] over [245,268] in capacity 1
required by a[4] over [215,238] in capacity 1
required by a[3] over [185,208] in capacity 1
required by a[2] over [231,266] in capacity 1
required by a[1] over [196,231] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[6] over [408,414] in
capacity 1
required by Carga[5] over [245,251] in
capacity 1
required by Carga[4] over [215,221] in
capacity 1
required by Carga[3] over [185,191] in
capacity 1
required by Carga[2] over [231,237] in
capacity 1
required by Carga[1] over [196,202] in
capacity 1

Margen[1] = 10
Margen[2] = 5
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 20

Scheduling 7.3

Optimal Solution with Objective Value: 548

a[1] = [236 -- 35 --> 271]
a[2] = [267 -- 35 --> 302]
a[3] = [298 -- 35 --> 333]
a[4] = [161 -- 75 --> 236]
a[5] = [202 -- 75 --> 277]
a[6] = [243 -- 75 --> 318]

a[7] = [506 -- 42 --> 548]
a[8] = [41 -- 47 --> 88]
a[9] = [99 -- 47 --> 146]
a[10] = [157 -- 47 --> 204]
a[11] = [215 -- 47 --> 262]
a[12] = [257 -- 45 --> 302]
a[13] = [230 -- 34 --> 264]
a[14] = [214 -- 29 --> 243]
a[15] = [85 -- 31 --> 116]
a[16] = [99 -- 31 --> 130]
a[17] = [113 -- 31 --> 144]
a[18] = [127 -- 31 --> 158]
a[19] = [141 -- 31 --> 172]
a[20] = [155 -- 31 --> 186]
a[21] = [169 -- 31 --> 200]
a[22] = [183 -- 31 --> 214]
a[23] = [197 -- 31 --> 228]
a[24] = [211 -- 31 --> 242]
a[25] = [225 -- 31 --> 256]
a[26] = [442 -- 29 --> 471]
a[27] = [473 -- 29 --> 502]
a[28] = [504 -- 29 --> 533]

Carga[1] = [236 -- 3 --> 239]
Carga[2] = [267 -- 3 --> 270]
Carga[3] = [298 -- 3 --> 301]
Carga[4] = [161 -- 3 --> 164]
Carga[5] = [202 -- 3 --> 205]
Carga[6] = [243 -- 3 --> 246]
Carga[7] = [506 -- 3 --> 509]
Carga[8] = [41 -- 3 --> 44]
Carga[9] = [99 -- 3 --> 102]
Carga[10] = [157 -- 3 --> 160]
Carga[11] = [215 -- 3 --> 218]
Carga[12] = [257 -- 3 --> 260]
Carga[13] = [230 -- 3 --> 233]
Carga[14] = [214 -- 3 --> 217]
Carga[15] = [85 -- 3 --> 88]
Carga[16] = [99 -- 3 --> 102]
Carga[17] = [113 -- 3 --> 116]
Carga[18] = [127 -- 3 --> 130]
Carga[19] = [141 -- 3 --> 144]
Carga[20] = [155 -- 3 --> 158]
Carga[21] = [169 -- 3 --> 172]
Carga[22] = [183 -- 3 --> 186]
Carga[23] = [197 -- 3 --> 200]
Carga[24] = [211 -- 3 --> 214]
Carga[25] = [225 -- 3 --> 228]
Carga[26] = [442 -- 3 --> 445]
Carga[27] = [473 -- 3 --> 476]
Carga[28] = [504 -- 3 --> 507]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [302 -- 60 --> 362]
ParadaComida[5] = [302 -- 60 --> 362]



ParadaComida[6] = [318 -- 60 --> 378]
ParadaComida[7] = [333 -- 60 --> 393]

makespan = [548 -- 0 --> 548]

Truck = Discrete Resource

required by ParadaComida[7] over [333,393]
in capacity 1

required by ParadaComida[6] over [318,378]
in capacity 1

required by ParadaComida[5] over [302,362]
in capacity 1

required by ParadaComida[4] over [302,362]
in capacity 1

required by ParadaComida[3] over [300,360]
in capacity 1

required by ParadaComida[2] over [300,360]
in capacity 1

required by ParadaComida[1] over [300,360]
in capacity 1

required by a[28] over [504,533] in capacity 1

required by a[27] over [473,502] in capacity 1

required by a[26] over [442,471] in capacity 1

required by a[25] over [225,256] in capacity 1

required by a[24] over [211,242] in capacity 1

required by a[23] over [197,228] in capacity 1

required by a[22] over [183,214] in capacity 1

required by a[21] over [169,200] in capacity 1

required by a[20] over [155,186] in capacity 1

required by a[19] over [141,172] in capacity 1

required by a[18] over [127,158] in capacity 1

required by a[17] over [113,144] in capacity 1

required by a[16] over [99,130] in capacity 1

required by a[15] over [85,116] in capacity 1

required by a[14] over [214,243] in capacity 1

required by a[13] over [230,264] in capacity 1

required by a[12] over [257,302] in capacity 1

required by a[11] over [215,262] in capacity 1

required by a[10] over [157,204] in capacity 1

required by a[9] over [99,146] in capacity 1

required by a[8] over [41,88] in capacity 1

required by a[7] over [506,548] in capacity 1

required by a[6] over [243,318] in capacity 1

required by a[5] over [202,277] in capacity 1

required by a[4] over [161,236] in capacity 1

required by a[3] over [298,333] in capacity 1

required by a[2] over [267,302] in capacity 1

required by a[1] over [236,271] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[28] over [504,507] in
capacity 1

required by Carga[27] over [473,476] in
capacity 1

required by Carga[26] over [442,445] in
capacity 1

required by Carga[25] over [225,228] in
capacity 1

required by Carga[24] over [211,214] in
capacity 1

required by Carga[23] over [197,200] in
capacity 1

required by Carga[22] over [183,186] in
capacity 1

required by Carga[21] over [169,172] in
capacity 1

required by Carga[20] over [155,158] in
capacity 1

required by Carga[19] over [141,144] in
capacity 1

required by Carga[18] over [127,130] in
capacity 1

required by Carga[17] over [113,116] in
capacity 1

required by Carga[16] over [99,102] in
capacity 1

required by Carga[15] over [85,88] in capacity
1

required by Carga[14] over [214,217] in
capacity 1

required by Carga[13] over [230,233] in
capacity 1

required by Carga[12] over [257,260] in
capacity 1

required by Carga[11] over [215,218] in
capacity 1

required by Carga[10] over [157,160] in
capacity 1

required by Carga[9] over [99,102] in capacity
1

required by Carga[8] over [41,44] in capacity
1

required by Carga[7] over [506,509] in
capacity 1

required by Carga[6] over [243,246] in
capacity 1

required by Carga[5] over [202,205] in
capacity 1

required by Carga[4] over [161,164] in
capacity 1

required by Carga[3] over [298,301] in
capacity 1

required by Carga[2] over [267,270] in
capacity 1

required by Carga[1] over [236,239] in
capacity 1

Margen[1] = 0

Margen[2] = 0

Margen[3] = 0

Margen[4] = 0

Margen[5] = 0

Margen[6] = 0

Margen[7] = 10

Margen[8] = 0



Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0

Scheduling 8.1

Optimal Solution with Objective Value: 813

a[1] = [379 -- 50 --> 429]
a[2] = [430 -- 50 --> 480]
a[3] = [90 -- 61 --> 151]
a[4] = [74 -- 38 --> 112]
a[5] = [99 -- 38 --> 137]
a[6] = [124 -- 38 --> 162]
a[7] = [680 -- 22 --> 702]
a[8] = [738 -- 22 --> 760]
a[9] = [791 -- 22 --> 813]
a[10] = [467 -- 40 --> 507]
a[11] = [639 -- 51 --> 690]
a[12] = [692 -- 51 --> 743]
a[13] = [580 -- 32 --> 612]
a[14] = [602 -- 32 --> 634]
a[15] = [624 -- 32 --> 656]
a[16] = [646 -- 32 --> 678]
a[17] = [668 -- 32 --> 700]
a[18] = [686 -- 32 --> 718]
a[19] = [712 -- 32 --> 744]
a[20] = [732 -- 32 --> 764]
a[21] = [495 -- 32 --> 527]
a[22] = [543 -- 32 --> 575]
a[23] = [591 -- 32 --> 623]

Carga[1] = [379 -- 6 --> 385]
Carga[2] = [430 -- 6 --> 436]
Carga[3] = [90 -- 6 --> 96]
Carga[4] = [74 -- 6 --> 80]
Carga[5] = [99 -- 6 --> 105]
Carga[6] = [124 -- 6 --> 130]
Carga[7] = [680 -- 6 --> 686]
Carga[8] = [738 -- 6 --> 744]
Carga[9] = [791 -- 6 --> 797]

Carga[10] = [467 -- 6 --> 473]
Carga[11] = [639 -- 6 --> 645]
Carga[12] = [692 -- 6 --> 698]
Carga[13] = [580 -- 6 --> 586]
Carga[14] = [602 -- 6 --> 608]
Carga[15] = [624 -- 6 --> 630]
Carga[16] = [646 -- 6 --> 652]
Carga[17] = [668 -- 6 --> 674]
Carga[18] = [686 -- 6 --> 692]
Carga[19] = [712 -- 6 --> 718]
Carga[20] = [732 -- 6 --> 738]
Carga[21] = [495 -- 6 --> 501]
Carga[22] = [543 -- 6 --> 549]
Carga[23] = [591 -- 6 --> 597]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]

makespan = [813 -- 0 --> 813]

Truck = Discrete Resource

required by ParadaComida[6] over [300,360]
in capacity 1
required by ParadaComida[5] over [300,360]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[23] over [591,623] in capacity 1
required by a[22] over [543,575] in capacity 1
required by a[21] over [495,527] in capacity 1
required by a[20] over [732,764] in capacity 1
required by a[19] over [712,744] in capacity 1
required by a[18] over [686,718] in capacity 1
required by a[17] over [668,700] in capacity 1
required by a[16] over [646,678] in capacity 1
required by a[15] over [624,656] in capacity 1
required by a[14] over [602,634] in capacity 1
required by a[13] over [580,612] in capacity 1
required by a[12] over [692,743] in capacity 1
required by a[11] over [639,690] in capacity 1
required by a[10] over [467,507] in capacity 1
required by a[9] over [791,813] in capacity 1
required by a[8] over [738,760] in capacity 1
required by a[7] over [680,702] in capacity 1
required by a[6] over [124,162] in capacity 1
required by a[5] over [99,137] in capacity 1
required by a[4] over [74,112] in capacity 1
required by a[3] over [90,151] in capacity 1



required by a[2] over [430,480] in capacity 1
required by a[1] over [379,429] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[23] over [591,597] in capacity 1
required by Carga[22] over [543,549] in capacity 1
required by Carga[21] over [495,501] in capacity 1
required by Carga[20] over [732,738] in capacity 1
required by Carga[19] over [712,718] in capacity 1
required by Carga[18] over [686,692] in capacity 1
required by Carga[17] over [668,674] in capacity 1
required by Carga[16] over [646,652] in capacity 1
required by Carga[15] over [624,630] in capacity 1
required by Carga[14] over [602,608] in capacity 1
required by Carga[13] over [580,586] in capacity 1
required by Carga[12] over [692,698] in capacity 1
required by Carga[11] over [639,645] in capacity 1
required by Carga[10] over [467,473] in capacity 1
required by Carga[9] over [791,797] in capacity 1
required by Carga[8] over [738,744] in capacity 1
required by Carga[7] over [680,686] in capacity 1
required by Carga[6] over [124,130] in capacity 1
required by Carga[5] over [99,105] in capacity 1
required by Carga[4] over [74,80] in capacity 1
required by Carga[3] over [90,96] in capacity 1
required by Carga[2] over [430,436] in capacity 1
required by Carga[1] over [379,385] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0

Margen[7] = 0
Margen[8] = 0
Margen[9] = 5
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 4
Margen[19] = 0
Margen[20] = 2
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0

Scheduling 8.2

No Solution

Scheduling 8.3

Optimal Solution with Objective Value: 774

a[1] = [679 -- 61 --> 740]
a[2] = [713 -- 61 --> 774]
a[3] = [350 -- 42 --> 392]
a[4] = [379 -- 42 --> 421]
a[5] = [408 -- 42 --> 450]
a[6] = [437 -- 42 --> 479]
a[7] = [466 -- 42 --> 508]
a[8] = [495 -- 42 --> 537]
a[9] = [524 -- 42 --> 566]
a[10] = [553 -- 42 --> 595]
a[11] = [582 -- 42 --> 624]
a[12] = [611 -- 42 --> 653]
a[13] = [640 -- 42 --> 682]
a[14] = [299 -- 24 --> 323]
a[15] = [347 -- 24 --> 371]
a[16] = [395 -- 24 --> 419]
a[17] = [498 -- 50 --> 548]
a[18] = [516 -- 50 --> 566]
a[19] = [534 -- 50 --> 584]
a[20] = [552 -- 50 --> 602]
a[21] = [240 -- 42 --> 282]
a[22] = [294 -- 42 --> 336]
a[23] = [348 -- 42 --> 390]
a[24] = [271 -- 31 --> 302]
a[25] = [291 -- 31 --> 322]
a[26] = [311 -- 31 --> 342]
a[27] = [159 -- 34 --> 193]
a[28] = [186 -- 34 --> 220]
a[29] = [213 -- 34 --> 247]
a[30] = [240 -- 34 --> 274]
a[31] = [267 -- 34 --> 301]
a[32] = [294 -- 34 --> 328]



a[33] = [321 -- 34 --> 355]
a[34] = [345 -- 34 --> 379]
a[35] = [631 -- 29 --> 660]
a[36] = [646 -- 29 --> 675]
a[37] = [576 -- 29 --> 605]
a[38] = [110 -- 45 --> 155]

Carga[1] = [679 -- 3 --> 682]
Carga[2] = [713 -- 3 --> 716]
Carga[3] = [350 -- 3 --> 353]
Carga[4] = [379 -- 3 --> 382]
Carga[5] = [408 -- 3 --> 411]
Carga[6] = [437 -- 3 --> 440]
Carga[7] = [466 -- 3 --> 469]
Carga[8] = [495 -- 3 --> 498]
Carga[9] = [524 -- 3 --> 527]
Carga[10] = [553 -- 3 --> 556]
Carga[11] = [582 -- 3 --> 585]
Carga[12] = [611 -- 3 --> 614]
Carga[13] = [640 -- 3 --> 643]
Carga[14] = [299 -- 3 --> 302]
Carga[15] = [347 -- 3 --> 350]
Carga[16] = [395 -- 3 --> 398]
Carga[17] = [498 -- 3 --> 501]
Carga[18] = [516 -- 3 --> 519]
Carga[19] = [534 -- 3 --> 537]
Carga[20] = [552 -- 3 --> 555]
Carga[21] = [240 -- 3 --> 243]
Carga[22] = [294 -- 3 --> 297]
Carga[23] = [348 -- 3 --> 351]
Carga[24] = [271 -- 3 --> 274]
Carga[25] = [291 -- 3 --> 294]
Carga[26] = [311 -- 3 --> 314]
Carga[27] = [159 -- 3 --> 162]
Carga[28] = [186 -- 3 --> 189]
Carga[29] = [213 -- 3 --> 216]
Carga[30] = [240 -- 3 --> 243]
Carga[31] = [267 -- 3 --> 270]
Carga[32] = [294 -- 3 --> 297]
Carga[33] = [321 -- 3 --> 324]
Carga[34] = [345 -- 3 --> 348]
Carga[35] = [631 -- 3 --> 634]
Carga[36] = [646 -- 3 --> 649]
Carga[37] = [576 -- 3 --> 579]
Carga[38] = [110 -- 3 --> 113]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [322 -- 60 --> 382]
ParadaComida[6] = [355 -- 60 --> 415]
ParadaComida[7] = [360 -- 60 --> 420]
ParadaComida[8] = [360 -- 60 --> 420]
ParadaComida[9] = [360 -- 60 --> 420]
ParadaComida[10] = [360 -- 60 --> 420]

makespan = [774 -- 0 --> 774]
Truck = Discrete Resource
required by ParadaComida[10] over [360,420]
in capacity 1
required by ParadaComida[9] over [360,420]
in capacity 1
required by ParadaComida[8] over [360,420]
in capacity 1
required by ParadaComida[7] over [360,420]
in capacity 1
required by ParadaComida[6] over [355,415]
in capacity 1
required by ParadaComida[5] over [322,382]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[38] over [110,155] in capacity 1
required by a[37] over [576,605] in capacity 1
required by a[36] over [646,675] in capacity 1
required by a[35] over [631,660] in capacity 1
required by a[34] over [345,379] in capacity 1
required by a[33] over [321,355] in capacity 1
required by a[32] over [294,328] in capacity 1
required by a[31] over [267,301] in capacity 1
required by a[30] over [240,274] in capacity 1
required by a[29] over [213,247] in capacity 1
required by a[28] over [186,220] in capacity 1
required by a[27] over [159,193] in capacity 1
required by a[26] over [311,342] in capacity 1
required by a[25] over [291,322] in capacity 1
required by a[24] over [271,302] in capacity 1
required by a[23] over [348,390] in capacity 1
required by a[22] over [294,336] in capacity 1
required by a[21] over [240,282] in capacity 1
required by a[20] over [552,602] in capacity 1
required by a[19] over [534,584] in capacity 1
required by a[18] over [516,566] in capacity 1
required by a[17] over [498,548] in capacity 1
required by a[16] over [395,419] in capacity 1
required by a[15] over [347,371] in capacity 1
required by a[14] over [299,323] in capacity 1
required by a[13] over [640,682] in capacity 1
required by a[12] over [611,653] in capacity 1
required by a[11] over [582,624] in capacity 1
required by a[10] over [553,595] in capacity 1
required by a[9] over [524,566] in capacity 1
required by a[8] over [495,537] in capacity 1
required by a[7] over [466,508] in capacity 1
required by a[6] over [437,479] in capacity 1
required by a[5] over [408,450] in capacity 1
required by a[4] over [379,421] in capacity 1



required by a[3] over [350,392] in capacity 1
required by a[2] over [713,774] in capacity 1
required by a[1] over [679,740] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[38] over [110,113] in capacity 1
required by Carga[37] over [576,579] in capacity 1
required by Carga[36] over [646,649] in capacity 1
required by Carga[35] over [631,634] in capacity 1
required by Carga[34] over [345,348] in capacity 1
required by Carga[33] over [321,324] in capacity 1
required by Carga[32] over [294,297] in capacity 1
required by Carga[31] over [267,270] in capacity 1
required by Carga[30] over [240,243] in capacity 1
required by Carga[29] over [213,216] in capacity 1
required by Carga[28] over [186,189] in capacity 1
required by Carga[27] over [159,162] in capacity 1
required by Carga[26] over [311,314] in capacity 1
required by Carga[25] over [291,294] in capacity 1
required by Carga[24] over [271,274] in capacity 1
required by Carga[23] over [348,351] in capacity 1
required by Carga[22] over [294,297] in capacity 1
required by Carga[21] over [240,243] in capacity 1
required by Carga[20] over [552,555] in capacity 1
required by Carga[19] over [534,537] in capacity 1
required by Carga[18] over [516,519] in capacity 1
required by Carga[17] over [498,501] in capacity 1
required by Carga[16] over [395,398] in capacity 1
required by Carga[15] over [347,350] in capacity 1
required by Carga[14] over [299,302] in capacity 1
required by Carga[13] over [640,643] in capacity 1

required by Carga[12] over [611,614] in capacity 1
required by Carga[11] over [582,585] in capacity 1
required by Carga[10] over [553,556] in capacity 1
required by Carga[9] over [524,527] in capacity 1
required by Carga[8] over [495,498] in capacity 1
required by Carga[7] over [466,469] in capacity 1
required by Carga[6] over [437,440] in capacity 1
required by Carga[5] over [408,411] in capacity 1
required by Carga[4] over [379,382] in capacity 1
required by Carga[3] over [350,353] in capacity 1
required by Carga[2] over [713,716] in capacity 1
required by Carga[1] over [679,682] in capacity 1

Margen[1] = 0
Margen[2] = 5
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0



Margen[33] = 0
Margen[34] = 3
Margen[35] = 0
Margen[36] = 0
Margen[37] = 0
Margen[38] = 0

Scheduling 9.1

Optimal Solution with Objective Value: 609

a[1] = [145 -- 51 --> 196]
a[2] = [167 -- 51 --> 218]
a[3] = [189 -- 51 --> 240]
a[4] = [211 -- 51 --> 262]
a[5] = [233 -- 51 --> 284]
a[6] = [255 -- 51 --> 306]
a[7] = [277 -- 51 --> 328]
a[8] = [299 -- 51 --> 350]
a[9] = [321 -- 51 --> 372]
a[10] = [343 -- 51 --> 394]
a[11] = [55 -- 22 --> 77]
a[12] = [75 -- 22 --> 97]
a[13] = [95 -- 22 --> 117]
a[14] = [327 -- 38 --> 365]
a[15] = [334 -- 38 --> 372]
a[16] = [349 -- 38 --> 387]
a[17] = [356 -- 38 --> 394]
a[18] = [367 -- 38 --> 405]
a[19] = [378 -- 38 --> 416]
a[20] = [389 -- 38 --> 427]
a[21] = [400 -- 38 --> 438]
a[22] = [411 -- 38 --> 449]
a[23] = [422 -- 38 --> 460]
a[24] = [433 -- 38 --> 471]
a[25] = [444 -- 38 --> 482]
a[26] = [455 -- 38 --> 493]
a[27] = [466 -- 38 --> 504]
a[28] = [477 -- 38 --> 515]
a[29] = [488 -- 38 --> 526]
a[30] = [499 -- 38 --> 537]
a[31] = [510 -- 38 --> 548]
a[32] = [521 -- 38 --> 559]
a[33] = [532 -- 38 --> 570]
a[34] = [543 -- 38 --> 581]
a[35] = [554 -- 38 --> 592]
a[36] = [565 -- 38 --> 603]
a[37] = [571 -- 38 --> 609]

Carga[1] = [145 -- 6 --> 151]
Carga[2] = [167 -- 6 --> 173]
Carga[3] = [189 -- 6 --> 195]
Carga[4] = [211 -- 6 --> 217]
Carga[5] = [233 -- 6 --> 239]
Carga[6] = [255 -- 6 --> 261]
Carga[7] = [277 -- 6 --> 283]
Carga[8] = [299 -- 6 --> 305]
Carga[9] = [321 -- 6 --> 327]

Carga[10] = [343 -- 6 --> 349]
Carga[11] = [55 -- 6 --> 61]
Carga[12] = [75 -- 6 --> 81]
Carga[13] = [95 -- 6 --> 101]
Carga[14] = [327 -- 6 --> 333]
Carga[15] = [334 -- 6 --> 340]
Carga[16] = [349 -- 6 --> 355]
Carga[17] = [356 -- 6 --> 362]
Carga[18] = [367 -- 6 --> 373]
Carga[19] = [378 -- 6 --> 384]
Carga[20] = [389 -- 6 --> 395]
Carga[21] = [400 -- 6 --> 406]
Carga[22] = [411 -- 6 --> 417]
Carga[23] = [422 -- 6 --> 428]
Carga[24] = [433 -- 6 --> 439]
Carga[25] = [444 -- 6 --> 450]
Carga[26] = [455 -- 6 --> 461]
Carga[27] = [466 -- 6 --> 472]
Carga[28] = [477 -- 6 --> 483]
Carga[29] = [488 -- 6 --> 494]
Carga[30] = [499 -- 6 --> 505]
Carga[31] = [510 -- 6 --> 516]
Carga[32] = [521 -- 6 --> 527]
Carga[33] = [532 -- 6 --> 538]
Carga[34] = [543 -- 6 --> 549]
Carga[35] = [554 -- 6 --> 560]
Carga[36] = [565 -- 6 --> 571]
Carga[37] = [571 -- 6 --> 577]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [360 -- 60 --> 420]
ParadaComida[6] = [360 -- 60 --> 420]
ParadaComida[7] = [360 -- 60 --> 420]
ParadaComida[8] = [360 -- 60 --> 420]
ParadaComida[9] = [372 -- 60 --> 432]
ParadaComida[10] = [394 -- 60 --> 454]

makespan = [609 -- 0 --> 609]

Truck = Discrete Resource

required by ParadaComida[10] over [394,454]
in capacity 1
required by ParadaComida[9] over [372,432]
in capacity 1
required by ParadaComida[8] over [360,420]
in capacity 1
required by ParadaComida[7] over [360,420]
in capacity 1
required by ParadaComida[6] over [360,420]
in capacity 1
required by ParadaComida[5] over [360,420]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1



required by ParadaComida[3] over [300,360] in capacity 1
required by ParadaComida[2] over [300,360] in capacity 1
required by ParadaComida[1] over [300,360] in capacity 1
required by a[37] over [571,609] in capacity 1
required by a[36] over [565,603] in capacity 1
required by a[35] over [554,592] in capacity 1
required by a[34] over [543,581] in capacity 1
required by a[33] over [532,570] in capacity 1
required by a[32] over [521,559] in capacity 1
required by a[31] over [510,548] in capacity 1
required by a[30] over [499,537] in capacity 1
required by a[29] over [488,526] in capacity 1
required by a[28] over [477,515] in capacity 1
required by a[27] over [466,504] in capacity 1
required by a[26] over [455,493] in capacity 1
required by a[25] over [444,482] in capacity 1
required by a[24] over [433,471] in capacity 1
required by a[23] over [422,460] in capacity 1
required by a[22] over [411,449] in capacity 1
required by a[21] over [400,438] in capacity 1
required by a[20] over [389,427] in capacity 1
required by a[19] over [378,416] in capacity 1
required by a[18] over [367,405] in capacity 1
required by a[17] over [356,394] in capacity 1
required by a[16] over [349,387] in capacity 1
required by a[15] over [334,372] in capacity 1
required by a[14] over [327,365] in capacity 1
required by a[13] over [95,117] in capacity 1
required by a[12] over [75,97] in capacity 1
required by a[11] over [55,77] in capacity 1
required by a[10] over [343,394] in capacity 1
required by a[9] over [321,372] in capacity 1
required by a[8] over [299,350] in capacity 1
required by a[7] over [277,328] in capacity 1
required by a[6] over [255,306] in capacity 1
required by a[5] over [233,284] in capacity 1
required by a[4] over [211,262] in capacity 1
required by a[3] over [189,240] in capacity 1
required by a[2] over [167,218] in capacity 1
required by a[1] over [145,196] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[37] over [571,577] in capacity 1
required by Carga[36] over [565,571] in capacity 1
required by Carga[35] over [554,560] in capacity 1
required by Carga[34] over [543,549] in capacity 1
required by Carga[33] over [532,538] in capacity 1
required by Carga[32] over [521,527] in capacity 1

required by Carga[31] over [510,516] in capacity 1
required by Carga[30] over [499,505] in capacity 1
required by Carga[29] over [488,494] in capacity 1
required by Carga[28] over [477,483] in capacity 1
required by Carga[27] over [466,472] in capacity 1
required by Carga[26] over [455,461] in capacity 1
required by Carga[25] over [444,450] in capacity 1
required by Carga[24] over [433,439] in capacity 1
required by Carga[23] over [422,428] in capacity 1
required by Carga[22] over [411,417] in capacity 1
required by Carga[21] over [400,406] in capacity 1
required by Carga[20] over [389,395] in capacity 1
required by Carga[19] over [378,384] in capacity 1
required by Carga[18] over [367,373] in capacity 1
required by Carga[17] over [356,362] in capacity 1
required by Carga[16] over [349,355] in capacity 1
required by Carga[15] over [334,340] in capacity 1
required by Carga[14] over [327,333] in capacity 1
required by Carga[13] over [95,101] in capacity 1
required by Carga[12] over [75,81] in capacity 1
required by Carga[11] over [55,61] in capacity 1
required by Carga[10] over [343,349] in capacity 1
required by Carga[9] over [321,327] in capacity 1
required by Carga[8] over [299,305] in capacity 1
required by Carga[7] over [277,283] in capacity 1
required by Carga[6] over [255,261] in capacity 1
required by Carga[5] over [233,239] in capacity 1
required by Carga[4] over [211,217] in capacity 1



required by Carga[3] over [189,195] in capacity 1
required by Carga[2] over [167,173] in capacity 1
required by Carga[1] over [145,151] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 4
Margen[15] = 0
Margen[16] = 4
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 5

Scheduling 9.2

Optimal Solution with Objective Value: 592

a[1] = [72 -- 19 --> 91]
a[2] = [222 -- 36 --> 258]
a[3] = [275 -- 36 --> 311]
a[4] = [550 -- 42 --> 592]

Carga[1] = [72 -- 6 --> 78]
Carga[2] = [222 -- 6 --> 228]
Carga[3] = [275 -- 6 --> 281]
Carga[4] = [550 -- 6 --> 556]

ParadaComida[1] = [311 -- 60 --> 371]

makespan = [592 -- 0 --> 592]
Truck = Discrete Resource
required by ParadaComida[1] over [311,371] in capacity 1
required by a[4] over [550,592] in capacity 1
required by a[3] over [275,311] in capacity 1
required by a[2] over [222,258] in capacity 1
required by a[1] over [72,91] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[4] over [550,556] in capacity 1
required by Carga[3] over [275,281] in capacity 1
required by Carga[2] over [222,228] in capacity 1
required by Carga[1] over [72,78] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 10

Scheduling 9.3

Optimal Solution with Objective Value: 789

a[1] = [480 -- 32 --> 512]
a[2] = [508 -- 32 --> 540]
a[3] = [536 -- 32 --> 568]
a[4] = [627 -- 37 --> 664]
a[5] = [209 -- 39 --> 248]
a[6] = [228 -- 39 --> 267]
a[7] = [247 -- 39 --> 286]
a[8] = [266 -- 39 --> 305]
a[9] = [285 -- 39 --> 324]
a[10] = [304 -- 39 --> 343]
a[11] = [323 -- 39 --> 362]
a[12] = [342 -- 39 --> 381]
a[13] = [361 -- 39 --> 400]
a[14] = [380 -- 39 --> 419]
a[15] = [399 -- 39 --> 438]
a[16] = [418 -- 39 --> 457]
a[17] = [437 -- 39 --> 476]
a[18] = [456 -- 39 --> 495]
a[19] = [475 -- 39 --> 514]
a[20] = [494 -- 39 --> 533]
a[21] = [513 -- 39 --> 552]
a[22] = [532 -- 39 --> 571]
a[23] = [551 -- 39 --> 590]
a[24] = [570 -- 39 --> 609]
a[25] = [589 -- 39 --> 628]
a[26] = [241 -- 40 --> 281]
a[27] = [266 -- 40 --> 306]



a[28] = [291 -- 40 --> 331]
a[29] = [316 -- 40 --> 356]
a[30] = [341 -- 40 --> 381]
a[31] = [366 -- 40 --> 406]
a[32] = [391 -- 40 --> 431]
a[33] = [416 -- 40 --> 456]
a[34] = [441 -- 40 --> 481]
a[35] = [466 -- 40 --> 506]
a[36] = [491 -- 40 --> 531]
a[37] = [386 -- 32 --> 418]
a[38] = [34 -- 26 --> 60]
a[39] = [76 -- 26 --> 102]
a[40] = [118 -- 26 --> 144]
a[41] = [279 -- 63 --> 342]
a[42] = [239 -- 45 --> 284]
a[43] = [275 -- 45 --> 320]
a[44] = [225 -- 42 --> 267]
a[45] = [271 -- 42 --> 313]
a[46] = [317 -- 42 --> 359]
a[47] = [190 -- 45 --> 235]
a[48] = [228 -- 45 --> 273]
a[49] = [157 -- 26 --> 183]
a[50] = [189 -- 26 --> 215]
a[51] = [649 -- 55 --> 704]
a[52] = [679 -- 55 --> 734]
a[53] = [709 -- 55 --> 764]
a[54] = [734 -- 55 --> 789]
a[55] = [635 -- 43 --> 678]
a[56] = [650 -- 43 --> 693]
a[57] = [665 -- 43 --> 708]
a[58] = [680 -- 43 --> 723]
a[59] = [472 -- 37 --> 509]
a[60] = [495 -- 37 --> 532]
a[61] = [518 -- 37 --> 555]
a[62] = [541 -- 37 --> 578]
a[63] = [564 -- 37 --> 601]
a[64] = [587 -- 37 --> 624]
a[65] = [610 -- 37 --> 647]
a[66] = [633 -- 37 --> 670]
a[67] = [656 -- 37 --> 693]
a[68] = [677 -- 37 --> 714]
a[69] = [702 -- 37 --> 739]

Carga[1] = [480 -- 3 --> 483]
Carga[2] = [508 -- 3 --> 511]
Carga[3] = [536 -- 3 --> 539]
Carga[4] = [627 -- 3 --> 630]
Carga[5] = [209 -- 3 --> 212]
Carga[6] = [228 -- 3 --> 231]
Carga[7] = [247 -- 3 --> 250]
Carga[8] = [266 -- 3 --> 269]
Carga[9] = [285 -- 3 --> 288]
Carga[10] = [304 -- 3 --> 307]
Carga[11] = [323 -- 3 --> 326]
Carga[12] = [342 -- 3 --> 345]
Carga[13] = [361 -- 3 --> 364]
Carga[14] = [380 -- 3 --> 383]

Carga[15] = [399 -- 3 --> 402]
Carga[16] = [418 -- 3 --> 421]
Carga[17] = [437 -- 3 --> 440]
Carga[18] = [456 -- 3 --> 459]
Carga[19] = [475 -- 3 --> 478]
Carga[20] = [494 -- 3 --> 497]
Carga[21] = [513 -- 3 --> 516]
Carga[22] = [532 -- 3 --> 535]
Carga[23] = [551 -- 3 --> 554]
Carga[24] = [570 -- 3 --> 573]
Carga[25] = [589 -- 3 --> 592]
Carga[26] = [241 -- 3 --> 244]
Carga[27] = [266 -- 3 --> 269]
Carga[28] = [291 -- 3 --> 294]
Carga[29] = [316 -- 3 --> 319]
Carga[30] = [341 -- 3 --> 344]
Carga[31] = [366 -- 3 --> 369]
Carga[32] = [391 -- 3 --> 394]
Carga[33] = [416 -- 3 --> 419]
Carga[34] = [441 -- 3 --> 444]
Carga[35] = [466 -- 3 --> 469]
Carga[36] = [491 -- 3 --> 494]
Carga[37] = [386 -- 3 --> 389]
Carga[38] = [34 -- 3 --> 37]
Carga[39] = [76 -- 3 --> 79]
Carga[40] = [118 -- 3 --> 121]
Carga[41] = [279 -- 3 --> 282]
Carga[42] = [239 -- 3 --> 242]
Carga[43] = [275 -- 3 --> 278]
Carga[44] = [225 -- 3 --> 228]
Carga[45] = [271 -- 3 --> 274]
Carga[46] = [317 -- 3 --> 320]
Carga[47] = [190 -- 3 --> 193]
Carga[48] = [228 -- 3 --> 231]
Carga[49] = [157 -- 3 --> 160]
Carga[50] = [189 -- 3 --> 192]
Carga[51] = [649 -- 3 --> 652]
Carga[52] = [679 -- 3 --> 682]
Carga[53] = [709 -- 3 --> 712]
Carga[54] = [734 -- 3 --> 737]
Carga[55] = [635 -- 3 --> 638]
Carga[56] = [650 -- 3 --> 653]
Carga[57] = [665 -- 3 --> 668]
Carga[58] = [680 -- 3 --> 683]
Carga[59] = [472 -- 3 --> 475]
Carga[60] = [495 -- 3 --> 498]
Carga[61] = [518 -- 3 --> 521]
Carga[62] = [541 -- 3 --> 544]
Carga[63] = [564 -- 3 --> 567]
Carga[64] = [587 -- 3 --> 590]
Carga[65] = [610 -- 3 --> 613]
Carga[66] = [633 -- 3 --> 636]
Carga[67] = [656 -- 3 --> 659]
Carga[68] = [677 -- 3 --> 680]
Carga[69] = [702 -- 3 --> 705]

ParadaComida[1] = [300 -- 60 --> 360]



ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [300 -- 60 --> 360]
ParadaComida[9] = [300 -- 60 --> 360]
ParadaComida[10] = [300 -- 60 --> 360]
ParadaComida[11] = [305 -- 60 --> 365]
ParadaComida[12] = [324 -- 60 --> 384]
ParadaComida[13] = [343 -- 60 --> 403]
ParadaComida[14] = [356 -- 60 --> 416]
ParadaComida[15] = [359 -- 60 --> 419]
ParadaComida[16] = [360 -- 60 --> 420]
ParadaComida[17] = [360 -- 60 --> 420]
ParadaComida[18] = [360 -- 60 --> 420]

makespan = [789 -- 0 --> 789]

Truck = Discrete Resource

required by ParadaComida[18] over [360,420]
in capacity 1
required by ParadaComida[17] over [360,420]
in capacity 1
required by ParadaComida[16] over [360,420]
in capacity 1
required by ParadaComida[15] over [359,419]
in capacity 1
required by ParadaComida[14] over [356,416]
in capacity 1
required by ParadaComida[13] over [343,403]
in capacity 1
required by ParadaComida[12] over [324,384]
in capacity 1
required by ParadaComida[11] over [305,365]
in capacity 1
required by ParadaComida[10] over [300,360]
in capacity 1
required by ParadaComida[9] over [300,360]
in capacity 1
required by ParadaComida[8] over [300,360]
in capacity 1
required by ParadaComida[7] over [300,360]
in capacity 1
required by ParadaComida[6] over [300,360]
in capacity 1
required by ParadaComida[5] over [300,360]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[69] over [702,739] in capacity 1

required by a[68] over [677,714] in capacity 1
required by a[67] over [656,693] in capacity 1
required by a[66] over [633,670] in capacity 1
required by a[65] over [610,647] in capacity 1
required by a[64] over [587,624] in capacity 1
required by a[63] over [564,601] in capacity 1
required by a[62] over [541,578] in capacity 1
required by a[61] over [518,555] in capacity 1
required by a[60] over [495,532] in capacity 1
required by a[59] over [472,509] in capacity 1
required by a[58] over [680,723] in capacity 1
required by a[57] over [665,708] in capacity 1
required by a[56] over [650,693] in capacity 1
required by a[55] over [635,678] in capacity 1
required by a[54] over [734,789] in capacity 1
required by a[53] over [709,764] in capacity 1
required by a[52] over [679,734] in capacity 1
required by a[51] over [649,704] in capacity 1
required by a[50] over [189,215] in capacity 1
required by a[49] over [157,183] in capacity 1
required by a[48] over [228,273] in capacity 1
required by a[47] over [190,235] in capacity 1
required by a[46] over [317,359] in capacity 1
required by a[45] over [271,313] in capacity 1
required by a[44] over [225,267] in capacity 1
required by a[43] over [275,320] in capacity 1
required by a[42] over [239,284] in capacity 1
required by a[41] over [279,342] in capacity 1
required by a[40] over [118,144] in capacity 1
required by a[39] over [76,102] in capacity 1
required by a[38] over [34,60] in capacity 1
required by a[37] over [386,418] in capacity 1
required by a[36] over [491,531] in capacity 1
required by a[35] over [466,506] in capacity 1
required by a[34] over [441,481] in capacity 1
required by a[33] over [416,456] in capacity 1
required by a[32] over [391,431] in capacity 1
required by a[31] over [366,406] in capacity 1
required by a[30] over [341,381] in capacity 1
required by a[29] over [316,356] in capacity 1
required by a[28] over [291,331] in capacity 1
required by a[27] over [266,306] in capacity 1
required by a[26] over [241,281] in capacity 1
required by a[25] over [589,628] in capacity 1
required by a[24] over [570,609] in capacity 1
required by a[23] over [551,590] in capacity 1
required by a[22] over [532,571] in capacity 1
required by a[21] over [513,552] in capacity 1
required by a[20] over [494,533] in capacity 1
required by a[19] over [475,514] in capacity 1
required by a[18] over [456,495] in capacity 1
required by a[17] over [437,476] in capacity 1
required by a[16] over [418,457] in capacity 1
required by a[15] over [399,438] in capacity 1
required by a[14] over [380,419] in capacity 1
required by a[13] over [361,400] in capacity 1
required by a[12] over [342,381] in capacity 1



required by a[11] over [323,362] in capacity 1
required by a[10] over [304,343] in capacity 1
required by a[9] over [285,324] in capacity 1
required by a[8] over [266,305] in capacity 1
required by a[7] over [247,286] in capacity 1
required by a[6] over [228,267] in capacity 1
required by a[5] over [209,248] in capacity 1
required by a[4] over [627,664] in capacity 1
required by a[3] over [536,568] in capacity 1
required by a[2] over [508,540] in capacity 1
required by a[1] over [480,512] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[69] over [702,705] in capacity 1
required by Carga[68] over [677,680] in capacity 1
required by Carga[67] over [656,659] in capacity 1
required by Carga[66] over [633,636] in capacity 1
required by Carga[65] over [610,613] in capacity 1
required by Carga[64] over [587,590] in capacity 1
required by Carga[63] over [564,567] in capacity 1
required by Carga[62] over [541,544] in capacity 1
required by Carga[61] over [518,521] in capacity 1
required by Carga[60] over [495,498] in capacity 1
required by Carga[59] over [472,475] in capacity 1
required by Carga[58] over [680,683] in capacity 1
required by Carga[57] over [665,668] in capacity 1
required by Carga[56] over [650,653] in capacity 1
required by Carga[55] over [635,638] in capacity 1
required by Carga[54] over [734,737] in capacity 1
required by Carga[53] over [709,712] in capacity 1
required by Carga[52] over [679,682] in capacity 1
required by Carga[51] over [649,652] in capacity 1
required by Carga[50] over [189,192] in capacity 1
required by Carga[49] over [157,160] in capacity 1
required by Carga[48] over [228,231] in capacity 1

required by Carga[47] over [190,193] in capacity 1
required by Carga[46] over [317,320] in capacity 1
required by Carga[45] over [271,274] in capacity 1
required by Carga[44] over [225,228] in capacity 1
required by Carga[43] over [275,278] in capacity 1
required by Carga[42] over [239,242] in capacity 1
required by Carga[41] over [279,282] in capacity 1
required by Carga[40] over [118,121] in capacity 1
required by Carga[39] over [76,79] in capacity 1
required by Carga[38] over [34,37] in capacity 1
required by Carga[37] over [386,389] in capacity 1
required by Carga[36] over [491,494] in capacity 1
required by Carga[35] over [466,469] in capacity 1
required by Carga[34] over [441,444] in capacity 1
required by Carga[33] over [416,419] in capacity 1
required by Carga[32] over [391,394] in capacity 1
required by Carga[31] over [366,369] in capacity 1
required by Carga[30] over [341,344] in capacity 1
required by Carga[29] over [316,319] in capacity 1
required by Carga[28] over [291,294] in capacity 1
required by Carga[27] over [266,269] in capacity 1
required by Carga[26] over [241,244] in capacity 1
required by Carga[25] over [589,592] in capacity 1
required by Carga[24] over [570,573] in capacity 1
required by Carga[23] over [551,554] in capacity 1
required by Carga[22] over [532,535] in capacity 1
required by Carga[21] over [513,516] in capacity 1
required by Carga[20] over [494,497] in capacity 1



required by Carga[19] over [475,478] in capacity 1
 required by Carga[18] over [456,459] in capacity 1
 required by Carga[17] over [437,440] in capacity 1
 required by Carga[16] over [418,421] in capacity 1
 required by Carga[15] over [399,402] in capacity 1
 required by Carga[14] over [380,383] in capacity 1
 required by Carga[13] over [361,364] in capacity 1
 required by Carga[12] over [342,345] in capacity 1
 required by Carga[11] over [323,326] in capacity 1
 required by Carga[10] over [304,307] in capacity 1
 required by Carga[9] over [285,288] in capacity 1
 required by Carga[8] over [266,269] in capacity 1
 required by Carga[7] over [247,250] in capacity 1
 required by Carga[6] over [228,231] in capacity 1
 required by Carga[5] over [209,212] in capacity 1
 required by Carga[4] over [627,630] in capacity 1
 required by Carga[3] over [536,539] in capacity 1
 required by Carga[2] over [508,511] in capacity 1
 required by Carga[1] over [480,483] in capacity 1

Margen[1] = 0
 Margen[2] = 0
 Margen[3] = 0
 Margen[4] = 0
 Margen[5] = 0
 Margen[6] = 0
 Margen[7] = 0
 Margen[8] = 0
 Margen[9] = 0
 Margen[10] = 0
 Margen[11] = 0
 Margen[12] = 0
 Margen[13] = 0
 Margen[14] = 0
 Margen[15] = 0
 Margen[16] = 0
 Margen[17] = 0
 Margen[18] = 0

Margen[19] = 0
 Margen[20] = 0
 Margen[21] = 0
 Margen[22] = 0
 Margen[23] = 0
 Margen[24] = 0
 Margen[25] = 0
 Margen[26] = 0
 Margen[27] = 0
 Margen[28] = 0
 Margen[29] = 0
 Margen[30] = 0
 Margen[31] = 0
 Margen[32] = 0
 Margen[33] = 0
 Margen[34] = 0
 Margen[35] = 0
 Margen[36] = 0
 Margen[37] = 0
 Margen[38] = 0
 Margen[39] = 0
 Margen[40] = 0
 Margen[41] = 0
 Margen[42] = 0
 Margen[43] = 0
 Margen[44] = 0
 Margen[45] = 0
 Margen[46] = 0
 Margen[47] = 0
 Margen[48] = 0
 Margen[49] = 0
 Margen[50] = 0
 Margen[51] = 0
 Margen[52] = 0
 Margen[53] = 0
 Margen[54] = 5
 Margen[55] = 0
 Margen[56] = 0
 Margen[57] = 0
 Margen[58] = 0
 Margen[59] = 0
 Margen[60] = 0
 Margen[61] = 0
 Margen[62] = 0
 Margen[63] = 0
 Margen[64] = 0
 Margen[65] = 0
 Margen[66] = 0
 Margen[67] = 0
 Margen[68] = 2
 Margen[69] = 0

Scheduling 10.1

Optimal Solution with Objective Value: 724
 a[1] = [152 -- 54 --> 206]
 a[2] = [211 -- 54 --> 265]



a[3] = [270 -- 54 --> 324]
a[4] = [318 -- 37 --> 355]
a[5] = [152 -- 64 --> 216]
a[6] = [164 -- 64 --> 228]
a[7] = [176 -- 64 --> 240]
a[8] = [188 -- 64 --> 252]
a[9] = [200 -- 64 --> 264]
a[10] = [212 -- 64 --> 276]
a[11] = [224 -- 64 --> 288]
a[12] = [236 -- 64 --> 300]
a[13] = [248 -- 64 --> 312]
a[14] = [260 -- 64 --> 324]
a[15] = [272 -- 64 --> 336]
a[16] = [75 -- 42 --> 117]
a[17] = [96 -- 42 --> 138]
a[18] = [117 -- 42 --> 159]
a[19] = [138 -- 42 --> 180]
a[20] = [159 -- 42 --> 201]
a[21] = [217 -- 32 --> 249]
a[22] = [235 -- 32 --> 267]
a[23] = [253 -- 32 --> 285]
a[24] = [266 -- 32 --> 298]
a[25] = [289 -- 32 --> 321]
a[26] = [307 -- 32 --> 339]
a[27] = [325 -- 32 --> 357]
a[28] = [343 -- 32 --> 375]
a[29] = [361 -- 32 --> 393]
a[30] = [379 -- 32 --> 411]
a[31] = [397 -- 32 --> 429]
a[32] = [415 -- 32 --> 447]
a[33] = [433 -- 32 --> 465]
a[34] = [579 -- 66 --> 645]
a[35] = [621 -- 66 --> 687]
a[36] = [658 -- 66 --> 724]
a[37] = [336 -- 37 --> 373]
a[38] = [360 -- 37 --> 397]
a[39] = [384 -- 37 --> 421]
a[40] = [408 -- 37 --> 445]
a[41] = [432 -- 37 --> 469]
a[42] = [456 -- 37 --> 493]
a[43] = [480 -- 37 --> 517]
a[44] = [504 -- 37 --> 541]
a[45] = [528 -- 37 --> 565]
a[46] = [552 -- 37 --> 589]
a[47] = [576 -- 37 --> 613]
a[48] = [600 -- 37 --> 637]
a[49] = [624 -- 37 --> 661]
a[50] = [184 -- 42 --> 226]
a[51] = [197 -- 42 --> 239]

Carga[1] = [152 -- 6 --> 158]
Carga[2] = [211 -- 6 --> 217]
Carga[3] = [270 -- 6 --> 276]
Carga[4] = [318 -- 6 --> 324]
Carga[5] = [152 -- 6 --> 158]
Carga[6] = [164 -- 6 --> 170]
Carga[7] = [176 -- 6 --> 182]

Carga[8] = [188 -- 6 --> 194]
Carga[9] = [200 -- 6 --> 206]
Carga[10] = [212 -- 6 --> 218]
Carga[11] = [224 -- 6 --> 230]
Carga[12] = [236 -- 6 --> 242]
Carga[13] = [248 -- 6 --> 254]
Carga[14] = [260 -- 6 --> 266]
Carga[15] = [272 -- 6 --> 278]
Carga[16] = [75 -- 6 --> 81]
Carga[17] = [96 -- 6 --> 102]
Carga[18] = [117 -- 6 --> 123]
Carga[19] = [138 -- 6 --> 144]
Carga[20] = [159 -- 6 --> 165]
Carga[21] = [217 -- 6 --> 223]
Carga[22] = [235 -- 6 --> 241]
Carga[23] = [253 -- 6 --> 259]
Carga[24] = [266 -- 6 --> 272]
Carga[25] = [289 -- 6 --> 295]
Carga[26] = [307 -- 6 --> 313]
Carga[27] = [325 -- 6 --> 331]
Carga[28] = [343 -- 6 --> 349]
Carga[29] = [361 -- 6 --> 367]
Carga[30] = [379 -- 6 --> 385]
Carga[31] = [397 -- 6 --> 403]
Carga[32] = [415 -- 6 --> 421]
Carga[33] = [433 -- 6 --> 439]
Carga[34] = [579 -- 6 --> 585]
Carga[35] = [621 -- 6 --> 627]
Carga[36] = [658 -- 6 --> 664]
Carga[37] = [336 -- 6 --> 342]
Carga[38] = [360 -- 6 --> 366]
Carga[39] = [384 -- 6 --> 390]
Carga[40] = [408 -- 6 --> 414]
Carga[41] = [432 -- 6 --> 438]
Carga[42] = [456 -- 6 --> 462]
Carga[43] = [480 -- 6 --> 486]
Carga[44] = [504 -- 6 --> 510]
Carga[45] = [528 -- 6 --> 534]
Carga[46] = [552 -- 6 --> 558]
Carga[47] = [576 -- 6 --> 582]
Carga[48] = [600 -- 6 --> 606]
Carga[49] = [624 -- 6 --> 630]
Carga[50] = [184 -- 6 --> 190]
Carga[51] = [197 -- 6 --> 203]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [321 -- 60 --> 381]
ParadaComida[9] = [324 -- 60 --> 384]
ParadaComida[10] = [355 -- 60 --> 415]
ParadaComida[11] = [357 -- 60 --> 417]
ParadaComida[12] = [360 -- 60 --> 420]



ParadaComida[13] = [360 -- 60 --> 420]

makespan = [724 -- 0 --> 724]

Truck = Discrete Resource

required by ParadaComida[13] over [360,420]
in capacity 1

required by ParadaComida[12] over [360,420]
in capacity 1

required by ParadaComida[11] over [357,417]
in capacity 1

required by ParadaComida[10] over [355,415]
in capacity 1

required by ParadaComida[9] over [324,384]
in capacity 1

required by ParadaComida[8] over [321,381]
in capacity 1

required by ParadaComida[7] over [300,360]
in capacity 1

required by ParadaComida[6] over [300,360]
in capacity 1

required by ParadaComida[5] over [300,360]
in capacity 1

required by ParadaComida[4] over [300,360]
in capacity 1

required by ParadaComida[3] over [300,360]
in capacity 1

required by ParadaComida[2] over [300,360]
in capacity 1

required by ParadaComida[1] over [300,360]
in capacity 1

required by a[51] over [197,239] in capacity 1

required by a[50] over [184,226] in capacity 1

required by a[49] over [624,661] in capacity 1

required by a[48] over [600,637] in capacity 1

required by a[47] over [576,613] in capacity 1

required by a[46] over [552,589] in capacity 1

required by a[45] over [528,565] in capacity 1

required by a[44] over [504,541] in capacity 1

required by a[43] over [480,517] in capacity 1

required by a[42] over [456,493] in capacity 1

required by a[41] over [432,469] in capacity 1

required by a[40] over [408,445] in capacity 1

required by a[39] over [384,421] in capacity 1

required by a[38] over [360,397] in capacity 1

required by a[37] over [336,373] in capacity 1

required by a[36] over [658,724] in capacity 1

required by a[35] over [621,687] in capacity 1

required by a[34] over [579,645] in capacity 1

required by a[33] over [433,465] in capacity 1

required by a[24] over [266,298] in capacity 1

required by a[23] over [253,285] in capacity 1

required by a[22] over [235,267] in capacity 1

required by a[21] over [217,249] in capacity 1

required by a[20] over [159,201] in capacity 1

required by a[19] over [138,180] in capacity 1

required by a[18] over [117,159] in capacity 1

required by a[17] over [96,138] in capacity 1

required by a[16] over [75,117] in capacity 1

required by a[15] over [272,336] in capacity 1

required by a[14] over [260,324] in capacity 1

required by a[13] over [248,312] in capacity 1

required by a[12] over [236,300] in capacity 1

required by a[11] over [224,288] in capacity 1

required by a[10] over [212,276] in capacity 1

required by a[9] over [200,264] in capacity 1

required by a[8] over [188,252] in capacity 1

required by a[7] over [176,240] in capacity 1

required by a[6] over [164,228] in capacity 1

required by a[5] over [152,216] in capacity 1

required by a[4] over [318,355] in capacity 1

required by a[3] over [270,324] in capacity 1

required by a[2] over [211,265] in capacity 1

required by a[1] over [152,206] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[51] over [197,203] in capacity 1

required by Carga[50] over [184,190] in capacity 1

required by Carga[49] over [624,630] in capacity 1

required by Carga[48] over [600,606] in capacity 1

required by Carga[47] over [576,582] in capacity 1

required by Carga[46] over [552,558] in capacity 1

required by Carga[45] over [528,534] in capacity 1

required by Carga[44] over [504,510] in capacity 1

required by Carga[43] over [480,486] in capacity 1

required by Carga[42] over [456,462] in capacity 1

required by Carga[41] over [432,438] in capacity 1

required by Carga[40] over [408,414] in capacity 1

required by Carga[39] over [384,390] in capacity 1

required by Carga[38] over [360,366] in capacity 1

required by Carga[37] over [336,342] in capacity 1



required by Carga[36] over [658,664] in capacity 1
required by Carga[35] over [621,627] in capacity 1
required by Carga[34] over [579,585] in capacity 1
required by Carga[33] over [433,439] in capacity 1
required by Carga[32] over [415,421] in capacity 1
required by Carga[31] over [397,403] in capacity 1
required by Carga[30] over [379,385] in capacity 1
required by Carga[29] over [361,367] in capacity 1
required by Carga[28] over [343,349] in capacity 1
required by Carga[27] over [325,331] in capacity 1
required by Carga[26] over [307,313] in capacity 1
required by Carga[25] over [289,295] in capacity 1
required by Carga[24] over [266,272] in capacity 1
required by Carga[23] over [253,259] in capacity 1
required by Carga[22] over [235,241] in capacity 1
required by Carga[21] over [217,223] in capacity 1
required by Carga[20] over [159,165] in capacity 1
required by Carga[19] over [138,144] in capacity 1
required by Carga[18] over [117,123] in capacity 1
required by Carga[17] over [96,102] in capacity 1
required by Carga[16] over [75,81] in capacity 1
required by Carga[15] over [272,278] in capacity 1
required by Carga[14] over [260,266] in capacity 1
required by Carga[13] over [248,254] in capacity 1
required by Carga[12] over [236,242] in capacity 1
required by Carga[11] over [224,230] in capacity 1
required by Carga[10] over [212,218] in capacity 1
required by Carga[9] over [200,206] in capacity 1

required by Carga[8] over [188,194] in capacity 1
required by Carga[7] over [176,182] in capacity 1
required by Carga[6] over [164,170] in capacity 1
required by Carga[5] over [152,158] in capacity 1
required by Carga[4] over [318,324] in capacity 1
required by Carga[3] over [270,276] in capacity 1
required by Carga[2] over [211,217] in capacity 1
required by Carga[1] over [152,158] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0
Margen[24] = 5
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 5
Margen[37] = 0
Margen[38] = 0
Margen[39] = 0
Margen[40] = 0



Margen[41] = 0
Margen[42] = 0
Margen[43] = 0
Margen[44] = 0
Margen[45] = 0
Margen[46] = 0
Margen[47] = 0
Margen[48] = 0
Margen[49] = 0
Margen[50] = 0
Margen[51] = 0

Scheduling 10.2

Optimal Solution with Objective Value: 243

a[1] = [189 -- 44 --> 233]
a[2] = [199 -- 44 --> 243]

Carga[1] = [189 -- 6 --> 195]
Carga[2] = [199 -- 6 --> 205]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]

makespan = [243 -- 0 --> 243]
Truck = Discrete Resource
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[2] over [199,243] in capacity 1
required by a[1] over [189,233] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[2] over [199,205] in
capacity 1
required by Carga[1] over [189,195] in
capacity 1

Margen[1] = 0
Margen[2] = 5

Scheduling 10.3

Optimal Solution with Objective Value: 670

a[1] = [311 -- 37 --> 348]
a[2] = [324 -- 37 --> 361]
a[3] = [337 -- 37 --> 374]
a[4] = [350 -- 37 --> 387]
a[5] = [363 -- 37 --> 400]
a[6] = [376 -- 37 --> 413]
a[7] = [389 -- 37 --> 426]
a[8] = [402 -- 37 --> 439]
a[9] = [415 -- 37 --> 452]
a[10] = [428 -- 37 --> 465]
a[11] = [116 -- 42 --> 158]
a[12] = [173 -- 42 --> 215]

a[13] = [230 -- 42 --> 272]
a[14] = [435 -- 45 --> 480]
a[15] = [448 -- 45 --> 493]
a[16] = [461 -- 45 --> 506]
a[17] = [474 -- 45 --> 519]
a[18] = [487 -- 45 --> 532]
a[19] = [500 -- 45 --> 545]
a[20] = [513 -- 45 --> 558]
a[21] = [526 -- 45 --> 571]
a[22] = [539 -- 45 --> 584]
a[23] = [552 -- 45 --> 597]
a[24] = [565 -- 45 --> 610]
a[25] = [578 -- 45 --> 623]
a[26] = [591 -- 45 --> 636]
a[27] = [604 -- 45 --> 649]
a[28] = [617 -- 45 --> 662]
a[29] = [625 -- 45 --> 670]
a[30] = [572 -- 37 --> 609]
a[31] = [592 -- 37 --> 629]
a[32] = [28 -- 42 --> 70]
a[33] = [352 -- 19 --> 371]
a[34] = [80 -- 47 --> 127]
a[35] = [103 -- 47 --> 150]
a[36] = [126 -- 47 --> 173]
a[37] = [149 -- 47 --> 196]
a[38] = [172 -- 47 --> 219]
a[39] = [195 -- 47 --> 242]
a[40] = [218 -- 47 --> 265]
a[41] = [241 -- 47 --> 288]
a[42] = [213 -- 34 --> 247]
a[43] = [227 -- 34 --> 261]
a[44] = [241 -- 34 --> 275]
a[45] = [255 -- 34 --> 289]
a[46] = [269 -- 34 --> 303]
a[47] = [283 -- 34 --> 317]
a[48] = [297 -- 34 --> 331]
a[49] = [311 -- 34 --> 345]
a[50] = [325 -- 34 --> 359]
a[51] = [339 -- 34 --> 373]
a[52] = [353 -- 34 --> 387]
a[53] = [367 -- 34 --> 401]
a[54] = [381 -- 34 --> 415]
a[55] = [395 -- 34 --> 429]
a[56] = [409 -- 34 --> 443]
a[57] = [423 -- 34 --> 457]
a[58] = [437 -- 34 --> 471]
a[59] = [451 -- 34 --> 485]
a[60] = [465 -- 34 --> 499]
a[61] = [479 -- 34 --> 513]
a[62] = [493 -- 34 --> 527]
a[63] = [507 -- 34 --> 541]
a[64] = [521 -- 34 --> 555]
a[65] = [535 -- 34 --> 569]
a[66] = [549 -- 34 --> 583]
a[67] = [563 -- 34 --> 597]
a[68] = [577 -- 34 --> 611]
a[69] = [589 -- 34 --> 623]



a[70] = [514 -- 42 --> 556]
a[71] = [543 -- 42 --> 585]
a[72] = [572 -- 42 --> 614]
a[73] = [318 -- 37 --> 355]
a[74] = [370 -- 37 --> 407]
a[75] = [16 -- 31 --> 47]
a[76] = [39 -- 31 --> 70]
a[77] = [62 -- 31 --> 93]

Carga[1] = [311 -- 3 --> 314]
Carga[2] = [324 -- 3 --> 327]
Carga[3] = [337 -- 3 --> 340]
Carga[4] = [350 -- 3 --> 353]
Carga[5] = [363 -- 3 --> 366]
Carga[6] = [376 -- 3 --> 379]
Carga[7] = [389 -- 3 --> 392]
Carga[8] = [402 -- 3 --> 405]
Carga[9] = [415 -- 3 --> 418]
Carga[10] = [428 -- 3 --> 431]
Carga[11] = [116 -- 3 --> 119]
Carga[12] = [173 -- 3 --> 176]
Carga[13] = [230 -- 3 --> 233]
Carga[14] = [435 -- 3 --> 438]
Carga[15] = [448 -- 3 --> 451]
Carga[16] = [461 -- 3 --> 464]
Carga[17] = [474 -- 3 --> 477]
Carga[18] = [487 -- 3 --> 490]
Carga[19] = [500 -- 3 --> 503]
Carga[20] = [513 -- 3 --> 516]
Carga[21] = [526 -- 3 --> 529]
Carga[22] = [539 -- 3 --> 542]
Carga[23] = [552 -- 3 --> 555]
Carga[24] = [565 -- 3 --> 568]
Carga[25] = [578 -- 3 --> 581]
Carga[26] = [591 -- 3 --> 594]
Carga[27] = [604 -- 3 --> 607]
Carga[28] = [617 -- 3 --> 620]
Carga[29] = [625 -- 3 --> 628]
Carga[30] = [572 -- 3 --> 575]
Carga[31] = [592 -- 3 --> 595]
Carga[32] = [28 -- 3 --> 31]
Carga[33] = [352 -- 3 --> 355]
Carga[34] = [80 -- 3 --> 83]
Carga[35] = [103 -- 3 --> 106]
Carga[36] = [126 -- 3 --> 129]
Carga[37] = [149 -- 3 --> 152]
Carga[38] = [172 -- 3 --> 175]
Carga[39] = [195 -- 3 --> 198]
Carga[40] = [218 -- 3 --> 221]
Carga[41] = [241 -- 3 --> 244]
Carga[42] = [213 -- 3 --> 216]
Carga[43] = [227 -- 3 --> 230]
Carga[44] = [241 -- 3 --> 244]
Carga[45] = [255 -- 3 --> 258]
Carga[46] = [269 -- 3 --> 272]
Carga[47] = [283 -- 3 --> 286]
Carga[48] = [297 -- 3 --> 300]

Carga[49] = [311 -- 3 --> 314]
Carga[50] = [325 -- 3 --> 328]
Carga[51] = [339 -- 3 --> 342]
Carga[52] = [353 -- 3 --> 356]
Carga[53] = [367 -- 3 --> 370]
Carga[54] = [381 -- 3 --> 384]
Carga[55] = [395 -- 3 --> 398]
Carga[56] = [409 -- 3 --> 412]
Carga[57] = [423 -- 3 --> 426]
Carga[58] = [437 -- 3 --> 440]
Carga[59] = [451 -- 3 --> 454]
Carga[60] = [465 -- 3 --> 468]
Carga[61] = [479 -- 3 --> 482]
Carga[62] = [493 -- 3 --> 496]
Carga[63] = [507 -- 3 --> 510]
Carga[64] = [521 -- 3 --> 524]
Carga[65] = [535 -- 3 --> 538]
Carga[66] = [549 -- 3 --> 552]
Carga[67] = [563 -- 3 --> 566]
Carga[68] = [577 -- 3 --> 580]
Carga[69] = [589 -- 3 --> 592]
Carga[70] = [514 -- 3 --> 517]
Carga[71] = [543 -- 3 --> 546]
Carga[72] = [572 -- 3 --> 575]
Carga[73] = [318 -- 3 --> 321]
Carga[74] = [370 -- 3 --> 373]
Carga[75] = [16 -- 3 --> 19]
Carga[76] = [39 -- 3 --> 42]
Carga[77] = [62 -- 3 --> 65]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [300 -- 60 --> 360]
ParadaComida[9] = [300 -- 60 --> 360]
ParadaComida[10] = [300 -- 60 --> 360]
ParadaComida[11] = [300 -- 60 --> 360]
ParadaComida[12] = [300 -- 60 --> 360]
ParadaComida[13] = [355 -- 60 --> 415]
ParadaComida[14] = [359 -- 60 --> 419]
ParadaComida[15] = [360 -- 60 --> 420]
ParadaComida[16] = [360 -- 60 --> 420]
ParadaComida[17] = [360 -- 60 --> 420]
ParadaComida[18] = [360 -- 60 --> 420]
ParadaComida[19] = [360 -- 60 --> 420]
ParadaComida[20] = [360 -- 60 --> 420]

makespan = [670 -- 0 --> 670]

Truck = Discrete Resource

required by ParadaComida[20] over [360,420]
in capacity 1

required by ParadaComida[19] over [360,420]
in capacity 1



required by ParadaComida[18] over [360,420] in capacity 1
required by ParadaComida[17] over [360,420] in capacity 1
required by ParadaComida[16] over [360,420] in capacity 1
required by ParadaComida[15] over [360,420] in capacity 1
required by ParadaComida[14] over [359,419] in capacity 1
required by ParadaComida[13] over [355,415] in capacity 1
required by ParadaComida[12] over [300,360] in capacity 1
required by ParadaComida[11] over [300,360] in capacity 1
required by ParadaComida[10] over [300,360] in capacity 1
required by ParadaComida[9] over [300,360] in capacity 1
required by ParadaComida[8] over [300,360] in capacity 1
required by ParadaComida[7] over [300,360] in capacity 1
required by ParadaComida[6] over [300,360] in capacity 1
required by ParadaComida[5] over [300,360] in capacity 1
required by ParadaComida[4] over [300,360] in capacity 1
required by ParadaComida[3] over [300,360] in capacity 1
required by ParadaComida[2] over [300,360] in capacity 1
required by ParadaComida[1] over [300,360] in capacity 1
required by a[77] over [62,93] in capacity 1
required by a[76] over [39,70] in capacity 1
required by a[75] over [16,47] in capacity 1
required by a[74] over [370,407] in capacity 1
required by a[73] over [318,355] in capacity 1
required by a[72] over [572,614] in capacity 1
required by a[71] over [543,585] in capacity 1
required by a[70] over [514,556] in capacity 1
required by a[69] over [589,623] in capacity 1
required by a[68] over [577,611] in capacity 1
required by a[67] over [563,597] in capacity 1
required by a[66] over [549,583] in capacity 1
required by a[65] over [535,569] in capacity 1
required by a[64] over [521,555] in capacity 1
required by a[63] over [507,541] in capacity 1
required by a[62] over [493,527] in capacity 1
required by a[61] over [479,513] in capacity 1
required by a[60] over [465,499] in capacity 1
required by a[59] over [451,485] in capacity 1
required by a[58] over [437,471] in capacity 1
required by a[57] over [423,457] in capacity 1

required by a[56] over [409,443] in capacity 1
required by a[55] over [395,429] in capacity 1
required by a[54] over [381,415] in capacity 1
required by a[53] over [367,401] in capacity 1
required by a[52] over [353,387] in capacity 1
required by a[51] over [339,373] in capacity 1
required by a[50] over [325,359] in capacity 1
required by a[49] over [311,345] in capacity 1
required by a[48] over [297,331] in capacity 1
required by a[47] over [283,317] in capacity 1
required by a[46] over [269,303] in capacity 1
required by a[45] over [255,289] in capacity 1
required by a[44] over [241,275] in capacity 1
required by a[43] over [227,261] in capacity 1
required by a[42] over [213,247] in capacity 1
required by a[41] over [241,288] in capacity 1
required by a[40] over [218,265] in capacity 1
required by a[39] over [195,242] in capacity 1
required by a[38] over [172,219] in capacity 1
required by a[37] over [149,196] in capacity 1
required by a[36] over [126,173] in capacity 1
required by a[35] over [103,150] in capacity 1
required by a[34] over [80,127] in capacity 1
required by a[33] over [352,371] in capacity 1
required by a[32] over [28,70] in capacity 1
required by a[31] over [592,629] in capacity 1
required by a[30] over [572,609] in capacity 1
required by a[29] over [625,670] in capacity 1
required by a[28] over [617,662] in capacity 1
required by a[27] over [604,649] in capacity 1
required by a[26] over [591,636] in capacity 1
required by a[25] over [578,623] in capacity 1
required by a[24] over [565,610] in capacity 1
required by a[23] over [552,597] in capacity 1
required by a[22] over [539,584] in capacity 1
required by a[21] over [526,571] in capacity 1
required by a[20] over [513,558] in capacity 1
required by a[19] over [500,545] in capacity 1
required by a[18] over [487,532] in capacity 1
required by a[17] over [474,519] in capacity 1
required by a[16] over [461,506] in capacity 1
required by a[15] over [448,493] in capacity 1
required by a[14] over [435,480] in capacity 1
required by a[13] over [230,272] in capacity 1
required by a[12] over [173,215] in capacity 1
required by a[11] over [116,158] in capacity 1
required by a[10] over [428,465] in capacity 1
required by a[9] over [415,452] in capacity 1
required by a[8] over [402,439] in capacity 1
required by a[7] over [389,426] in capacity 1
required by a[6] over [376,413] in capacity 1
required by a[5] over [363,400] in capacity 1
required by a[4] over [350,387] in capacity 1
required by a[3] over [337,374] in capacity 1
required by a[2] over [324,361] in capacity 1
required by a[1] over [311,348] in capacity 1



PuntoCarga = Discrete Resource
required by Carga[77] over [62,65] in capacity 1
required by Carga[76] over [39,42] in capacity 1
required by Carga[75] over [16,19] in capacity 1
required by Carga[74] over [370,373] in capacity 1
required by Carga[73] over [318,321] in capacity 1
required by Carga[72] over [572,575] in capacity 1
required by Carga[71] over [543,546] in capacity 1
required by Carga[70] over [514,517] in capacity 1
required by Carga[69] over [589,592] in capacity 1
required by Carga[68] over [577,580] in capacity 1
required by Carga[67] over [563,566] in capacity 1
required by Carga[66] over [549,552] in capacity 1
required by Carga[65] over [535,538] in capacity 1
required by Carga[64] over [521,524] in capacity 1
required by Carga[63] over [507,510] in capacity 1
required by Carga[62] over [493,496] in capacity 1
required by Carga[61] over [479,482] in capacity 1
required by Carga[60] over [465,468] in capacity 1
required by Carga[59] over [451,454] in capacity 1
required by Carga[58] over [437,440] in capacity 1
required by Carga[57] over [423,426] in capacity 1
required by Carga[56] over [409,412] in capacity 1
required by Carga[55] over [395,398] in capacity 1
required by Carga[54] over [381,384] in capacity 1
required by Carga[53] over [367,370] in capacity 1
required by Carga[52] over [353,356] in capacity 1
required by Carga[51] over [339,342] in capacity 1
required by Carga[50] over [325,328] in capacity 1

required by Carga[49] over [311,314] in capacity 1
required by Carga[48] over [297,300] in capacity 1
required by Carga[47] over [283,286] in capacity 1
required by Carga[46] over [269,272] in capacity 1
required by Carga[45] over [255,258] in capacity 1
required by Carga[44] over [241,244] in capacity 1
required by Carga[43] over [227,230] in capacity 1
required by Carga[42] over [213,216] in capacity 1
required by Carga[41] over [241,244] in capacity 1
required by Carga[40] over [218,221] in capacity 1
required by Carga[39] over [195,198] in capacity 1
required by Carga[38] over [172,175] in capacity 1
required by Carga[37] over [149,152] in capacity 1
required by Carga[36] over [126,129] in capacity 1
required by Carga[35] over [103,106] in capacity 1
required by Carga[34] over [80,83] in capacity 1
required by Carga[33] over [352,355] in capacity 1
required by Carga[32] over [28,31] in capacity 1
required by Carga[31] over [592,595] in capacity 1
required by Carga[30] over [572,575] in capacity 1
required by Carga[29] over [625,628] in capacity 1
required by Carga[28] over [617,620] in capacity 1
required by Carga[27] over [604,607] in capacity 1
required by Carga[26] over [591,594] in capacity 1
required by Carga[25] over [578,581] in capacity 1
required by Carga[24] over [565,568] in capacity 1
required by Carga[23] over [552,555] in capacity 1
required by Carga[22] over [539,542] in capacity 1



required by Carga[21] over [526,529] in capacity 1
required by Carga[20] over [513,516] in capacity 1
required by Carga[19] over [500,503] in capacity 1
required by Carga[18] over [487,490] in capacity 1
required by Carga[17] over [474,477] in capacity 1
required by Carga[16] over [461,464] in capacity 1
required by Carga[15] over [448,451] in capacity 1
required by Carga[14] over [435,438] in capacity 1
required by Carga[13] over [230,233] in capacity 1
required by Carga[12] over [173,176] in capacity 1
required by Carga[11] over [116,119] in capacity 1
required by Carga[10] over [428,431] in capacity 1
required by Carga[9] over [415,418] in capacity 1
required by Carga[8] over [402,405] in capacity 1
required by Carga[7] over [389,392] in capacity 1
required by Carga[6] over [376,379] in capacity 1
required by Carga[5] over [363,366] in capacity 1
required by Carga[4] over [350,353] in capacity 1
required by Carga[3] over [337,340] in capacity 1
required by Carga[2] over [324,327] in capacity 1
required by Carga[1] over [311,314] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0

Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 5
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 0
Margen[38] = 0
Margen[39] = 0
Margen[40] = 0
Margen[41] = 0
Margen[42] = 0
Margen[43] = 0
Margen[44] = 0
Margen[45] = 0
Margen[46] = 0
Margen[47] = 0
Margen[48] = 0
Margen[49] = 0
Margen[50] = 0
Margen[51] = 0
Margen[52] = 0
Margen[53] = 0
Margen[54] = 0
Margen[55] = 0
Margen[56] = 0
Margen[57] = 0
Margen[58] = 0
Margen[59] = 0
Margen[60] = 0
Margen[61] = 0
Margen[62] = 0
Margen[63] = 0
Margen[64] = 0
Margen[65] = 0
Margen[66] = 0
Margen[67] = 0
Margen[68] = 0
Margen[69] = 2
Margen[70] = 0
Margen[71] = 0



Margen[72] = 0
Margen[73] = 0
Margen[74] = 0
Margen[75] = 0
Margen[76] = 0
Margen[77] = 0

Scheduling 11.1

Optimal Solution with Objective Value: 668

a[1] = [35 -- 22 --> 57]
a[2] = [55 -- 22 --> 77]
a[3] = [75 -- 22 --> 97]
a[4] = [95 -- 22 --> 117]
a[5] = [115 -- 22 --> 137]
a[6] = [135 -- 22 --> 157]
a[7] = [155 -- 22 --> 177]
a[8] = [175 -- 22 --> 197]
a[9] = [195 -- 22 --> 217]
a[10] = [215 -- 22 --> 237]
a[11] = [235 -- 22 --> 257]
a[12] = [251 -- 46 --> 297]
a[13] = [266 -- 46 --> 312]
a[14] = [281 -- 46 --> 327]
a[15] = [296 -- 46 --> 342]
a[16] = [311 -- 46 --> 357]
a[17] = [326 -- 46 --> 372]
a[18] = [341 -- 46 --> 387]
a[19] = [356 -- 46 --> 402]
a[20] = [371 -- 46 --> 417]
a[21] = [386 -- 46 --> 432]
a[22] = [401 -- 46 --> 447]
a[23] = [416 -- 46 --> 462]
a[24] = [431 -- 46 --> 477]
a[25] = [30 -- 35 --> 65]
a[26] = [49 -- 35 --> 84]
a[27] = [68 -- 35 --> 103]
a[28] = [87 -- 35 --> 122]
a[29] = [106 -- 35 --> 141]
a[30] = [125 -- 35 --> 160]
a[31] = [144 -- 35 --> 179]
a[32] = [163 -- 35 --> 198]
a[33] = [182 -- 35 --> 217]
a[34] = [201 -- 35 --> 236]
a[35] = [484 -- 85 --> 569]
a[36] = [517 -- 85 --> 602]
a[37] = [550 -- 85 --> 635]
a[38] = [375 -- 22 --> 397]
a[39] = [398 -- 22 --> 420]
a[40] = [421 -- 22 --> 443]
a[41] = [444 -- 22 --> 466]
a[42] = [467 -- 22 --> 489]
a[43] = [490 -- 22 --> 512]
a[44] = [513 -- 22 --> 535]
a[45] = [536 -- 22 --> 558]
a[46] = [559 -- 22 --> 581]
a[47] = [582 -- 22 --> 604]

a[48] = [605 -- 22 --> 627]
a[49] = [628 -- 22 --> 650]
a[50] = [646 -- 22 --> 668]
a[51] = [206 -- 141 --> 347]
a[52] = [235 -- 141 --> 376]
a[53] = [264 -- 141 --> 405]
a[54] = [293 -- 141 --> 434]
a[55] = [322 -- 141 --> 463]
a[56] = [351 -- 141 --> 492]
a[57] = [380 -- 141 --> 521]
a[58] = [409 -- 141 --> 550]
a[59] = [438 -- 141 --> 579]
a[60] = [467 -- 141 --> 608]
a[61] = [496 -- 141 --> 637]
a[62] = [405 -- 128 --> 533]
a[63] = [454 -- 29 --> 483]
a[64] = [473 -- 29 --> 502]
a[65] = [60 -- 37 --> 97]
a[66] = [86 -- 37 --> 123]
a[67] = [112 -- 37 --> 149]
a[68] = [285 -- 43 --> 328]
a[69] = [341 -- 43 --> 384]
a[70] = [395 -- 43 --> 438]
a[71] = [40 -- 46 --> 86]
a[72] = [94 -- 46 --> 140]
a[73] = [452 -- 54 --> 506]
a[74] = [506 -- 54 --> 560]
a[75] = [560 -- 54 --> 614]
a[76] = [197 -- 24 --> 221]
a[77] = [229 -- 24 --> 253]
a[78] = [272 -- 24 --> 296]
a[79] = [458 -- 22 --> 480]
a[80] = [484 -- 22 --> 506]
a[81] = [511 -- 40 --> 551]
a[82] = [533 -- 40 --> 573]
a[83] = [552 -- 40 --> 592]
a[84] = [156 -- 42 --> 198]
a[85] = [179 -- 42 --> 221]
a[86] = [207 -- 42 --> 249]
a[87] = [225 -- 42 --> 267]
a[88] = [248 -- 42 --> 290]
a[89] = [271 -- 42 --> 313]
a[90] = [299 -- 42 --> 341]
a[91] = [317 -- 42 --> 359]
a[92] = [335 -- 42 --> 377]
a[93] = [363 -- 42 --> 405]
a[94] = [386 -- 42 --> 428]
a[95] = [411 -- 42 --> 453]
a[96] = [432 -- 42 --> 474]
a[97] = [133 -- 35 --> 168]
a[98] = [143 -- 35 --> 178]
a[99] = [365 -- 37 --> 402]
a[100] = [392 -- 37 --> 429]
a[101] = [310 -- 19 --> 329]
a[102] = [330 -- 19 --> 349]
a[103] = [347 -- 19 --> 366]
a[104] = [358 -- 19 --> 377]



a[105] = [260 -- 32 --> 292]
a[106] = [277 -- 32 --> 309]
a[107] = [287 -- 32 --> 319]
a[108] = [369 -- 66 --> 435]
a[109] = [437 -- 66 --> 503]
a[110] = [15 -- 22 --> 37]
a[111] = [26 -- 22 --> 48]
a[112] = [41 -- 22 --> 63]
a[113] = [302 -- 46 --> 348]
a[114] = [316 -- 46 --> 362]

Carga[1] = [35 -- 6 --> 41]
Carga[2] = [55 -- 6 --> 61]
Carga[3] = [75 -- 6 --> 81]
Carga[4] = [95 -- 6 --> 101]
Carga[5] = [115 -- 6 --> 121]
Carga[6] = [135 -- 6 --> 141]
Carga[7] = [155 -- 6 --> 161]
Carga[8] = [175 -- 6 --> 181]
Carga[9] = [195 -- 6 --> 201]
Carga[10] = [215 -- 6 --> 221]
Carga[11] = [235 -- 6 --> 241]
Carga[12] = [251 -- 6 --> 257]
Carga[13] = [266 -- 6 --> 272]
Carga[14] = [281 -- 6 --> 287]
Carga[15] = [296 -- 6 --> 302]
Carga[16] = [311 -- 6 --> 317]
Carga[17] = [326 -- 6 --> 332]
Carga[18] = [341 -- 6 --> 347]
Carga[19] = [356 -- 6 --> 362]
Carga[20] = [371 -- 6 --> 377]
Carga[21] = [386 -- 6 --> 392]
Carga[22] = [401 -- 6 --> 407]
Carga[23] = [416 -- 6 --> 422]
Carga[24] = [431 -- 6 --> 437]
Carga[25] = [30 -- 6 --> 36]
Carga[26] = [49 -- 6 --> 55]
Carga[27] = [68 -- 6 --> 74]
Carga[28] = [87 -- 6 --> 93]
Carga[29] = [106 -- 6 --> 112]
Carga[30] = [125 -- 6 --> 131]
Carga[31] = [144 -- 6 --> 150]
Carga[32] = [163 -- 6 --> 169]
Carga[33] = [182 -- 6 --> 188]
Carga[34] = [201 -- 6 --> 207]
Carga[35] = [484 -- 6 --> 490]
Carga[36] = [517 -- 6 --> 523]
Carga[37] = [550 -- 6 --> 556]
Carga[38] = [375 -- 6 --> 381]
Carga[39] = [398 -- 6 --> 404]
Carga[40] = [421 -- 6 --> 427]
Carga[41] = [444 -- 6 --> 450]
Carga[42] = [467 -- 6 --> 473]
Carga[43] = [490 -- 6 --> 496]
Carga[44] = [513 -- 6 --> 519]
Carga[45] = [536 -- 6 --> 542]
Carga[46] = [559 -- 6 --> 565]

Carga[47] = [582 -- 6 --> 588]
Carga[48] = [605 -- 6 --> 611]
Carga[49] = [628 -- 6 --> 634]
Carga[50] = [646 -- 6 --> 652]
Carga[51] = [206 -- 6 --> 212]
Carga[52] = [235 -- 6 --> 241]
Carga[53] = [264 -- 6 --> 270]
Carga[54] = [293 -- 6 --> 299]
Carga[55] = [322 -- 6 --> 328]
Carga[56] = [351 -- 6 --> 357]
Carga[57] = [380 -- 6 --> 386]
Carga[58] = [409 -- 6 --> 415]
Carga[59] = [438 -- 6 --> 444]
Carga[60] = [467 -- 6 --> 473]
Carga[61] = [496 -- 6 --> 502]
Carga[62] = [405 -- 6 --> 411]
Carga[63] = [454 -- 6 --> 460]
Carga[64] = [473 -- 6 --> 479]
Carga[65] = [60 -- 6 --> 66]
Carga[66] = [86 -- 6 --> 92]
Carga[67] = [112 -- 6 --> 118]
Carga[68] = [285 -- 6 --> 291]
Carga[69] = [341 -- 6 --> 347]
Carga[70] = [395 -- 6 --> 401]
Carga[71] = [40 -- 6 --> 46]
Carga[72] = [94 -- 6 --> 100]
Carga[73] = [452 -- 6 --> 458]
Carga[74] = [506 -- 6 --> 512]
Carga[75] = [560 -- 6 --> 566]
Carga[76] = [197 -- 6 --> 203]
Carga[77] = [229 -- 6 --> 235]
Carga[78] = [272 -- 6 --> 278]
Carga[79] = [458 -- 6 --> 464]
Carga[80] = [484 -- 6 --> 490]
Carga[81] = [511 -- 6 --> 517]
Carga[82] = [533 -- 6 --> 539]
Carga[83] = [552 -- 6 --> 558]
Carga[84] = [156 -- 6 --> 162]
Carga[85] = [179 -- 6 --> 185]
Carga[86] = [207 -- 6 --> 213]
Carga[87] = [225 -- 6 --> 231]
Carga[88] = [248 -- 6 --> 254]
Carga[89] = [271 -- 6 --> 277]
Carga[90] = [299 -- 6 --> 305]
Carga[91] = [317 -- 6 --> 323]
Carga[92] = [335 -- 6 --> 341]
Carga[93] = [363 -- 6 --> 369]
Carga[94] = [386 -- 6 --> 392]
Carga[95] = [411 -- 6 --> 417]
Carga[96] = [432 -- 6 --> 438]
Carga[97] = [133 -- 6 --> 139]
Carga[98] = [143 -- 6 --> 149]
Carga[99] = [365 -- 6 --> 371]
Carga[100] = [392 -- 6 --> 398]
Carga[101] = [310 -- 6 --> 316]
Carga[102] = [330 -- 6 --> 336]
Carga[103] = [347 -- 6 --> 353]



Carga[104] = [358 -- 6 --> 364]
Carga[105] = [260 -- 6 --> 266]
Carga[106] = [277 -- 6 --> 283]
Carga[107] = [287 -- 6 --> 293]
Carga[108] = [369 -- 6 --> 375]
Carga[109] = [437 -- 6 --> 443]
Carga[110] = [15 -- 6 --> 21]
Carga[111] = [26 -- 6 --> 32]
Carga[112] = [41 -- 6 --> 47]
Carga[113] = [302 -- 6 --> 308]
Carga[114] = [316 -- 6 --> 322]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [300 -- 60 --> 360]
ParadaComida[9] = [300 -- 60 --> 360]
ParadaComida[10] = [300 -- 60 --> 360]
ParadaComida[11] = [300 -- 60 --> 360]
ParadaComida[12] = [300 -- 60 --> 360]
ParadaComida[13] = [300 -- 60 --> 360]
ParadaComida[14] = [300 -- 60 --> 360]
ParadaComida[15] = [342 -- 60 --> 402]
ParadaComida[16] = [359 -- 60 --> 419]
ParadaComida[17] = [360 -- 60 --> 420]
ParadaComida[18] = [360 -- 60 --> 420]
ParadaComida[19] = [360 -- 60 --> 420]
ParadaComida[20] = [360 -- 60 --> 420]
ParadaComida[21] = [360 -- 60 --> 420]
ParadaComida[22] = [360 -- 60 --> 420]
ParadaComida[23] = [360 -- 60 --> 420]
ParadaComida[24] = [360 -- 60 --> 420]
ParadaComida[25] = [360 -- 60 --> 420]
ParadaComida[26] = [360 -- 60 --> 420]
ParadaComida[27] = [360 -- 60 --> 420]
ParadaComida[28] = [402 -- 60 --> 462]
ParadaComida[29] = [417 -- 60 --> 477]

makespan = [668 -- 0 --> 668]
Truck = Discrete Resource
required by ParadaComida[29] over [417,477]
in capacity 1
required by ParadaComida[28] over [402,462]
in capacity 1
required by ParadaComida[27] over [360,420]
in capacity 1
required by ParadaComida[26] over [360,420]
in capacity 1
required by ParadaComida[25] over [360,420]
in capacity 1
required by ParadaComida[24] over [360,420]
in capacity 1

required by ParadaComida[23] over [360,420]
in capacity 1
required by ParadaComida[22] over [360,420]
in capacity 1
required by ParadaComida[21] over [360,420]
in capacity 1
required by ParadaComida[20] over [360,420]
in capacity 1
required by ParadaComida[19] over [360,420]
in capacity 1
required by ParadaComida[18] over [360,420]
in capacity 1
required by ParadaComida[17] over [360,420]
in capacity 1
required by ParadaComida[16] over [359,419]
in capacity 1
required by ParadaComida[15] over [342,402]
in capacity 1
required by ParadaComida[14] over [300,360]
in capacity 1
required by ParadaComida[13] over [300,360]
in capacity 1
required by ParadaComida[12] over [300,360]
in capacity 1
required by ParadaComida[11] over [300,360]
in capacity 1
required by ParadaComida[10] over [300,360]
in capacity 1
required by ParadaComida[9] over [300,360]
in capacity 1
required by ParadaComida[8] over [300,360]
in capacity 1
required by ParadaComida[7] over [300,360]
in capacity 1
required by ParadaComida[6] over [300,360]
in capacity 1
required by ParadaComida[5] over [300,360]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[114] over [316,362] in capacity 1
required by a[113] over [302,348] in capacity 1
required by a[112] over [41,63] in capacity 1
required by a[111] over [26,48] in capacity 1
required by a[110] over [15,37] in capacity 1
required by a[109] over [437,503] in capacity 1
required by a[108] over [369,435] in capacity 1



required by a[107] over [287,319] in capacity 1
required by a[106] over [277,309] in capacity 1
required by a[105] over [260,292] in capacity 1
required by a[104] over [358,377] in capacity 1
required by a[103] over [347,366] in capacity 1
required by a[102] over [330,349] in capacity 1
required by a[101] over [310,329] in capacity 1
required by a[100] over [392,429] in capacity 1
required by a[99] over [365,402] in capacity 1
required by a[98] over [143,178] in capacity 1
required by a[97] over [133,168] in capacity 1
required by a[96] over [432,474] in capacity 1
required by a[95] over [411,453] in capacity 1
required by a[94] over [386,428] in capacity 1
required by a[93] over [363,405] in capacity 1
required by a[92] over [335,377] in capacity 1
required by a[91] over [317,359] in capacity 1
required by a[90] over [299,341] in capacity 1
required by a[89] over [271,313] in capacity 1
required by a[88] over [248,290] in capacity 1
required by a[87] over [225,267] in capacity 1
required by a[86] over [207,249] in capacity 1
required by a[85] over [179,221] in capacity 1
required by a[84] over [156,198] in capacity 1
required by a[83] over [552,592] in capacity 1
required by a[82] over [533,573] in capacity 1
required by a[81] over [511,551] in capacity 1
required by a[80] over [484,506] in capacity 1
required by a[79] over [458,480] in capacity 1
required by a[78] over [272,296] in capacity 1
required by a[77] over [229,253] in capacity 1
required by a[76] over [197,221] in capacity 1
required by a[75] over [560,614] in capacity 1
required by a[74] over [506,560] in capacity 1
required by a[73] over [452,506] in capacity 1
required by a[72] over [94,140] in capacity 1
required by a[71] over [40,86] in capacity 1
required by a[70] over [395,438] in capacity 1
required by a[69] over [341,384] in capacity 1
required by a[68] over [285,328] in capacity 1
required by a[67] over [112,149] in capacity 1
required by a[66] over [86,123] in capacity 1
required by a[65] over [60,97] in capacity 1
required by a[64] over [473,502] in capacity 1
required by a[63] over [454,483] in capacity 1
required by a[62] over [405,533] in capacity 1
required by a[61] over [496,637] in capacity 1
required by a[60] over [467,608] in capacity 1
required by a[59] over [438,579] in capacity 1

required by a[58] over [409,550] in capacity 1
required by a[57] over [380,521] in capacity 1
required by a[56] over [351,492] in capacity 1
required by a[55] over [322,463] in capacity 1
required by a[54] over [293,434] in capacity 1
required by a[53] over [264,405] in capacity 1
required by a[52] over [235,376] in capacity 1
required by a[51] over [206,347] in capacity 1
required by a[50] over [646,668] in capacity 1
required by a[49] over [628,650] in capacity 1
required by a[48] over [605,627] in capacity 1
required by a[47] over [582,604] in capacity 1
required by a[46] over [559,581] in capacity 1
required by a[45] over [536,558] in capacity 1
required by a[44] over [513,535] in capacity 1
required by a[43] over [490,512] in capacity 1
required by a[42] over [467,489] in capacity 1
required by a[41] over [444,466] in capacity 1
required by a[40] over [421,443] in capacity 1
required by a[39] over [398,420] in capacity 1
required by a[38] over [375,397] in capacity 1
required by a[37] over [550,635] in capacity 1
required by a[36] over [517,602] in capacity 1
required by a[35] over [484,569] in capacity 1
required by a[34] over [201,236] in capacity 1
required by a[33] over [182,217] in capacity 1
required by a[32] over [163,198] in capacity 1
required by a[31] over [144,179] in capacity 1
required by a[30] over [125,160] in capacity 1
required by a[29] over [106,141] in capacity 1
required by a[28] over [87,122] in capacity 1
required by a[27] over [68,103] in capacity 1
required by a[26] over [49,84] in capacity 1
required by a[25] over [30,65] in capacity 1
required by a[24] over [431,477] in capacity 1
required by a[23] over [416,462] in capacity 1
required by a[22] over [401,447] in capacity 1
required by a[21] over [386,432] in capacity 1
required by a[20] over [371,417] in capacity 1
required by a[19] over [356,402] in capacity 1
required by a[18] over [341,387] in capacity 1
required by a[17] over [326,372] in capacity 1
required by a[16] over [311,357] in capacity 1
required by a[15] over [296,342] in capacity 1
required by a[14] over [281,327] in capacity 1
required by a[13] over [266,312] in capacity 1
required by a[12] over [251,297] in capacity 1
required by a[11] over [235,257] in capacity 1
required by a[10] over [215,237] in capacity 1
required by a[9] over [195,217] in capacity 1
required by a[8] over [175,197] in capacity 1
required by a[7] over [155,177] in capacity 1
required by a[6] over [135,157] in capacity 1
required by a[5] over [115,137] in capacity 1
required by a[4] over [95,117] in capacity 1
required by a[3] over [75,97] in capacity 1
required by a[2] over [55,77] in capacity 1



required by a[1] over [35,57] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[114] over [316,322] in capacity 1

required by Carga[113] over [302,308] in capacity 1

required by Carga[112] over [41,47] in capacity 1

required by Carga[111] over [26,32] in capacity 1

required by Carga[110] over [15,21] in capacity 1

required by Carga[109] over [437,443] in capacity 1

required by Carga[108] over [369,375] in capacity 1

required by Carga[107] over [287,293] in capacity 1

required by Carga[106] over [277,283] in capacity 1

required by Carga[105] over [260,266] in capacity 1

required by Carga[104] over [358,364] in capacity 1

required by Carga[103] over [347,353] in capacity 1

required by Carga[102] over [330,336] in capacity 1

required by Carga[101] over [310,316] in capacity 1

required by Carga[100] over [392,398] in capacity 1

required by Carga[99] over [365,371] in capacity 1

required by Carga[98] over [143,149] in capacity 1

required by Carga[97] over [133,139] in capacity 1

required by Carga[96] over [432,438] in capacity 1

required by Carga[95] over [411,417] in capacity 1

required by Carga[94] over [386,392] in capacity 1

required by Carga[93] over [363,369] in capacity 1

required by Carga[92] over [335,341] in capacity 1

required by Carga[91] over [317,323] in capacity 1

required by Carga[90] over [299,305] in capacity 1

required by Carga[89] over [271,277] in capacity 1

required by Carga[88] over [248,254] in capacity 1

required by Carga[87] over [225,231] in capacity 1

required by Carga[86] over [207,213] in capacity 1

required by Carga[85] over [179,185] in capacity 1

required by Carga[84] over [156,162] in capacity 1

required by Carga[83] over [552,558] in capacity 1

required by Carga[82] over [533,539] in capacity 1

required by Carga[81] over [511,517] in capacity 1

required by Carga[80] over [484,490] in capacity 1

required by Carga[79] over [458,464] in capacity 1

required by Carga[78] over [272,278] in capacity 1

required by Carga[77] over [229,235] in capacity 1

required by Carga[76] over [197,203] in capacity 1

required by Carga[75] over [560,566] in capacity 1

required by Carga[74] over [506,512] in capacity 1

required by Carga[73] over [452,458] in capacity 1

required by Carga[72] over [94,100] in capacity 1

required by Carga[71] over [40,46] in capacity 1

required by Carga[70] over [395,401] in capacity 1

required by Carga[69] over [341,347] in capacity 1

required by Carga[68] over [285,291] in capacity 1

required by Carga[67] over [112,118] in capacity 1

required by Carga[66] over [86,92] in capacity 1

required by Carga[65] over [60,66] in capacity 1

required by Carga[64] over [473,479] in capacity 1

required by Carga[63] over [454,460] in capacity 1

required by Carga[62] over [405,411] in capacity 1

required by Carga[61] over [496,502] in capacity 1

required by Carga[60] over [467,473] in capacity 1



required by Carga[59] over [438,444] in capacity 1
required by Carga[58] over [409,415] in capacity 1
required by Carga[57] over [380,386] in capacity 1
required by Carga[56] over [351,357] in capacity 1
required by Carga[55] over [322,328] in capacity 1
required by Carga[54] over [293,299] in capacity 1
required by Carga[53] over [264,270] in capacity 1
required by Carga[52] over [235,241] in capacity 1
required by Carga[51] over [206,212] in capacity 1
required by Carga[50] over [646,652] in capacity 1
required by Carga[49] over [628,634] in capacity 1
required by Carga[48] over [605,611] in capacity 1
required by Carga[47] over [582,588] in capacity 1
required by Carga[46] over [559,565] in capacity 1
required by Carga[45] over [536,542] in capacity 1
required by Carga[44] over [513,519] in capacity 1
required by Carga[43] over [490,496] in capacity 1
required by Carga[42] over [467,473] in capacity 1
required by Carga[41] over [444,450] in capacity 1
required by Carga[40] over [421,427] in capacity 1
required by Carga[39] over [398,404] in capacity 1
required by Carga[38] over [375,381] in capacity 1
required by Carga[37] over [550,556] in capacity 1
required by Carga[36] over [517,523] in capacity 1
required by Carga[35] over [484,490] in capacity 1
required by Carga[34] over [201,207] in capacity 1
required by Carga[33] over [182,188] in capacity 1
required by Carga[32] over [163,169] in capacity 1

required by Carga[31] over [144,150] in capacity 1
required by Carga[30] over [125,131] in capacity 1
required by Carga[29] over [106,112] in capacity 1
required by Carga[28] over [87,93] in capacity 1
required by Carga[27] over [68,74] in capacity 1
required by Carga[26] over [49,55] in capacity 1
required by Carga[25] over [30,36] in capacity 1
required by Carga[24] over [431,437] in capacity 1
required by Carga[23] over [416,422] in capacity 1
required by Carga[22] over [401,407] in capacity 1
required by Carga[21] over [386,392] in capacity 1
required by Carga[20] over [371,377] in capacity 1
required by Carga[19] over [356,362] in capacity 1
required by Carga[18] over [341,347] in capacity 1
required by Carga[17] over [326,332] in capacity 1
required by Carga[16] over [311,317] in capacity 1
required by Carga[15] over [296,302] in capacity 1
required by Carga[14] over [281,287] in capacity 1
required by Carga[13] over [266,272] in capacity 1
required by Carga[12] over [251,257] in capacity 1
required by Carga[11] over [235,241] in capacity 1
required by Carga[10] over [215,221] in capacity 1
required by Carga[9] over [195,201] in capacity 1
required by Carga[8] over [175,181] in capacity 1
required by Carga[7] over [155,161] in capacity 1
required by Carga[6] over [135,141] in capacity 1
required by Carga[5] over [115,121] in capacity 1
required by Carga[4] over [95,101] in capacity 1



required by Carga[3] over [75,81] in capacity
1
required by Carga[2] over [55,61] in capacity
1
required by Carga[1] over [35,41] in capacity
1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 0
Margen[38] = 0
Margen[39] = 0
Margen[40] = 0
Margen[41] = 0
Margen[42] = 0
Margen[43] = 0
Margen[44] = 0
Margen[45] = 0
Margen[46] = 0
Margen[47] = 0
Margen[48] = 0
Margen[49] = 0
Margen[50] = 5

Margen[51] = 0
Margen[52] = 0
Margen[53] = 0
Margen[54] = 0
Margen[55] = 0
Margen[56] = 0
Margen[57] = 0
Margen[58] = 0
Margen[59] = 0
Margen[60] = 0
Margen[61] = 0
Margen[62] = 0
Margen[63] = 0
Margen[64] = 3
Margen[65] = 0
Margen[66] = 0
Margen[67] = 0
Margen[68] = 0
Margen[69] = 0
Margen[70] = 2
Margen[71] = 0
Margen[72] = 0
Margen[73] = 0
Margen[74] = 0
Margen[75] = 0
Margen[76] = 0
Margen[77] = 4
Margen[78] = 3
Margen[79] = 2
Margen[80] = 0
Margen[81] = 3
Margen[82] = 0
Margen[83] = 0
Margen[84] = 0
Margen[85] = 0
Margen[86] = 5
Margen[87] = 0
Margen[88] = 0
Margen[89] = 0
Margen[90] = 5
Margen[91] = 0
Margen[92] = 5
Margen[93] = 0
Margen[94] = 0
Margen[95] = 2
Margen[96] = 0
Margen[97] = 0
Margen[98] = 0
Margen[99] = 13
Margen[100] = 2
Margen[101] = 6
Margen[102] = 0
Margen[103] = 3
Margen[104] = 0
Margen[105] = 4
Margen[106] = 3
Margen[107] = 3



Margen[108] = 6
Margen[109] = 4
Margen[110] = 0
Margen[111] = 0
Margen[112] = 4
Margen[113] = 7
Margen[114] = 4

Scheduling 11.2

Optimal Solution with Objective Value: 424

a[1] = [133 -- 55 --> 188]
a[2] = [184 -- 55 --> 239]
a[3] = [235 -- 55 --> 290]
a[4] = [389 -- 35 --> 424]
a[5] = [62 -- 48 --> 110]
a[6] = [323 -- 33 --> 356]
a[7] = [356 -- 33 --> 389]
a[8] = [383 -- 33 --> 416]

Carga[1] = [133 -- 6 --> 139]
Carga[2] = [184 -- 6 --> 190]
Carga[3] = [235 -- 6 --> 241]
Carga[4] = [389 -- 6 --> 395]
Carga[5] = [62 -- 6 --> 68]
Carga[6] = [323 -- 6 --> 329]
Carga[7] = [356 -- 6 --> 362]
Carga[8] = [383 -- 6 --> 389]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [416 -- 60 --> 476]

makespan = [424 -- 0 --> 424]
Truck = Discrete Resource
required by ParadaComida[2] over [416,476]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[8] over [383,416] in capacity 1
required by a[7] over [356,389] in capacity 1
required by a[6] over [323,356] in capacity 1
required by a[5] over [62,110] in capacity 1
required by a[4] over [389,424] in capacity 1
required by a[3] over [235,290] in capacity 1
required by a[2] over [184,239] in capacity 1
required by a[1] over [133,188] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[8] over [383,389] in
capacity 1
required by Carga[7] over [356,362] in
capacity 1
required by Carga[6] over [323,329] in
capacity 1
required by Carga[5] over [62,68] in capacity
1

required by Carga[4] over [389,395] in
capacity 1
required by Carga[3] over [235,241] in
capacity 1
required by Carga[2] over [184,190] in
capacity 1
required by Carga[1] over [133,139] in
capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 20
Margen[5] = 0
Margen[6] = 6
Margen[7] = 0
Margen[8] = 0

Scheduling 11.3

Optimal Solution with Objective Value: 558

a[1] = [157 -- 42 --> 199]
a[2] = [184 -- 42 --> 226]
a[3] = [211 -- 42 --> 253]
a[4] = [238 -- 42 --> 280]
a[5] = [265 -- 42 --> 307]
a[6] = [292 -- 42 --> 334]
a[7] = [319 -- 42 --> 361]
a[8] = [346 -- 42 --> 388]
a[9] = [373 -- 42 --> 415]
a[10] = [400 -- 42 --> 442]
a[11] = [427 -- 42 --> 469]
a[12] = [454 -- 42 --> 496]
a[13] = [481 -- 42 --> 523]
a[14] = [143 -- 31 --> 174]
a[15] = [167 -- 31 --> 198]
a[16] = [191 -- 31 --> 222]
a[17] = [215 -- 31 --> 246]
a[18] = [239 -- 31 --> 270]
a[19] = [263 -- 31 --> 294]
a[20] = [287 -- 31 --> 318]
a[21] = [311 -- 31 --> 342]
a[22] = [335 -- 31 --> 366]
a[23] = [0 -- 29 --> 29]
a[24] = [66 -- 29 --> 95]
a[25] = [330 -- 21 --> 351]
a[26] = [346 -- 21 --> 367]
a[27] = [76 -- 35 --> 111]
a[28] = [241 -- 64 --> 305]
a[29] = [267 -- 64 --> 331]
a[30] = [293 -- 64 --> 357]
a[31] = [248 -- 51 --> 299]
a[32] = [268 -- 51 --> 319]
a[33] = [286 -- 51 --> 337]
a[34] = [305 -- 51 --> 356]
a[35] = [316 -- 37 --> 353]
a[36] = [343 -- 37 --> 380]



a[37] = [460 -- 37 --> 497]
a[38] = [482 -- 37 --> 519]
a[39] = [504 -- 37 --> 541]
a[40] = [521 -- 37 --> 558]
a[41] = [186 -- 47 --> 233]
a[42] = [199 -- 47 --> 246]
a[43] = [318 -- 55 --> 373]
a[44] = [336 -- 55 --> 391]
a[45] = [307 -- 35 --> 342]
a[46] = [73 -- 29 --> 102]
a[47] = [107 -- 29 --> 136]

Carga[1] = [157 -- 3 --> 160]
Carga[2] = [184 -- 3 --> 187]
Carga[3] = [211 -- 3 --> 214]
Carga[4] = [238 -- 3 --> 241]
Carga[5] = [265 -- 3 --> 268]
Carga[6] = [292 -- 3 --> 295]
Carga[7] = [319 -- 3 --> 322]
Carga[8] = [346 -- 3 --> 349]
Carga[9] = [373 -- 3 --> 376]
Carga[10] = [400 -- 3 --> 403]
Carga[11] = [427 -- 3 --> 430]
Carga[12] = [454 -- 3 --> 457]
Carga[13] = [481 -- 3 --> 484]
Carga[14] = [143 -- 3 --> 146]
Carga[15] = [167 -- 3 --> 170]
Carga[16] = [191 -- 3 --> 194]
Carga[17] = [215 -- 3 --> 218]
Carga[18] = [239 -- 3 --> 242]
Carga[19] = [263 -- 3 --> 266]
Carga[20] = [287 -- 3 --> 290]
Carga[21] = [311 -- 3 --> 314]
Carga[22] = [335 -- 3 --> 338]
Carga[23] = [0 -- 3 --> 3]
Carga[24] = [66 -- 3 --> 69]
Carga[25] = [330 -- 3 --> 333]
Carga[26] = [346 -- 3 --> 349]
Carga[27] = [76 -- 3 --> 79]
Carga[28] = [241 -- 3 --> 244]
Carga[29] = [267 -- 3 --> 270]
Carga[30] = [293 -- 3 --> 296]
Carga[31] = [248 -- 3 --> 251]
Carga[32] = [268 -- 3 --> 271]
Carga[33] = [286 -- 3 --> 289]
Carga[34] = [305 -- 3 --> 308]
Carga[35] = [316 -- 3 --> 319]
Carga[36] = [343 -- 3 --> 346]
Carga[37] = [460 -- 3 --> 463]
Carga[38] = [482 -- 3 --> 485]
Carga[39] = [504 -- 3 --> 507]
Carga[40] = [521 -- 3 --> 524]
Carga[41] = [186 -- 3 --> 189]
Carga[42] = [199 -- 3 --> 202]
Carga[43] = [318 -- 3 --> 321]
Carga[44] = [336 -- 3 --> 339]
Carga[45] = [307 -- 3 --> 310]

Carga[46] = [73 -- 3 --> 76]
Carga[47] = [107 -- 3 --> 110]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [351 -- 60 --> 411]
ParadaComida[3] = [353 -- 60 --> 413]
ParadaComida[4] = [356 -- 60 --> 416]
ParadaComida[5] = [357 -- 60 --> 417]
ParadaComida[6] = [360 -- 60 --> 420]
ParadaComida[7] = [361 -- 60 --> 421]
ParadaComida[8] = [366 -- 60 --> 426]
ParadaComida[9] = [367 -- 60 --> 427]
ParadaComida[10] = [380 -- 60 --> 440]
ParadaComida[11] = [388 -- 60 --> 448]
ParadaComida[12] = [411 -- 60 --> 471]

makespan = [558 -- 0 --> 558]

Truck = Discrete Resource

required by ParadaComida[12] over [411,471]
in capacity 1
required by ParadaComida[11] over [388,448]
in capacity 1
required by ParadaComida[10] over [380,440]
in capacity 1
required by ParadaComida[9] over [367,427]
in capacity 1
required by ParadaComida[8] over [366,426]
in capacity 1
required by ParadaComida[7] over [361,421]
in capacity 1
required by ParadaComida[6] over [360,420]
in capacity 1
required by ParadaComida[5] over [357,417]
in capacity 1
required by ParadaComida[4] over [356,416]
in capacity 1
required by ParadaComida[3] over [353,413]
in capacity 1
required by ParadaComida[2] over [351,411]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[47] over [107,136] in capacity 1
required by a[46] over [73,102] in capacity 1
required by a[45] over [307,342] in capacity 1
required by a[44] over [336,391] in capacity 1
required by a[43] over [318,373] in capacity 1
required by a[42] over [199,246] in capacity 1
required by a[41] over [186,233] in capacity 1
required by a[40] over [521,558] in capacity 1
required by a[39] over [504,541] in capacity 1
required by a[38] over [482,519] in capacity 1
required by a[37] over [460,497] in capacity 1
required by a[36] over [343,380] in capacity 1
required by a[35] over [316,353] in capacity 1
required by a[34] over [305,356] in capacity 1
required by a[33] over [286,337] in capacity 1



required by a[32] over [268,319] in capacity 1
required by a[31] over [248,299] in capacity 1
required by a[30] over [293,357] in capacity 1
required by a[29] over [267,331] in capacity 1
required by a[28] over [241,305] in capacity 1
required by a[27] over [76,111] in capacity 1
required by a[26] over [346,367] in capacity 1
required by a[25] over [330,351] in capacity 1
required by a[24] over [66,95] in capacity 1
required by a[23] over [0,29] in capacity 1
required by a[22] over [335,366] in capacity 1
required by a[21] over [311,342] in capacity 1
required by a[20] over [287,318] in capacity 1
required by a[19] over [263,294] in capacity 1
required by a[18] over [239,270] in capacity 1
required by a[17] over [215,246] in capacity 1
required by a[16] over [191,222] in capacity 1
required by a[15] over [167,198] in capacity 1
required by a[14] over [143,174] in capacity 1
required by a[13] over [481,523] in capacity 1
required by a[12] over [454,496] in capacity 1
required by a[11] over [427,469] in capacity 1
required by a[10] over [400,442] in capacity 1
required by a[9] over [373,415] in capacity 1
required by a[8] over [346,388] in capacity 1
required by a[7] over [319,361] in capacity 1
required by a[6] over [292,334] in capacity 1
required by a[5] over [265,307] in capacity 1
required by a[4] over [238,280] in capacity 1
required by a[3] over [211,253] in capacity 1
required by a[2] over [184,226] in capacity 1
required by a[1] over [157,199] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[47] over [107,110] in capacity 1
required by Carga[46] over [73,76] in capacity 1
required by Carga[45] over [307,310] in capacity 1
required by Carga[44] over [336,339] in capacity 1
required by Carga[43] over [318,321] in capacity 1
required by Carga[42] over [199,202] in capacity 1
required by Carga[41] over [186,189] in capacity 1
required by Carga[40] over [521,524] in capacity 1
required by Carga[39] over [504,507] in capacity 1
required by Carga[38] over [482,485] in capacity 1
required by Carga[37] over [460,463] in capacity 1

required by Carga[36] over [343,346] in capacity 1
required by Carga[35] over [316,319] in capacity 1
required by Carga[34] over [305,308] in capacity 1
required by Carga[33] over [286,289] in capacity 1
required by Carga[32] over [268,271] in capacity 1
required by Carga[31] over [248,251] in capacity 1
required by Carga[30] over [293,296] in capacity 1
required by Carga[29] over [267,270] in capacity 1
required by Carga[28] over [241,244] in capacity 1
required by Carga[27] over [76,79] in capacity 1
required by Carga[26] over [346,349] in capacity 1
required by Carga[25] over [330,333] in capacity 1
required by Carga[24] over [66,69] in capacity 1
required by Carga[23] over [0,3] in capacity 1
required by Carga[22] over [335,338] in capacity 1
required by Carga[21] over [311,314] in capacity 1
required by Carga[20] over [287,290] in capacity 1
required by Carga[19] over [263,266] in capacity 1
required by Carga[18] over [239,242] in capacity 1
required by Carga[17] over [215,218] in capacity 1
required by Carga[16] over [191,194] in capacity 1
required by Carga[15] over [167,170] in capacity 1
required by Carga[14] over [143,146] in capacity 1
required by Carga[13] over [481,484] in capacity 1
required by Carga[12] over [454,457] in capacity 1
required by Carga[11] over [427,430] in capacity 1
required by Carga[10] over [400,403] in capacity 1
required by Carga[9] over [373,376] in capacity 1
required by Carga[8] over [346,349] in capacity 1



required by Carga[7] over [319,322] in capacity 1
required by Carga[6] over [292,295] in capacity 1
required by Carga[5] over [265,268] in capacity 1
required by Carga[4] over [238,241] in capacity 1
required by Carga[3] over [211,214] in capacity 1
required by Carga[2] over [184,187] in capacity 1
required by Carga[1] over [157,160] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 15
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 1
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 3
Margen[37] = 0
Margen[38] = 0
Margen[39] = 0
Margen[40] = 5
Margen[41] = 0
Margen[42] = 0

Margen[43] = 0
Margen[44] = 0
Margen[45] = 0
Margen[46] = 0
Margen[47] = 0

Scheduling 12.1

Optimal Solution with Objective Value: 705

a[1] = [21 -- 75 --> 96]
a[2] = [48 -- 75 --> 123]
a[3] = [75 -- 75 --> 150]
a[4] = [102 -- 75 --> 177]
a[5] = [137 -- 40 --> 177]
a[6] = [387 -- 45 --> 432]
a[7] = [354 -- 32 --> 386]
a[8] = [380 -- 32 --> 412]
a[9] = [406 -- 32 --> 438]
a[10] = [238 -- 48 --> 286]
a[11] = [262 -- 48 --> 310]
a[12] = [286 -- 48 --> 334]
a[13] = [310 -- 48 --> 358]
a[14] = [334 -- 48 --> 382]
a[15] = [358 -- 48 --> 406]
a[16] = [382 -- 48 --> 430]
a[17] = [406 -- 48 --> 454]
a[18] = [430 -- 48 --> 478]
a[19] = [454 -- 48 --> 502]
a[20] = [478 -- 48 --> 526]
a[21] = [502 -- 48 --> 550]
a[22] = [526 -- 48 --> 574]
a[23] = [412 -- 48 --> 460]
a[24] = [423 -- 48 --> 471]
a[25] = [440 -- 48 --> 488]
a[26] = [457 -- 48 --> 505]
a[27] = [474 -- 48 --> 522]
a[28] = [491 -- 48 --> 539]
a[29] = [508 -- 48 --> 556]
a[30] = [30 -- 40 --> 70]
a[31] = [49 -- 40 --> 89]
a[32] = [204 -- 42 --> 246]
a[33] = [225 -- 42 --> 267]
a[34] = [246 -- 42 --> 288]
a[35] = [267 -- 42 --> 309]
a[36] = [288 -- 42 --> 330]
a[37] = [309 -- 42 --> 351]
a[38] = [330 -- 42 --> 372]
a[39] = [351 -- 42 --> 393]
a[40] = [323 -- 32 --> 355]
a[41] = [118 -- 38 --> 156]
a[42] = [348 -- 35 --> 383]
a[43] = [400 -- 35 --> 435]
a[44] = [0 -- 32 --> 32]
a[45] = [74 -- 32 --> 106]
a[46] = [128 -- 32 --> 160]
a[47] = [666 -- 19 --> 685]
a[48] = [686 -- 19 --> 705]



a[49] = [218 -- 27 --> 245]
a[50] = [247 -- 27 --> 274]
a[51] = [276 -- 27 --> 303]
a[52] = [304 -- 27 --> 331]
a[53] = [336 -- 27 --> 363]
a[54] = [363 -- 27 --> 390]
a[55] = [392 -- 27 --> 419]
a[56] = [421 -- 27 --> 448]
a[57] = [450 -- 27 --> 477]
a[58] = [480 -- 27 --> 507]
a[59] = [508 -- 27 --> 535]
a[60] = [96 -- 27 --> 123]
a[61] = [124 -- 27 --> 151]
a[62] = [152 -- 27 --> 179]
a[63] = [180 -- 27 --> 207]
a[64] = [208 -- 27 --> 235]
a[65] = [236 -- 27 --> 263]
a[66] = [261 -- 27 --> 288]
a[67] = [292 -- 27 --> 319]
a[68] = [320 -- 27 --> 347]
a[69] = [345 -- 27 --> 372]
a[70] = [376 -- 27 --> 403]
a[71] = [400 -- 27 --> 427]
a[72] = [0 -- 29 --> 29]
a[73] = [30 -- 29 --> 59]
a[74] = [256 -- 42 --> 298]
a[75] = [315 -- 42 --> 357]

Carga[1] = [21 -- 6 --> 27]
Carga[2] = [48 -- 6 --> 54]
Carga[3] = [75 -- 6 --> 81]
Carga[4] = [102 -- 6 --> 108]
Carga[5] = [137 -- 6 --> 143]
Carga[6] = [387 -- 6 --> 393]
Carga[7] = [354 -- 6 --> 360]
Carga[8] = [380 -- 6 --> 386]
Carga[9] = [406 -- 6 --> 412]
Carga[10] = [238 -- 6 --> 244]
Carga[11] = [262 -- 6 --> 268]
Carga[12] = [286 -- 6 --> 292]
Carga[13] = [310 -- 6 --> 316]
Carga[14] = [334 -- 6 --> 340]
Carga[15] = [358 -- 6 --> 364]
Carga[16] = [382 -- 6 --> 388]
Carga[17] = [406 -- 6 --> 412]
Carga[18] = [430 -- 6 --> 436]
Carga[19] = [454 -- 6 --> 460]
Carga[20] = [478 -- 6 --> 484]
Carga[21] = [502 -- 6 --> 508]
Carga[22] = [526 -- 6 --> 532]
Carga[23] = [412 -- 6 --> 418]
Carga[24] = [423 -- 6 --> 429]
Carga[25] = [440 -- 6 --> 446]
Carga[26] = [457 -- 6 --> 463]
Carga[27] = [474 -- 6 --> 480]
Carga[28] = [491 -- 6 --> 497]
Carga[29] = [508 -- 6 --> 514]

Carga[30] = [30 -- 6 --> 36]
Carga[31] = [49 -- 6 --> 55]
Carga[32] = [204 -- 6 --> 210]
Carga[33] = [225 -- 6 --> 231]
Carga[34] = [246 -- 6 --> 252]
Carga[35] = [267 -- 6 --> 273]
Carga[36] = [288 -- 6 --> 294]
Carga[37] = [309 -- 6 --> 315]
Carga[38] = [330 -- 6 --> 336]
Carga[39] = [351 -- 6 --> 357]
Carga[40] = [323 -- 6 --> 329]
Carga[41] = [118 -- 6 --> 124]
Carga[42] = [348 -- 6 --> 354]
Carga[43] = [400 -- 6 --> 406]
Carga[44] = [0 -- 6 --> 6]
Carga[45] = [74 -- 6 --> 80]
Carga[46] = [128 -- 6 --> 134]
Carga[47] = [666 -- 6 --> 672]
Carga[48] = [686 -- 6 --> 692]
Carga[49] = [218 -- 6 --> 224]
Carga[50] = [247 -- 6 --> 253]
Carga[51] = [276 -- 6 --> 282]
Carga[52] = [304 -- 6 --> 310]
Carga[53] = [336 -- 6 --> 342]
Carga[54] = [363 -- 6 --> 369]
Carga[55] = [392 -- 6 --> 398]
Carga[56] = [421 -- 6 --> 427]
Carga[57] = [450 -- 6 --> 456]
Carga[58] = [480 -- 6 --> 486]
Carga[59] = [508 -- 6 --> 514]
Carga[60] = [96 -- 6 --> 102]
Carga[61] = [124 -- 6 --> 130]
Carga[62] = [152 -- 6 --> 158]
Carga[63] = [180 -- 6 --> 186]
Carga[64] = [208 -- 6 --> 214]
Carga[65] = [236 -- 6 --> 242]
Carga[66] = [261 -- 6 --> 267]
Carga[67] = [292 -- 6 --> 298]
Carga[68] = [320 -- 6 --> 326]
Carga[69] = [345 -- 6 --> 351]
Carga[70] = [376 -- 6 --> 382]
Carga[71] = [400 -- 6 --> 406]
Carga[72] = [0 -- 6 --> 6]
Carga[73] = [30 -- 6 --> 36]
Carga[74] = [256 -- 6 --> 262]
Carga[75] = [315 -- 6 --> 321]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [300 -- 60 --> 360]
ParadaComida[9] = [300 -- 60 --> 360]
ParadaComida[10] = [355 -- 60 --> 415]



ParadaComida[11] = [357 -- 60 --> 417]
ParadaComida[12] = [360 -- 60 --> 420]
ParadaComida[13] = [360 -- 60 --> 420]
ParadaComida[14] = [360 -- 60 --> 420]
ParadaComida[15] = [360 -- 60 --> 420]
ParadaComida[16] = [360 -- 60 --> 420]
ParadaComida[17] = [360 -- 60 --> 420]
ParadaComida[18] = [360 -- 60 --> 420]
ParadaComida[19] = [360 -- 60 --> 420]

makespan = [705 -- 0 --> 705]

Truck = Discrete Resource

required by ParadaComida[19] over [360,420]
in capacity 1
required by ParadaComida[18] over [360,420]
in capacity 1
required by ParadaComida[17] over [360,420]
in capacity 1
required by ParadaComida[16] over [360,420]
in capacity 1
required by ParadaComida[15] over [360,420]
in capacity 1
required by ParadaComida[14] over [360,420]
in capacity 1
required by ParadaComida[13] over [360,420]
in capacity 1
required by ParadaComida[12] over [360,420]
in capacity 1
required by ParadaComida[11] over [357,417]
in capacity 1
required by ParadaComida[10] over [355,415]
in capacity 1
required by ParadaComida[9] over [300,360]
in capacity 1
required by ParadaComida[8] over [300,360]
in capacity 1
required by ParadaComida[7] over [300,360]
in capacity 1
required by ParadaComida[6] over [300,360]
in capacity 1
required by ParadaComida[5] over [300,360]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[75] over [315,357] in capacity 1
required by a[74] over [256,298] in capacity 1
required by a[73] over [30,59] in capacity 1
required by a[72] over [0,29] in capacity 1
required by a[71] over [400,427] in capacity 1
required by a[70] over [376,403] in capacity 1
required by a[69] over [345,372] in capacity 1

required by a[68] over [320,347] in capacity 1
required by a[67] over [292,319] in capacity 1
required by a[66] over [261,288] in capacity 1
required by a[65] over [236,263] in capacity 1
required by a[64] over [208,235] in capacity 1
required by a[63] over [180,207] in capacity 1
required by a[62] over [152,179] in capacity 1
required by a[61] over [124,151] in capacity 1
required by a[60] over [96,123] in capacity 1
required by a[59] over [508,535] in capacity 1
required by a[58] over [480,507] in capacity 1
required by a[57] over [450,477] in capacity 1
required by a[56] over [421,448] in capacity 1
required by a[55] over [392,419] in capacity 1
required by a[54] over [363,390] in capacity 1
required by a[53] over [336,363] in capacity 1
required by a[52] over [304,331] in capacity 1
required by a[51] over [276,303] in capacity 1
required by a[50] over [247,274] in capacity 1
required by a[49] over [218,245] in capacity 1
required by a[48] over [686,705] in capacity 1
required by a[47] over [666,685] in capacity 1
required by a[46] over [128,160] in capacity 1
required by a[45] over [74,106] in capacity 1
required by a[44] over [0,32] in capacity 1
required by a[43] over [400,435] in capacity 1
required by a[42] over [348,383] in capacity 1
required by a[41] over [118,156] in capacity 1
required by a[40] over [323,355] in capacity 1
required by a[39] over [351,393] in capacity 1
required by a[38] over [330,372] in capacity 1
required by a[37] over [309,351] in capacity 1
required by a[36] over [288,330] in capacity 1
required by a[35] over [267,309] in capacity 1
required by a[34] over [246,288] in capacity 1
required by a[33] over [225,267] in capacity 1
required by a[32] over [204,246] in capacity 1
required by a[31] over [49,89] in capacity 1
required by a[30] over [30,70] in capacity 1
required by a[29] over [508,556] in capacity 1
required by a[28] over [491,539] in capacity 1
required by a[27] over [474,522] in capacity 1
required by a[26] over [457,505] in capacity 1
required by a[25] over [440,488] in capacity 1
required by a[24] over [423,471] in capacity 1
required by a[23] over [412,460] in capacity 1
required by a[22] over [526,574] in capacity 1
required by a[21] over [502,550] in capacity 1
required by a[20] over [478,526] in capacity 1
required by a[19] over [454,502] in capacity 1
required by a[18] over [430,478] in capacity 1
required by a[17] over [406,454] in capacity 1
required by a[16] over [382,430] in capacity 1
required by a[15] over [358,406] in capacity 1
required by a[14] over [334,382] in capacity 1
required by a[13] over [310,358] in capacity 1
required by a[12] over [286,334] in capacity 1



required by a[11] over [262,310] in capacity 1
required by a[10] over [238,286] in capacity 1
required by a[9] over [406,438] in capacity 1
required by a[8] over [380,412] in capacity 1
required by a[7] over [354,386] in capacity 1
required by a[6] over [387,432] in capacity 1
required by a[5] over [137,177] in capacity 1
required by a[4] over [102,177] in capacity 1
required by a[3] over [75,150] in capacity 1
required by a[2] over [48,123] in capacity 1
required by a[1] over [21,96] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[75] over [315,321] in capacity 1

required by Carga[74] over [256,262] in capacity 1

required by Carga[73] over [30,36] in capacity 1

required by Carga[72] over [0,6] in capacity 1

required by Carga[71] over [400,406] in capacity 1

required by Carga[70] over [376,382] in capacity 1

required by Carga[69] over [345,351] in capacity 1

required by Carga[68] over [320,326] in capacity 1

required by Carga[67] over [292,298] in capacity 1

required by Carga[66] over [261,267] in capacity 1

required by Carga[65] over [236,242] in capacity 1

required by Carga[64] over [208,214] in capacity 1

required by Carga[63] over [180,186] in capacity 1

required by Carga[62] over [152,158] in capacity 1

required by Carga[61] over [124,130] in capacity 1

required by Carga[60] over [96,102] in capacity 1

required by Carga[59] over [508,514] in capacity 1

required by Carga[58] over [480,486] in capacity 1

required by Carga[57] over [450,456] in capacity 1

required by Carga[56] over [421,427] in capacity 1

required by Carga[55] over [392,398] in capacity 1

required by Carga[54] over [363,369] in capacity 1

required by Carga[53] over [336,342] in capacity 1

required by Carga[52] over [304,310] in capacity 1

required by Carga[51] over [276,282] in capacity 1

required by Carga[50] over [247,253] in capacity 1

required by Carga[49] over [218,224] in capacity 1

required by Carga[48] over [686,692] in capacity 1

required by Carga[47] over [666,672] in capacity 1

required by Carga[46] over [128,134] in capacity 1

required by Carga[45] over [74,80] in capacity 1

required by Carga[44] over [0,6] in capacity 1

required by Carga[43] over [400,406] in capacity 1

required by Carga[42] over [348,354] in capacity 1

required by Carga[41] over [118,124] in capacity 1

required by Carga[40] over [323,329] in capacity 1

required by Carga[39] over [351,357] in capacity 1

required by Carga[38] over [330,336] in capacity 1

required by Carga[37] over [309,315] in capacity 1

required by Carga[36] over [288,294] in capacity 1

required by Carga[35] over [267,273] in capacity 1

required by Carga[34] over [246,252] in capacity 1

required by Carga[33] over [225,231] in capacity 1

required by Carga[32] over [204,210] in capacity 1

required by Carga[31] over [49,55] in capacity 1

required by Carga[30] over [30,36] in capacity 1

required by Carga[29] over [508,514] in capacity 1

required by Carga[28] over [491,497] in capacity 1

required by Carga[27] over [474,480] in capacity 1

required by Carga[26] over [457,463] in capacity 1

required by Carga[25] over [440,446] in capacity 1



required by Carga[24] over [423,429] in capacity 1
required by Carga[23] over [412,418] in capacity 1
required by Carga[22] over [526,532] in capacity 1
required by Carga[21] over [502,508] in capacity 1
required by Carga[20] over [478,484] in capacity 1
required by Carga[19] over [454,460] in capacity 1
required by Carga[18] over [430,436] in capacity 1
required by Carga[17] over [406,412] in capacity 1
required by Carga[16] over [382,388] in capacity 1
required by Carga[15] over [358,364] in capacity 1
required by Carga[14] over [334,340] in capacity 1
required by Carga[13] over [310,316] in capacity 1
required by Carga[12] over [286,292] in capacity 1
required by Carga[11] over [262,268] in capacity 1
required by Carga[10] over [238,244] in capacity 1
required by Carga[9] over [406,412] in capacity 1
required by Carga[8] over [380,386] in capacity 1
required by Carga[7] over [354,360] in capacity 1
required by Carga[6] over [387,393] in capacity 1
required by Carga[5] over [137,143] in capacity 1
required by Carga[4] over [102,108] in capacity 1
required by Carga[3] over [75,81] in capacity 1
required by Carga[2] over [48,54] in capacity 1
required by Carga[1] over [21,27] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0

Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 6
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 0
Margen[38] = 0
Margen[39] = 0
Margen[40] = 0
Margen[41] = 0
Margen[42] = 3
Margen[43] = 1
Margen[44] = 20
Margen[45] = 0
Margen[46] = 0
Margen[47] = 0
Margen[48] = 5
Margen[49] = 0
Margen[50] = 0
Margen[51] = 0
Margen[52] = 1
Margen[53] = 2
Margen[54] = 0
Margen[55] = 0
Margen[56] = 0
Margen[57] = 0
Margen[58] = 1
Margen[59] = 0
Margen[60] = 0
Margen[61] = 0
Margen[62] = 0
Margen[63] = 0
Margen[64] = 0
Margen[65] = 0



Margen[66] = 3
Margen[67] = 0
Margen[68] = 0
Margen[69] = 3
Margen[70] = 0
Margen[71] = 4
Margen[72] = 17
Margen[73] = 0
Margen[74] = 0
Margen[75] = 5

Scheduling 12.2

Optimal Solution with Objective Value: 448

a[1] = [94 -- 21 --> 115]
a[2] = [116 -- 21 --> 137]
a[3] = [138 -- 21 --> 159]
a[4] = [160 -- 21 --> 181]
a[5] = [182 -- 21 --> 203]
a[6] = [204 -- 21 --> 225]
a[7] = [226 -- 21 --> 247]
a[8] = [248 -- 21 --> 269]
a[9] = [270 -- 21 --> 291]
a[10] = [292 -- 21 --> 313]
a[11] = [314 -- 21 --> 335]
a[12] = [336 -- 21 --> 357]
a[13] = [357 -- 21 --> 378]
a[14] = [308 -- 23 --> 331]
a[15] = [324 -- 23 --> 347]
a[16] = [342 -- 23 --> 365]
a[17] = [351 -- 23 --> 374]
a[18] = [370 -- 23 --> 393]
a[19] = [385 -- 23 --> 408]
a[20] = [400 -- 23 --> 423]
a[21] = [415 -- 23 --> 438]
a[22] = [425 -- 23 --> 448]
a[23] = [52 -- 47 --> 99]
a[24] = [78 -- 47 --> 125]
a[25] = [330 -- 23 --> 353]
a[26] = [363 -- 23 --> 386]
a[27] = [215 -- 44 --> 259]
a[28] = [242 -- 42 --> 284]
a[29] = [264 -- 42 --> 306]
a[30] = [286 -- 42 --> 328]

Carga[1] = [94 -- 6 --> 100]
Carga[2] = [116 -- 6 --> 122]
Carga[3] = [138 -- 6 --> 144]
Carga[4] = [160 -- 6 --> 166]
Carga[5] = [182 -- 6 --> 188]
Carga[6] = [204 -- 6 --> 210]
Carga[7] = [226 -- 6 --> 232]
Carga[8] = [248 -- 6 --> 254]
Carga[9] = [270 -- 6 --> 276]
Carga[10] = [292 -- 6 --> 298]
Carga[11] = [314 -- 6 --> 320]
Carga[12] = [336 -- 6 --> 342]

Carga[13] = [357 -- 6 --> 363]
Carga[14] = [308 -- 6 --> 314]
Carga[15] = [324 -- 6 --> 330]
Carga[16] = [342 -- 6 --> 348]
Carga[17] = [351 -- 6 --> 357]
Carga[18] = [370 -- 6 --> 376]
Carga[19] = [385 -- 6 --> 391]
Carga[20] = [400 -- 6 --> 406]
Carga[21] = [415 -- 6 --> 421]
Carga[22] = [425 -- 6 --> 431]
Carga[23] = [52 -- 6 --> 58]
Carga[24] = [78 -- 6 --> 84]
Carga[25] = [330 -- 6 --> 336]
Carga[26] = [363 -- 6 --> 369]
Carga[27] = [215 -- 6 --> 221]
Carga[28] = [242 -- 6 --> 248]
Carga[29] = [264 -- 6 --> 270]
Carga[30] = [286 -- 6 --> 292]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [353 -- 60 --> 413]
ParadaComida[6] = [360 -- 60 --> 420]
ParadaComida[7] = [360 -- 60 --> 420]
ParadaComida[8] = [360 -- 60 --> 420]

makespan = [448 -- 0 --> 448]

Truck = Discrete Resource

required by ParadaComida[8] over [360,420]
in capacity 1
required by ParadaComida[7] over [360,420]
in capacity 1
required by ParadaComida[6] over [360,420]
in capacity 1
required by ParadaComida[5] over [353,413]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[30] over [286,328] in capacity 1
required by a[29] over [264,306] in capacity 1
required by a[28] over [242,284] in capacity 1
required by a[27] over [215,259] in capacity 1
required by a[26] over [363,386] in capacity 1
required by a[25] over [330,353] in capacity 1
required by a[24] over [78,125] in capacity 1
required by a[23] over [52,99] in capacity 1
required by a[22] over [425,448] in capacity 1
required by a[21] over [415,438] in capacity 1
required by a[20] over [400,423] in capacity 1



required by a[19] over [385,408] in capacity 1
required by a[18] over [370,393] in capacity 1
required by a[17] over [351,374] in capacity 1
required by a[16] over [342,365] in capacity 1
required by a[15] over [324,347] in capacity 1
required by a[14] over [308,331] in capacity 1
required by a[13] over [357,378] in capacity 1
required by a[12] over [336,357] in capacity 1
required by a[11] over [314,335] in capacity 1
required by a[10] over [292,313] in capacity 1
required by a[9] over [270,291] in capacity 1
required by a[8] over [248,269] in capacity 1
required by a[7] over [226,247] in capacity 1
required by a[6] over [204,225] in capacity 1
required by a[5] over [182,203] in capacity 1
required by a[4] over [160,181] in capacity 1
required by a[3] over [138,159] in capacity 1
required by a[2] over [116,137] in capacity 1
required by a[1] over [94,115] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[30] over [286,292] in capacity 1
required by Carga[29] over [264,270] in capacity 1
required by Carga[28] over [242,248] in capacity 1
required by Carga[27] over [215,221] in capacity 1
required by Carga[26] over [363,369] in capacity 1
required by Carga[25] over [330,336] in capacity 1
required by Carga[24] over [78,84] in capacity 1
required by Carga[23] over [52,58] in capacity 1
required by Carga[22] over [425,431] in capacity 1
required by Carga[21] over [415,421] in capacity 1
required by Carga[20] over [400,406] in capacity 1
required by Carga[19] over [385,391] in capacity 1
required by Carga[18] over [370,376] in capacity 1
required by Carga[17] over [351,357] in capacity 1
required by Carga[16] over [342,348] in capacity 1
required by Carga[15] over [324,330] in capacity 1
required by Carga[14] over [308,314] in capacity 1
required by Carga[13] over [357,363] in capacity 1

required by Carga[12] over [336,342] in capacity 1
required by Carga[11] over [314,320] in capacity 1
required by Carga[10] over [292,298] in capacity 1
required by Carga[9] over [270,276] in capacity 1
required by Carga[8] over [248,254] in capacity 1
required by Carga[7] over [226,232] in capacity 1
required by Carga[6] over [204,210] in capacity 1
required by Carga[5] over [182,188] in capacity 1
required by Carga[4] over [160,166] in capacity 1
required by Carga[3] over [138,144] in capacity 1
required by Carga[2] over [116,122] in capacity 1
required by Carga[1] over [94,100] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 1
Margen[14] = 2
Margen[15] = 1
Margen[16] = 2
Margen[17] = 4
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 5
Margen[23] = 0
Margen[24] = 0
Margen[25] = 11
Margen[26] = 5
Margen[27] = 0
Margen[28] = 3
Margen[29] = 2
Margen[30] = 1

Scheduling 12.3



No Solution

Scheduling 13.1

Optimal Solution with Objective Value: 589

a[1] = [22 -- 150 --> 172]
a[2] = [343 -- 29 --> 372]
a[3] = [390 -- 29 --> 419]
a[4] = [437 -- 29 --> 466]
a[5] = [386 -- 133 --> 519]
a[6] = [198 -- 120 --> 318]
a[7] = [247 -- 120 --> 367]
a[8] = [296 -- 120 --> 416]
a[9] = [486 -- 70 --> 556]
a[10] = [505 -- 70 --> 575]
a[11] = [519 -- 70 --> 589]
a[12] = [518 -- 48 --> 566]
a[13] = [36 -- 54 --> 90]
a[14] = [52 -- 54 --> 106]
a[15] = [68 -- 54 --> 122]
a[16] = [111 -- 24 --> 135]
a[17] = [331 -- 32 --> 363]
a[18] = [380 -- 32 --> 412]
a[19] = [429 -- 32 --> 461]
a[20] = [336 -- 30 --> 366]
a[21] = [358 -- 30 --> 388]
a[22] = [380 -- 30 --> 410]
a[23] = [402 -- 30 --> 432]
a[24] = [424 -- 30 --> 454]
a[25] = [446 -- 30 --> 476]
a[26] = [468 -- 30 --> 498]
a[27] = [191 -- 40 --> 231]
a[28] = [203 -- 40 --> 243]
a[29] = [215 -- 40 --> 255]
a[30] = [227 -- 40 --> 267]
a[31] = [399 -- 32 --> 431]
a[32] = [430 -- 32 --> 462]
a[33] = [461 -- 32 --> 493]
a[34] = [321 -- 50 --> 371]
a[35] = [344 -- 50 --> 394]
a[36] = [367 -- 50 --> 417]
a[37] = [206 -- 35 --> 241]
a[38] = [240 -- 35 --> 275]
a[39] = [274 -- 35 --> 309]
a[40] = [127 -- 32 --> 159]
a[41] = [158 -- 32 --> 190]
a[42] = [189 -- 32 --> 221]
a[43] = [185 -- 42 --> 227]
a[44] = [224 -- 42 --> 266]

Carga[1] = [22 -- 6 --> 28]
Carga[2] = [343 -- 6 --> 349]
Carga[3] = [390 -- 6 --> 396]
Carga[4] = [437 -- 6 --> 443]
Carga[5] = [386 -- 6 --> 392]
Carga[6] = [198 -- 6 --> 204]

Carga[7] = [247 -- 6 --> 253]
Carga[8] = [296 -- 6 --> 302]
Carga[9] = [486 -- 6 --> 492]
Carga[10] = [505 -- 6 --> 511]
Carga[11] = [519 -- 6 --> 525]
Carga[12] = [518 -- 6 --> 524]
Carga[13] = [36 -- 6 --> 42]
Carga[14] = [52 -- 6 --> 58]
Carga[15] = [68 -- 6 --> 74]
Carga[16] = [111 -- 6 --> 117]
Carga[17] = [331 -- 6 --> 337]
Carga[18] = [380 -- 6 --> 386]
Carga[19] = [429 -- 6 --> 435]
Carga[20] = [336 -- 6 --> 342]
Carga[21] = [358 -- 6 --> 364]
Carga[22] = [380 -- 6 --> 386]
Carga[23] = [402 -- 6 --> 408]
Carga[24] = [424 -- 6 --> 430]
Carga[25] = [446 -- 6 --> 452]
Carga[26] = [468 -- 6 --> 474]
Carga[27] = [191 -- 6 --> 197]
Carga[28] = [203 -- 6 --> 209]
Carga[29] = [215 -- 6 --> 221]
Carga[30] = [227 -- 6 --> 233]
Carga[31] = [399 -- 6 --> 405]
Carga[32] = [430 -- 6 --> 436]
Carga[33] = [461 -- 6 --> 467]
Carga[34] = [321 -- 6 --> 327]
Carga[35] = [344 -- 6 --> 350]
Carga[36] = [367 -- 6 --> 373]
Carga[37] = [206 -- 6 --> 212]
Carga[38] = [240 -- 6 --> 246]
Carga[39] = [274 -- 6 --> 280]
Carga[40] = [127 -- 6 --> 133]
Carga[41] = [158 -- 6 --> 164]
Carga[42] = [189 -- 6 --> 195]
Carga[43] = [185 -- 6 --> 191]
Carga[44] = [224 -- 6 --> 230]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [360 -- 60 --> 420]
ParadaComida[5] = [360 -- 60 --> 420]
ParadaComida[6] = [360 -- 60 --> 420]
ParadaComida[7] = [410 -- 60 --> 470]
ParadaComida[8] = [412 -- 60 --> 472]
ParadaComida[9] = [416 -- 60 --> 476]
ParadaComida[10] = [417 -- 60 --> 477]
ParadaComida[11] = [419 -- 60 --> 479]

makespan = [589 -- 0 --> 589]

Truck = Discrete Resource

required by ParadaComida[11] over [419,479]
in capacity 1

required by ParadaComida[10] over [417,477]
in capacity 1



required by ParadaComida[9] over [416,476] in capacity 1
required by ParadaComida[8] over [412,472] in capacity 1
required by ParadaComida[7] over [410,470] in capacity 1
required by ParadaComida[6] over [360,420] in capacity 1
required by ParadaComida[5] over [360,420] in capacity 1
required by ParadaComida[4] over [360,420] in capacity 1
required by ParadaComida[3] over [300,360] in capacity 1
required by ParadaComida[2] over [300,360] in capacity 1
required by ParadaComida[1] over [300,360] in capacity 1
required by a[44] over [224,266] in capacity 1
required by a[43] over [185,227] in capacity 1
required by a[42] over [189,221] in capacity 1
required by a[41] over [158,190] in capacity 1
required by a[40] over [127,159] in capacity 1
required by a[39] over [274,309] in capacity 1
required by a[38] over [240,275] in capacity 1
required by a[37] over [206,241] in capacity 1
required by a[36] over [367,417] in capacity 1
required by a[35] over [344,394] in capacity 1
required by a[34] over [321,371] in capacity 1
required by a[33] over [461,493] in capacity 1
required by a[32] over [430,462] in capacity 1
required by a[31] over [399,431] in capacity 1
required by a[30] over [227,267] in capacity 1
required by a[29] over [215,255] in capacity 1
required by a[28] over [203,243] in capacity 1
required by a[27] over [191,231] in capacity 1
required by a[26] over [468,498] in capacity 1
required by a[25] over [446,476] in capacity 1
required by a[24] over [424,454] in capacity 1
required by a[23] over [402,432] in capacity 1
required by a[22] over [380,410] in capacity 1
required by a[21] over [358,388] in capacity 1
required by a[20] over [336,366] in capacity 1
required by a[19] over [429,461] in capacity 1
required by a[18] over [380,412] in capacity 1
required by a[17] over [331,363] in capacity 1
required by a[16] over [111,135] in capacity 1
required by a[15] over [68,122] in capacity 1
required by a[14] over [52,106] in capacity 1
required by a[13] over [36,90] in capacity 1
required by a[12] over [518,566] in capacity 1
required by a[11] over [519,589] in capacity 1
required by a[10] over [505,575] in capacity 1
required by a[9] over [486,556] in capacity 1
required by a[8] over [296,416] in capacity 1
required by a[7] over [247,367] in capacity 1
required by a[6] over [198,318] in capacity 1

required by a[5] over [386,519] in capacity 1
required by a[4] over [437,466] in capacity 1
required by a[3] over [390,419] in capacity 1
required by a[2] over [343,372] in capacity 1
required by a[1] over [22,172] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[44] over [224,230] in capacity 1
required by Carga[43] over [185,191] in capacity 1
required by Carga[42] over [189,195] in capacity 1
required by Carga[41] over [158,164] in capacity 1
required by Carga[40] over [127,133] in capacity 1
required by Carga[39] over [274,280] in capacity 1
required by Carga[38] over [240,246] in capacity 1
required by Carga[37] over [206,212] in capacity 1
required by Carga[36] over [367,373] in capacity 1
required by Carga[35] over [344,350] in capacity 1
required by Carga[34] over [321,327] in capacity 1
required by Carga[33] over [461,467] in capacity 1
required by Carga[32] over [430,436] in capacity 1
required by Carga[31] over [399,405] in capacity 1
required by Carga[30] over [227,233] in capacity 1
required by Carga[29] over [215,221] in capacity 1
required by Carga[28] over [203,209] in capacity 1
required by Carga[27] over [191,197] in capacity 1
required by Carga[26] over [468,474] in capacity 1
required by Carga[25] over [446,452] in capacity 1
required by Carga[24] over [424,430] in capacity 1
required by Carga[23] over [402,408] in capacity 1
required by Carga[22] over [380,386] in capacity 1
required by Carga[21] over [358,364] in capacity 1
required by Carga[20] over [336,342] in capacity 1



required by Carga[19] over [429,435] in capacity 1
required by Carga[18] over [380,386] in capacity 1
required by Carga[17] over [331,337] in capacity 1
required by Carga[16] over [111,117] in capacity 1
required by Carga[15] over [68,74] in capacity 1
required by Carga[14] over [52,58] in capacity 1
required by Carga[13] over [36,42] in capacity 1
required by Carga[12] over [518,524] in capacity 1
required by Carga[11] over [519,525] in capacity 1
required by Carga[10] over [505,511] in capacity 1
required by Carga[9] over [486,492] in capacity 1
required by Carga[8] over [296,302] in capacity 1
required by Carga[7] over [247,253] in capacity 1
required by Carga[6] over [198,204] in capacity 1
required by Carga[5] over [386,392] in capacity 1
required by Carga[4] over [437,443] in capacity 1
required by Carga[3] over [390,396] in capacity 1
required by Carga[2] over [343,349] in capacity 1
required by Carga[1] over [22,28] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 5
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0

Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 0
Margen[38] = 0
Margen[39] = 0
Margen[40] = 0
Margen[41] = 0
Margen[42] = 0
Margen[43] = 4
Margen[44] = 0

Scheduling 13.2

Optimal Solution with Objective Value: 568

a[1] = [91 -- 23 --> 114]
a[2] = [141 -- 23 --> 164]
a[3] = [191 -- 23 --> 214]
a[4] = [248 -- 36 --> 284]
a[5] = [472 -- 23 --> 495]
a[6] = [511 -- 23 --> 534]
a[7] = [545 -- 23 --> 568]

Carga[1] = [91 -- 6 --> 97]
Carga[2] = [141 -- 6 --> 147]
Carga[3] = [191 -- 6 --> 197]
Carga[4] = [248 -- 6 --> 254]
Carga[5] = [472 -- 6 --> 478]
Carga[6] = [511 -- 6 --> 517]
Carga[7] = [545 -- 6 --> 551]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]

makespan = [568 -- 0 --> 568]

Truck = Discrete Resource

required by ParadaComida[2] over [300,360] in capacity 1

required by ParadaComida[1] over [300,360] in capacity 1

required by a[7] over [545,568] in capacity 1
required by a[6] over [511,534] in capacity 1



required by a[5] over [472,495] in capacity 1
required by a[4] over [248,284] in capacity 1
required by a[3] over [191,214] in capacity 1
required by a[2] over [141,164] in capacity 1
required by a[1] over [91,114] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[7] over [545,551] in capacity 1
required by Carga[6] over [511,517] in capacity 1
required by Carga[5] over [472,478] in capacity 1
required by Carga[4] over [248,254] in capacity 1
required by Carga[3] over [191,197] in capacity 1
required by Carga[2] over [141,147] in capacity 1
required by Carga[1] over [91,97] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 5

Scheduling 13.3

Optimal Solution with Objective Value: 601

a[1] = [173 -- 16 --> 189]
a[2] = [201 -- 16 --> 217]
a[3] = [229 -- 16 --> 245]
a[4] = [257 -- 16 --> 273]
a[5] = [285 -- 16 --> 301]
a[6] = [313 -- 16 --> 329]
a[7] = [341 -- 16 --> 357]
a[8] = [457 -- 51 --> 508]
a[9] = [470 -- 39 --> 509]
a[10] = [107 -- 61 --> 168]
a[11] = [130 -- 61 --> 191]
a[12] = [153 -- 61 --> 214]
a[13] = [176 -- 61 --> 237]
a[14] = [199 -- 61 --> 260]
a[15] = [222 -- 61 --> 283]
a[16] = [346 -- 32 --> 378]
a[17] = [104 -- 35 --> 139]
a[18] = [477 -- 31 --> 508]
a[19] = [526 -- 31 --> 557]
a[20] = [570 -- 31 --> 601]
a[21] = [253 -- 39 --> 292]
a[22] = [303 -- 39 --> 342]
a[23] = [353 -- 39 --> 392]
a[24] = [232 -- 35 --> 267]

a[25] = [258 -- 35 --> 293]
a[26] = [284 -- 35 --> 319]
a[27] = [310 -- 35 --> 345]
a[28] = [336 -- 35 --> 371]
a[29] = [362 -- 35 --> 397]
a[30] = [388 -- 35 --> 423]
a[31] = [414 -- 35 --> 449]
a[32] = [440 -- 35 --> 475]
a[33] = [466 -- 35 --> 501]
a[34] = [492 -- 35 --> 527]
a[35] = [118 -- 32 --> 150]
a[36] = [140 -- 32 --> 172]
a[37] = [162 -- 32 --> 194]
a[38] = [287 -- 42 --> 329]
a[39] = [308 -- 42 --> 350]
a[40] = [204 -- 21 --> 225]
a[41] = [230 -- 21 --> 251]
a[42] = [255 -- 21 --> 276]
a[43] = [62 -- 32 --> 94]
a[44] = [98 -- 32 --> 130]
a[45] = [134 -- 32 --> 166]
a[46] = [143 -- 35 --> 178]
a[47] = [198 -- 35 --> 233]
a[48] = [468 -- 37 --> 505]
a[49] = [480 -- 37 --> 517]
a[50] = [492 -- 37 --> 529]
a[51] = [176 -- 32 --> 208]
a[52] = [202 -- 32 --> 234]
a[53] = [227 -- 32 --> 259]
a[54] = [252 -- 32 --> 284]
a[55] = [280 -- 32 --> 312]
a[56] = [306 -- 32 --> 338]
a[57] = [332 -- 32 --> 364]
a[58] = [358 -- 32 --> 390]
a[59] = [384 -- 32 --> 416]
a[60] = [410 -- 32 --> 442]
a[61] = [436 -- 32 --> 468]
a[62] = [462 -- 32 --> 494]
a[63] = [332 -- 31 --> 363]
a[64] = [364 -- 31 --> 395]
a[65] = [396 -- 31 --> 427]
a[66] = [428 -- 31 --> 459]
a[67] = [0 -- 35 --> 35]
a[68] = [34 -- 35 --> 69]
a[69] = [66 -- 35 --> 101]
a[70] = [173 -- 48 --> 221]
a[71] = [193 -- 48 --> 241]
a[72] = [128 -- 55 --> 183]
a[73] = [142 -- 55 --> 197]
a[74] = [156 -- 55 --> 211]
a[75] = [170 -- 55 --> 225]
a[76] = [184 -- 55 --> 239]
a[77] = [196 -- 55 --> 251]
a[78] = [212 -- 55 --> 267]
a[79] = [226 -- 55 --> 281]
a[80] = [240 -- 55 --> 295]
a[81] = [250 -- 55 --> 305]



a[82] = [268 -- 55 --> 323]
a[83] = [282 -- 55 --> 337]
a[84] = [296 -- 55 --> 351]
a[85] = [311 -- 55 --> 366]
a[86] = [324 -- 55 --> 379]
a[87] = [338 -- 55 --> 393]
a[88] = [352 -- 55 --> 407]
a[89] = [335 -- 26 --> 361]

Carga[1] = [173 -- 3 --> 176]
Carga[2] = [201 -- 3 --> 204]
Carga[3] = [229 -- 3 --> 232]
Carga[4] = [257 -- 3 --> 260]
Carga[5] = [285 -- 3 --> 288]
Carga[6] = [313 -- 3 --> 316]
Carga[7] = [341 -- 3 --> 344]
Carga[8] = [457 -- 3 --> 460]
Carga[9] = [470 -- 3 --> 473]
Carga[10] = [107 -- 3 --> 110]
Carga[11] = [130 -- 3 --> 133]
Carga[12] = [153 -- 3 --> 156]
Carga[13] = [176 -- 3 --> 179]
Carga[14] = [199 -- 3 --> 202]
Carga[15] = [222 -- 3 --> 225]
Carga[16] = [346 -- 3 --> 349]
Carga[17] = [104 -- 3 --> 107]
Carga[18] = [477 -- 3 --> 480]
Carga[19] = [526 -- 3 --> 529]
Carga[20] = [570 -- 3 --> 573]
Carga[21] = [253 -- 3 --> 256]
Carga[22] = [303 -- 3 --> 306]
Carga[23] = [353 -- 3 --> 356]
Carga[24] = [232 -- 3 --> 235]
Carga[25] = [258 -- 3 --> 261]
Carga[26] = [284 -- 3 --> 287]
Carga[27] = [310 -- 3 --> 313]
Carga[28] = [336 -- 3 --> 339]
Carga[29] = [362 -- 3 --> 365]
Carga[30] = [388 -- 3 --> 391]
Carga[31] = [414 -- 3 --> 417]
Carga[32] = [440 -- 3 --> 443]
Carga[33] = [466 -- 3 --> 469]
Carga[34] = [492 -- 3 --> 495]
Carga[35] = [118 -- 3 --> 121]
Carga[36] = [140 -- 3 --> 143]
Carga[37] = [162 -- 3 --> 165]
Carga[38] = [287 -- 3 --> 290]
Carga[39] = [308 -- 3 --> 311]
Carga[40] = [204 -- 3 --> 207]
Carga[41] = [230 -- 3 --> 233]
Carga[42] = [255 -- 3 --> 258]
Carga[43] = [62 -- 3 --> 65]
Carga[44] = [98 -- 3 --> 101]
Carga[45] = [134 -- 3 --> 137]
Carga[46] = [143 -- 3 --> 146]
Carga[47] = [198 -- 3 --> 201]
Carga[48] = [468 -- 3 --> 471]

Carga[49] = [480 -- 3 --> 483]
Carga[50] = [492 -- 3 --> 495]
Carga[51] = [176 -- 3 --> 179]
Carga[52] = [202 -- 3 --> 205]
Carga[53] = [227 -- 3 --> 230]
Carga[54] = [252 -- 3 --> 255]
Carga[55] = [280 -- 3 --> 283]
Carga[56] = [306 -- 3 --> 309]
Carga[57] = [332 -- 3 --> 335]
Carga[58] = [358 -- 3 --> 361]
Carga[59] = [384 -- 3 --> 387]
Carga[60] = [410 -- 3 --> 413]
Carga[61] = [436 -- 3 --> 439]
Carga[62] = [462 -- 3 --> 465]
Carga[63] = [332 -- 3 --> 335]
Carga[64] = [364 -- 3 --> 367]
Carga[65] = [396 -- 3 --> 399]
Carga[66] = [428 -- 3 --> 431]
Carga[67] = [0 -- 3 --> 3]
Carga[68] = [34 -- 3 --> 37]
Carga[69] = [66 -- 3 --> 69]
Carga[70] = [173 -- 3 --> 176]
Carga[71] = [193 -- 3 --> 196]
Carga[72] = [128 -- 3 --> 131]
Carga[73] = [142 -- 3 --> 145]
Carga[74] = [156 -- 3 --> 159]
Carga[75] = [170 -- 3 --> 173]
Carga[76] = [184 -- 3 --> 187]
Carga[77] = [196 -- 3 --> 199]
Carga[78] = [212 -- 3 --> 215]
Carga[79] = [226 -- 3 --> 229]
Carga[80] = [240 -- 3 --> 243]
Carga[81] = [250 -- 3 --> 253]
Carga[82] = [268 -- 3 --> 271]
Carga[83] = [282 -- 3 --> 285]
Carga[84] = [296 -- 3 --> 299]
Carga[85] = [311 -- 3 --> 314]
Carga[86] = [324 -- 3 --> 327]
Carga[87] = [338 -- 3 --> 341]
Carga[88] = [352 -- 3 --> 355]
Carga[89] = [335 -- 3 --> 338]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [300 -- 60 --> 360]
ParadaComida[9] = [300 -- 60 --> 360]
ParadaComida[10] = [300 -- 60 --> 360]
ParadaComida[11] = [300 -- 60 --> 360]
ParadaComida[12] = [342 -- 60 --> 402]
ParadaComida[13] = [360 -- 60 --> 420]
ParadaComida[14] = [360 -- 60 --> 420]
ParadaComida[15] = [360 -- 60 --> 420]



ParadaComida[16] = [360 -- 60 --> 420]
ParadaComida[17] = [360 -- 60 --> 420]
ParadaComida[18] = [360 -- 60 --> 420]
ParadaComida[19] = [360 -- 60 --> 420]
ParadaComida[20] = [360 -- 60 --> 420]
ParadaComida[21] = [360 -- 60 --> 420]
ParadaComida[22] = [360 -- 60 --> 420]
ParadaComida[23] = [360 -- 60 --> 420]

makespan = [601 -- 0 --> 601]

Truck = Discrete Resource

required by ParadaComida[23] over [360,420]
in capacity 1

required by ParadaComida[22] over [360,420]
in capacity 1

required by ParadaComida[21] over [360,420]
in capacity 1

required by ParadaComida[20] over [360,420]
in capacity 1

required by ParadaComida[19] over [360,420]
in capacity 1

required by ParadaComida[18] over [360,420]
in capacity 1

required by ParadaComida[17] over [360,420]
in capacity 1

required by ParadaComida[16] over [360,420]
in capacity 1

required by ParadaComida[15] over [360,420]
in capacity 1

required by ParadaComida[14] over [360,420]
in capacity 1

required by ParadaComida[13] over [360,420]
in capacity 1

required by ParadaComida[12] over [342,402]
in capacity 1

required by ParadaComida[11] over [300,360]
in capacity 1

required by ParadaComida[10] over [300,360]
in capacity 1

required by ParadaComida[9] over [300,360]
in capacity 1

required by ParadaComida[8] over [300,360]
in capacity 1

required by ParadaComida[7] over [300,360]
in capacity 1

required by ParadaComida[6] over [300,360]
in capacity 1

required by ParadaComida[5] over [300,360]
in capacity 1

required by ParadaComida[4] over [300,360]
in capacity 1

required by ParadaComida[3] over [300,360]
in capacity 1

required by ParadaComida[2] over [300,360]
in capacity 1

required by ParadaComida[1] over [300,360]
in capacity 1

required by a[89] over [335,361] in capacity 1
required by a[88] over [352,407] in capacity 1
required by a[87] over [338,393] in capacity 1
required by a[86] over [324,379] in capacity 1
required by a[85] over [311,366] in capacity 1
required by a[84] over [296,351] in capacity 1
required by a[83] over [282,337] in capacity 1
required by a[82] over [268,323] in capacity 1
required by a[81] over [250,305] in capacity 1
required by a[80] over [240,295] in capacity 1
required by a[79] over [226,281] in capacity 1
required by a[78] over [212,267] in capacity 1
required by a[77] over [196,251] in capacity 1
required by a[76] over [184,239] in capacity 1
required by a[75] over [170,225] in capacity 1
required by a[74] over [156,211] in capacity 1
required by a[73] over [142,197] in capacity 1
required by a[72] over [128,183] in capacity 1
required by a[71] over [193,241] in capacity 1
required by a[70] over [173,221] in capacity 1
required by a[69] over [66,101] in capacity 1
required by a[68] over [34,69] in capacity 1
required by a[67] over [0,35] in capacity 1
required by a[66] over [428,459] in capacity 1
required by a[65] over [396,427] in capacity 1
required by a[64] over [364,395] in capacity 1
required by a[63] over [332,363] in capacity 1
required by a[62] over [462,494] in capacity 1
required by a[61] over [436,468] in capacity 1
required by a[60] over [410,442] in capacity 1
required by a[59] over [384,416] in capacity 1
required by a[58] over [358,390] in capacity 1
required by a[57] over [332,364] in capacity 1
required by a[56] over [306,338] in capacity 1
required by a[55] over [280,312] in capacity 1
required by a[54] over [252,284] in capacity 1
required by a[53] over [227,259] in capacity 1
required by a[52] over [202,234] in capacity 1
required by a[51] over [176,208] in capacity 1
required by a[50] over [492,529] in capacity 1
required by a[49] over [480,517] in capacity 1
required by a[48] over [468,505] in capacity 1
required by a[47] over [198,233] in capacity 1
required by a[46] over [143,178] in capacity 1
required by a[45] over [134,166] in capacity 1
required by a[44] over [98,130] in capacity 1
required by a[43] over [62,94] in capacity 1
required by a[42] over [255,276] in capacity 1
required by a[41] over [230,251] in capacity 1
required by a[40] over [204,225] in capacity 1
required by a[39] over [308,350] in capacity 1
required by a[38] over [287,329] in capacity 1
required by a[37] over [162,194] in capacity 1
required by a[36] over [140,172] in capacity 1
required by a[35] over [118,150] in capacity 1
required by a[34] over [492,527] in capacity 1
required by a[33] over [466,501] in capacity 1



required by a[32] over [440,475] in capacity 1
required by a[31] over [414,449] in capacity 1
required by a[30] over [388,423] in capacity 1
required by a[29] over [362,397] in capacity 1
required by a[28] over [336,371] in capacity 1
required by a[27] over [310,345] in capacity 1
required by a[26] over [284,319] in capacity 1
required by a[25] over [258,293] in capacity 1
required by a[24] over [232,267] in capacity 1
required by a[23] over [353,392] in capacity 1
required by a[22] over [303,342] in capacity 1
required by a[21] over [253,292] in capacity 1
required by a[20] over [570,601] in capacity 1
required by a[19] over [526,557] in capacity 1
required by a[18] over [477,508] in capacity 1
required by a[17] over [104,139] in capacity 1
required by a[16] over [346,378] in capacity 1
required by a[15] over [222,283] in capacity 1
required by a[14] over [199,260] in capacity 1
required by a[13] over [176,237] in capacity 1
required by a[12] over [153,214] in capacity 1
required by a[11] over [130,191] in capacity 1
required by a[10] over [107,168] in capacity 1
required by a[9] over [470,509] in capacity 1
required by a[8] over [457,508] in capacity 1
required by a[7] over [341,357] in capacity 1
required by a[6] over [313,329] in capacity 1
required by a[5] over [285,301] in capacity 1
required by a[4] over [257,273] in capacity 1
required by a[3] over [229,245] in capacity 1
required by a[2] over [201,217] in capacity 1
required by a[1] over [173,189] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[89] over [335,338] in capacity 1
required by Carga[88] over [352,355] in capacity 1
required by Carga[87] over [338,341] in capacity 1
required by Carga[86] over [324,327] in capacity 1
required by Carga[85] over [311,314] in capacity 1
required by Carga[84] over [296,299] in capacity 1
required by Carga[83] over [282,285] in capacity 1
required by Carga[82] over [268,271] in capacity 1
required by Carga[81] over [250,253] in capacity 1
required by Carga[80] over [240,243] in capacity 1
required by Carga[79] over [226,229] in capacity 1

required by Carga[78] over [212,215] in capacity 1
required by Carga[77] over [196,199] in capacity 1
required by Carga[76] over [184,187] in capacity 1
required by Carga[75] over [170,173] in capacity 1
required by Carga[74] over [156,159] in capacity 1
required by Carga[73] over [142,145] in capacity 1
required by Carga[72] over [128,131] in capacity 1
required by Carga[71] over [193,196] in capacity 1
required by Carga[70] over [173,176] in capacity 1
required by Carga[69] over [66,69] in capacity 1
required by Carga[68] over [34,37] in capacity 1
required by Carga[67] over [0,3] in capacity 1
required by Carga[66] over [428,431] in capacity 1
required by Carga[65] over [396,399] in capacity 1
required by Carga[64] over [364,367] in capacity 1
required by Carga[63] over [332,335] in capacity 1
required by Carga[62] over [462,465] in capacity 1
required by Carga[61] over [436,439] in capacity 1
required by Carga[60] over [410,413] in capacity 1
required by Carga[59] over [384,387] in capacity 1
required by Carga[58] over [358,361] in capacity 1
required by Carga[57] over [332,335] in capacity 1
required by Carga[56] over [306,309] in capacity 1
required by Carga[55] over [280,283] in capacity 1
required by Carga[54] over [252,255] in capacity 1
required by Carga[53] over [227,230] in capacity 1
required by Carga[52] over [202,205] in capacity 1
required by Carga[51] over [176,179] in capacity 1
required by Carga[50] over [492,495] in capacity 1



required by Carga[49] over [480,483] in capacity 1
required by Carga[48] over [468,471] in capacity 1
required by Carga[47] over [198,201] in capacity 1
required by Carga[46] over [143,146] in capacity 1
required by Carga[45] over [134,137] in capacity 1
required by Carga[44] over [98,101] in capacity 1
required by Carga[43] over [62,65] in capacity 1
required by Carga[42] over [255,258] in capacity 1
required by Carga[41] over [230,233] in capacity 1
required by Carga[40] over [204,207] in capacity 1
required by Carga[39] over [308,311] in capacity 1
required by Carga[38] over [287,290] in capacity 1
required by Carga[37] over [162,165] in capacity 1
required by Carga[36] over [140,143] in capacity 1
required by Carga[35] over [118,121] in capacity 1
required by Carga[34] over [492,495] in capacity 1
required by Carga[33] over [466,469] in capacity 1
required by Carga[32] over [440,443] in capacity 1
required by Carga[31] over [414,417] in capacity 1
required by Carga[30] over [388,391] in capacity 1
required by Carga[29] over [362,365] in capacity 1
required by Carga[28] over [336,339] in capacity 1
required by Carga[27] over [310,313] in capacity 1
required by Carga[26] over [284,287] in capacity 1
required by Carga[25] over [258,261] in capacity 1
required by Carga[24] over [232,235] in capacity 1
required by Carga[23] over [353,356] in capacity 1
required by Carga[22] over [303,306] in capacity 1

required by Carga[21] over [253,256] in capacity 1
required by Carga[20] over [570,573] in capacity 1
required by Carga[19] over [526,529] in capacity 1
required by Carga[18] over [477,480] in capacity 1
required by Carga[17] over [104,107] in capacity 1
required by Carga[16] over [346,349] in capacity 1
required by Carga[15] over [222,225] in capacity 1
required by Carga[14] over [199,202] in capacity 1
required by Carga[13] over [176,179] in capacity 1
required by Carga[12] over [153,156] in capacity 1
required by Carga[11] over [130,133] in capacity 1
required by Carga[10] over [107,110] in capacity 1
required by Carga[9] over [470,473] in capacity 1
required by Carga[8] over [457,460] in capacity 1
required by Carga[7] over [341,344] in capacity 1
required by Carga[6] over [313,316] in capacity 1
required by Carga[5] over [285,288] in capacity 1
required by Carga[4] over [257,260] in capacity 1
required by Carga[3] over [229,232] in capacity 1
required by Carga[2] over [201,204] in capacity 1
required by Carga[1] over [173,176] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0



Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 5
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 0
Margen[38] = 2
Margen[39] = 0
Margen[40] = 0
Margen[41] = 0
Margen[42] = 1
Margen[43] = 0
Margen[44] = 0
Margen[45] = 0
Margen[46] = 0
Margen[47] = 2
Margen[48] = 0
Margen[49] = 0
Margen[50] = 0
Margen[51] = 0
Margen[52] = 0
Margen[53] = 1
Margen[54] = 2
Margen[55] = 0
Margen[56] = 0
Margen[57] = 0
Margen[58] = 0
Margen[59] = 0
Margen[60] = 0
Margen[61] = 0
Margen[62] = 0
Margen[63] = 0
Margen[64] = 0
Margen[65] = 0
Margen[66] = 0
Margen[67] = 2
Margen[68] = 0
Margen[69] = 0
Margen[70] = 2
Margen[71] = 0

Margen[72] = 0
Margen[73] = 0
Margen[74] = 0
Margen[75] = 0
Margen[76] = 0
Margen[77] = 2
Margen[78] = 0
Margen[79] = 0
Margen[80] = 0
Margen[81] = 4
Margen[82] = 0
Margen[83] = 0
Margen[84] = 0
Margen[85] = 1
Margen[86] = 0
Margen[87] = 0
Margen[88] = 0
Margen[89] = 1

Scheduling 14.1

Optimal Solution with Objective Value: 687

a[1] = [214 -- 62 --> 276]
a[2] = [240 -- 62 --> 302]
a[3] = [266 -- 62 --> 328]
a[4] = [292 -- 62 --> 354]
a[5] = [318 -- 62 --> 380]
a[6] = [344 -- 62 --> 406]
a[7] = [370 -- 62 --> 432]
a[8] = [260 -- 53 --> 313]
a[9] = [387 -- 37 --> 424]
a[10] = [521 -- 75 --> 596]
a[11] = [271 -- 48 --> 319]
a[12] = [327 -- 48 --> 375]
a[13] = [383 -- 48 --> 431]
a[14] = [474 -- 54 --> 528]
a[15] = [145 -- 40 --> 185]
a[16] = [422 -- 32 --> 454]
a[17] = [455 -- 32 --> 487]
a[18] = [91 -- 61 --> 152]
a[19] = [600 -- 34 --> 634]
a[20] = [653 -- 34 --> 687]
a[21] = [526 -- 67 --> 593]
a[22] = [581 -- 67 --> 648]
a[23] = [93 -- 34 --> 127]
a[24] = [25 -- 34 --> 59]
a[25] = [54 -- 34 --> 88]
a[26] = [137 -- 22 --> 159]
a[27] = [165 -- 22 --> 187]
a[28] = [193 -- 22 --> 215]
a[29] = [221 -- 22 --> 243]
a[30] = [249 -- 22 --> 271]
a[31] = [277 -- 22 --> 299]
a[32] = [305 -- 22 --> 327]
a[33] = [333 -- 22 --> 355]
a[34] = [361 -- 22 --> 383]
a[35] = [118 -- 32 --> 150]



a[36] = [152 -- 37 --> 189]
a[37] = [171 -- 37 --> 208]
a[38] = [190 -- 37 --> 227]
a[39] = [209 -- 37 --> 246]
a[40] = [228 -- 37 --> 265]
a[41] = [247 -- 37 --> 284]
a[42] = [265 -- 37 --> 302]
a[43] = [285 -- 37 --> 322]
a[44] = [304 -- 37 --> 341]
a[45] = [323 -- 37 --> 360]
a[46] = [272 -- 35 --> 307]
a[47] = [289 -- 35 --> 324]
a[48] = [115 -- 45 --> 160]
a[49] = [151 -- 45 --> 196]
a[50] = [187 -- 45 --> 232]

Carga[1] = [214 -- 6 --> 220]
Carga[2] = [240 -- 6 --> 246]
Carga[3] = [266 -- 6 --> 272]
Carga[4] = [292 -- 6 --> 298]
Carga[5] = [318 -- 6 --> 324]
Carga[6] = [344 -- 6 --> 350]
Carga[7] = [370 -- 6 --> 376]
Carga[8] = [260 -- 6 --> 266]
Carga[9] = [387 -- 6 --> 393]
Carga[10] = [521 -- 6 --> 527]
Carga[11] = [271 -- 6 --> 277]
Carga[12] = [327 -- 6 --> 333]
Carga[13] = [383 -- 6 --> 389]
Carga[14] = [474 -- 6 --> 480]
Carga[15] = [145 -- 6 --> 151]
Carga[16] = [422 -- 6 --> 428]
Carga[17] = [455 -- 6 --> 461]
Carga[18] = [91 -- 6 --> 97]
Carga[19] = [600 -- 6 --> 606]
Carga[20] = [653 -- 6 --> 659]
Carga[21] = [526 -- 6 --> 532]
Carga[22] = [581 -- 6 --> 587]
Carga[23] = [93 -- 6 --> 99]
Carga[24] = [25 -- 6 --> 31]
Carga[25] = [54 -- 6 --> 60]
Carga[26] = [137 -- 6 --> 143]
Carga[27] = [165 -- 6 --> 171]
Carga[28] = [193 -- 6 --> 199]
Carga[29] = [221 -- 6 --> 227]
Carga[30] = [249 -- 6 --> 255]
Carga[31] = [277 -- 6 --> 283]
Carga[32] = [305 -- 6 --> 311]
Carga[33] = [333 -- 6 --> 339]
Carga[34] = [361 -- 6 --> 367]
Carga[35] = [118 -- 6 --> 124]
Carga[36] = [152 -- 6 --> 158]
Carga[37] = [171 -- 6 --> 177]
Carga[38] = [190 -- 6 --> 196]
Carga[39] = [209 -- 6 --> 215]
Carga[40] = [228 -- 6 --> 234]
Carga[41] = [247 -- 6 --> 253]

Carga[42] = [265 -- 6 --> 271]
Carga[43] = [285 -- 6 --> 291]
Carga[44] = [304 -- 6 --> 310]
Carga[45] = [323 -- 6 --> 329]
Carga[46] = [272 -- 6 --> 278]
Carga[47] = [289 -- 6 --> 295]
Carga[48] = [115 -- 6 --> 121]
Carga[49] = [151 -- 6 --> 157]
Carga[50] = [187 -- 6 --> 193]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [307 -- 60 --> 367]
ParadaComida[6] = [319 -- 60 --> 379]
ParadaComida[7] = [324 -- 60 --> 384]
ParadaComida[8] = [354 -- 60 --> 414]
ParadaComida[9] = [355 -- 60 --> 415]
ParadaComida[10] = [360 -- 60 --> 420]
ParadaComida[11] = [360 -- 60 --> 420]
ParadaComida[12] = [360 -- 60 --> 420]
ParadaComida[13] = [360 -- 60 --> 420]

makespan = [687 -- 0 --> 687]

Truck = Discrete Resource

required by ParadaComida[13] over [360,420]
in capacity 1
required by ParadaComida[12] over [360,420]
in capacity 1
required by ParadaComida[11] over [360,420]
in capacity 1
required by ParadaComida[10] over [360,420]
in capacity 1
required by ParadaComida[9] over [355,415]
in capacity 1
required by ParadaComida[8] over [354,414]
in capacity 1
required by ParadaComida[7] over [324,384]
in capacity 1
required by ParadaComida[6] over [319,379]
in capacity 1
required by ParadaComida[5] over [307,367]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[50] over [187,232] in capacity 1
required by a[49] over [151,196] in capacity 1
required by a[48] over [115,160] in capacity 1
required by a[47] over [289,324] in capacity 1
required by a[46] over [272,307] in capacity 1



required by a[45] over [323,360] in capacity 1
required by a[44] over [304,341] in capacity 1
required by a[43] over [285,322] in capacity 1
required by a[42] over [265,302] in capacity 1
required by a[41] over [247,284] in capacity 1
required by a[40] over [228,265] in capacity 1
required by a[39] over [209,246] in capacity 1
required by a[38] over [190,227] in capacity 1
required by a[37] over [171,208] in capacity 1
required by a[36] over [152,189] in capacity 1
required by a[35] over [118,150] in capacity 1
required by a[34] over [361,383] in capacity 1
required by a[33] over [333,355] in capacity 1
required by a[32] over [305,327] in capacity 1
required by a[31] over [277,299] in capacity 1
required by a[30] over [249,271] in capacity 1
required by a[29] over [221,243] in capacity 1
required by a[28] over [193,215] in capacity 1
required by a[27] over [165,187] in capacity 1
required by a[26] over [137,159] in capacity 1
required by a[25] over [54,88] in capacity 1
required by a[24] over [25,59] in capacity 1
required by a[23] over [93,127] in capacity 1
required by a[22] over [581,648] in capacity 1
required by a[21] over [526,593] in capacity 1
required by a[20] over [653,687] in capacity 1
required by a[19] over [600,634] in capacity 1
required by a[18] over [91,152] in capacity 1
required by a[17] over [455,487] in capacity 1
required by a[16] over [422,454] in capacity 1
required by a[15] over [145,185] in capacity 1
required by a[14] over [474,528] in capacity 1
required by a[13] over [383,431] in capacity 1
required by a[12] over [327,375] in capacity 1
required by a[11] over [271,319] in capacity 1
required by a[10] over [521,596] in capacity 1
required by a[9] over [387,424] in capacity 1
required by a[8] over [260,313] in capacity 1
required by a[7] over [370,432] in capacity 1
required by a[6] over [344,406] in capacity 1
required by a[5] over [318,380] in capacity 1
required by a[4] over [292,354] in capacity 1
required by a[3] over [266,328] in capacity 1
required by a[2] over [240,302] in capacity 1
required by a[1] over [214,276] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[50] over [187,193] in capacity 1
required by Carga[49] over [151,157] in capacity 1
required by Carga[48] over [115,121] in capacity 1
required by Carga[47] over [289,295] in capacity 1
required by Carga[46] over [272,278] in capacity 1

required by Carga[45] over [323,329] in capacity 1
required by Carga[44] over [304,310] in capacity 1
required by Carga[43] over [285,291] in capacity 1
required by Carga[42] over [265,271] in capacity 1
required by Carga[41] over [247,253] in capacity 1
required by Carga[40] over [228,234] in capacity 1
required by Carga[39] over [209,215] in capacity 1
required by Carga[38] over [190,196] in capacity 1
required by Carga[37] over [171,177] in capacity 1
required by Carga[36] over [152,158] in capacity 1
required by Carga[35] over [118,124] in capacity 1
required by Carga[34] over [361,367] in capacity 1
required by Carga[33] over [333,339] in capacity 1
required by Carga[32] over [305,311] in capacity 1
required by Carga[31] over [277,283] in capacity 1
required by Carga[30] over [249,255] in capacity 1
required by Carga[29] over [221,227] in capacity 1
required by Carga[28] over [193,199] in capacity 1
required by Carga[27] over [165,171] in capacity 1
required by Carga[26] over [137,143] in capacity 1
required by Carga[25] over [54,60] in capacity 1
required by Carga[24] over [25,31] in capacity 1
required by Carga[23] over [93,99] in capacity 1
required by Carga[22] over [581,587] in capacity 1
required by Carga[21] over [526,532] in capacity 1
required by Carga[20] over [653,659] in capacity 1
required by Carga[19] over [600,606] in capacity 1
required by Carga[18] over [91,97] in capacity 1



required by Carga[17] over [455,461] in capacity 1
required by Carga[16] over [422,428] in capacity 1
required by Carga[15] over [145,151] in capacity 1
required by Carga[14] over [474,480] in capacity 1
required by Carga[13] over [383,389] in capacity 1
required by Carga[12] over [327,333] in capacity 1
required by Carga[11] over [271,277] in capacity 1
required by Carga[10] over [521,527] in capacity 1
required by Carga[9] over [387,393] in capacity 1
required by Carga[8] over [260,266] in capacity 1
required by Carga[7] over [370,376] in capacity 1
required by Carga[6] over [344,350] in capacity 1
required by Carga[5] over [318,324] in capacity 1
required by Carga[4] over [292,298] in capacity 1
required by Carga[3] over [266,272] in capacity 1
required by Carga[2] over [240,246] in capacity 1
required by Carga[1] over [214,220] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 5
Margen[21] = 0
Margen[22] = 0

Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 0
Margen[38] = 0
Margen[39] = 0
Margen[40] = 0
Margen[41] = 0
Margen[42] = 1
Margen[43] = 0
Margen[44] = 0
Margen[45] = 0
Margen[46] = 6
Margen[47] = 0
Margen[48] = 0
Margen[49] = 0
Margen[50] = 0

Scheduling 14.2

Optimal Solution with Objective Value: 568

a[1] = [105 -- 36 --> 141]
a[2] = [130 -- 36 --> 166]
a[3] = [155 -- 36 --> 191]
a[4] = [213 -- 31 --> 244]
a[5] = [239 -- 31 --> 270]
a[6] = [265 -- 31 --> 296]
a[7] = [291 -- 31 --> 322]
a[8] = [317 -- 31 --> 348]
a[9] = [343 -- 31 --> 374]
a[10] = [369 -- 31 --> 400]
a[11] = [395 -- 31 --> 426]
a[12] = [482 -- 19 --> 501]
a[13] = [518 -- 19 --> 537]
a[14] = [549 -- 19 --> 568]
a[15] = [0 -- 46 --> 46]
a[16] = [50 -- 46 --> 96]
a[17] = [93 -- 46 --> 139]
a[18] = [136 -- 46 --> 182]

Carga[1] = [105 -- 6 --> 111]
Carga[2] = [130 -- 6 --> 136]
Carga[3] = [155 -- 6 --> 161]
Carga[4] = [213 -- 6 --> 219]
Carga[5] = [239 -- 6 --> 245]
Carga[6] = [265 -- 6 --> 271]



Carga[7] = [291 -- 6 --> 297]
Carga[8] = [317 -- 6 --> 323]
Carga[9] = [343 -- 6 --> 349]
Carga[10] = [369 -- 6 --> 375]
Carga[11] = [395 -- 6 --> 401]
Carga[12] = [482 -- 6 --> 488]
Carga[13] = [518 -- 6 --> 524]
Carga[14] = [549 -- 6 --> 555]
Carga[15] = [0 -- 6 --> 6]
Carga[16] = [50 -- 6 --> 56]
Carga[17] = [93 -- 6 --> 99]
Carga[18] = [136 -- 6 --> 142]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [348 -- 60 --> 408]
ParadaComida[5] = [360 -- 60 --> 420]

makespan = [568 -- 0 --> 568]
Truck = Discrete Resource
required by ParadaComida[5] over [360,420] in capacity 1
required by ParadaComida[4] over [348,408] in capacity 1
required by ParadaComida[3] over [300,360] in capacity 1
required by ParadaComida[2] over [300,360] in capacity 1
required by ParadaComida[1] over [300,360] in capacity 1
required by a[18] over [136,182] in capacity 1
required by a[17] over [93,139] in capacity 1
required by a[16] over [50,96] in capacity 1
required by a[15] over [0,46] in capacity 1
required by a[14] over [549,568] in capacity 1
required by a[13] over [518,537] in capacity 1
required by a[12] over [482,501] in capacity 1
required by a[11] over [395,426] in capacity 1
required by a[10] over [369,400] in capacity 1
required by a[9] over [343,374] in capacity 1
required by a[8] over [317,348] in capacity 1
required by a[7] over [291,322] in capacity 1
required by a[6] over [265,296] in capacity 1
required by a[5] over [239,270] in capacity 1
required by a[4] over [213,244] in capacity 1
required by a[3] over [155,191] in capacity 1
required by a[2] over [130,166] in capacity 1
required by a[1] over [105,141] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[18] over [136,142] in capacity 1
required by Carga[17] over [93,99] in capacity 1
required by Carga[16] over [50,56] in capacity 1

required by Carga[15] over [0,6] in capacity 1
required by Carga[14] over [549,555] in capacity 1
required by Carga[13] over [518,524] in capacity 1
required by Carga[12] over [482,488] in capacity 1
required by Carga[11] over [395,401] in capacity 1
required by Carga[10] over [369,375] in capacity 1
required by Carga[9] over [343,349] in capacity 1
required by Carga[8] over [317,323] in capacity 1
required by Carga[7] over [291,297] in capacity 1
required by Carga[6] over [265,271] in capacity 1
required by Carga[5] over [239,245] in capacity 1
required by Carga[4] over [213,219] in capacity 1
required by Carga[3] over [155,161] in capacity 1
required by Carga[2] over [130,136] in capacity 1
required by Carga[1] over [105,111] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 5
Margen[15] = 7
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0

Scheduling 14.3

Optimal Solution with Objective Value: 789

a[1] = [121 -- 29 --> 150]
a[2] = [143 -- 29 --> 172]
a[3] = [165 -- 29 --> 194]
a[4] = [187 -- 29 --> 216]
a[5] = [129 -- 29 --> 158]



a[6] = [155 -- 29 --> 184]
a[7] = [181 -- 29 --> 210]
a[8] = [207 -- 29 --> 236]
a[9] = [233 -- 29 --> 262]
a[10] = [259 -- 29 --> 288]
a[11] = [285 -- 29 --> 314]
a[12] = [311 -- 29 --> 340]
a[13] = [337 -- 29 --> 366]
a[14] = [363 -- 29 --> 392]
a[15] = [389 -- 29 --> 418]
a[16] = [55 -- 53 --> 108]
a[17] = [73 -- 53 --> 126]
a[18] = [91 -- 53 --> 144]
a[19] = [109 -- 53 --> 162]
a[20] = [127 -- 53 --> 180]
a[21] = [228 -- 16 --> 244]
a[22] = [245 -- 16 --> 261]
a[23] = [262 -- 16 --> 278]
a[24] = [279 -- 16 --> 295]
a[25] = [296 -- 16 --> 312]
a[26] = [313 -- 16 --> 329]
a[27] = [330 -- 16 --> 346]
a[28] = [347 -- 16 --> 363]
a[29] = [364 -- 16 --> 380]
a[30] = [164 -- 34 --> 198]
a[31] = [199 -- 34 --> 233]
a[32] = [234 -- 34 --> 268]
a[33] = [221 -- 32 --> 253]
a[34] = [270 -- 32 --> 302]
a[35] = [319 -- 32 --> 351]
a[36] = [291 -- 50 --> 341]
a[37] = [328 -- 50 --> 378]
a[38] = [294 -- 53 --> 347]
a[39] = [323 -- 53 --> 376]
a[40] = [352 -- 53 --> 405]
a[41] = [381 -- 53 --> 434]
a[42] = [0 -- 58 --> 58]
a[43] = [28 -- 58 --> 86]
a[44] = [686 -- 42 --> 728]
a[45] = [719 -- 42 --> 761]
a[46] = [747 -- 42 --> 789]
a[47] = [376 -- 58 --> 434]
a[48] = [407 -- 58 --> 465]
a[49] = [224 -- 42 --> 266]
a[50] = [280 -- 42 --> 322]
a[51] = [274 -- 47 --> 321]
a[52] = [522 -- 31 --> 553]
a[53] = [544 -- 31 --> 575]
a[54] = [566 -- 31 --> 597]
a[55] = [588 -- 31 --> 619]
a[56] = [610 -- 31 --> 641]
a[57] = [632 -- 31 --> 663]
a[58] = [654 -- 31 --> 685]
a[59] = [676 -- 31 --> 707]
a[60] = [33 -- 48 --> 81]
a[61] = [44 -- 48 --> 92]
a[62] = [55 -- 48 --> 103]

a[63] = [66 -- 48 --> 114]
a[64] = [77 -- 48 --> 125]
a[65] = [272 -- 50 --> 322]
a[66] = [319 -- 50 --> 369]
a[67] = [366 -- 50 --> 416]
a[68] = [0 -- 34 --> 34]
a[69] = [32 -- 34 --> 66]
a[70] = [85 -- 63 --> 148]
a[71] = [96 -- 63 --> 159]
a[72] = [107 -- 63 --> 170]
a[73] = [118 -- 63 --> 181]
a[74] = [130 -- 63 --> 193]
a[75] = [140 -- 63 --> 203]
a[76] = [151 -- 63 --> 214]
a[77] = [162 -- 63 --> 225]
a[78] = [173 -- 63 --> 236]
a[79] = [184 -- 63 --> 247]
a[80] = [195 -- 63 --> 258]

Carga[1] = [121 -- 3 --> 124]
Carga[2] = [143 -- 3 --> 146]
Carga[3] = [165 -- 3 --> 168]
Carga[4] = [187 -- 3 --> 190]
Carga[5] = [129 -- 3 --> 132]
Carga[6] = [155 -- 3 --> 158]
Carga[7] = [181 -- 3 --> 184]
Carga[8] = [207 -- 3 --> 210]
Carga[9] = [233 -- 3 --> 236]
Carga[10] = [259 -- 3 --> 262]
Carga[11] = [285 -- 3 --> 288]
Carga[12] = [311 -- 3 --> 314]
Carga[13] = [337 -- 3 --> 340]
Carga[14] = [363 -- 3 --> 366]
Carga[15] = [389 -- 3 --> 392]
Carga[16] = [55 -- 3 --> 58]
Carga[17] = [73 -- 3 --> 76]
Carga[18] = [91 -- 3 --> 94]
Carga[19] = [109 -- 3 --> 112]
Carga[20] = [127 -- 3 --> 130]
Carga[21] = [228 -- 3 --> 231]
Carga[22] = [245 -- 3 --> 248]
Carga[23] = [262 -- 3 --> 265]
Carga[24] = [279 -- 3 --> 282]
Carga[25] = [296 -- 3 --> 299]
Carga[26] = [313 -- 3 --> 316]
Carga[27] = [330 -- 3 --> 333]
Carga[28] = [347 -- 3 --> 350]
Carga[29] = [364 -- 3 --> 367]
Carga[30] = [164 -- 3 --> 167]
Carga[31] = [199 -- 3 --> 202]
Carga[32] = [234 -- 3 --> 237]
Carga[33] = [221 -- 3 --> 224]
Carga[34] = [270 -- 3 --> 273]
Carga[35] = [319 -- 3 --> 322]
Carga[36] = [291 -- 3 --> 294]
Carga[37] = [328 -- 3 --> 331]
Carga[38] = [294 -- 3 --> 297]



Carga[39] = [323 -- 3 --> 326]
Carga[40] = [352 -- 3 --> 355]
Carga[41] = [381 -- 3 --> 384]
Carga[42] = [0 -- 3 --> 3]
Carga[43] = [28 -- 3 --> 31]
Carga[44] = [686 -- 3 --> 689]
Carga[45] = [719 -- 3 --> 722]
Carga[46] = [747 -- 3 --> 750]
Carga[47] = [376 -- 3 --> 379]
Carga[48] = [407 -- 3 --> 410]
Carga[49] = [224 -- 3 --> 227]
Carga[50] = [280 -- 3 --> 283]
Carga[51] = [274 -- 3 --> 277]
Carga[52] = [522 -- 3 --> 525]
Carga[53] = [544 -- 3 --> 547]
Carga[54] = [566 -- 3 --> 569]
Carga[55] = [588 -- 3 --> 591]
Carga[56] = [610 -- 3 --> 613]
Carga[57] = [632 -- 3 --> 635]
Carga[58] = [654 -- 3 --> 657]
Carga[59] = [676 -- 3 --> 679]
Carga[60] = [33 -- 3 --> 36]
Carga[61] = [44 -- 3 --> 47]
Carga[62] = [55 -- 3 --> 58]
Carga[63] = [66 -- 3 --> 69]
Carga[64] = [77 -- 3 --> 80]
Carga[65] = [272 -- 3 --> 275]
Carga[66] = [319 -- 3 --> 322]
Carga[67] = [366 -- 3 --> 369]
Carga[68] = [0 -- 3 --> 3]
Carga[69] = [32 -- 3 --> 35]
Carga[70] = [85 -- 3 --> 88]
Carga[71] = [96 -- 3 --> 99]
Carga[72] = [107 -- 3 --> 110]
Carga[73] = [118 -- 3 --> 121]
Carga[74] = [130 -- 3 --> 133]
Carga[75] = [140 -- 3 --> 143]
Carga[76] = [151 -- 3 --> 154]
Carga[77] = [162 -- 3 --> 165]
Carga[78] = [173 -- 3 --> 176]
Carga[79] = [184 -- 3 --> 187]
Carga[80] = [195 -- 3 --> 198]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [300 -- 60 --> 360]
ParadaComida[9] = [300 -- 60 --> 360]
ParadaComida[10] = [300 -- 60 --> 360]
ParadaComida[11] = [300 -- 60 --> 360]
ParadaComida[12] = [340 -- 60 --> 400]
ParadaComida[13] = [341 -- 60 --> 401]
ParadaComida[14] = [346 -- 60 --> 406]

ParadaComida[15] = [360 -- 60 --> 420]
ParadaComida[16] = [360 -- 60 --> 420]
ParadaComida[17] = [360 -- 60 --> 420]
ParadaComida[18] = [360 -- 60 --> 420]
ParadaComida[19] = [360 -- 60 --> 420]
ParadaComida[20] = [360 -- 60 --> 420]

makespan = [789 -- 0 --> 789]
Truck = Discrete Resource
required by ParadaComida[20] over [360,420]
in capacity 1
required by ParadaComida[19] over [360,420]
in capacity 1
required by ParadaComida[18] over [360,420]
in capacity 1
required by ParadaComida[17] over [360,420]
in capacity 1
required by ParadaComida[16] over [360,420]
in capacity 1
required by ParadaComida[15] over [360,420]
in capacity 1
required by ParadaComida[14] over [346,406]
in capacity 1
required by ParadaComida[13] over [341,401]
in capacity 1
required by ParadaComida[12] over [340,400]
in capacity 1
required by ParadaComida[11] over [300,360]
in capacity 1
required by ParadaComida[10] over [300,360]
in capacity 1
required by ParadaComida[9] over [300,360]
in capacity 1
required by ParadaComida[8] over [300,360]
in capacity 1
required by ParadaComida[7] over [300,360]
in capacity 1
required by ParadaComida[6] over [300,360]
in capacity 1
required by ParadaComida[5] over [300,360]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[80] over [195,258] in capacity 1
required by a[79] over [184,247] in capacity 1
required by a[78] over [173,236] in capacity 1
required by a[77] over [162,225] in capacity 1
required by a[76] over [151,214] in capacity 1
required by a[75] over [140,203] in capacity 1
required by a[74] over [130,193] in capacity 1
required by a[73] over [118,181] in capacity 1



required by a[72] over [107,170] in capacity 1
required by a[71] over [96,159] in capacity 1
required by a[70] over [85,148] in capacity 1
required by a[69] over [32,66] in capacity 1
required by a[68] over [0,34] in capacity 1
required by a[67] over [366,416] in capacity 1
required by a[66] over [319,369] in capacity 1
required by a[65] over [272,322] in capacity 1
required by a[64] over [77,125] in capacity 1
required by a[63] over [66,114] in capacity 1
required by a[62] over [55,103] in capacity 1
required by a[61] over [44,92] in capacity 1
required by a[60] over [33,81] in capacity 1
required by a[59] over [676,707] in capacity 1
required by a[58] over [654,685] in capacity 1
required by a[57] over [632,663] in capacity 1
required by a[56] over [610,641] in capacity 1
required by a[55] over [588,619] in capacity 1
required by a[54] over [566,597] in capacity 1
required by a[53] over [544,575] in capacity 1
required by a[52] over [522,553] in capacity 1
required by a[51] over [274,321] in capacity 1
required by a[50] over [280,322] in capacity 1
required by a[49] over [224,266] in capacity 1
required by a[48] over [407,465] in capacity 1
required by a[47] over [376,434] in capacity 1
required by a[46] over [747,789] in capacity 1
required by a[45] over [719,761] in capacity 1
required by a[44] over [686,728] in capacity 1
required by a[43] over [28,86] in capacity 1
required by a[42] over [0,58] in capacity 1
required by a[41] over [381,434] in capacity 1
required by a[40] over [352,405] in capacity 1
required by a[39] over [323,376] in capacity 1
required by a[38] over [294,347] in capacity 1
required by a[37] over [328,378] in capacity 1
required by a[36] over [291,341] in capacity 1
required by a[35] over [319,351] in capacity 1
required by a[34] over [270,302] in capacity 1
required by a[33] over [221,253] in capacity 1
required by a[32] over [234,268] in capacity 1
required by a[31] over [199,233] in capacity 1
required by a[30] over [164,198] in capacity 1
required by a[29] over [364,380] in capacity 1
required by a[28] over [347,363] in capacity 1
required by a[27] over [330,346] in capacity 1
required by a[26] over [313,329] in capacity 1
required by a[25] over [296,312] in capacity 1
required by a[24] over [279,295] in capacity 1
required by a[23] over [262,278] in capacity 1
required by a[22] over [245,261] in capacity 1
required by a[21] over [228,244] in capacity 1
required by a[20] over [127,180] in capacity 1
required by a[19] over [109,162] in capacity 1
required by a[18] over [91,144] in capacity 1
required by a[17] over [73,126] in capacity 1
required by a[16] over [55,108] in capacity 1

required by a[15] over [389,418] in capacity 1
required by a[14] over [363,392] in capacity 1
required by a[13] over [337,366] in capacity 1
required by a[12] over [311,340] in capacity 1
required by a[11] over [285,314] in capacity 1
required by a[10] over [259,288] in capacity 1
required by a[9] over [233,262] in capacity 1
required by a[8] over [207,236] in capacity 1
required by a[7] over [181,210] in capacity 1
required by a[6] over [155,184] in capacity 1
required by a[5] over [129,158] in capacity 1
required by a[4] over [187,216] in capacity 1
required by a[3] over [165,194] in capacity 1
required by a[2] over [143,172] in capacity 1
required by a[1] over [121,150] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[80] over [195,198] in capacity 1
required by Carga[79] over [184,187] in capacity 1
required by Carga[78] over [173,176] in capacity 1
required by Carga[77] over [162,165] in capacity 1
required by Carga[76] over [151,154] in capacity 1
required by Carga[75] over [140,143] in capacity 1
required by Carga[74] over [130,133] in capacity 1
required by Carga[73] over [118,121] in capacity 1
required by Carga[72] over [107,110] in capacity 1
required by Carga[71] over [96,99] in capacity 1
required by Carga[70] over [85,88] in capacity 1
required by Carga[69] over [32,35] in capacity 1
required by Carga[68] over [0,3] in capacity 1
required by Carga[67] over [366,369] in capacity 1
required by Carga[66] over [319,322] in capacity 1
required by Carga[65] over [272,275] in capacity 1
required by Carga[64] over [77,80] in capacity 1
required by Carga[63] over [66,69] in capacity 1
required by Carga[62] over [55,58] in capacity 1
required by Carga[61] over [44,47] in capacity 1



required by Carga[60] over [33,36] in capacity 1
required by Carga[59] over [676,679] in capacity 1
required by Carga[58] over [654,657] in capacity 1
required by Carga[57] over [632,635] in capacity 1
required by Carga[56] over [610,613] in capacity 1
required by Carga[55] over [588,591] in capacity 1
required by Carga[54] over [566,569] in capacity 1
required by Carga[53] over [544,547] in capacity 1
required by Carga[52] over [522,525] in capacity 1
required by Carga[51] over [274,277] in capacity 1
required by Carga[50] over [280,283] in capacity 1
required by Carga[49] over [224,227] in capacity 1
required by Carga[48] over [407,410] in capacity 1
required by Carga[47] over [376,379] in capacity 1
required by Carga[46] over [747,750] in capacity 1
required by Carga[45] over [719,722] in capacity 1
required by Carga[44] over [686,689] in capacity 1
required by Carga[43] over [28,31] in capacity 1
required by Carga[42] over [0,3] in capacity 1
required by Carga[41] over [381,384] in capacity 1
required by Carga[40] over [352,355] in capacity 1
required by Carga[39] over [323,326] in capacity 1
required by Carga[38] over [294,297] in capacity 1
required by Carga[37] over [328,331] in capacity 1
required by Carga[36] over [291,294] in capacity 1
required by Carga[35] over [319,322] in capacity 1
required by Carga[34] over [270,273] in capacity 1
required by Carga[33] over [221,224] in capacity 1
required by Carga[32] over [234,237] in capacity 1

required by Carga[31] over [199,202] in capacity 1
required by Carga[30] over [164,167] in capacity 1
required by Carga[29] over [364,367] in capacity 1
required by Carga[28] over [347,350] in capacity 1
required by Carga[27] over [330,333] in capacity 1
required by Carga[26] over [313,316] in capacity 1
required by Carga[25] over [296,299] in capacity 1
required by Carga[24] over [279,282] in capacity 1
required by Carga[23] over [262,265] in capacity 1
required by Carga[22] over [245,248] in capacity 1
required by Carga[21] over [228,231] in capacity 1
required by Carga[20] over [127,130] in capacity 1
required by Carga[19] over [109,112] in capacity 1
required by Carga[18] over [91,94] in capacity 1
required by Carga[17] over [73,76] in capacity 1
required by Carga[16] over [55,58] in capacity 1
required by Carga[15] over [389,392] in capacity 1
required by Carga[14] over [363,366] in capacity 1
required by Carga[13] over [337,340] in capacity 1
required by Carga[12] over [311,314] in capacity 1
required by Carga[11] over [285,288] in capacity 1
required by Carga[10] over [259,262] in capacity 1
required by Carga[9] over [233,236] in capacity 1
required by Carga[8] over [207,210] in capacity 1
required by Carga[7] over [181,184] in capacity 1
required by Carga[6] over [155,158] in capacity 1
required by Carga[5] over [129,132] in capacity 1
required by Carga[4] over [187,190] in capacity 1



required by Carga[3] over [165,168] in capacity 1
required by Carga[2] over [143,146] in capacity 1
required by Carga[1] over [121,124] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 0
Margen[38] = 0
Margen[39] = 0
Margen[40] = 0
Margen[41] = 0
Margen[42] = 17
Margen[43] = 0
Margen[44] = 0
Margen[45] = 0
Margen[46] = 5
Margen[47] = 0
Margen[48] = 0
Margen[49] = 0
Margen[50] = 0

Margen[51] = 0
Margen[52] = 0
Margen[53] = 0
Margen[54] = 0
Margen[55] = 0
Margen[56] = 0
Margen[57] = 0
Margen[58] = 0
Margen[59] = 0
Margen[60] = 0
Margen[61] = 0
Margen[62] = 0
Margen[63] = 0
Margen[64] = 0
Margen[65] = 0
Margen[66] = 0
Margen[67] = 0
Margen[68] = 1
Margen[69] = 0
Margen[70] = 0
Margen[71] = 0
Margen[72] = 0
Margen[73] = 0
Margen[74] = 1
Margen[75] = 0
Margen[76] = 0
Margen[77] = 0
Margen[78] = 0
Margen[79] = 0
Margen[80] = 0

Scheduling 15.1

Optimal Solution with Objective Value: 638

a[1] = [533 -- 29 --> 562]
a[2] = [556 -- 29 --> 585]
a[3] = [579 -- 29 --> 608]
a[4] = [306 -- 37 --> 343]
a[5] = [244 -- 86 --> 330]
a[6] = [274 -- 86 --> 360]
a[7] = [304 -- 86 --> 390]
a[8] = [334 -- 86 --> 420]
a[9] = [364 -- 86 --> 450]
a[10] = [439 -- 35 --> 474]
a[11] = [473 -- 35 --> 508]
a[12] = [466 -- 75 --> 541]
a[13] = [517 -- 75 --> 592]
a[14] = [563 -- 75 --> 638]
a[15] = [24 -- 66 --> 90]
a[16] = [41 -- 66 --> 107]
a[17] = [58 -- 66 --> 124]
a[18] = [75 -- 66 --> 141]
a[19] = [92 -- 66 --> 158]
a[20] = [109 -- 66 --> 175]
a[21] = [502 -- 38 --> 540]
a[22] = [538 -- 38 --> 576]
a[23] = [574 -- 38 --> 612]



a[24] = [390 -- 42 --> 432]
a[25] = [428 -- 42 --> 470]
a[26] = [300 -- 45 --> 345]
a[27] = [327 -- 45 --> 372]
a[28] = [349 -- 45 --> 394]
a[29] = [371 -- 45 --> 416]
a[30] = [393 -- 45 --> 438]
a[31] = [415 -- 45 --> 460]
a[32] = [437 -- 45 --> 482]
a[33] = [459 -- 45 --> 504]
a[34] = [481 -- 45 --> 526]
a[35] = [261 -- 54 --> 315]
a[36] = [283 -- 54 --> 337]
a[37] = [203 -- 32 --> 235]
a[38] = [226 -- 32 --> 258]
a[39] = [249 -- 32 --> 281]
a[40] = [128 -- 109 --> 237]
a[41] = [152 -- 109 --> 261]
a[42] = [397 -- 38 --> 435]
a[43] = [567 -- 37 --> 604]
a[44] = [478 -- 30 --> 508]
a[45] = [71 -- 45 --> 116]
a[46] = [87 -- 45 --> 132]
a[47] = [103 -- 45 --> 148]
a[48] = [119 -- 45 --> 164]
a[49] = [135 -- 45 --> 180]
a[50] = [151 -- 45 --> 196]
a[51] = [167 -- 45 --> 212]
a[52] = [183 -- 45 --> 228]
a[53] = [199 -- 45 --> 244]
a[54] = [215 -- 45 --> 260]
a[55] = [231 -- 45 --> 276]
a[56] = [250 -- 45 --> 295]
a[57] = [263 -- 45 --> 308]
a[58] = [279 -- 45 --> 324]
a[59] = [93 -- 22 --> 115]
a[60] = [111 -- 22 --> 133]
a[61] = [130 -- 22 --> 152]
a[62] = [146 -- 22 --> 168]
a[63] = [168 -- 22 --> 190]
a[64] = [187 -- 22 --> 209]
a[65] = [206 -- 22 --> 228]
a[66] = [225 -- 22 --> 247]
a[67] = [243 -- 22 --> 265]
a[68] = [267 -- 22 --> 289]
a[69] = [285 -- 22 --> 307]

Carga[1] = [533 -- 6 --> 539]
Carga[2] = [556 -- 6 --> 562]
Carga[3] = [579 -- 6 --> 585]
Carga[4] = [306 -- 6 --> 312]
Carga[5] = [244 -- 6 --> 250]
Carga[6] = [274 -- 6 --> 280]
Carga[7] = [304 -- 6 --> 310]
Carga[8] = [334 -- 6 --> 340]
Carga[9] = [364 -- 6 --> 370]
Carga[10] = [439 -- 6 --> 445]

Carga[11] = [473 -- 6 --> 479]
Carga[12] = [466 -- 6 --> 472]
Carga[13] = [517 -- 6 --> 523]
Carga[14] = [563 -- 6 --> 569]
Carga[15] = [24 -- 6 --> 30]
Carga[16] = [41 -- 6 --> 47]
Carga[17] = [58 -- 6 --> 64]
Carga[18] = [75 -- 6 --> 81]
Carga[19] = [92 -- 6 --> 98]
Carga[20] = [109 -- 6 --> 115]
Carga[21] = [502 -- 6 --> 508]
Carga[22] = [538 -- 6 --> 544]
Carga[23] = [574 -- 6 --> 580]
Carga[24] = [390 -- 6 --> 396]
Carga[25] = [428 -- 6 --> 434]
Carga[26] = [300 -- 6 --> 306]
Carga[27] = [327 -- 6 --> 333]
Carga[28] = [349 -- 6 --> 355]
Carga[29] = [371 -- 6 --> 377]
Carga[30] = [393 -- 6 --> 399]
Carga[31] = [415 -- 6 --> 421]
Carga[32] = [437 -- 6 --> 443]
Carga[33] = [459 -- 6 --> 465]
Carga[34] = [481 -- 6 --> 487]
Carga[35] = [261 -- 6 --> 267]
Carga[36] = [283 -- 6 --> 289]
Carga[37] = [203 -- 6 --> 209]
Carga[38] = [226 -- 6 --> 232]
Carga[39] = [249 -- 6 --> 255]
Carga[40] = [128 -- 6 --> 134]
Carga[41] = [152 -- 6 --> 158]
Carga[42] = [397 -- 6 --> 403]
Carga[43] = [567 -- 6 --> 573]
Carga[44] = [478 -- 6 --> 484]
Carga[45] = [71 -- 6 --> 77]
Carga[46] = [87 -- 6 --> 93]
Carga[47] = [103 -- 6 --> 109]
Carga[48] = [119 -- 6 --> 125]
Carga[49] = [135 -- 6 --> 141]
Carga[50] = [151 -- 6 --> 157]
Carga[51] = [167 -- 6 --> 173]
Carga[52] = [183 -- 6 --> 189]
Carga[53] = [199 -- 6 --> 205]
Carga[54] = [215 -- 6 --> 221]
Carga[55] = [231 -- 6 --> 237]
Carga[56] = [250 -- 6 --> 256]
Carga[57] = [263 -- 6 --> 269]
Carga[58] = [279 -- 6 --> 285]
Carga[59] = [93 -- 6 --> 99]
Carga[60] = [111 -- 6 --> 117]
Carga[61] = [130 -- 6 --> 136]
Carga[62] = [146 -- 6 --> 152]
Carga[63] = [168 -- 6 --> 174]
Carga[64] = [187 -- 6 --> 193]
Carga[65] = [206 -- 6 --> 212]
Carga[66] = [225 -- 6 --> 231]
Carga[67] = [243 -- 6 --> 249]



Carga[68] = [267 -- 6 --> 273]
Carga[69] = [285 -- 6 --> 291]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [300 -- 60 --> 360]
ParadaComida[9] = [307 -- 60 --> 367]
ParadaComida[10] = [308 -- 60 --> 368]
ParadaComida[11] = [315 -- 60 --> 375]
ParadaComida[12] = [337 -- 60 --> 397]
ParadaComida[13] = [343 -- 60 --> 403]
ParadaComida[14] = [360 -- 60 --> 420]
ParadaComida[15] = [360 -- 60 --> 420]
ParadaComida[16] = [360 -- 60 --> 420]
ParadaComida[17] = [360 -- 60 --> 420]
ParadaComida[18] = [360 -- 60 --> 420]

makespan = [638 -- 0 --> 638]

Truck = Discrete Resource

required by ParadaComida[18] over [360,420]
in capacity 1
required by ParadaComida[17] over [360,420]
in capacity 1
required by ParadaComida[16] over [360,420]
in capacity 1
required by ParadaComida[15] over [360,420]
in capacity 1
required by ParadaComida[14] over [360,420]
in capacity 1
required by ParadaComida[13] over [343,403]
in capacity 1
required by ParadaComida[12] over [337,397]
in capacity 1
required by ParadaComida[11] over [315,375]
in capacity 1
required by ParadaComida[10] over [308,368]
in capacity 1
required by ParadaComida[9] over [307,367]
in capacity 1
required by ParadaComida[8] over [300,360]
in capacity 1
required by ParadaComida[7] over [300,360]
in capacity 1
required by ParadaComida[6] over [300,360]
in capacity 1
required by ParadaComida[5] over [300,360]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1

required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[69] over [285,307] in capacity 1
required by a[68] over [267,289] in capacity 1
required by a[67] over [243,265] in capacity 1
required by a[66] over [225,247] in capacity 1
required by a[65] over [206,228] in capacity 1
required by a[64] over [187,209] in capacity 1
required by a[63] over [168,190] in capacity 1
required by a[62] over [146,168] in capacity 1
required by a[61] over [130,152] in capacity 1
required by a[60] over [111,133] in capacity 1
required by a[59] over [93,115] in capacity 1
required by a[58] over [279,324] in capacity 1
required by a[57] over [263,308] in capacity 1
required by a[56] over [250,295] in capacity 1
required by a[55] over [231,276] in capacity 1
required by a[54] over [215,260] in capacity 1
required by a[53] over [199,244] in capacity 1
required by a[52] over [183,228] in capacity 1
required by a[51] over [167,212] in capacity 1
required by a[50] over [151,196] in capacity 1
required by a[49] over [135,180] in capacity 1
required by a[48] over [119,164] in capacity 1
required by a[47] over [103,148] in capacity 1
required by a[46] over [87,132] in capacity 1
required by a[45] over [71,116] in capacity 1
required by a[44] over [478,508] in capacity 1
required by a[43] over [567,604] in capacity 1
required by a[42] over [397,435] in capacity 1
required by a[41] over [152,261] in capacity 1
required by a[40] over [128,237] in capacity 1
required by a[39] over [249,281] in capacity 1
required by a[38] over [226,258] in capacity 1
required by a[37] over [203,235] in capacity 1
required by a[36] over [283,337] in capacity 1
required by a[35] over [261,315] in capacity 1
required by a[34] over [481,526] in capacity 1
required by a[33] over [459,504] in capacity 1
required by a[32] over [437,482] in capacity 1
required by a[31] over [415,460] in capacity 1
required by a[30] over [393,438] in capacity 1
required by a[29] over [371,416] in capacity 1
required by a[28] over [349,394] in capacity 1
required by a[27] over [327,372] in capacity 1
required by a[26] over [300,345] in capacity 1
required by a[25] over [428,470] in capacity 1
required by a[24] over [390,432] in capacity 1
required by a[23] over [574,612] in capacity 1
required by a[22] over [538,576] in capacity 1
required by a[21] over [502,540] in capacity 1
required by a[20] over [109,175] in capacity 1
required by a[19] over [92,158] in capacity 1
required by a[18] over [75,141] in capacity 1
required by a[17] over [58,124] in capacity 1



required by a[16] over [41,107] in capacity 1
required by a[15] over [24,90] in capacity 1
required by a[14] over [563,638] in capacity 1
required by a[13] over [517,592] in capacity 1
required by a[12] over [466,541] in capacity 1
required by a[11] over [473,508] in capacity 1
required by a[10] over [439,474] in capacity 1
required by a[9] over [364,450] in capacity 1
required by a[8] over [334,420] in capacity 1
required by a[7] over [304,390] in capacity 1
required by a[6] over [274,360] in capacity 1
required by a[5] over [244,330] in capacity 1
required by a[4] over [306,343] in capacity 1
required by a[3] over [579,608] in capacity 1
required by a[2] over [556,585] in capacity 1
required by a[1] over [533,562] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[69] over [285,291] in capacity 1
required by Carga[68] over [267,273] in capacity 1
required by Carga[67] over [243,249] in capacity 1
required by Carga[66] over [225,231] in capacity 1
required by Carga[65] over [206,212] in capacity 1
required by Carga[64] over [187,193] in capacity 1
required by Carga[63] over [168,174] in capacity 1
required by Carga[62] over [146,152] in capacity 1
required by Carga[61] over [130,136] in capacity 1
required by Carga[60] over [111,117] in capacity 1
required by Carga[59] over [93,99] in capacity 1
required by Carga[58] over [279,285] in capacity 1
required by Carga[57] over [263,269] in capacity 1
required by Carga[56] over [250,256] in capacity 1
required by Carga[55] over [231,237] in capacity 1
required by Carga[54] over [215,221] in capacity 1
required by Carga[53] over [199,205] in capacity 1
required by Carga[52] over [183,189] in capacity 1
required by Carga[51] over [167,173] in capacity 1

required by Carga[50] over [151,157] in capacity 1
required by Carga[49] over [135,141] in capacity 1
required by Carga[48] over [119,125] in capacity 1
required by Carga[47] over [103,109] in capacity 1
required by Carga[46] over [87,93] in capacity 1
required by Carga[45] over [71,77] in capacity 1
required by Carga[44] over [478,484] in capacity 1
required by Carga[43] over [567,573] in capacity 1
required by Carga[42] over [397,403] in capacity 1
required by Carga[41] over [152,158] in capacity 1
required by Carga[40] over [128,134] in capacity 1
required by Carga[39] over [249,255] in capacity 1
required by Carga[38] over [226,232] in capacity 1
required by Carga[37] over [203,209] in capacity 1
required by Carga[36] over [283,289] in capacity 1
required by Carga[35] over [261,267] in capacity 1
required by Carga[34] over [481,487] in capacity 1
required by Carga[33] over [459,465] in capacity 1
required by Carga[32] over [437,443] in capacity 1
required by Carga[31] over [415,421] in capacity 1
required by Carga[30] over [393,399] in capacity 1
required by Carga[29] over [371,377] in capacity 1
required by Carga[28] over [349,355] in capacity 1
required by Carga[27] over [327,333] in capacity 1
required by Carga[26] over [300,306] in capacity 1
required by Carga[25] over [428,434] in capacity 1
required by Carga[24] over [390,396] in capacity 1
required by Carga[23] over [574,580] in capacity 1



required by Carga[22] over [538,544] in capacity 1	Margen[13] = 0
required by Carga[21] over [502,508] in capacity 1	Margen[14] = 5
required by Carga[20] over [109,115] in capacity 1	Margen[15] = 0
required by Carga[19] over [92,98] in capacity 1	Margen[16] = 0
required by Carga[18] over [75,81] in capacity 1	Margen[17] = 0
required by Carga[17] over [58,64] in capacity 1	Margen[18] = 0
required by Carga[16] over [41,47] in capacity 1	Margen[19] = 0
required by Carga[15] over [24,30] in capacity 1	Margen[20] = 0
required by Carga[14] over [563,569] in capacity 1	Margen[21] = 0
required by Carga[13] over [517,523] in capacity 1	Margen[22] = 0
required by Carga[12] over [466,472] in capacity 1	Margen[23] = 0
required by Carga[11] over [473,479] in capacity 1	Margen[24] = 0
required by Carga[10] over [439,445] in capacity 1	Margen[25] = 0
required by Carga[9] over [364,370] in capacity 1	Margen[26] = 5
required by Carga[8] over [334,340] in capacity 1	Margen[27] = 0
required by Carga[7] over [304,310] in capacity 1	Margen[28] = 0
required by Carga[6] over [274,280] in capacity 1	Margen[29] = 0
required by Carga[5] over [244,250] in capacity 1	Margen[30] = 0
required by Carga[4] over [306,312] in capacity 1	Margen[31] = 0
required by Carga[3] over [579,585] in capacity 1	Margen[32] = 0
required by Carga[2] over [556,562] in capacity 1	Margen[33] = 0
required by Carga[1] over [533,539] in capacity 1	Margen[34] = 0
Margen[1] = 0	Margen[35] = 0
Margen[2] = 0	Margen[36] = 0
Margen[3] = 0	Margen[37] = 0
Margen[4] = 0	Margen[38] = 0
Margen[5] = 0	Margen[39] = 0
Margen[6] = 0	Margen[40] = 0
Margen[7] = 0	Margen[41] = 0
Margen[8] = 0	Margen[42] = 0
Margen[9] = 0	Margen[43] = 0
Margen[10] = 0	Margen[44] = 0
Margen[11] = 0	Margen[45] = 0
Margen[12] = 0	Margen[46] = 0
	Margen[47] = 0
	Margen[48] = 0
	Margen[49] = 0
	Margen[50] = 0
	Margen[51] = 0
	Margen[52] = 0
	Margen[53] = 0
	Margen[54] = 0
	Margen[55] = 0
	Margen[56] = 3
	Margen[57] = 0
	Margen[58] = 0
	Margen[59] = 1
	Margen[60] = 0
	Margen[61] = 0
	Margen[62] = 3
	Margen[63] = 0
	Margen[64] = 0
	Margen[65] = 0
	Margen[66] = 0
	Margen[67] = 1
	Margen[68] = 4
	Margen[69] = 3



Scheduling 15.2

Optimal Solution with Objective Value: 664

a[1] = [138 -- 70 --> 208]
a[2] = [153 -- 70 --> 223]
a[3] = [164 -- 70 --> 234]
a[4] = [178 -- 70 --> 248]
a[5] = [199 -- 70 --> 269]
a[6] = [208 -- 70 --> 278]
a[7] = [223 -- 70 --> 293]
a[8] = [248 -- 70 --> 318]
a[9] = [263 -- 70 --> 333]
a[10] = [273 -- 70 --> 343]
a[11] = [288 -- 70 --> 358]
a[12] = [307 -- 70 --> 377]
a[13] = [170 -- 29 --> 199]
a[14] = [194 -- 29 --> 223]
a[15] = [223 -- 29 --> 252]
a[16] = [234 -- 29 --> 263]
a[17] = [256 -- 29 --> 285]
a[18] = [278 -- 29 --> 307]
a[19] = [293 -- 29 --> 322]
a[20] = [318 -- 29 --> 347]
a[21] = [322 -- 31 --> 353]
a[22] = [597 -- 67 --> 664]

Carga[1] = [138 -- 6 --> 144]
Carga[2] = [153 -- 6 --> 159]
Carga[3] = [164 -- 6 --> 170]
Carga[4] = [178 -- 6 --> 184]
Carga[5] = [199 -- 6 --> 205]
Carga[6] = [208 -- 6 --> 214]
Carga[7] = [223 -- 6 --> 229]
Carga[8] = [248 -- 6 --> 254]
Carga[9] = [263 -- 6 --> 269]
Carga[10] = [273 -- 6 --> 279]
Carga[11] = [288 -- 6 --> 294]
Carga[12] = [307 -- 6 --> 313]
Carga[13] = [170 -- 6 --> 176]
Carga[14] = [194 -- 6 --> 200]
Carga[15] = [223 -- 6 --> 229]
Carga[16] = [234 -- 6 --> 240]
Carga[17] = [256 -- 6 --> 262]
Carga[18] = [278 -- 6 --> 284]
Carga[19] = [293 -- 6 --> 299]
Carga[20] = [318 -- 6 --> 324]
Carga[21] = [322 -- 6 --> 328]
Carga[22] = [597 -- 6 --> 603]

ParadaComida[1] = [333 -- 60 --> 393]
ParadaComida[2] = [343 -- 60 --> 403]
ParadaComida[3] = [347 -- 60 --> 407]
ParadaComida[4] = [353 -- 60 --> 413]
ParadaComida[5] = [358 -- 60 --> 418]
ParadaComida[6] = [377 -- 60 --> 437]

makespan = [664 -- 0 --> 664]
Truck = Discrete Resource
required by ParadaComida[6] over [377,437]
in capacity 1
required by ParadaComida[5] over [358,418]
in capacity 1
required by ParadaComida[4] over [353,413]
in capacity 1
required by ParadaComida[3] over [347,407]
in capacity 1
required by ParadaComida[2] over [343,403]
in capacity 1
required by ParadaComida[1] over [333,393]
in capacity 1
required by a[22] over [597,664] in capacity 1
required by a[21] over [322,353] in capacity 1
required by a[20] over [318,347] in capacity 1
required by a[19] over [293,322] in capacity 1
required by a[18] over [278,307] in capacity 1
required by a[17] over [256,285] in capacity 1
required by a[16] over [234,263] in capacity 1
required by a[15] over [223,252] in capacity 1
required by a[14] over [194,223] in capacity 1
required by a[13] over [170,199] in capacity 1
required by a[12] over [307,377] in capacity 1
required by a[11] over [288,358] in capacity 1
required by a[10] over [273,343] in capacity 1
required by a[9] over [263,333] in capacity 1
required by a[8] over [248,318] in capacity 1
required by a[7] over [223,293] in capacity 1
required by a[6] over [208,278] in capacity 1
required by a[5] over [199,269] in capacity 1
required by a[4] over [178,248] in capacity 1
required by a[3] over [164,234] in capacity 1
required by a[2] over [153,223] in capacity 1
required by a[1] over [138,208] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[22] over [597,603] in
capacity 1
required by Carga[21] over [322,328] in
capacity 1
required by Carga[20] over [318,324] in
capacity 1
required by Carga[19] over [293,299] in
capacity 1
required by Carga[18] over [278,284] in
capacity 1
required by Carga[17] over [256,262] in
capacity 1
required by Carga[16] over [234,240] in
capacity 1
required by Carga[15] over [223,229] in
capacity 1
required by Carga[14] over [194,200] in
capacity 1



required by Carga[13] over [170,176] in capacity 1
required by Carga[12] over [307,313] in capacity 1
required by Carga[11] over [288,294] in capacity 1
required by Carga[10] over [273,279] in capacity 1
required by Carga[9] over [263,269] in capacity 1
required by Carga[8] over [248,254] in capacity 1
required by Carga[7] over [223,229] in capacity 1
required by Carga[6] over [208,214] in capacity 1
required by Carga[5] over [199,205] in capacity 1
required by Carga[4] over [178,184] in capacity 1
required by Carga[3] over [164,170] in capacity 1
required by Carga[2] over [153,159] in capacity 1
required by Carga[1] over [138,144] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 4
Margen[4] = 5
Margen[5] = 1
Margen[6] = 5
Margen[7] = 5
Margen[8] = 5
Margen[9] = 5
Margen[10] = 0
Margen[11] = 0
Margen[12] = 4
Margen[13] = 10
Margen[14] = 5
Margen[15] = 5
Margen[16] = 3
Margen[17] = 0
Margen[18] = 3
Margen[19] = 1
Margen[20] = 5
Margen[21] = 20
Margen[22] = 10

Scheduling 15.3

No Solution

Scheduling 16.1

No Solution

Scheduling 16.2

Optimal Solution with Objective Value: 804

a[1] = [150 -- 23 --> 173]
a[2] = [176 -- 23 --> 199]
a[3] = [202 -- 23 --> 225]
a[4] = [228 -- 23 --> 251]
a[5] = [254 -- 23 --> 277]
a[6] = [280 -- 23 --> 303]
a[7] = [439 -- 33 --> 472]
a[8] = [491 -- 33 --> 524]
a[9] = [543 -- 33 --> 576]
a[10] = [595 -- 33 --> 628]
a[11] = [626 -- 40 --> 666]
a[12] = [637 -- 40 --> 677]
a[13] = [648 -- 40 --> 688]
a[14] = [659 -- 40 --> 699]
a[15] = [670 -- 40 --> 710]
a[16] = [681 -- 40 --> 721]
a[17] = [692 -- 40 --> 732]
a[18] = [703 -- 40 --> 743]
a[19] = [714 -- 40 --> 754]
a[20] = [725 -- 40 --> 765]
a[21] = [736 -- 40 --> 776]
a[22] = [747 -- 40 --> 787]
a[23] = [758 -- 40 --> 798]
a[24] = [764 -- 40 --> 804]
a[25] = [234 -- 30 --> 264]
a[26] = [289 -- 30 --> 319]
a[27] = [345 -- 30 --> 375]
a[28] = [298 -- 34 --> 332]
a[29] = [311 -- 34 --> 345]
a[30] = [324 -- 34 --> 358]
a[31] = [337 -- 34 --> 371]
a[32] = [351 -- 34 --> 385]
a[33] = [363 -- 34 --> 397]
a[34] = [376 -- 34 --> 410]
a[35] = [104 -- 23 --> 127]
a[36] = [120 -- 23 --> 143]
a[37] = [170 -- 19 --> 189]
a[38] = [222 -- 19 --> 241]

Carga[1] = [150 -- 6 --> 156]
Carga[2] = [176 -- 6 --> 182]
Carga[3] = [202 -- 6 --> 208]
Carga[4] = [228 -- 6 --> 234]
Carga[5] = [254 -- 6 --> 260]
Carga[6] = [280 -- 6 --> 286]
Carga[7] = [439 -- 6 --> 445]
Carga[8] = [491 -- 6 --> 497]
Carga[9] = [543 -- 6 --> 549]
Carga[10] = [595 -- 6 --> 601]
Carga[11] = [626 -- 6 --> 632]
Carga[12] = [637 -- 6 --> 643]
Carga[13] = [648 -- 6 --> 654]
Carga[14] = [659 -- 6 --> 665]



Carga[15] = [670 -- 6 --> 676]
Carga[16] = [681 -- 6 --> 687]
Carga[17] = [692 -- 6 --> 698]
Carga[18] = [703 -- 6 --> 709]
Carga[19] = [714 -- 6 --> 720]
Carga[20] = [725 -- 6 --> 731]
Carga[21] = [736 -- 6 --> 742]
Carga[22] = [747 -- 6 --> 753]
Carga[23] = [758 -- 6 --> 764]
Carga[24] = [764 -- 6 --> 770]
Carga[25] = [234 -- 6 --> 240]
Carga[26] = [289 -- 6 --> 295]
Carga[27] = [345 -- 6 --> 351]
Carga[28] = [298 -- 6 --> 304]
Carga[29] = [311 -- 6 --> 317]
Carga[30] = [324 -- 6 --> 330]
Carga[31] = [337 -- 6 --> 343]
Carga[32] = [351 -- 6 --> 357]
Carga[33] = [363 -- 6 --> 369]
Carga[34] = [376 -- 6 --> 382]
Carga[35] = [104 -- 6 --> 110]
Carga[36] = [120 -- 6 --> 126]
Carga[37] = [170 -- 6 --> 176]
Carga[38] = [222 -- 6 --> 228]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [358 -- 60 --> 418]
ParadaComida[8] = [360 -- 60 --> 420]
ParadaComida[9] = [360 -- 60 --> 420]
ParadaComida[10] = [360 -- 60 --> 420]

makespan = [804 -- 0 --> 804]
Truck = Discrete Resource
required by ParadaComida[10] over [360,420]
in capacity 1
required by ParadaComida[9] over [360,420]
in capacity 1
required by ParadaComida[8] over [360,420]
in capacity 1
required by ParadaComida[7] over [358,418]
in capacity 1
required by ParadaComida[6] over [300,360]
in capacity 1
required by ParadaComida[5] over [300,360]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1

required by ParadaComida[1] over [300,360]
in capacity 1
required by a[38] over [222,241] in capacity 1
required by a[37] over [170,189] in capacity 1
required by a[36] over [120,143] in capacity 1
required by a[35] over [104,127] in capacity 1
required by a[34] over [376,410] in capacity 1
required by a[33] over [363,397] in capacity 1
required by a[32] over [351,385] in capacity 1
required by a[31] over [337,371] in capacity 1
required by a[30] over [324,358] in capacity 1
required by a[29] over [311,345] in capacity 1
required by a[28] over [298,332] in capacity 1
required by a[27] over [345,375] in capacity 1
required by a[26] over [289,319] in capacity 1
required by a[25] over [234,264] in capacity 1
required by a[24] over [764,804] in capacity 1
required by a[23] over [758,798] in capacity 1
required by a[22] over [747,787] in capacity 1
required by a[21] over [736,776] in capacity 1
required by a[20] over [725,765] in capacity 1
required by a[19] over [714,754] in capacity 1
required by a[18] over [703,743] in capacity 1
required by a[17] over [692,732] in capacity 1
required by a[16] over [681,721] in capacity 1
required by a[15] over [670,710] in capacity 1
required by a[14] over [659,699] in capacity 1
required by a[13] over [648,688] in capacity 1
required by a[12] over [637,677] in capacity 1
required by a[11] over [626,666] in capacity 1
required by a[10] over [595,628] in capacity 1
required by a[9] over [543,576] in capacity 1
required by a[8] over [491,524] in capacity 1
required by a[7] over [439,472] in capacity 1
required by a[6] over [280,303] in capacity 1
required by a[5] over [254,277] in capacity 1
required by a[4] over [228,251] in capacity 1
required by a[3] over [202,225] in capacity 1
required by a[2] over [176,199] in capacity 1
required by a[1] over [150,173] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[38] over [222,228] in
capacity 1
required by Carga[37] over [170,176] in
capacity 1
required by Carga[36] over [120,126] in
capacity 1
required by Carga[35] over [104,110] in
capacity 1
required by Carga[34] over [376,382] in
capacity 1
required by Carga[33] over [363,369] in
capacity 1
required by Carga[32] over [351,357] in
capacity 1



required by Carga[31] over [337,343] in capacity 1
required by Carga[30] over [324,330] in capacity 1
required by Carga[29] over [311,317] in capacity 1
required by Carga[28] over [298,304] in capacity 1
required by Carga[27] over [345,351] in capacity 1
required by Carga[26] over [289,295] in capacity 1
required by Carga[25] over [234,240] in capacity 1
required by Carga[24] over [764,770] in capacity 1
required by Carga[23] over [758,764] in capacity 1
required by Carga[22] over [747,753] in capacity 1
required by Carga[21] over [736,742] in capacity 1
required by Carga[20] over [725,731] in capacity 1
required by Carga[19] over [714,720] in capacity 1
required by Carga[18] over [703,709] in capacity 1
required by Carga[17] over [692,698] in capacity 1
required by Carga[16] over [681,687] in capacity 1
required by Carga[15] over [670,676] in capacity 1
required by Carga[14] over [659,665] in capacity 1
required by Carga[13] over [648,654] in capacity 1
required by Carga[12] over [637,643] in capacity 1
required by Carga[11] over [626,632] in capacity 1
required by Carga[10] over [595,601] in capacity 1
required by Carga[9] over [543,549] in capacity 1
required by Carga[8] over [491,497] in capacity 1
required by Carga[7] over [439,445] in capacity 1
required by Carga[6] over [280,286] in capacity 1
required by Carga[5] over [254,260] in capacity 1
required by Carga[4] over [228,234] in capacity 1

required by Carga[3] over [202,208] in capacity 1
required by Carga[2] over [176,182] in capacity 1
required by Carga[1] over [150,156] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0
Margen[24] = 5
Margen[25] = 1
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 1
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 5
Margen[38] = 0

Scheduling 16.3

Optimal Solution with Objective Value: 377

a[1] = [110 -- 32 --> 142]
a[2] = [227 -- 45 --> 272]
a[3] = [284 -- 45 --> 329]
a[4] = [129 -- 103 --> 232]
a[5] = [163 -- 103 --> 266]
a[6] = [107 -- 19 --> 126]
a[7] = [314 -- 40 --> 354]
a[8] = [328 -- 40 --> 368]



a[9] = [337 -- 40 --> 377]
a[10] = [12 -- 39 --> 51]
a[11] = [69 -- 39 --> 108]
a[12] = [232 -- 48 --> 280]
a[13] = [283 -- 48 --> 331]
a[14] = [329 -- 48 --> 377]
a[15] = [178 -- 16 --> 194]
a[16] = [200 -- 16 --> 216]
a[17] = [222 -- 16 --> 238]
a[18] = [39 -- 32 --> 71]
a[19] = [69 -- 32 --> 101]
a[20] = [99 -- 32 --> 131]
a[21] = [129 -- 32 --> 161]

Carga[1] = [110 -- 3 --> 113]
Carga[2] = [227 -- 3 --> 230]
Carga[3] = [284 -- 3 --> 287]
Carga[4] = [129 -- 3 --> 132]
Carga[5] = [163 -- 3 --> 166]
Carga[6] = [107 -- 3 --> 110]
Carga[7] = [314 -- 3 --> 317]
Carga[8] = [328 -- 3 --> 331]
Carga[9] = [337 -- 3 --> 340]
Carga[10] = [12 -- 3 --> 15]
Carga[11] = [69 -- 3 --> 72]
Carga[12] = [232 -- 3 --> 235]
Carga[13] = [283 -- 3 --> 286]
Carga[14] = [329 -- 3 --> 332]
Carga[15] = [178 -- 3 --> 181]
Carga[16] = [200 -- 3 --> 203]
Carga[17] = [222 -- 3 --> 225]
Carga[18] = [39 -- 3 --> 42]
Carga[19] = [69 -- 3 --> 72]
Carga[20] = [99 -- 3 --> 102]
Carga[21] = [129 -- 3 --> 132]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [354 -- 60 --> 414]
ParadaComida[4] = [360 -- 60 --> 420]
ParadaComida[5] = [360 -- 60 --> 420]
ParadaComida[6] = [368 -- 60 --> 428]

makespan = [377 -- 0 --> 377]
Truck = Discrete Resource
required by ParadaComida[6] over [368,428]
in capacity 1
required by ParadaComida[5] over [360,420]
in capacity 1
required by ParadaComida[4] over [360,420]
in capacity 1
required by ParadaComida[3] over [354,414]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1

required by a[21] over [129,161] in capacity 1
required by a[20] over [99,131] in capacity 1
required by a[19] over [69,101] in capacity 1
required by a[18] over [39,71] in capacity 1
required by a[17] over [222,238] in capacity 1
required by a[16] over [200,216] in capacity 1
required by a[15] over [178,194] in capacity 1
required by a[14] over [329,377] in capacity 1
required by a[13] over [283,331] in capacity 1
required by a[12] over [232,280] in capacity 1
required by a[11] over [69,108] in capacity 1
required by a[10] over [12,51] in capacity 1
required by a[9] over [337,377] in capacity 1
required by a[8] over [328,368] in capacity 1
required by a[7] over [314,354] in capacity 1
required by a[6] over [107,126] in capacity 1
required by a[5] over [163,266] in capacity 1
required by a[4] over [129,232] in capacity 1
required by a[3] over [284,329] in capacity 1
required by a[2] over [227,272] in capacity 1
required by a[1] over [110,142] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[21] over [129,132] in
capacity 1
required by Carga[20] over [99,102] in
capacity 1
required by Carga[19] over [69,72] in capacity
1
required by Carga[18] over [39,42] in capacity
1
required by Carga[17] over [222,225] in
capacity 1
required by Carga[16] over [200,203] in
capacity 1
required by Carga[15] over [178,181] in
capacity 1
required by Carga[14] over [329,332] in
capacity 1
required by Carga[13] over [283,286] in
capacity 1
required by Carga[12] over [232,235] in
capacity 1
required by Carga[11] over [69,72] in capacity
1
required by Carga[10] over [12,15] in capacity
1
required by Carga[9] over [337,340] in
capacity 1
required by Carga[8] over [328,331] in
capacity 1
required by Carga[7] over [314,317] in
capacity 1
required by Carga[6] over [107,110] in
capacity 1
required by Carga[5] over [163,166] in
capacity 1



required by Carga[4] over [129,132] in capacity 1
required by Carga[3] over [284,287] in capacity 1
required by Carga[2] over [227,230] in capacity 1
required by Carga[1] over [110,113] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 5
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 5
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0

Scheduling 17.1

Optimal Solution with Objective Value: 606

a[1] = [96 -- 45 --> 141]
a[2] = [129 -- 45 --> 174]
a[3] = [162 -- 45 --> 207]
a[4] = [451 -- 120 --> 571]
a[5] = [486 -- 120 --> 606]
a[6] = [349 -- 70 --> 419]
a[7] = [379 -- 70 --> 449]
a[8] = [409 -- 70 --> 479]
a[9] = [433 -- 91 --> 524]
a[10] = [258 -- 120 --> 378]
a[11] = [303 -- 120 --> 423]
a[12] = [511 -- 70 --> 581]
a[13] = [521 -- 70 --> 591]
a[14] = [530 -- 70 --> 600]
a[15] = [536 -- 70 --> 606]
a[16] = [490 -- 40 --> 530]
a[17] = [541 -- 40 --> 581]
a[18] = [204 -- 38 --> 242]
a[19] = [231 -- 38 --> 269]
a[20] = [258 -- 38 --> 296]
a[21] = [285 -- 38 --> 323]
a[22] = [312 -- 38 --> 350]
a[23] = [339 -- 38 --> 377]

a[24] = [366 -- 38 --> 404]
a[25] = [393 -- 38 --> 431]
a[26] = [420 -- 38 --> 458]
a[27] = [447 -- 38 --> 485]
a[28] = [474 -- 38 --> 512]
a[29] = [164 -- 34 --> 198]
a[30] = [194 -- 34 --> 228]
a[31] = [238 -- 61 --> 299]
a[32] = [292 -- 61 --> 353]
a[33] = [346 -- 61 --> 407]
a[34] = [200 -- 35 --> 235]
a[35] = [248 -- 35 --> 283]
a[36] = [296 -- 35 --> 331]
a[37] = [343 -- 35 --> 378]
a[38] = [221 -- 58 --> 279]

Carga[1] = [96 -- 6 --> 102]
Carga[2] = [129 -- 6 --> 135]
Carga[3] = [162 -- 6 --> 168]
Carga[4] = [451 -- 6 --> 457]
Carga[5] = [486 -- 6 --> 492]
Carga[6] = [349 -- 6 --> 355]
Carga[7] = [379 -- 6 --> 385]
Carga[8] = [409 -- 6 --> 415]
Carga[9] = [433 -- 6 --> 439]
Carga[10] = [258 -- 6 --> 264]
Carga[11] = [303 -- 6 --> 309]
Carga[12] = [511 -- 6 --> 517]
Carga[13] = [521 -- 6 --> 527]
Carga[14] = [530 -- 6 --> 536]
Carga[15] = [536 -- 6 --> 542]
Carga[16] = [490 -- 6 --> 496]
Carga[17] = [541 -- 6 --> 547]
Carga[18] = [204 -- 6 --> 210]
Carga[19] = [231 -- 6 --> 237]
Carga[20] = [258 -- 6 --> 264]
Carga[21] = [285 -- 6 --> 291]
Carga[22] = [312 -- 6 --> 318]
Carga[23] = [339 -- 6 --> 345]
Carga[24] = [366 -- 6 --> 372]
Carga[25] = [393 -- 6 --> 399]
Carga[26] = [420 -- 6 --> 426]
Carga[27] = [447 -- 6 --> 453]
Carga[28] = [474 -- 6 --> 480]
Carga[29] = [164 -- 6 --> 170]
Carga[30] = [194 -- 6 --> 200]
Carga[31] = [238 -- 6 --> 244]
Carga[32] = [292 -- 6 --> 298]
Carga[33] = [346 -- 6 --> 352]
Carga[34] = [200 -- 6 --> 206]
Carga[35] = [248 -- 6 --> 254]
Carga[36] = [296 -- 6 --> 302]
Carga[37] = [343 -- 6 --> 349]
Carga[38] = [221 -- 6 --> 227]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]



ParadaComida[3] = [350 -- 60 --> 410]
ParadaComida[4] = [353 -- 60 --> 413]
ParadaComida[5] = [360 -- 60 --> 420]
ParadaComida[6] = [377 -- 60 --> 437]
ParadaComida[7] = [404 -- 60 --> 464]
ParadaComida[8] = [410 -- 60 --> 470]
ParadaComida[9] = [413 -- 60 --> 473]
ParadaComida[10] = [419 -- 60 --> 479]

makespan = [606 -- 0 --> 606]
Truck = Discrete Resource
required by ParadaComida[10] over [419,479] in capacity 1
required by ParadaComida[9] over [413,473] in capacity 1
required by ParadaComida[8] over [410,470] in capacity 1
required by ParadaComida[7] over [404,464] in capacity 1
required by ParadaComida[6] over [377,437] in capacity 1
required by ParadaComida[5] over [360,420] in capacity 1
required by ParadaComida[4] over [353,413] in capacity 1
required by ParadaComida[3] over [350,410] in capacity 1
required by ParadaComida[2] over [300,360] in capacity 1
required by ParadaComida[1] over [300,360] in capacity 1
required by a[38] over [221,279] in capacity 1
required by a[37] over [343,378] in capacity 1
required by a[36] over [296,331] in capacity 1
required by a[35] over [248,283] in capacity 1
required by a[34] over [200,235] in capacity 1
required by a[33] over [346,407] in capacity 1
required by a[32] over [292,353] in capacity 1
required by a[31] over [238,299] in capacity 1
required by a[30] over [194,228] in capacity 1
required by a[29] over [164,198] in capacity 1
required by a[28] over [474,512] in capacity 1
required by a[27] over [447,485] in capacity 1
required by a[26] over [420,458] in capacity 1
required by a[25] over [393,431] in capacity 1
required by a[24] over [366,404] in capacity 1
required by a[23] over [339,377] in capacity 1
required by a[22] over [312,350] in capacity 1
required by a[21] over [285,323] in capacity 1
required by a[20] over [258,296] in capacity 1
required by a[19] over [231,269] in capacity 1
required by a[18] over [204,242] in capacity 1
required by a[17] over [541,581] in capacity 1
required by a[16] over [490,530] in capacity 1
required by a[15] over [536,606] in capacity 1
required by a[14] over [530,600] in capacity 1
required by a[13] over [521,591] in capacity 1

required by a[12] over [511,581] in capacity 1
required by a[11] over [303,423] in capacity 1
required by a[10] over [258,378] in capacity 1
required by a[9] over [433,524] in capacity 1
required by a[8] over [409,479] in capacity 1
required by a[7] over [379,449] in capacity 1
required by a[6] over [349,419] in capacity 1
required by a[5] over [486,606] in capacity 1
required by a[4] over [451,571] in capacity 1
required by a[3] over [162,207] in capacity 1
required by a[2] over [129,174] in capacity 1
required by a[1] over [96,141] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[38] over [221,227] in capacity 1
required by Carga[37] over [343,349] in capacity 1
required by Carga[36] over [296,302] in capacity 1
required by Carga[35] over [248,254] in capacity 1
required by Carga[34] over [200,206] in capacity 1
required by Carga[33] over [346,352] in capacity 1
required by Carga[32] over [292,298] in capacity 1
required by Carga[31] over [238,244] in capacity 1
required by Carga[30] over [194,200] in capacity 1
required by Carga[29] over [164,170] in capacity 1
required by Carga[28] over [474,480] in capacity 1
required by Carga[27] over [447,453] in capacity 1
required by Carga[26] over [420,426] in capacity 1
required by Carga[25] over [393,399] in capacity 1
required by Carga[24] over [366,372] in capacity 1
required by Carga[23] over [339,345] in capacity 1
required by Carga[22] over [312,318] in capacity 1
required by Carga[21] over [285,291] in capacity 1
required by Carga[20] over [258,264] in capacity 1
required by Carga[19] over [231,237] in capacity 1
required by Carga[18] over [204,210] in capacity 1



required by Carga[17] over [541,547] in capacity 1
required by Carga[16] over [490,496] in capacity 1
required by Carga[15] over [536,542] in capacity 1
required by Carga[14] over [530,536] in capacity 1
required by Carga[13] over [521,527] in capacity 1
required by Carga[12] over [511,517] in capacity 1
required by Carga[11] over [303,309] in capacity 1
required by Carga[10] over [258,264] in capacity 1
required by Carga[9] over [433,439] in capacity 1
required by Carga[8] over [409,415] in capacity 1
required by Carga[7] over [379,385] in capacity 1
required by Carga[6] over [349,355] in capacity 1
required by Carga[5] over [486,492] in capacity 1
required by Carga[4] over [451,457] in capacity 1
required by Carga[3] over [162,168] in capacity 1
required by Carga[2] over [129,135] in capacity 1
required by Carga[1] over [96,102] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 1
Margen[15] = 5
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0

Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 1
Margen[38] = 0

Scheduling 17.2

Optimal Solution with Objective Value: 302

a[1] = [196 -- 33 --> 229]
a[2] = [232 -- 33 --> 265]
a[3] = [267 -- 33 --> 300]
a[4] = [202 -- 43 --> 245]
a[5] = [151 -- 57 --> 208]
a[6] = [208 -- 57 --> 265]
a[7] = [245 -- 57 --> 302]
a[8] = [109 -- 31 --> 140]
a[9] = [140 -- 31 --> 171]
a[10] = [171 -- 31 --> 202]

Carga[1] = [196 -- 6 --> 202]
Carga[2] = [232 -- 6 --> 238]
Carga[3] = [267 -- 6 --> 273]
Carga[4] = [202 -- 6 --> 208]
Carga[5] = [151 -- 6 --> 157]
Carga[6] = [208 -- 6 --> 214]
Carga[7] = [245 -- 6 --> 251]
Carga[8] = [109 -- 6 --> 115]
Carga[9] = [140 -- 6 --> 146]
Carga[10] = [171 -- 6 --> 177]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [302 -- 60 --> 362]

makespan = [302 -- 0 --> 302]

Truck = Discrete Resource

required by ParadaComida[3] over [302,362] in capacity 1

required by ParadaComida[2] over [300,360] in capacity 1

required by ParadaComida[1] over [300,360] in capacity 1

required by a[10] over [171,202] in capacity 1

required by a[9] over [140,171] in capacity 1

required by a[8] over [109,140] in capacity 1



required by a[7] over [245,302] in capacity 1
 required by a[6] over [208,265] in capacity 1
 required by a[5] over [151,208] in capacity 1
 required by a[4] over [202,245] in capacity 1
 required by a[3] over [267,300] in capacity 1
 required by a[2] over [232,265] in capacity 1
 required by a[1] over [196,229] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[10] over [171,177] in capacity 1
 required by Carga[9] over [140,146] in capacity 1
 required by Carga[8] over [109,115] in capacity 1
 required by Carga[7] over [245,251] in capacity 1
 required by Carga[6] over [208,214] in capacity 1
 required by Carga[5] over [151,157] in capacity 1
 required by Carga[4] over [202,208] in capacity 1
 required by Carga[3] over [267,273] in capacity 1
 required by Carga[2] over [232,238] in capacity 1
 required by Carga[1] over [196,202] in capacity 1

Margen[1] = 1
 Margen[2] = 0
 Margen[3] = 0
 Margen[4] = 9
 Margen[5] = 9
 Margen[6] = 3
 Margen[7] = 5
 Margen[8] = 0
 Margen[9] = 0
 Margen[10] = 0

Scheduling 17.3

Optimal Solution with Objective Value: 654

a[1] = [496 -- 16 --> 512]
 a[2] = [542 -- 16 --> 558]
 a[3] = [531 -- 24 --> 555]
 a[4] = [575 -- 24 --> 599]
 a[5] = [619 -- 24 --> 643]
 a[6] = [191 -- 37 --> 228]
 a[7] = [206 -- 37 --> 243]
 a[8] = [221 -- 37 --> 258]
 a[9] = [236 -- 37 --> 273]
 a[10] = [251 -- 37 --> 288]
 a[11] = [266 -- 37 --> 303]
 a[12] = [281 -- 37 --> 318]
 a[13] = [296 -- 37 --> 333]

a[14] = [311 -- 37 --> 348]
 a[15] = [326 -- 37 --> 363]
 a[16] = [341 -- 37 --> 378]
 a[17] = [356 -- 37 --> 393]
 a[18] = [371 -- 37 --> 408]
 a[19] = [255 -- 42 --> 297]
 a[20] = [280 -- 42 --> 322]
 a[21] = [387 -- 43 --> 430]
 a[22] = [407 -- 43 --> 450]
 a[23] = [510 -- 35 --> 545]
 a[24] = [527 -- 35 --> 562]
 a[25] = [172 -- 45 --> 217]
 a[26] = [192 -- 45 --> 237]
 a[27] = [303 -- 35 --> 338]
 a[28] = [324 -- 35 --> 359]
 a[29] = [345 -- 35 --> 380]
 a[30] = [366 -- 35 --> 401]
 a[31] = [387 -- 35 --> 422]
 a[32] = [408 -- 35 --> 443]
 a[33] = [429 -- 35 --> 464]
 a[34] = [450 -- 35 --> 485]
 a[35] = [471 -- 35 --> 506]
 a[36] = [492 -- 35 --> 527]
 a[37] = [513 -- 35 --> 548]
 a[38] = [0 -- 31 --> 31]
 a[39] = [56 -- 31 --> 87]
 a[40] = [105 -- 31 --> 136]
 a[41] = [543 -- 50 --> 593]
 a[42] = [554 -- 50 --> 604]
 a[43] = [565 -- 50 --> 615]
 a[44] = [576 -- 50 --> 626]
 a[45] = [460 -- 29 --> 489]
 a[46] = [498 -- 29 --> 527]
 a[47] = [557 -- 79 --> 636]
 a[48] = [560 -- 79 --> 639]
 a[49] = [267 -- 50 --> 317]
 a[50] = [310 -- 50 --> 360]
 a[51] = [264 -- 37 --> 301]
 a[52] = [23 -- 27 --> 50]
 a[53] = [59 -- 27 --> 86]
 a[54] = [95 -- 27 --> 122]
 a[55] = [131 -- 27 --> 158]
 a[56] = [229 -- 39 --> 268]
 a[57] = [284 -- 39 --> 323]
 a[58] = [339 -- 39 --> 378]
 a[59] = [93 -- 50 --> 143]
 a[60] = [36 -- 47 --> 83]
 a[61] = [57 -- 47 --> 104]
 a[62] = [78 -- 47 --> 125]
 a[63] = [99 -- 47 --> 146]
 a[64] = [120 -- 47 --> 167]
 a[65] = [141 -- 47 --> 188]
 a[66] = [162 -- 47 --> 209]
 a[67] = [183 -- 47 --> 230]
 a[68] = [204 -- 47 --> 251]
 a[69] = [225 -- 47 --> 272]
 a[70] = [246 -- 47 --> 293]



a[71] = [269 -- 47 --> 316]
a[72] = [288 -- 47 --> 335]
a[73] = [308 -- 47 --> 355]
a[74] = [47 -- 55 --> 102]
a[75] = [64 -- 55 --> 119]
a[76] = [493 -- 19 --> 512]
a[77] = [183 -- 31 --> 214]
a[78] = [208 -- 31 --> 239]
a[79] = [233 -- 31 --> 264]
a[80] = [527 -- 24 --> 551]
a[81] = [581 -- 24 --> 605]
a[82] = [630 -- 24 --> 654]
a[83] = [18 -- 32 --> 50]
a[84] = [32 -- 32 --> 64]
a[85] = [46 -- 32 --> 78]
a[86] = [92 -- 29 --> 121]

Carga[1] = [496 -- 3 --> 499]
Carga[2] = [542 -- 3 --> 545]
Carga[3] = [531 -- 3 --> 534]
Carga[4] = [575 -- 3 --> 578]
Carga[5] = [619 -- 3 --> 622]
Carga[6] = [191 -- 3 --> 194]
Carga[7] = [206 -- 3 --> 209]
Carga[8] = [221 -- 3 --> 224]
Carga[9] = [236 -- 3 --> 239]
Carga[10] = [251 -- 3 --> 254]
Carga[11] = [266 -- 3 --> 269]
Carga[12] = [281 -- 3 --> 284]
Carga[13] = [296 -- 3 --> 299]
Carga[14] = [311 -- 3 --> 314]
Carga[15] = [326 -- 3 --> 329]
Carga[16] = [341 -- 3 --> 344]
Carga[17] = [356 -- 3 --> 359]
Carga[18] = [371 -- 3 --> 374]
Carga[19] = [255 -- 3 --> 258]
Carga[20] = [280 -- 3 --> 283]
Carga[21] = [387 -- 3 --> 390]
Carga[22] = [407 -- 3 --> 410]
Carga[23] = [510 -- 3 --> 513]
Carga[24] = [527 -- 3 --> 530]
Carga[25] = [172 -- 3 --> 175]
Carga[26] = [192 -- 3 --> 195]
Carga[27] = [303 -- 3 --> 306]
Carga[28] = [324 -- 3 --> 327]
Carga[29] = [345 -- 3 --> 348]
Carga[30] = [366 -- 3 --> 369]
Carga[31] = [387 -- 3 --> 390]
Carga[32] = [408 -- 3 --> 411]
Carga[33] = [429 -- 3 --> 432]
Carga[34] = [450 -- 3 --> 453]
Carga[35] = [471 -- 3 --> 474]
Carga[36] = [492 -- 3 --> 495]
Carga[37] = [513 -- 3 --> 516]
Carga[38] = [0 -- 3 --> 3]
Carga[39] = [56 -- 3 --> 59]
Carga[40] = [105 -- 3 --> 108]

Carga[41] = [543 -- 3 --> 546]
Carga[42] = [554 -- 3 --> 557]
Carga[43] = [565 -- 3 --> 568]
Carga[44] = [576 -- 3 --> 579]
Carga[45] = [460 -- 3 --> 463]
Carga[46] = [498 -- 3 --> 501]
Carga[47] = [557 -- 3 --> 560]
Carga[48] = [560 -- 3 --> 563]
Carga[49] = [267 -- 3 --> 270]
Carga[50] = [310 -- 3 --> 313]
Carga[51] = [264 -- 3 --> 267]
Carga[52] = [23 -- 3 --> 26]
Carga[53] = [59 -- 3 --> 62]
Carga[54] = [95 -- 3 --> 98]
Carga[55] = [131 -- 3 --> 134]
Carga[56] = [229 -- 3 --> 232]
Carga[57] = [284 -- 3 --> 287]
Carga[58] = [339 -- 3 --> 342]
Carga[59] = [93 -- 3 --> 96]
Carga[60] = [36 -- 3 --> 39]
Carga[61] = [57 -- 3 --> 60]
Carga[62] = [78 -- 3 --> 81]
Carga[63] = [99 -- 3 --> 102]
Carga[64] = [120 -- 3 --> 123]
Carga[65] = [141 -- 3 --> 144]
Carga[66] = [162 -- 3 --> 165]
Carga[67] = [183 -- 3 --> 186]
Carga[68] = [204 -- 3 --> 207]
Carga[69] = [225 -- 3 --> 228]
Carga[70] = [246 -- 3 --> 249]
Carga[71] = [269 -- 3 --> 272]
Carga[72] = [288 -- 3 --> 291]
Carga[73] = [308 -- 3 --> 311]
Carga[74] = [47 -- 3 --> 50]
Carga[75] = [64 -- 3 --> 67]
Carga[76] = [493 -- 3 --> 496]
Carga[77] = [183 -- 3 --> 186]
Carga[78] = [208 -- 3 --> 211]
Carga[79] = [233 -- 3 --> 236]
Carga[80] = [527 -- 3 --> 530]
Carga[81] = [581 -- 3 --> 584]
Carga[82] = [630 -- 3 --> 633]
Carga[83] = [18 -- 3 --> 21]
Carga[84] = [32 -- 3 --> 35]
Carga[85] = [46 -- 3 --> 49]
Carga[86] = [92 -- 3 --> 95]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [300 -- 60 --> 360]
ParadaComida[9] = [300 -- 60 --> 360]
ParadaComida[10] = [300 -- 60 --> 360]



ParadaComida[11] = [300 -- 60 --> 360]
ParadaComida[12] = [316 -- 60 --> 376]
ParadaComida[13] = [317 -- 60 --> 377]
ParadaComida[14] = [318 -- 60 --> 378]
ParadaComida[15] = [348 -- 60 --> 408]
ParadaComida[16] = [359 -- 60 --> 419]
ParadaComida[17] = [360 -- 60 --> 420]
ParadaComida[18] = [360 -- 60 --> 420]
ParadaComida[19] = [360 -- 60 --> 420]
ParadaComida[20] = [360 -- 60 --> 420]
ParadaComida[21] = [360 -- 60 --> 420]
ParadaComida[22] = [360 -- 60 --> 420]

makespan = [654 -- 0 --> 654]

Truck = Discrete Resource

required by ParadaComida[22] over [360,420]
in capacity 1
required by ParadaComida[21] over [360,420]
in capacity 1
required by ParadaComida[20] over [360,420]
in capacity 1
required by ParadaComida[19] over [360,420]
in capacity 1
required by ParadaComida[18] over [360,420]
in capacity 1
required by ParadaComida[17] over [360,420]
in capacity 1
required by ParadaComida[16] over [359,419]
in capacity 1
required by ParadaComida[15] over [348,408]
in capacity 1
required by ParadaComida[14] over [318,378]
in capacity 1
required by ParadaComida[13] over [317,377]
in capacity 1
required by ParadaComida[12] over [316,376]
in capacity 1
required by ParadaComida[11] over [300,360]
in capacity 1
required by ParadaComida[10] over [300,360]
in capacity 1
required by ParadaComida[9] over [300,360]
in capacity 1
required by ParadaComida[8] over [300,360]
in capacity 1
required by ParadaComida[7] over [300,360]
in capacity 1
required by ParadaComida[6] over [300,360]
in capacity 1
required by ParadaComida[5] over [300,360]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1

required by ParadaComida[1] over [300,360]
in capacity 1
required by a[86] over [92,121] in capacity 1
required by a[85] over [46,78] in capacity 1
required by a[84] over [32,64] in capacity 1
required by a[83] over [18,50] in capacity 1
required by a[82] over [630,654] in capacity 1
required by a[81] over [581,605] in capacity 1
required by a[80] over [527,551] in capacity 1
required by a[79] over [233,264] in capacity 1
required by a[78] over [208,239] in capacity 1
required by a[77] over [183,214] in capacity 1
required by a[76] over [493,512] in capacity 1
required by a[75] over [64,119] in capacity 1
required by a[74] over [47,102] in capacity 1
required by a[73] over [308,355] in capacity 1
required by a[72] over [288,335] in capacity 1
required by a[71] over [269,316] in capacity 1
required by a[70] over [246,293] in capacity 1
required by a[69] over [225,272] in capacity 1
required by a[68] over [204,251] in capacity 1
required by a[67] over [183,230] in capacity 1
required by a[66] over [162,209] in capacity 1
required by a[65] over [141,188] in capacity 1
required by a[64] over [120,167] in capacity 1
required by a[63] over [99,146] in capacity 1
required by a[62] over [78,125] in capacity 1
required by a[61] over [57,104] in capacity 1
required by a[60] over [36,83] in capacity 1
required by a[59] over [93,143] in capacity 1
required by a[58] over [339,378] in capacity 1
required by a[57] over [284,323] in capacity 1
required by a[56] over [229,268] in capacity 1
required by a[55] over [131,158] in capacity 1
required by a[54] over [95,122] in capacity 1
required by a[53] over [59,86] in capacity 1
required by a[52] over [23,50] in capacity 1
required by a[51] over [264,301] in capacity 1
required by a[50] over [310,360] in capacity 1
required by a[49] over [267,317] in capacity 1
required by a[48] over [560,639] in capacity 1
required by a[47] over [557,636] in capacity 1
required by a[46] over [498,527] in capacity 1
required by a[45] over [460,489] in capacity 1
required by a[44] over [576,626] in capacity 1
required by a[43] over [565,615] in capacity 1
required by a[42] over [554,604] in capacity 1
required by a[41] over [543,593] in capacity 1
required by a[40] over [105,136] in capacity 1
required by a[39] over [56,87] in capacity 1
required by a[38] over [0,31] in capacity 1
required by a[37] over [513,548] in capacity 1
required by a[36] over [492,527] in capacity 1
required by a[35] over [471,506] in capacity 1
required by a[34] over [450,485] in capacity 1
required by a[33] over [429,464] in capacity 1
required by a[32] over [408,443] in capacity 1



required by a[31] over [387,422] in capacity 1
required by a[30] over [366,401] in capacity 1
required by a[29] over [345,380] in capacity 1
required by a[28] over [324,359] in capacity 1
required by a[27] over [303,338] in capacity 1
required by a[26] over [192,237] in capacity 1
required by a[25] over [172,217] in capacity 1
required by a[24] over [527,562] in capacity 1
required by a[23] over [510,545] in capacity 1
required by a[22] over [407,450] in capacity 1
required by a[21] over [387,430] in capacity 1
required by a[20] over [280,322] in capacity 1
required by a[19] over [255,297] in capacity 1
required by a[18] over [371,408] in capacity 1
required by a[17] over [356,393] in capacity 1
required by a[16] over [341,378] in capacity 1
required by a[15] over [326,363] in capacity 1
required by a[14] over [311,348] in capacity 1
required by a[13] over [296,333] in capacity 1
required by a[12] over [281,318] in capacity 1
required by a[11] over [266,303] in capacity 1
required by a[10] over [251,288] in capacity 1
required by a[9] over [236,273] in capacity 1
required by a[8] over [221,258] in capacity 1
required by a[7] over [206,243] in capacity 1
required by a[6] over [191,228] in capacity 1
required by a[5] over [619,643] in capacity 1
required by a[4] over [575,599] in capacity 1
required by a[3] over [531,555] in capacity 1
required by a[2] over [542,558] in capacity 1
required by a[1] over [496,512] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[86] over [92,95] in capacity 1
required by Carga[85] over [46,49] in capacity 1
required by Carga[84] over [32,35] in capacity 1
required by Carga[83] over [18,21] in capacity 1
required by Carga[82] over [630,633] in capacity 1
required by Carga[81] over [581,584] in capacity 1
required by Carga[80] over [527,530] in capacity 1
required by Carga[79] over [233,236] in capacity 1
required by Carga[78] over [208,211] in capacity 1
required by Carga[77] over [183,186] in capacity 1
required by Carga[76] over [493,496] in capacity 1
required by Carga[75] over [64,67] in capacity 1

required by Carga[74] over [47,50] in capacity 1
required by Carga[73] over [308,311] in capacity 1
required by Carga[72] over [288,291] in capacity 1
required by Carga[71] over [269,272] in capacity 1
required by Carga[70] over [246,249] in capacity 1
required by Carga[69] over [225,228] in capacity 1
required by Carga[68] over [204,207] in capacity 1
required by Carga[67] over [183,186] in capacity 1
required by Carga[66] over [162,165] in capacity 1
required by Carga[65] over [141,144] in capacity 1
required by Carga[64] over [120,123] in capacity 1
required by Carga[63] over [99,102] in capacity 1
required by Carga[62] over [78,81] in capacity 1
required by Carga[61] over [57,60] in capacity 1
required by Carga[60] over [36,39] in capacity 1
required by Carga[59] over [93,96] in capacity 1
required by Carga[58] over [339,342] in capacity 1
required by Carga[57] over [284,287] in capacity 1
required by Carga[56] over [229,232] in capacity 1
required by Carga[55] over [131,134] in capacity 1
required by Carga[54] over [95,98] in capacity 1
required by Carga[53] over [59,62] in capacity 1
required by Carga[52] over [23,26] in capacity 1
required by Carga[51] over [264,267] in capacity 1
required by Carga[50] over [310,313] in capacity 1
required by Carga[49] over [267,270] in capacity 1
required by Carga[48] over [560,563] in capacity 1
required by Carga[47] over [557,560] in capacity 1



required by Carga[46] over [498,501] in capacity 1
required by Carga[45] over [460,463] in capacity 1
required by Carga[44] over [576,579] in capacity 1
required by Carga[43] over [565,568] in capacity 1
required by Carga[42] over [554,557] in capacity 1
required by Carga[41] over [543,546] in capacity 1
required by Carga[40] over [105,108] in capacity 1
required by Carga[39] over [56,59] in capacity 1
required by Carga[38] over [0,3] in capacity 1
required by Carga[37] over [513,516] in capacity 1
required by Carga[36] over [492,495] in capacity 1
required by Carga[35] over [471,474] in capacity 1
required by Carga[34] over [450,453] in capacity 1
required by Carga[33] over [429,432] in capacity 1
required by Carga[32] over [408,411] in capacity 1
required by Carga[31] over [387,390] in capacity 1
required by Carga[30] over [366,369] in capacity 1
required by Carga[29] over [345,348] in capacity 1
required by Carga[28] over [324,327] in capacity 1
required by Carga[27] over [303,306] in capacity 1
required by Carga[26] over [192,195] in capacity 1
required by Carga[25] over [172,175] in capacity 1
required by Carga[24] over [527,530] in capacity 1
required by Carga[23] over [510,513] in capacity 1
required by Carga[22] over [407,410] in capacity 1
required by Carga[21] over [387,390] in capacity 1
required by Carga[20] over [280,283] in capacity 1
required by Carga[19] over [255,258] in capacity 1
required by Carga[18] over [371,374] in capacity 1

required by Carga[17] over [356,359] in capacity 1
required by Carga[16] over [341,344] in capacity 1
required by Carga[15] over [326,329] in capacity 1
required by Carga[14] over [311,314] in capacity 1
required by Carga[13] over [296,299] in capacity 1
required by Carga[12] over [281,284] in capacity 1
required by Carga[11] over [266,269] in capacity 1
required by Carga[10] over [251,254] in capacity 1
required by Carga[9] over [236,239] in capacity 1
required by Carga[8] over [221,224] in capacity 1
required by Carga[7] over [206,209] in capacity 1
required by Carga[6] over [191,194] in capacity 1
required by Carga[5] over [619,622] in capacity 1
required by Carga[4] over [575,578] in capacity 1
required by Carga[3] over [531,534] in capacity 1
required by Carga[2] over [542,545] in capacity 1
required by Carga[1] over [496,499] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0



Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 0
Margen[38] = 7
Margen[39] = 0
Margen[40] = 0
Margen[41] = 0
Margen[42] = 0
Margen[43] = 0
Margen[44] = 0
Margen[45] = 0
Margen[46] = 0
Margen[47] = 0
Margen[48] = 3
Margen[49] = 0
Margen[50] = 0
Margen[51] = 0
Margen[52] = 0
Margen[53] = 0
Margen[54] = 0
Margen[55] = 0
Margen[56] = 0
Margen[57] = 0
Margen[58] = 0
Margen[59] = 0
Margen[60] = 0
Margen[61] = 0
Margen[62] = 0
Margen[63] = 0
Margen[64] = 0
Margen[65] = 0
Margen[66] = 0
Margen[67] = 0
Margen[68] = 0
Margen[69] = 0
Margen[70] = 0
Margen[71] = 2
Margen[72] = 0
Margen[73] = 1
Margen[74] = 0
Margen[75] = 0
Margen[76] = 0
Margen[77] = 0
Margen[78] = 0
Margen[79] = 0

Margen[80] = 0
Margen[81] = 0
Margen[82] = 5
Margen[83] = 0
Margen[84] = 0
Margen[85] = 0
Margen[86] = 2

Scheduling 18.1

Optimal Solution with Objective Value: 643

a[1] = [17 -- 45 --> 62]
a[2] = [140 -- 90 --> 230]
a[3] = [152 -- 90 --> 242]
a[4] = [164 -- 90 --> 254]
a[5] = [176 -- 90 --> 266]
a[6] = [188 -- 90 --> 278]
a[7] = [200 -- 90 --> 290]
a[8] = [212 -- 90 --> 302]
a[9] = [224 -- 90 --> 314]
a[10] = [143 -- 27 --> 170]
a[11] = [159 -- 27 --> 186]
a[12] = [175 -- 27 --> 202]
a[13] = [191 -- 27 --> 218]
a[14] = [207 -- 27 --> 234]
a[15] = [223 -- 27 --> 250]
a[16] = [239 -- 27 --> 266]
a[17] = [255 -- 27 --> 282]
a[18] = [271 -- 27 --> 298]
a[19] = [287 -- 27 --> 314]
a[20] = [303 -- 27 --> 330]
a[21] = [319 -- 27 --> 346]
a[22] = [335 -- 27 --> 362]
a[23] = [0 -- 54 --> 54]
a[24] = [21 -- 54 --> 75]
a[25] = [37 -- 54 --> 91]
a[26] = [53 -- 54 --> 107]
a[27] = [69 -- 54 --> 123]
a[28] = [85 -- 54 --> 139]
a[29] = [101 -- 54 --> 155]
a[30] = [117 -- 54 --> 171]
a[31] = [133 -- 54 --> 187]
a[32] = [149 -- 54 --> 203]
a[33] = [165 -- 54 --> 219]
a[34] = [343 -- 99 --> 442]
a[35] = [389 -- 99 --> 488]
a[36] = [435 -- 99 --> 534]
a[37] = [443 -- 51 --> 494]
a[38] = [475 -- 51 --> 526]
a[39] = [507 -- 51 --> 558]
a[40] = [539 -- 51 --> 590]
a[41] = [29 -- 42 --> 71]
a[42] = [83 -- 42 --> 125]
a[43] = [137 -- 42 --> 179]
a[44] = [229 -- 42 --> 271]
a[45] = [242 -- 42 --> 284]
a[46] = [260 -- 42 --> 302]



a[47] = [535 -- 46 --> 581]
a[48] = [551 -- 46 --> 597]
a[49] = [245 -- 48 --> 293]
a[50] = [271 -- 48 --> 319]
a[51] = [300 -- 48 --> 348]
a[52] = [329 -- 48 --> 377]
a[53] = [358 -- 48 --> 406]
a[54] = [387 -- 48 --> 435]
a[55] = [79 -- 109 --> 188]
a[56] = [125 -- 109 --> 234]
a[57] = [23 -- 40 --> 63]
a[58] = [158 -- 40 --> 198]
a[59] = [194 -- 40 --> 234]
a[60] = [230 -- 40 --> 270]
a[61] = [254 -- 40 --> 294]
a[62] = [346 -- 35 --> 381]
a[63] = [380 -- 35 --> 415]
a[64] = [77 -- 43 --> 120]
a[65] = [117 -- 43 --> 160]
a[66] = [206 -- 32 --> 238]
a[67] = [249 -- 32 --> 281]
a[68] = [383 -- 32 --> 415]
a[69] = [443 -- 32 --> 475]
a[70] = [545 -- 35 --> 580]
a[71] = [579 -- 35 --> 614]
a[72] = [608 -- 35 --> 643]
a[73] = [310 -- 19 --> 329]
a[74] = [367 -- 19 --> 386]
a[75] = [424 -- 19 --> 443]
a[76] = [393 -- 32 --> 425]
a[77] = [412 -- 32 --> 444]
a[78] = [437 -- 32 --> 469]
a[79] = [213 -- 32 --> 245]
a[80] = [236 -- 32 --> 268]
a[81] = [265 -- 32 --> 297]
a[82] = [296 -- 32 --> 328]
a[83] = [324 -- 32 --> 356]
a[84] = [352 -- 32 --> 384]
a[85] = [377 -- 32 --> 409]
a[86] = [408 -- 32 --> 440]
a[87] = [431 -- 32 --> 463]
a[88] = [464 -- 32 --> 496]
a[89] = [492 -- 32 --> 524]
a[90] = [520 -- 32 --> 552]
a[91] = [548 -- 32 --> 580]
a[92] = [312 -- 38 --> 350]
a[93] = [340 -- 38 --> 378]

Carga[1] = [17 -- 6 --> 23]
Carga[2] = [140 -- 6 --> 146]
Carga[3] = [152 -- 6 --> 158]
Carga[4] = [164 -- 6 --> 170]
Carga[5] = [176 -- 6 --> 182]
Carga[6] = [188 -- 6 --> 194]
Carga[7] = [200 -- 6 --> 206]
Carga[8] = [212 -- 6 --> 218]
Carga[9] = [224 -- 6 --> 230]

Carga[10] = [143 -- 6 --> 149]
Carga[11] = [159 -- 6 --> 165]
Carga[12] = [175 -- 6 --> 181]
Carga[13] = [191 -- 6 --> 197]
Carga[14] = [207 -- 6 --> 213]
Carga[15] = [223 -- 6 --> 229]
Carga[16] = [239 -- 6 --> 245]
Carga[17] = [255 -- 6 --> 261]
Carga[18] = [271 -- 6 --> 277]
Carga[19] = [287 -- 6 --> 293]
Carga[20] = [303 -- 6 --> 309]
Carga[21] = [319 -- 6 --> 325]
Carga[22] = [335 -- 6 --> 341]
Carga[23] = [0 -- 6 --> 6]
Carga[24] = [21 -- 6 --> 27]
Carga[25] = [37 -- 6 --> 43]
Carga[26] = [53 -- 6 --> 59]
Carga[27] = [69 -- 6 --> 75]
Carga[28] = [85 -- 6 --> 91]
Carga[29] = [101 -- 6 --> 107]
Carga[30] = [117 -- 6 --> 123]
Carga[31] = [133 -- 6 --> 139]
Carga[32] = [149 -- 6 --> 155]
Carga[33] = [165 -- 6 --> 171]
Carga[34] = [343 -- 6 --> 349]
Carga[35] = [389 -- 6 --> 395]
Carga[36] = [435 -- 6 --> 441]
Carga[37] = [443 -- 6 --> 449]
Carga[38] = [475 -- 6 --> 481]
Carga[39] = [507 -- 6 --> 513]
Carga[40] = [539 -- 6 --> 545]
Carga[41] = [29 -- 6 --> 35]
Carga[42] = [83 -- 6 --> 89]
Carga[43] = [137 -- 6 --> 143]
Carga[44] = [229 -- 6 --> 235]
Carga[45] = [242 -- 6 --> 248]
Carga[46] = [260 -- 6 --> 266]
Carga[47] = [535 -- 6 --> 541]
Carga[48] = [551 -- 6 --> 557]
Carga[49] = [245 -- 6 --> 251]
Carga[50] = [271 -- 6 --> 277]
Carga[51] = [300 -- 6 --> 306]
Carga[52] = [329 -- 6 --> 335]
Carga[53] = [358 -- 6 --> 364]
Carga[54] = [387 -- 6 --> 393]
Carga[55] = [79 -- 6 --> 85]
Carga[56] = [125 -- 6 --> 131]
Carga[57] = [23 -- 6 --> 29]
Carga[58] = [158 -- 6 --> 164]
Carga[59] = [194 -- 6 --> 200]
Carga[60] = [230 -- 6 --> 236]
Carga[61] = [254 -- 6 --> 260]
Carga[62] = [346 -- 6 --> 352]
Carga[63] = [380 -- 6 --> 386]
Carga[64] = [77 -- 6 --> 83]
Carga[65] = [117 -- 6 --> 123]
Carga[66] = [206 -- 6 --> 212]



Carga[67] = [249 -- 6 --> 255]
Carga[68] = [383 -- 6 --> 389]
Carga[69] = [443 -- 6 --> 449]
Carga[70] = [545 -- 6 --> 551]
Carga[71] = [579 -- 6 --> 585]
Carga[72] = [608 -- 6 --> 614]
Carga[73] = [310 -- 6 --> 316]
Carga[74] = [367 -- 6 --> 373]
Carga[75] = [424 -- 6 --> 430]
Carga[76] = [393 -- 6 --> 399]
Carga[77] = [412 -- 6 --> 418]
Carga[78] = [437 -- 6 --> 443]
Carga[79] = [213 -- 6 --> 219]
Carga[80] = [236 -- 6 --> 242]
Carga[81] = [265 -- 6 --> 271]
Carga[82] = [296 -- 6 --> 302]
Carga[83] = [324 -- 6 --> 330]
Carga[84] = [352 -- 6 --> 358]
Carga[85] = [377 -- 6 --> 383]
Carga[86] = [408 -- 6 --> 414]
Carga[87] = [431 -- 6 --> 437]
Carga[88] = [464 -- 6 --> 470]
Carga[89] = [492 -- 6 --> 498]
Carga[90] = [520 -- 6 --> 526]
Carga[91] = [548 -- 6 --> 554]
Carga[92] = [312 -- 6 --> 318]
Carga[93] = [340 -- 6 --> 346]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [300 -- 60 --> 360]
ParadaComida[9] = [300 -- 60 --> 360]
ParadaComida[10] = [300 -- 60 --> 360]
ParadaComida[11] = [300 -- 60 --> 360]
ParadaComida[12] = [300 -- 60 --> 360]
ParadaComida[13] = [300 -- 60 --> 360]
ParadaComida[14] = [300 -- 60 --> 360]
ParadaComida[15] = [300 -- 60 --> 360]
ParadaComida[16] = [300 -- 60 --> 360]
ParadaComida[17] = [348 -- 60 --> 408]
ParadaComida[18] = [360 -- 60 --> 420]
ParadaComida[19] = [360 -- 60 --> 420]
ParadaComida[20] = [360 -- 60 --> 420]
ParadaComida[21] = [360 -- 60 --> 420]
ParadaComida[22] = [360 -- 60 --> 420]
ParadaComida[23] = [360 -- 60 --> 420]
ParadaComida[24] = [360 -- 60 --> 420]

makespan = [643 -- 0 --> 643]
Truck = Discrete Resource
required by ParadaComida[24] over [360,420]
in capacity 1

required by ParadaComida[23] over [360,420]
in capacity 1
required by ParadaComida[22] over [360,420]
in capacity 1
required by ParadaComida[21] over [360,420]
in capacity 1
required by ParadaComida[20] over [360,420]
in capacity 1
required by ParadaComida[19] over [360,420]
in capacity 1
required by ParadaComida[18] over [360,420]
in capacity 1
required by ParadaComida[17] over [348,408]
in capacity 1
required by ParadaComida[16] over [300,360]
in capacity 1
required by ParadaComida[15] over [300,360]
in capacity 1
required by ParadaComida[14] over [300,360]
in capacity 1
required by ParadaComida[13] over [300,360]
in capacity 1
required by ParadaComida[12] over [300,360]
in capacity 1
required by ParadaComida[11] over [300,360]
in capacity 1
required by ParadaComida[10] over [300,360]
in capacity 1
required by ParadaComida[9] over [300,360]
in capacity 1
required by ParadaComida[8] over [300,360]
in capacity 1
required by ParadaComida[7] over [300,360]
in capacity 1
required by ParadaComida[6] over [300,360]
in capacity 1
required by ParadaComida[5] over [300,360]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[93] over [340,378] in capacity 1
required by a[92] over [312,350] in capacity 1
required by a[91] over [548,580] in capacity 1
required by a[90] over [520,552] in capacity 1
required by a[89] over [492,524] in capacity 1
required by a[88] over [464,496] in capacity 1
required by a[87] over [431,463] in capacity 1
required by a[86] over [408,440] in capacity 1
required by a[85] over [377,409] in capacity 1
required by a[84] over [352,384] in capacity 1
required by a[83] over [324,356] in capacity 1



required by a[82] over [296,328] in capacity 1
required by a[81] over [265,297] in capacity 1
required by a[80] over [236,268] in capacity 1
required by a[79] over [213,245] in capacity 1
required by a[78] over [437,469] in capacity 1
required by a[77] over [412,444] in capacity 1
required by a[76] over [393,425] in capacity 1
required by a[75] over [424,443] in capacity 1
required by a[74] over [367,386] in capacity 1
required by a[73] over [310,329] in capacity 1
required by a[72] over [608,643] in capacity 1
required by a[71] over [579,614] in capacity 1
required by a[70] over [545,580] in capacity 1
required by a[69] over [443,475] in capacity 1
required by a[68] over [383,415] in capacity 1
required by a[67] over [249,281] in capacity 1
required by a[66] over [206,238] in capacity 1
required by a[65] over [117,160] in capacity 1
required by a[64] over [77,120] in capacity 1
required by a[63] over [380,415] in capacity 1
required by a[62] over [346,381] in capacity 1
required by a[61] over [254,294] in capacity 1
required by a[60] over [230,270] in capacity 1
required by a[59] over [194,234] in capacity 1
required by a[58] over [158,198] in capacity 1
required by a[57] over [23,63] in capacity 1
required by a[56] over [125,234] in capacity 1
required by a[55] over [79,188] in capacity 1
required by a[54] over [387,435] in capacity 1
required by a[53] over [358,406] in capacity 1
required by a[52] over [329,377] in capacity 1
required by a[51] over [300,348] in capacity 1
required by a[50] over [271,319] in capacity 1
required by a[49] over [245,293] in capacity 1
required by a[48] over [551,597] in capacity 1
required by a[47] over [535,581] in capacity 1
required by a[46] over [260,302] in capacity 1
required by a[45] over [242,284] in capacity 1
required by a[44] over [229,271] in capacity 1
required by a[43] over [137,179] in capacity 1
required by a[42] over [83,125] in capacity 1
required by a[41] over [29,71] in capacity 1
required by a[40] over [539,590] in capacity 1
required by a[39] over [507,558] in capacity 1
required by a[38] over [475,526] in capacity 1
required by a[37] over [443,494] in capacity 1
required by a[36] over [435,534] in capacity 1
required by a[35] over [389,488] in capacity 1
required by a[34] over [343,442] in capacity 1
required by a[33] over [165,219] in capacity 1
required by a[32] over [149,203] in capacity 1
required by a[31] over [133,187] in capacity 1
required by a[30] over [117,171] in capacity 1
required by a[29] over [101,155] in capacity 1
required by a[28] over [85,139] in capacity 1
required by a[27] over [69,123] in capacity 1
required by a[26] over [53,107] in capacity 1

required by a[25] over [37,91] in capacity 1
required by a[24] over [21,75] in capacity 1
required by a[23] over [0,54] in capacity 1
required by a[22] over [335,362] in capacity 1
required by a[21] over [319,346] in capacity 1
required by a[20] over [303,330] in capacity 1
required by a[19] over [287,314] in capacity 1
required by a[18] over [271,298] in capacity 1
required by a[17] over [255,282] in capacity 1
required by a[16] over [239,266] in capacity 1
required by a[15] over [223,250] in capacity 1
required by a[14] over [207,234] in capacity 1
required by a[13] over [191,218] in capacity 1
required by a[12] over [175,202] in capacity 1
required by a[11] over [159,186] in capacity 1
required by a[10] over [143,170] in capacity 1
required by a[9] over [224,314] in capacity 1
required by a[8] over [212,302] in capacity 1
required by a[7] over [200,290] in capacity 1
required by a[6] over [188,278] in capacity 1
required by a[5] over [176,266] in capacity 1
required by a[4] over [164,254] in capacity 1
required by a[3] over [152,242] in capacity 1
required by a[2] over [140,230] in capacity 1
required by a[1] over [17,62] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[93] over [340,346] in capacity 1
required by Carga[92] over [312,318] in capacity 1
required by Carga[91] over [548,554] in capacity 1
required by Carga[90] over [520,526] in capacity 1
required by Carga[89] over [492,498] in capacity 1
required by Carga[88] over [464,470] in capacity 1
required by Carga[87] over [431,437] in capacity 1
required by Carga[86] over [408,414] in capacity 1
required by Carga[85] over [377,383] in capacity 1
required by Carga[84] over [352,358] in capacity 1
required by Carga[83] over [324,330] in capacity 1
required by Carga[82] over [296,302] in capacity 1
required by Carga[81] over [265,271] in capacity 1
required by Carga[80] over [236,242] in capacity 1
required by Carga[79] over [213,219] in capacity 1



required by Carga[78] over [437,443] in capacity 1
required by Carga[77] over [412,418] in capacity 1
required by Carga[76] over [393,399] in capacity 1
required by Carga[75] over [424,430] in capacity 1
required by Carga[74] over [367,373] in capacity 1
required by Carga[73] over [310,316] in capacity 1
required by Carga[72] over [608,614] in capacity 1
required by Carga[71] over [579,585] in capacity 1
required by Carga[70] over [545,551] in capacity 1
required by Carga[69] over [443,449] in capacity 1
required by Carga[68] over [383,389] in capacity 1
required by Carga[67] over [249,255] in capacity 1
required by Carga[66] over [206,212] in capacity 1
required by Carga[65] over [117,123] in capacity 1
required by Carga[64] over [77,83] in capacity 1
required by Carga[63] over [380,386] in capacity 1
required by Carga[62] over [346,352] in capacity 1
required by Carga[61] over [254,260] in capacity 1
required by Carga[60] over [230,236] in capacity 1
required by Carga[59] over [194,200] in capacity 1
required by Carga[58] over [158,164] in capacity 1
required by Carga[57] over [23,29] in capacity 1
required by Carga[56] over [125,131] in capacity 1
required by Carga[55] over [79,85] in capacity 1
required by Carga[54] over [387,393] in capacity 1
required by Carga[53] over [358,364] in capacity 1
required by Carga[52] over [329,335] in capacity 1
required by Carga[51] over [300,306] in capacity 1

required by Carga[50] over [271,277] in capacity 1
required by Carga[49] over [245,251] in capacity 1
required by Carga[48] over [551,557] in capacity 1
required by Carga[47] over [535,541] in capacity 1
required by Carga[46] over [260,266] in capacity 1
required by Carga[45] over [242,248] in capacity 1
required by Carga[44] over [229,235] in capacity 1
required by Carga[43] over [137,143] in capacity 1
required by Carga[42] over [83,89] in capacity 1
required by Carga[41] over [29,35] in capacity 1
required by Carga[40] over [539,545] in capacity 1
required by Carga[39] over [507,513] in capacity 1
required by Carga[38] over [475,481] in capacity 1
required by Carga[37] over [443,449] in capacity 1
required by Carga[36] over [435,441] in capacity 1
required by Carga[35] over [389,395] in capacity 1
required by Carga[34] over [343,349] in capacity 1
required by Carga[33] over [165,171] in capacity 1
required by Carga[32] over [149,155] in capacity 1
required by Carga[31] over [133,139] in capacity 1
required by Carga[30] over [117,123] in capacity 1
required by Carga[29] over [101,107] in capacity 1
required by Carga[28] over [85,91] in capacity 1
required by Carga[27] over [69,75] in capacity 1
required by Carga[26] over [53,59] in capacity 1
required by Carga[25] over [37,43] in capacity 1
required by Carga[24] over [21,27] in capacity 1
required by Carga[23] over [0,6] in capacity 1
required by Carga[22] over [335,341] in capacity 1



required by Carga[21] over [319,325] in capacity 1
required by Carga[20] over [303,309] in capacity 1
required by Carga[19] over [287,293] in capacity 1
required by Carga[18] over [271,277] in capacity 1
required by Carga[17] over [255,261] in capacity 1
required by Carga[16] over [239,245] in capacity 1
required by Carga[15] over [223,229] in capacity 1
required by Carga[14] over [207,213] in capacity 1
required by Carga[13] over [191,197] in capacity 1
required by Carga[12] over [175,181] in capacity 1
required by Carga[11] over [159,165] in capacity 1
required by Carga[10] over [143,149] in capacity 1
required by Carga[9] over [224,230] in capacity 1
required by Carga[8] over [212,218] in capacity 1
required by Carga[7] over [200,206] in capacity 1
required by Carga[6] over [188,194] in capacity 1
required by Carga[5] over [176,182] in capacity 1
required by Carga[4] over [164,170] in capacity 1
required by Carga[3] over [152,158] in capacity 1
required by Carga[2] over [140,146] in capacity 1
required by Carga[1] over [17,23] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0

Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 5
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 0
Margen[38] = 0
Margen[39] = 0
Margen[40] = 0
Margen[41] = 0
Margen[42] = 0
Margen[43] = 0
Margen[44] = 5
Margen[45] = 0
Margen[46] = 0
Margen[47] = 0
Margen[48] = 0
Margen[49] = 3
Margen[50] = 0
Margen[51] = 0
Margen[52] = 0
Margen[53] = 0
Margen[54] = 0
Margen[55] = 1
Margen[56] = 0
Margen[57] = 1
Margen[58] = 2
Margen[59] = 1
Margen[60] = 4
Margen[61] = 5
Margen[62] = 0
Margen[63] = 0
Margen[64] = 2
Margen[65] = 0
Margen[66] = 0
Margen[67] = 0
Margen[68] = 1
Margen[69] = 0
Margen[70] = 0
Margen[71] = 0



Margen[72] = 5
Margen[73] = 0
Margen[74] = 0
Margen[75] = 0
Margen[76] = 4
Margen[77] = 0
Margen[78] = 2
Margen[79] = 1
Margen[80] = 4
Margen[81] = 3
Margen[82] = 0
Margen[83] = 0
Margen[84] = 0
Margen[85] = 3
Margen[86] = 0
Margen[87] = 5
Margen[88] = 0
Margen[89] = 0
Margen[90] = 0
Margen[91] = 0
Margen[92] = 0
Margen[93] = 0

Scheduling 18.2

Optimal Solution with Objective Value: 484

a[1] = [442 -- 42 --> 484]
a[2] = [73 -- 36 --> 109]
a[3] = [100 -- 36 --> 136]
a[4] = [127 -- 36 --> 163]
a[5] = [154 -- 36 --> 190]
a[6] = [196 -- 25 --> 221]
a[7] = [281 -- 29 --> 310]
a[8] = [294 -- 29 --> 323]
a[9] = [313 -- 30 --> 343]
a[10] = [275 -- 21 --> 296]
a[11] = [307 -- 21 --> 328]
a[12] = [142 -- 35 --> 177]
a[13] = [164 -- 35 --> 199]
a[14] = [186 -- 35 --> 221]

Carga[1] = [442 -- 6 --> 448]
Carga[2] = [73 -- 6 --> 79]
Carga[3] = [100 -- 6 --> 106]
Carga[4] = [127 -- 6 --> 133]
Carga[5] = [154 -- 6 --> 160]
Carga[6] = [196 -- 6 --> 202]
Carga[7] = [281 -- 6 --> 287]
Carga[8] = [294 -- 6 --> 300]
Carga[9] = [313 -- 6 --> 319]
Carga[10] = [275 -- 6 --> 281]
Carga[11] = [307 -- 6 --> 313]
Carga[12] = [142 -- 6 --> 148]
Carga[13] = [164 -- 6 --> 170]
Carga[14] = [186 -- 6 --> 192]

ParadaComida[1] = [300 -- 60 --> 360]

ParadaComida[2] = [323 -- 60 --> 383]
ParadaComida[3] = [328 -- 60 --> 388]
ParadaComida[4] = [343 -- 60 --> 403]

makespan = [484 -- 0 --> 484]
Truck = Discrete Resource
required by ParadaComida[4] over [343,403] in capacity 1
required by ParadaComida[3] over [328,388] in capacity 1
required by ParadaComida[2] over [323,383] in capacity 1
required by ParadaComida[1] over [300,360] in capacity 1
required by a[14] over [186,221] in capacity 1
required by a[13] over [164,199] in capacity 1
required by a[12] over [142,177] in capacity 1
required by a[11] over [307,328] in capacity 1
required by a[10] over [275,296] in capacity 1
required by a[9] over [313,343] in capacity 1
required by a[8] over [294,323] in capacity 1
required by a[7] over [281,310] in capacity 1
required by a[6] over [196,221] in capacity 1
required by a[5] over [154,190] in capacity 1
required by a[4] over [127,163] in capacity 1
required by a[3] over [100,136] in capacity 1
required by a[2] over [73,109] in capacity 1
required by a[1] over [442,484] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[14] over [186,192] in capacity 1
required by Carga[13] over [164,170] in capacity 1
required by Carga[12] over [142,148] in capacity 1
required by Carga[11] over [307,313] in capacity 1
required by Carga[10] over [275,281] in capacity 1
required by Carga[9] over [313,319] in capacity 1
required by Carga[8] over [294,300] in capacity 1
required by Carga[7] over [281,287] in capacity 1
required by Carga[6] over [196,202] in capacity 1
required by Carga[5] over [154,160] in capacity 1
required by Carga[4] over [127,133] in capacity 1
required by Carga[3] over [100,106] in capacity 1
required by Carga[2] over [73,79] in capacity 1



required by Carga[1] over [442,448] in capacity 1

Margen[1] = 10
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 3
Margen[11] = 4
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0

Scheduling 18.3

Optimal Solution with Objective Value: 720

a[1] = [527 -- 51 --> 578]
a[2] = [548 -- 51 --> 599]
a[3] = [569 -- 51 --> 620]
a[4] = [590 -- 51 --> 641]
a[5] = [611 -- 51 --> 662]
a[6] = [632 -- 51 --> 683]
a[7] = [653 -- 51 --> 704]
a[8] = [669 -- 51 --> 720]
a[9] = [678 -- 42 --> 720]
a[10] = [0 -- 32 --> 32]
a[11] = [34 -- 32 --> 66]
a[12] = [58 -- 32 --> 90]
a[13] = [82 -- 32 --> 114]
a[14] = [106 -- 32 --> 138]
a[15] = [130 -- 32 --> 162]
a[16] = [154 -- 32 --> 186]
a[17] = [138 -- 47 --> 185]
a[18] = [161 -- 47 --> 208]
a[19] = [184 -- 47 --> 231]
a[20] = [207 -- 47 --> 254]
a[21] = [230 -- 47 --> 277]
a[22] = [253 -- 47 --> 300]
a[23] = [276 -- 47 --> 323]
a[24] = [299 -- 47 --> 346]
a[25] = [322 -- 47 --> 369]
a[26] = [345 -- 47 --> 392]
a[27] = [368 -- 47 --> 415]
a[28] = [391 -- 47 --> 438]
a[29] = [414 -- 47 --> 461]
a[30] = [437 -- 47 --> 484]
a[31] = [230 -- 47 --> 277]
a[32] = [241 -- 47 --> 288]
a[33] = [252 -- 47 --> 299]
a[34] = [263 -- 47 --> 310]
a[35] = [274 -- 47 --> 321]
a[36] = [285 -- 47 --> 332]

a[37] = [296 -- 47 --> 343]
a[38] = [307 -- 47 --> 354]
a[39] = [318 -- 47 --> 365]
a[40] = [329 -- 47 --> 376]
a[41] = [340 -- 47 --> 387]
a[42] = [445 -- 35 --> 480]
a[43] = [472 -- 35 --> 507]
a[44] = [101 -- 37 --> 138]
a[45] = [129 -- 37 --> 166]
a[46] = [157 -- 37 --> 194]
a[47] = [185 -- 37 --> 222]
a[48] = [213 -- 37 --> 250]
a[49] = [241 -- 37 --> 278]
a[50] = [269 -- 37 --> 306]
a[51] = [297 -- 37 --> 334]
a[52] = [208 -- 21 --> 229]
a[53] = [227 -- 21 --> 248]
a[54] = [204 -- 27 --> 231]
a[55] = [233 -- 27 --> 260]
a[56] = [260 -- 27 --> 287]
a[57] = [288 -- 27 --> 315]
a[58] = [316 -- 27 --> 343]
a[59] = [344 -- 27 --> 371]
a[60] = [372 -- 27 --> 399]
a[61] = [400 -- 27 --> 427]
a[62] = [291 -- 42 --> 333]
a[63] = [349 -- 42 --> 391]
a[64] = [407 -- 42 --> 449]
a[65] = [103 -- 35 --> 138]
a[66] = [148 -- 35 --> 183]
a[67] = [193 -- 35 --> 228]
a[68] = [238 -- 35 --> 273]

Carga[1] = [527 -- 3 --> 530]
Carga[2] = [548 -- 3 --> 551]
Carga[3] = [569 -- 3 --> 572]
Carga[4] = [590 -- 3 --> 593]
Carga[5] = [611 -- 3 --> 614]
Carga[6] = [632 -- 3 --> 635]
Carga[7] = [653 -- 3 --> 656]
Carga[8] = [669 -- 3 --> 672]
Carga[9] = [678 -- 3 --> 681]
Carga[10] = [0 -- 3 --> 3]
Carga[11] = [34 -- 3 --> 37]
Carga[12] = [58 -- 3 --> 61]
Carga[13] = [82 -- 3 --> 85]
Carga[14] = [106 -- 3 --> 109]
Carga[15] = [130 -- 3 --> 133]
Carga[16] = [154 -- 3 --> 157]
Carga[17] = [138 -- 3 --> 141]
Carga[18] = [161 -- 3 --> 164]
Carga[19] = [184 -- 3 --> 187]
Carga[20] = [207 -- 3 --> 210]
Carga[21] = [230 -- 3 --> 233]
Carga[22] = [253 -- 3 --> 256]
Carga[23] = [276 -- 3 --> 279]
Carga[24] = [299 -- 3 --> 302]



Carga[25] = [322 -- 3 --> 325]
Carga[26] = [345 -- 3 --> 348]
Carga[27] = [368 -- 3 --> 371]
Carga[28] = [391 -- 3 --> 394]
Carga[29] = [414 -- 3 --> 417]
Carga[30] = [437 -- 3 --> 440]
Carga[31] = [230 -- 3 --> 233]
Carga[32] = [241 -- 3 --> 244]
Carga[33] = [252 -- 3 --> 255]
Carga[34] = [263 -- 3 --> 266]
Carga[35] = [274 -- 3 --> 277]
Carga[36] = [285 -- 3 --> 288]
Carga[37] = [296 -- 3 --> 299]
Carga[38] = [307 -- 3 --> 310]
Carga[39] = [318 -- 3 --> 321]
Carga[40] = [329 -- 3 --> 332]
Carga[41] = [340 -- 3 --> 343]
Carga[42] = [445 -- 3 --> 448]
Carga[43] = [472 -- 3 --> 475]
Carga[44] = [101 -- 3 --> 104]
Carga[45] = [129 -- 3 --> 132]
Carga[46] = [157 -- 3 --> 160]
Carga[47] = [185 -- 3 --> 188]
Carga[48] = [213 -- 3 --> 216]
Carga[49] = [241 -- 3 --> 244]
Carga[50] = [269 -- 3 --> 272]
Carga[51] = [297 -- 3 --> 300]
Carga[52] = [208 -- 3 --> 211]
Carga[53] = [227 -- 3 --> 230]
Carga[54] = [204 -- 3 --> 207]
Carga[55] = [233 -- 3 --> 236]
Carga[56] = [260 -- 3 --> 263]
Carga[57] = [288 -- 3 --> 291]
Carga[58] = [316 -- 3 --> 319]
Carga[59] = [344 -- 3 --> 347]
Carga[60] = [372 -- 3 --> 375]
Carga[61] = [400 -- 3 --> 403]
Carga[62] = [291 -- 3 --> 294]
Carga[63] = [349 -- 3 --> 352]
Carga[64] = [407 -- 3 --> 410]
Carga[65] = [103 -- 3 --> 106]
Carga[66] = [148 -- 3 --> 151]
Carga[67] = [193 -- 3 --> 196]
Carga[68] = [238 -- 3 --> 241]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [332 -- 60 --> 392]
ParadaComida[9] = [333 -- 60 --> 393]
ParadaComida[10] = [354 -- 60 --> 414]
ParadaComida[11] = [360 -- 60 --> 420]
ParadaComida[12] = [360 -- 60 --> 420]

ParadaComida[13] = [360 -- 60 --> 420]
ParadaComida[14] = [360 -- 60 --> 420]
ParadaComida[15] = [360 -- 60 --> 420]
ParadaComida[16] = [360 -- 60 --> 420]
ParadaComida[17] = [360 -- 60 --> 420]

makespan = [720 -- 0 --> 720]
Truck = Discrete Resource
required by ParadaComida[17] over [360,420]
in capacity 1
required by ParadaComida[16] over [360,420]
in capacity 1
required by ParadaComida[15] over [360,420]
in capacity 1
required by ParadaComida[14] over [360,420]
in capacity 1
required by ParadaComida[13] over [360,420]
in capacity 1
required by ParadaComida[12] over [360,420]
in capacity 1
required by ParadaComida[11] over [360,420]
in capacity 1
required by ParadaComida[10] over [354,414]
in capacity 1
required by ParadaComida[9] over [333,393]
in capacity 1
required by ParadaComida[8] over [332,392]
in capacity 1
required by ParadaComida[7] over [300,360]
in capacity 1
required by ParadaComida[6] over [300,360]
in capacity 1
required by ParadaComida[5] over [300,360]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[68] over [238,273] in capacity 1
required by a[67] over [193,228] in capacity 1
required by a[66] over [148,183] in capacity 1
required by a[65] over [103,138] in capacity 1
required by a[64] over [407,449] in capacity 1
required by a[63] over [349,391] in capacity 1
required by a[62] over [291,333] in capacity 1
required by a[61] over [400,427] in capacity 1
required by a[60] over [372,399] in capacity 1
required by a[59] over [344,371] in capacity 1
required by a[58] over [316,343] in capacity 1
required by a[57] over [288,315] in capacity 1
required by a[56] over [260,287] in capacity 1
required by a[55] over [233,260] in capacity 1
required by a[54] over [204,231] in capacity 1



required by a[53] over [227,248] in capacity 1
required by a[52] over [208,229] in capacity 1
required by a[51] over [297,334] in capacity 1
required by a[50] over [269,306] in capacity 1
required by a[49] over [241,278] in capacity 1
required by a[48] over [213,250] in capacity 1
required by a[47] over [185,222] in capacity 1
required by a[46] over [157,194] in capacity 1
required by a[45] over [129,166] in capacity 1
required by a[44] over [101,138] in capacity 1
required by a[43] over [472,507] in capacity 1
required by a[42] over [445,480] in capacity 1
required by a[41] over [340,387] in capacity 1
required by a[40] over [329,376] in capacity 1
required by a[39] over [318,365] in capacity 1
required by a[38] over [307,354] in capacity 1
required by a[37] over [296,343] in capacity 1
required by a[36] over [285,332] in capacity 1
required by a[35] over [274,321] in capacity 1
required by a[34] over [263,310] in capacity 1
required by a[33] over [252,299] in capacity 1
required by a[32] over [241,288] in capacity 1
required by a[31] over [230,277] in capacity 1
required by a[30] over [437,484] in capacity 1
required by a[29] over [414,461] in capacity 1
required by a[28] over [391,438] in capacity 1
required by a[27] over [368,415] in capacity 1
required by a[26] over [345,392] in capacity 1
required by a[25] over [322,369] in capacity 1
required by a[24] over [299,346] in capacity 1
required by a[23] over [276,323] in capacity 1
required by a[22] over [253,300] in capacity 1
required by a[21] over [230,277] in capacity 1
required by a[20] over [207,254] in capacity 1
required by a[19] over [184,231] in capacity 1
required by a[18] over [161,208] in capacity 1
required by a[17] over [138,185] in capacity 1
required by a[16] over [154,186] in capacity 1
required by a[15] over [130,162] in capacity 1
required by a[14] over [106,138] in capacity 1
required by a[13] over [82,114] in capacity 1
required by a[12] over [58,90] in capacity 1
required by a[11] over [34,66] in capacity 1
required by a[10] over [0,32] in capacity 1
required by a[9] over [678,720] in capacity 1
required by a[8] over [669,720] in capacity 1
required by a[7] over [653,704] in capacity 1
required by a[6] over [632,683] in capacity 1
required by a[5] over [611,662] in capacity 1
required by a[4] over [590,641] in capacity 1
required by a[3] over [569,620] in capacity 1
required by a[2] over [548,599] in capacity 1
required by a[1] over [527,578] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[68] over [238,241] in capacity 1

required by Carga[67] over [193,196] in capacity 1
required by Carga[66] over [148,151] in capacity 1
required by Carga[65] over [103,106] in capacity 1
required by Carga[64] over [407,410] in capacity 1
required by Carga[63] over [349,352] in capacity 1
required by Carga[62] over [291,294] in capacity 1
required by Carga[61] over [400,403] in capacity 1
required by Carga[60] over [372,375] in capacity 1
required by Carga[59] over [344,347] in capacity 1
required by Carga[58] over [316,319] in capacity 1
required by Carga[57] over [288,291] in capacity 1
required by Carga[56] over [260,263] in capacity 1
required by Carga[55] over [233,236] in capacity 1
required by Carga[54] over [204,207] in capacity 1
required by Carga[53] over [227,230] in capacity 1
required by Carga[52] over [208,211] in capacity 1
required by Carga[51] over [297,300] in capacity 1
required by Carga[50] over [269,272] in capacity 1
required by Carga[49] over [241,244] in capacity 1
required by Carga[48] over [213,216] in capacity 1
required by Carga[47] over [185,188] in capacity 1
required by Carga[46] over [157,160] in capacity 1
required by Carga[45] over [129,132] in capacity 1
required by Carga[44] over [101,104] in capacity 1
required by Carga[43] over [472,475] in capacity 1
required by Carga[42] over [445,448] in capacity 1
required by Carga[41] over [340,343] in capacity 1
required by Carga[40] over [329,332] in capacity 1



required by Carga[39] over [318,321] in capacity 1
required by Carga[38] over [307,310] in capacity 1
required by Carga[37] over [296,299] in capacity 1
required by Carga[36] over [285,288] in capacity 1
required by Carga[35] over [274,277] in capacity 1
required by Carga[34] over [263,266] in capacity 1
required by Carga[33] over [252,255] in capacity 1
required by Carga[32] over [241,244] in capacity 1
required by Carga[31] over [230,233] in capacity 1
required by Carga[30] over [437,440] in capacity 1
required by Carga[29] over [414,417] in capacity 1
required by Carga[28] over [391,394] in capacity 1
required by Carga[27] over [368,371] in capacity 1
required by Carga[26] over [345,348] in capacity 1
required by Carga[25] over [322,325] in capacity 1
required by Carga[24] over [299,302] in capacity 1
required by Carga[23] over [276,279] in capacity 1
required by Carga[22] over [253,256] in capacity 1
required by Carga[21] over [230,233] in capacity 1
required by Carga[20] over [207,210] in capacity 1
required by Carga[19] over [184,187] in capacity 1
required by Carga[18] over [161,164] in capacity 1
required by Carga[17] over [138,141] in capacity 1
required by Carga[16] over [154,157] in capacity 1
required by Carga[15] over [130,133] in capacity 1
required by Carga[14] over [106,109] in capacity 1
required by Carga[13] over [82,85] in capacity 1
required by Carga[12] over [58,61] in capacity 1

required by Carga[11] over [34,37] in capacity 1
required by Carga[10] over [0,3] in capacity 1
required by Carga[9] over [678,681] in capacity 1
required by Carga[8] over [669,672] in capacity 1
required by Carga[7] over [653,656] in capacity 1
required by Carga[6] over [632,635] in capacity 1
required by Carga[5] over [611,614] in capacity 1
required by Carga[4] over [590,593] in capacity 1
required by Carga[3] over [569,572] in capacity 1
required by Carga[2] over [548,551] in capacity 1
required by Carga[1] over [527,530] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 5
Margen[9] = 1
Margen[10] = 10
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0



Margen[36] = 0
Margen[37] = 0
Margen[38] = 0
Margen[39] = 0
Margen[40] = 0
Margen[41] = 0
Margen[42] = 0
Margen[43] = 0
Margen[44] = 0
Margen[45] = 0
Margen[46] = 0
Margen[47] = 0
Margen[48] = 0
Margen[49] = 0
Margen[50] = 0
Margen[51] = 0
Margen[52] = 0
Margen[53] = 0
Margen[54] = 0
Margen[55] = 1
Margen[56] = 0
Margen[57] = 0
Margen[58] = 0
Margen[59] = 0
Margen[60] = 0
Margen[61] = 0
Margen[62] = 0
Margen[63] = 0
Margen[64] = 0
Margen[65] = 0
Margen[66] = 0
Margen[67] = 0
Margen[68] = 0

Scheduling 19.1

No Solution

Scheduling 19.2

Optimal Solution with Objective Value: 425

a[1] = [158 -- 49 --> 207]
a[2] = [189 -- 49 --> 238]
a[3] = [269 -- 30 --> 299]
a[4] = [296 -- 30 --> 326]
a[5] = [225 -- 33 --> 258]
a[6] = [251 -- 33 --> 284]
a[7] = [277 -- 33 --> 310]
a[8] = [308 -- 33 --> 341]
a[9] = [329 -- 33 --> 362]
a[10] = [355 -- 33 --> 388]
a[11] = [377 -- 33 --> 410]
a[12] = [244 -- 42 --> 286]
a[13] = [262 -- 42 --> 304]
a[14] = [283 -- 42 --> 325]
a[15] = [302 -- 42 --> 344]
a[16] = [316 -- 42 --> 358]

a[17] = [335 -- 42 --> 377]
a[18] = [349 -- 42 --> 391]
a[19] = [371 -- 42 --> 413]
a[20] = [383 -- 42 --> 425]
a[21] = [365 -- 19 --> 384]
a[22] = [399 -- 19 --> 418]

Carga[1] = [158 -- 6 --> 164]
Carga[2] = [189 -- 6 --> 195]
Carga[3] = [269 -- 6 --> 275]
Carga[4] = [296 -- 6 --> 302]
Carga[5] = [225 -- 6 --> 231]
Carga[6] = [251 -- 6 --> 257]
Carga[7] = [277 -- 6 --> 283]
Carga[8] = [308 -- 6 --> 314]
Carga[9] = [329 -- 6 --> 335]
Carga[10] = [355 -- 6 --> 361]
Carga[11] = [377 -- 6 --> 383]
Carga[12] = [244 -- 6 --> 250]
Carga[13] = [262 -- 6 --> 268]
Carga[14] = [283 -- 6 --> 289]
Carga[15] = [302 -- 6 --> 308]
Carga[16] = [316 -- 6 --> 322]
Carga[17] = [335 -- 6 --> 341]
Carga[18] = [349 -- 6 --> 355]
Carga[19] = [371 -- 6 --> 377]
Carga[20] = [383 -- 6 --> 389]
Carga[21] = [365 -- 6 --> 371]
Carga[22] = [399 -- 6 --> 405]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [384 -- 60 --> 444]
ParadaComida[3] = [388 -- 60 --> 448]
ParadaComida[4] = [410 -- 60 --> 470]
ParadaComida[5] = [413 -- 60 --> 473]
ParadaComida[6] = [418 -- 60 --> 478]

makespan = [425 -- 0 --> 425]

Truck = Discrete Resource

required by ParadaComida[6] over [418,478]
in capacity 1

required by ParadaComida[5] over [413,473]
in capacity 1

required by ParadaComida[4] over [410,470]
in capacity 1

required by ParadaComida[3] over [388,448]
in capacity 1

required by ParadaComida[2] over [384,444]
in capacity 1

required by ParadaComida[1] over [300,360]
in capacity 1

required by a[22] over [399,418] in capacity 1

required by a[21] over [365,384] in capacity 1

required by a[20] over [383,425] in capacity 1

required by a[19] over [371,413] in capacity 1

required by a[18] over [349,391] in capacity 1

required by a[17] over [335,377] in capacity 1



required by a[16] over [316,358] in capacity 1
required by a[15] over [302,344] in capacity 1
required by a[14] over [283,325] in capacity 1
required by a[13] over [262,304] in capacity 1
required by a[12] over [244,286] in capacity 1
required by a[11] over [377,410] in capacity 1
required by a[10] over [355,388] in capacity 1
required by a[9] over [329,362] in capacity 1
required by a[8] over [308,341] in capacity 1
required by a[7] over [277,310] in capacity 1
required by a[6] over [251,284] in capacity 1
required by a[5] over [225,258] in capacity 1
required by a[4] over [296,326] in capacity 1
required by a[3] over [269,299] in capacity 1
required by a[2] over [189,238] in capacity 1
required by a[1] over [158,207] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[22] over [399,405] in capacity 1
required by Carga[21] over [365,371] in capacity 1
required by Carga[20] over [383,389] in capacity 1
required by Carga[19] over [371,377] in capacity 1
required by Carga[18] over [349,355] in capacity 1
required by Carga[17] over [335,341] in capacity 1
required by Carga[16] over [316,322] in capacity 1
required by Carga[15] over [302,308] in capacity 1
required by Carga[14] over [283,289] in capacity 1
required by Carga[13] over [262,268] in capacity 1
required by Carga[12] over [244,250] in capacity 1
required by Carga[11] over [377,383] in capacity 1
required by Carga[10] over [355,361] in capacity 1
required by Carga[9] over [329,335] in capacity 1
required by Carga[8] over [308,314] in capacity 1
required by Carga[7] over [277,283] in capacity 1
required by Carga[6] over [251,257] in capacity 1
required by Carga[5] over [225,231] in capacity 1
required by Carga[4] over [296,302] in capacity 1

required by Carga[3] over [269,275] in capacity 1
required by Carga[2] over [189,195] in capacity 1
required by Carga[1] over [158,164] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 1
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 5
Margen[9] = 0
Margen[10] = 0
Margen[11] = 4
Margen[12] = 0
Margen[13] = 0
Margen[14] = 3
Margen[15] = 4
Margen[16] = 0
Margen[17] = 1
Margen[18] = 3
Margen[19] = 1
Margen[20] = 5
Margen[21] = 10
Margen[22] = 0

Scheduling 19.3

Optimal Solution with Objective Value: 775

a[1] = [123 -- 16 --> 139]
a[2] = [407 -- 31 --> 438]
a[3] = [353 -- 24 --> 377]
a[4] = [293 -- 21 --> 314]
a[5] = [328 -- 21 --> 349]
a[6] = [363 -- 21 --> 384]
a[7] = [0 -- 32 --> 32]
a[8] = [54 -- 32 --> 86]
a[9] = [93 -- 32 --> 125]
a[10] = [157 -- 37 --> 194]
a[11] = [196 -- 55 --> 251]
a[12] = [251 -- 55 --> 306]
a[13] = [672 -- 19 --> 691]
a[14] = [727 -- 19 --> 746]
a[15] = [334 -- 101 --> 435]
a[16] = [355 -- 101 --> 456]
a[17] = [376 -- 101 --> 477]
a[18] = [397 -- 101 --> 498]
a[19] = [418 -- 101 --> 519]
a[20] = [222 -- 42 --> 264]
a[21] = [236 -- 42 --> 278]
a[22] = [250 -- 42 --> 292]
a[23] = [264 -- 42 --> 306]
a[24] = [278 -- 42 --> 320]



a[25] = [292 -- 42 --> 334]
a[26] = [306 -- 42 --> 348]
a[27] = [320 -- 42 --> 362]
a[28] = [269 -- 34 --> 303]
a[29] = [297 -- 34 --> 331]
a[30] = [325 -- 34 --> 359]
a[31] = [96 -- 42 --> 138]
a[32] = [107 -- 42 --> 149]
a[33] = [118 -- 42 --> 160]
a[34] = [129 -- 42 --> 171]
a[35] = [140 -- 42 --> 182]
a[36] = [151 -- 42 --> 193]
a[37] = [366 -- 50 --> 416]
a[38] = [390 -- 50 --> 440]
a[39] = [414 -- 50 --> 464]
a[40] = [438 -- 50 --> 488]
a[41] = [462 -- 50 --> 512]
a[42] = [486 -- 50 --> 536]
a[43] = [510 -- 50 --> 560]
a[44] = [534 -- 50 --> 584]
a[45] = [559 -- 50 --> 609]
a[46] = [578 -- 50 --> 628]
a[47] = [597 -- 50 --> 647]
a[48] = [616 -- 50 --> 666]
a[49] = [635 -- 50 --> 685]
a[50] = [654 -- 50 --> 704]
a[51] = [673 -- 50 --> 723]
a[52] = [692 -- 50 --> 742]
a[53] = [711 -- 50 --> 761]
a[54] = [725 -- 50 --> 775]
a[55] = [399 -- 37 --> 436]
a[56] = [620 -- 21 --> 641]
a[57] = [676 -- 21 --> 697]

Carga[1] = [123 -- 3 --> 126]
Carga[2] = [407 -- 3 --> 410]
Carga[3] = [353 -- 3 --> 356]
Carga[4] = [293 -- 3 --> 296]
Carga[5] = [328 -- 3 --> 331]
Carga[6] = [363 -- 3 --> 366]
Carga[7] = [0 -- 3 --> 3]
Carga[8] = [54 -- 3 --> 57]
Carga[9] = [93 -- 3 --> 96]
Carga[10] = [157 -- 3 --> 160]
Carga[11] = [196 -- 3 --> 199]
Carga[12] = [251 -- 3 --> 254]
Carga[13] = [672 -- 3 --> 675]
Carga[14] = [727 -- 3 --> 730]
Carga[15] = [334 -- 3 --> 337]
Carga[16] = [355 -- 3 --> 358]
Carga[17] = [376 -- 3 --> 379]
Carga[18] = [397 -- 3 --> 400]
Carga[19] = [418 -- 3 --> 421]
Carga[20] = [222 -- 3 --> 225]
Carga[21] = [236 -- 3 --> 239]
Carga[22] = [250 -- 3 --> 253]
Carga[23] = [264 -- 3 --> 267]

Carga[24] = [278 -- 3 --> 281]
Carga[25] = [292 -- 3 --> 295]
Carga[26] = [306 -- 3 --> 309]
Carga[27] = [320 -- 3 --> 323]
Carga[28] = [269 -- 3 --> 272]
Carga[29] = [297 -- 3 --> 300]
Carga[30] = [325 -- 3 --> 328]
Carga[31] = [96 -- 3 --> 99]
Carga[32] = [107 -- 3 --> 110]
Carga[33] = [118 -- 3 --> 121]
Carga[34] = [129 -- 3 --> 132]
Carga[35] = [140 -- 3 --> 143]
Carga[36] = [151 -- 3 --> 154]
Carga[37] = [366 -- 3 --> 369]
Carga[38] = [390 -- 3 --> 393]
Carga[39] = [414 -- 3 --> 417]
Carga[40] = [438 -- 3 --> 441]
Carga[41] = [462 -- 3 --> 465]
Carga[42] = [486 -- 3 --> 489]
Carga[43] = [510 -- 3 --> 513]
Carga[44] = [534 -- 3 --> 537]
Carga[45] = [559 -- 3 --> 562]
Carga[46] = [578 -- 3 --> 581]
Carga[47] = [597 -- 3 --> 600]
Carga[48] = [616 -- 3 --> 619]
Carga[49] = [635 -- 3 --> 638]
Carga[50] = [654 -- 3 --> 657]
Carga[51] = [673 -- 3 --> 676]
Carga[52] = [692 -- 3 --> 695]
Carga[53] = [711 -- 3 --> 714]
Carga[54] = [725 -- 3 --> 728]
Carga[55] = [399 -- 3 --> 402]
Carga[56] = [620 -- 3 --> 623]
Carga[57] = [676 -- 3 --> 679]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [300 -- 60 --> 360]
ParadaComida[9] = [303 -- 60 --> 363]
ParadaComida[10] = [331 -- 60 --> 391]
ParadaComida[11] = [359 -- 60 --> 419]
ParadaComida[12] = [360 -- 60 --> 420]
ParadaComida[13] = [360 -- 60 --> 420]
ParadaComida[14] = [360 -- 60 --> 420]
ParadaComida[15] = [360 -- 60 --> 420]

makespan = [775 -- 0 --> 775]
Truck = Discrete Resource
 required by ParadaComida[15] over [360,420]
in capacity 1
 required by ParadaComida[14] over [360,420]
in capacity 1



required by ParadaComida[13] over [360,420] in capacity 1
required by ParadaComida[12] over [360,420] in capacity 1
required by ParadaComida[11] over [359,419] in capacity 1
required by ParadaComida[10] over [331,391] in capacity 1
required by ParadaComida[9] over [303,363] in capacity 1
required by ParadaComida[8] over [300,360] in capacity 1
required by ParadaComida[7] over [300,360] in capacity 1
required by ParadaComida[6] over [300,360] in capacity 1
required by ParadaComida[5] over [300,360] in capacity 1
required by ParadaComida[4] over [300,360] in capacity 1
required by ParadaComida[3] over [300,360] in capacity 1
required by ParadaComida[2] over [300,360] in capacity 1
required by ParadaComida[1] over [300,360] in capacity 1
required by a[57] over [676,697] in capacity 1
required by a[56] over [620,641] in capacity 1
required by a[55] over [399,436] in capacity 1
required by a[54] over [725,775] in capacity 1
required by a[53] over [711,761] in capacity 1
required by a[52] over [692,742] in capacity 1
required by a[51] over [673,723] in capacity 1
required by a[50] over [654,704] in capacity 1
required by a[49] over [635,685] in capacity 1
required by a[48] over [616,666] in capacity 1
required by a[47] over [597,647] in capacity 1
required by a[46] over [578,628] in capacity 1
required by a[45] over [559,609] in capacity 1
required by a[44] over [534,584] in capacity 1
required by a[43] over [510,560] in capacity 1
required by a[42] over [486,536] in capacity 1
required by a[41] over [462,512] in capacity 1
required by a[40] over [438,488] in capacity 1
required by a[39] over [414,464] in capacity 1
required by a[38] over [390,440] in capacity 1
required by a[37] over [366,416] in capacity 1
required by a[36] over [151,193] in capacity 1
required by a[35] over [140,182] in capacity 1
required by a[34] over [129,171] in capacity 1
required by a[33] over [118,160] in capacity 1
required by a[32] over [107,149] in capacity 1
required by a[31] over [96,138] in capacity 1
required by a[30] over [325,359] in capacity 1
required by a[29] over [297,331] in capacity 1
required by a[28] over [269,303] in capacity 1
required by a[27] over [320,362] in capacity 1

required by a[26] over [306,348] in capacity 1
required by a[25] over [292,334] in capacity 1
required by a[24] over [278,320] in capacity 1
required by a[23] over [264,306] in capacity 1
required by a[22] over [250,292] in capacity 1
required by a[21] over [236,278] in capacity 1
required by a[20] over [222,264] in capacity 1
required by a[19] over [418,519] in capacity 1
required by a[18] over [397,498] in capacity 1
required by a[17] over [376,477] in capacity 1
required by a[16] over [355,456] in capacity 1
required by a[15] over [334,435] in capacity 1
required by a[14] over [727,746] in capacity 1
required by a[13] over [672,691] in capacity 1
required by a[12] over [251,306] in capacity 1
required by a[11] over [196,251] in capacity 1
required by a[10] over [157,194] in capacity 1
required by a[9] over [93,125] in capacity 1
required by a[8] over [54,86] in capacity 1
required by a[7] over [0,32] in capacity 1
required by a[6] over [363,384] in capacity 1
required by a[5] over [328,349] in capacity 1
required by a[4] over [293,314] in capacity 1
required by a[3] over [353,377] in capacity 1
required by a[2] over [407,438] in capacity 1
required by a[1] over [123,139] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[57] over [676,679] in capacity 1
required by Carga[56] over [620,623] in capacity 1
required by Carga[55] over [399,402] in capacity 1
required by Carga[54] over [725,728] in capacity 1
required by Carga[53] over [711,714] in capacity 1
required by Carga[52] over [692,695] in capacity 1
required by Carga[51] over [673,676] in capacity 1
required by Carga[50] over [654,657] in capacity 1
required by Carga[49] over [635,638] in capacity 1
required by Carga[48] over [616,619] in capacity 1
required by Carga[47] over [597,600] in capacity 1
required by Carga[46] over [578,581] in capacity 1
required by Carga[45] over [559,562] in capacity 1
required by Carga[44] over [534,537] in capacity 1



required by Carga[43] over [510,513] in capacity 1
required by Carga[42] over [486,489] in capacity 1
required by Carga[41] over [462,465] in capacity 1
required by Carga[40] over [438,441] in capacity 1
required by Carga[39] over [414,417] in capacity 1
required by Carga[38] over [390,393] in capacity 1
required by Carga[37] over [366,369] in capacity 1
required by Carga[36] over [151,154] in capacity 1
required by Carga[35] over [140,143] in capacity 1
required by Carga[34] over [129,132] in capacity 1
required by Carga[33] over [118,121] in capacity 1
required by Carga[32] over [107,110] in capacity 1
required by Carga[31] over [96,99] in capacity 1
required by Carga[30] over [325,328] in capacity 1
required by Carga[29] over [297,300] in capacity 1
required by Carga[28] over [269,272] in capacity 1
required by Carga[27] over [320,323] in capacity 1
required by Carga[26] over [306,309] in capacity 1
required by Carga[25] over [292,295] in capacity 1
required by Carga[24] over [278,281] in capacity 1
required by Carga[23] over [264,267] in capacity 1
required by Carga[22] over [250,253] in capacity 1
required by Carga[21] over [236,239] in capacity 1
required by Carga[20] over [222,225] in capacity 1
required by Carga[19] over [418,421] in capacity 1
required by Carga[18] over [397,400] in capacity 1
required by Carga[17] over [376,379] in capacity 1
required by Carga[16] over [355,358] in capacity 1

required by Carga[15] over [334,337] in capacity 1
required by Carga[14] over [727,730] in capacity 1
required by Carga[13] over [672,675] in capacity 1
required by Carga[12] over [251,254] in capacity 1
required by Carga[11] over [196,199] in capacity 1
required by Carga[10] over [157,160] in capacity 1
required by Carga[9] over [93,96] in capacity 1
required by Carga[8] over [54,57] in capacity 1
required by Carga[7] over [0,3] in capacity 1
required by Carga[6] over [363,366] in capacity 1
required by Carga[5] over [328,331] in capacity 1
required by Carga[4] over [293,296] in capacity 1
required by Carga[3] over [353,356] in capacity 1
required by Carga[2] over [407,410] in capacity 1
required by Carga[1] over [123,126] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 15
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 0
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0



Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 0
Margen[38] = 0
Margen[39] = 0
Margen[40] = 0
Margen[41] = 0
Margen[42] = 0
Margen[43] = 0
Margen[44] = 0
Margen[45] = 0
Margen[46] = 0
Margen[47] = 0
Margen[48] = 0
Margen[49] = 0
Margen[50] = 0
Margen[51] = 0
Margen[52] = 0
Margen[53] = 0
Margen[54] = 5
Margen[55] = 0
Margen[56] = 0
Margen[57] = 0

Scheduling 20.1

Optimal Solution with Objective Value: 559

a[1] = [334 -- 48 --> 382]
a[2] = [48 -- 61 --> 109]
a[3] = [84 -- 61 --> 145]
a[4] = [120 -- 61 --> 181]
a[5] = [324 -- 48 --> 372]
a[6] = [370 -- 48 --> 418]
a[7] = [56 -- 61 --> 117]
a[8] = [402 -- 45 --> 447]
a[9] = [415 -- 45 --> 460]
a[10] = [428 -- 45 --> 473]
a[11] = [441 -- 45 --> 486]
a[12] = [454 -- 45 --> 499]
a[13] = [467 -- 45 --> 512]
a[14] = [480 -- 45 --> 525]
a[15] = [493 -- 45 --> 538]
a[16] = [506 -- 45 --> 551]
a[17] = [514 -- 45 --> 559]
a[18] = [95 -- 48 --> 143]
a[19] = [394 -- 56 --> 450]
a[20] = [423 -- 56 --> 479]
a[21] = [452 -- 56 --> 508]
a[22] = [481 -- 56 --> 537]
a[23] = [274 -- 32 --> 306]

a[24] = [301 -- 32 --> 333]
a[25] = [328 -- 32 --> 360]
a[26] = [124 -- 64 --> 188]
a[27] = [151 -- 64 --> 215]
a[28] = [178 -- 64 --> 242]
a[29] = [205 -- 64 --> 269]
a[30] = [232 -- 64 --> 296]
a[31] = [259 -- 64 --> 323]
a[32] = [286 -- 64 --> 350]
a[33] = [313 -- 64 --> 377]
a[34] = [65 -- 32 --> 97]
a[35] = [81 -- 32 --> 113]
a[36] = [97 -- 32 --> 129]
a[37] = [113 -- 32 --> 145]
a[38] = [278 -- 32 --> 310]
a[39] = [289 -- 32 --> 321]
a[40] = [300 -- 32 --> 332]
a[41] = [311 -- 32 --> 343]
a[42] = [322 -- 32 --> 354]
a[43] = [294 -- 40 --> 334]
a[44] = [35 -- 22 --> 57]
a[45] = [72 -- 22 --> 94]

Carga[1] = [334 -- 6 --> 340]
Carga[2] = [48 -- 6 --> 54]
Carga[3] = [84 -- 6 --> 90]
Carga[4] = [120 -- 6 --> 126]
Carga[5] = [324 -- 6 --> 330]
Carga[6] = [370 -- 6 --> 376]
Carga[7] = [56 -- 6 --> 62]
Carga[8] = [402 -- 6 --> 408]
Carga[9] = [415 -- 6 --> 421]
Carga[10] = [428 -- 6 --> 434]
Carga[11] = [441 -- 6 --> 447]
Carga[12] = [454 -- 6 --> 460]
Carga[13] = [467 -- 6 --> 473]
Carga[14] = [480 -- 6 --> 486]
Carga[15] = [493 -- 6 --> 499]
Carga[16] = [506 -- 6 --> 512]
Carga[17] = [514 -- 6 --> 520]
Carga[18] = [95 -- 6 --> 101]
Carga[19] = [394 -- 6 --> 400]
Carga[20] = [423 -- 6 --> 429]
Carga[21] = [452 -- 6 --> 458]
Carga[22] = [481 -- 6 --> 487]
Carga[23] = [274 -- 6 --> 280]
Carga[24] = [301 -- 6 --> 307]
Carga[25] = [328 -- 6 --> 334]
Carga[26] = [124 -- 6 --> 130]
Carga[27] = [151 -- 6 --> 157]
Carga[28] = [178 -- 6 --> 184]
Carga[29] = [205 -- 6 --> 211]
Carga[30] = [232 -- 6 --> 238]
Carga[31] = [259 -- 6 --> 265]
Carga[32] = [286 -- 6 --> 292]
Carga[33] = [313 -- 6 --> 319]
Carga[34] = [65 -- 6 --> 71]



Carga[35] = [81 -- 6 --> 87]
Carga[36] = [97 -- 6 --> 103]
Carga[37] = [113 -- 6 --> 119]
Carga[38] = [278 -- 6 --> 284]
Carga[39] = [289 -- 6 --> 295]
Carga[40] = [300 -- 6 --> 306]
Carga[41] = [311 -- 6 --> 317]
Carga[42] = [322 -- 6 --> 328]
Carga[43] = [294 -- 6 --> 300]
Carga[44] = [35 -- 6 --> 41]
Carga[45] = [72 -- 6 --> 78]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [332 -- 60 --> 392]
ParadaComida[5] = [333 -- 60 --> 393]
ParadaComida[6] = [343 -- 60 --> 403]
ParadaComida[7] = [350 -- 60 --> 410]
ParadaComida[8] = [354 -- 60 --> 414]
ParadaComida[9] = [360 -- 60 --> 420]
ParadaComida[10] = [360 -- 60 --> 420]
ParadaComida[11] = [360 -- 60 --> 420]
ParadaComida[12] = [372 -- 60 --> 432]

makespan = [559 -- 0 --> 559]
Truck = Discrete Resource
required by ParadaComida[12] over [372,432]
in capacity 1
required by ParadaComida[11] over [360,420]
in capacity 1
required by ParadaComida[10] over [360,420]
in capacity 1
required by ParadaComida[9] over [360,420]
in capacity 1
required by ParadaComida[8] over [354,414]
in capacity 1
required by ParadaComida[7] over [350,410]
in capacity 1
required by ParadaComida[6] over [343,403]
in capacity 1
required by ParadaComida[5] over [333,393]
in capacity 1
required by ParadaComida[4] over [332,392]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[45] over [72,94] in capacity 1
required by a[44] over [35,57] in capacity 1
required by a[43] over [294,334] in capacity 1
required by a[42] over [322,354] in capacity 1
required by a[41] over [311,343] in capacity 1
required by a[40] over [300,332] in capacity 1

required by a[39] over [289,321] in capacity 1
required by a[38] over [278,310] in capacity 1
required by a[37] over [113,145] in capacity 1
required by a[36] over [97,129] in capacity 1
required by a[35] over [81,113] in capacity 1
required by a[34] over [65,97] in capacity 1
required by a[33] over [313,377] in capacity 1
required by a[32] over [286,350] in capacity 1
required by a[31] over [259,323] in capacity 1
required by a[30] over [232,296] in capacity 1
required by a[29] over [205,269] in capacity 1
required by a[28] over [178,242] in capacity 1
required by a[27] over [151,215] in capacity 1
required by a[26] over [124,188] in capacity 1
required by a[25] over [328,360] in capacity 1
required by a[24] over [301,333] in capacity 1
required by a[23] over [274,306] in capacity 1
required by a[22] over [481,537] in capacity 1
required by a[21] over [452,508] in capacity 1
required by a[20] over [423,479] in capacity 1
required by a[19] over [394,450] in capacity 1
required by a[18] over [95,143] in capacity 1
required by a[17] over [514,559] in capacity 1
required by a[16] over [506,551] in capacity 1
required by a[15] over [493,538] in capacity 1
required by a[14] over [480,525] in capacity 1
required by a[13] over [467,512] in capacity 1
required by a[12] over [454,499] in capacity 1
required by a[11] over [441,486] in capacity 1
required by a[10] over [428,473] in capacity 1
required by a[9] over [415,460] in capacity 1
required by a[8] over [402,447] in capacity 1
required by a[7] over [56,117] in capacity 1
required by a[6] over [370,418] in capacity 1
required by a[5] over [324,372] in capacity 1
required by a[4] over [120,181] in capacity 1
required by a[3] over [84,145] in capacity 1
required by a[2] over [48,109] in capacity 1
required by a[1] over [334,382] in capacity 1

PuntoCarga = Discrete Resource
required by Carga[45] over [72,78] in capacity 1
required by Carga[44] over [35,41] in capacity 1
required by Carga[43] over [294,300] in capacity 1
required by Carga[42] over [322,328] in capacity 1
required by Carga[41] over [311,317] in capacity 1
required by Carga[40] over [300,306] in capacity 1
required by Carga[39] over [289,295] in capacity 1
required by Carga[38] over [278,284] in capacity 1



required by Carga[37] over [113,119] in capacity 1
required by Carga[36] over [97,103] in capacity 1
required by Carga[35] over [81,87] in capacity 1
required by Carga[34] over [65,71] in capacity 1
required by Carga[33] over [313,319] in capacity 1
required by Carga[32] over [286,292] in capacity 1
required by Carga[31] over [259,265] in capacity 1
required by Carga[30] over [232,238] in capacity 1
required by Carga[29] over [205,211] in capacity 1
required by Carga[28] over [178,184] in capacity 1
required by Carga[27] over [151,157] in capacity 1
required by Carga[26] over [124,130] in capacity 1
required by Carga[25] over [328,334] in capacity 1
required by Carga[24] over [301,307] in capacity 1
required by Carga[23] over [274,280] in capacity 1
required by Carga[22] over [481,487] in capacity 1
required by Carga[21] over [452,458] in capacity 1
required by Carga[20] over [423,429] in capacity 1
required by Carga[19] over [394,400] in capacity 1
required by Carga[18] over [95,101] in capacity 1
required by Carga[17] over [514,520] in capacity 1
required by Carga[16] over [506,512] in capacity 1
required by Carga[15] over [493,499] in capacity 1
required by Carga[14] over [480,486] in capacity 1
required by Carga[13] over [467,473] in capacity 1
required by Carga[12] over [454,460] in capacity 1
required by Carga[11] over [441,447] in capacity 1
required by Carga[10] over [428,434] in capacity 1

required by Carga[9] over [415,421] in capacity 1
required by Carga[8] over [402,408] in capacity 1
required by Carga[7] over [56,62] in capacity 1
required by Carga[6] over [370,376] in capacity 1
required by Carga[5] over [324,330] in capacity 1
required by Carga[4] over [120,126] in capacity 1
required by Carga[3] over [84,90] in capacity 1
required by Carga[2] over [48,54] in capacity 1
required by Carga[1] over [334,340] in capacity 1

Margen[1] = 0
Margen[2] = 0
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 0
Margen[11] = 0
Margen[12] = 0
Margen[13] = 0
Margen[14] = 0
Margen[15] = 0
Margen[16] = 0
Margen[17] = 5
Margen[18] = 0
Margen[19] = 0
Margen[20] = 0
Margen[21] = 0
Margen[22] = 0
Margen[23] = 0
Margen[24] = 0
Margen[25] = 0
Margen[26] = 0
Margen[27] = 0
Margen[28] = 0
Margen[29] = 0
Margen[30] = 0
Margen[31] = 0
Margen[32] = 0
Margen[33] = 0
Margen[34] = 0
Margen[35] = 0
Margen[36] = 0
Margen[37] = 0
Margen[38] = 0



Margen[39] = 0
Margen[40] = 0
Margen[41] = 0
Margen[42] = 0
Margen[43] = 0
Margen[44] = 0
Margen[45] = 0

Scheduling 20.2

Optimal Solution with Objective Value: 264

a[1] = [103 -- 42 --> 145]
a[2] = [109 -- 19 --> 128]
a[3] = [124 -- 19 --> 143]
a[4] = [142 -- 19 --> 161]
a[5] = [160 -- 19 --> 179]
a[6] = [178 -- 19 --> 197]
a[7] = [196 -- 19 --> 215]
a[8] = [214 -- 19 --> 233]
a[9] = [232 -- 19 --> 251]
a[10] = [245 -- 19 --> 264]

Carga[1] = [103 -- 6 --> 109]
Carga[2] = [109 -- 6 --> 115]
Carga[3] = [124 -- 6 --> 130]
Carga[4] = [142 -- 6 --> 148]
Carga[5] = [160 -- 6 --> 166]
Carga[6] = [178 -- 6 --> 184]
Carga[7] = [196 -- 6 --> 202]
Carga[8] = [214 -- 6 --> 220]
Carga[9] = [232 -- 6 --> 238]
Carga[10] = [245 -- 6 --> 251]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]

makespan = [264 -- 0 --> 264]
Truck = Discrete Resource
required by ParadaComida[3] over [300,360]
in capacity 1
required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[10] over [245,264] in capacity 1
required by a[9] over [232,251] in capacity 1
required by a[8] over [214,233] in capacity 1
required by a[7] over [196,215] in capacity 1
required by a[6] over [178,197] in capacity 1
required by a[5] over [160,179] in capacity 1
required by a[4] over [142,161] in capacity 1
required by a[3] over [124,143] in capacity 1
required by a[2] over [109,128] in capacity 1
required by a[1] over [103,145] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[10] over [245,251] in capacity 1
required by Carga[9] over [232,238] in capacity 1
required by Carga[8] over [214,220] in capacity 1
required by Carga[7] over [196,202] in capacity 1
required by Carga[6] over [178,184] in capacity 1
required by Carga[5] over [160,166] in capacity 1
required by Carga[4] over [142,148] in capacity 1
required by Carga[3] over [124,130] in capacity 1
required by Carga[2] over [109,115] in capacity 1
required by Carga[1] over [103,109] in capacity 1

Margen[1] = 0
Margen[2] = 3
Margen[3] = 0
Margen[4] = 0
Margen[5] = 0
Margen[6] = 0
Margen[7] = 0
Margen[8] = 0
Margen[9] = 0
Margen[10] = 5

Scheduling 20.3

Optimal Solution with Objective Value: 760

a[1] = [67 -- 37 --> 104]
a[2] = [77 -- 37 --> 114]
a[3] = [87 -- 37 --> 124]
a[4] = [97 -- 37 --> 134]
a[5] = [107 -- 37 --> 144]
a[6] = [117 -- 37 --> 154]
a[7] = [127 -- 37 --> 164]
a[8] = [137 -- 37 --> 174]
a[9] = [225 -- 63 --> 288]
a[10] = [259 -- 63 --> 322]
a[11] = [512 -- 58 --> 570]
a[12] = [557 -- 58 --> 615]
a[13] = [272 -- 31 --> 303]
a[14] = [322 -- 31 --> 353]
a[15] = [493 -- 29 --> 522]
a[16] = [591 -- 24 --> 615]
a[17] = [641 -- 24 --> 665]
a[18] = [691 -- 24 --> 715]
a[19] = [736 -- 24 --> 760]
a[20] = [211 -- 42 --> 253]
a[21] = [260 -- 31 --> 291]
a[22] = [291 -- 31 --> 322]



a[23] = [322 -- 31 --> 353]
a[24] = [435 -- 71 --> 506]
a[25] = [474 -- 71 --> 545]
a[26] = [513 -- 71 --> 584]
a[27] = [0 -- 19 --> 19]
a[28] = [31 -- 19 --> 50]
a[29] = [54 -- 19 --> 73]
a[30] = [77 -- 19 --> 96]
a[31] = [100 -- 19 --> 119]
a[32] = [123 -- 19 --> 142]
a[33] = [146 -- 19 --> 165]
a[34] = [169 -- 19 --> 188]
a[35] = [148 -- 29 --> 177]
a[36] = [124 -- 58 --> 182]
a[37] = [134 -- 58 --> 192]
a[38] = [144 -- 58 --> 202]
a[39] = [476 -- 45 --> 521]
a[40] = [531 -- 45 --> 576]
a[41] = [586 -- 45 --> 631]
a[42] = [285 -- 32 --> 317]
a[43] = [24 -- 45 --> 69]
a[44] = [168 -- 37 --> 205]
a[45] = [204 -- 37 --> 241]
a[46] = [240 -- 37 --> 277]
a[47] = [130 -- 21 --> 151]
a[48] = [166 -- 21 --> 187]
a[49] = [211 -- 21 --> 232]
a[50] = [254 -- 21 --> 275]
a[51] = [460 -- 48 --> 508]
a[52] = [518 -- 48 --> 566]
a[53] = [576 -- 48 --> 624]
a[54] = [634 -- 48 --> 682]
a[55] = [428 -- 39 --> 467]
a[56] = [496 -- 31 --> 527]
a[57] = [556 -- 31 --> 587]
a[58] = [496 -- 53 --> 549]
a[59] = [524 -- 53 --> 577]
a[60] = [119 -- 45 --> 164]
a[61] = [165 -- 45 --> 210]
a[62] = [223 -- 19 --> 242]
a[63] = [253 -- 19 --> 272]
a[64] = [283 -- 19 --> 302]
a[65] = [313 -- 19 --> 332]
a[66] = [343 -- 19 --> 362]
a[67] = [403 -- 21 --> 424]
a[68] = [441 -- 21 --> 462]
a[69] = [479 -- 21 --> 500]

Carga[1] = [67 -- 3 --> 70]
Carga[2] = [77 -- 3 --> 80]
Carga[3] = [87 -- 3 --> 90]
Carga[4] = [97 -- 3 --> 100]
Carga[5] = [107 -- 3 --> 110]
Carga[6] = [117 -- 3 --> 120]
Carga[7] = [127 -- 3 --> 130]
Carga[8] = [137 -- 3 --> 140]
Carga[9] = [225 -- 3 --> 228]

Carga[10] = [259 -- 3 --> 262]
Carga[11] = [512 -- 3 --> 515]
Carga[12] = [557 -- 3 --> 560]
Carga[13] = [272 -- 3 --> 275]
Carga[14] = [322 -- 3 --> 325]
Carga[15] = [493 -- 3 --> 496]
Carga[16] = [591 -- 3 --> 594]
Carga[17] = [641 -- 3 --> 644]
Carga[18] = [691 -- 3 --> 694]
Carga[19] = [736 -- 3 --> 739]
Carga[20] = [211 -- 3 --> 214]
Carga[21] = [260 -- 3 --> 263]
Carga[22] = [291 -- 3 --> 294]
Carga[23] = [322 -- 3 --> 325]
Carga[24] = [435 -- 3 --> 438]
Carga[25] = [474 -- 3 --> 477]
Carga[26] = [513 -- 3 --> 516]
Carga[27] = [0 -- 3 --> 3]
Carga[28] = [31 -- 3 --> 34]
Carga[29] = [54 -- 3 --> 57]
Carga[30] = [77 -- 3 --> 80]
Carga[31] = [100 -- 3 --> 103]
Carga[32] = [123 -- 3 --> 126]
Carga[33] = [146 -- 3 --> 149]
Carga[34] = [169 -- 3 --> 172]
Carga[35] = [148 -- 3 --> 151]
Carga[36] = [124 -- 3 --> 127]
Carga[37] = [134 -- 3 --> 137]
Carga[38] = [144 -- 3 --> 147]
Carga[39] = [476 -- 3 --> 479]
Carga[40] = [531 -- 3 --> 534]
Carga[41] = [586 -- 3 --> 589]
Carga[42] = [285 -- 3 --> 288]
Carga[43] = [24 -- 3 --> 27]
Carga[44] = [168 -- 3 --> 171]
Carga[45] = [204 -- 3 --> 207]
Carga[46] = [240 -- 3 --> 243]
Carga[47] = [130 -- 3 --> 133]
Carga[48] = [166 -- 3 --> 169]
Carga[49] = [211 -- 3 --> 214]
Carga[50] = [254 -- 3 --> 257]
Carga[51] = [460 -- 3 --> 463]
Carga[52] = [518 -- 3 --> 521]
Carga[53] = [576 -- 3 --> 579]
Carga[54] = [634 -- 3 --> 637]
Carga[55] = [428 -- 3 --> 431]
Carga[56] = [496 -- 3 --> 499]
Carga[57] = [556 -- 3 --> 559]
Carga[58] = [496 -- 3 --> 499]
Carga[59] = [524 -- 3 --> 527]
Carga[60] = [119 -- 3 --> 122]
Carga[61] = [165 -- 3 --> 168]
Carga[62] = [223 -- 3 --> 226]
Carga[63] = [253 -- 3 --> 256]
Carga[64] = [283 -- 3 --> 286]
Carga[65] = [313 -- 3 --> 316]
Carga[66] = [343 -- 3 --> 346]



Carga[67] = [403 -- 3 --> 406]
Carga[68] = [441 -- 3 --> 444]
Carga[69] = [479 -- 3 --> 482]

ParadaComida[1] = [300 -- 60 --> 360]
ParadaComida[2] = [300 -- 60 --> 360]
ParadaComida[3] = [300 -- 60 --> 360]
ParadaComida[4] = [300 -- 60 --> 360]
ParadaComida[5] = [300 -- 60 --> 360]
ParadaComida[6] = [300 -- 60 --> 360]
ParadaComida[7] = [300 -- 60 --> 360]
ParadaComida[8] = [300 -- 60 --> 360]
ParadaComida[9] = [300 -- 60 --> 360]
ParadaComida[10] = [300 -- 60 --> 360]
ParadaComida[11] = [300 -- 60 --> 360]
ParadaComida[12] = [300 -- 60 --> 360]
ParadaComida[13] = [300 -- 60 --> 360]
ParadaComida[14] = [302 -- 60 --> 362]
ParadaComida[15] = [317 -- 60 --> 377]
ParadaComida[16] = [353 -- 60 --> 413]
ParadaComida[17] = [353 -- 60 --> 413]
ParadaComida[18] = [360 -- 60 --> 420]

makespan = [760 -- 0 --> 760]

Truck = Discrete Resource

required by ParadaComida[18] over [360,420]
in capacity 1
required by ParadaComida[17] over [353,413]
in capacity 1
required by ParadaComida[16] over [353,413]
in capacity 1
required by ParadaComida[15] over [317,377]
in capacity 1
required by ParadaComida[14] over [302,362]
in capacity 1
required by ParadaComida[13] over [300,360]
in capacity 1
required by ParadaComida[12] over [300,360]
in capacity 1
required by ParadaComida[11] over [300,360]
in capacity 1
required by ParadaComida[10] over [300,360]
in capacity 1
required by ParadaComida[9] over [300,360]
in capacity 1
required by ParadaComida[8] over [300,360]
in capacity 1
required by ParadaComida[7] over [300,360]
in capacity 1
required by ParadaComida[6] over [300,360]
in capacity 1
required by ParadaComida[5] over [300,360]
in capacity 1
required by ParadaComida[4] over [300,360]
in capacity 1
required by ParadaComida[3] over [300,360]
in capacity 1

required by ParadaComida[2] over [300,360]
in capacity 1
required by ParadaComida[1] over [300,360]
in capacity 1
required by a[69] over [479,500] in capacity 1
required by a[68] over [441,462] in capacity 1
required by a[67] over [403,424] in capacity 1
required by a[66] over [343,362] in capacity 1
required by a[65] over [313,332] in capacity 1
required by a[64] over [283,302] in capacity 1
required by a[63] over [253,272] in capacity 1
required by a[62] over [223,242] in capacity 1
required by a[61] over [165,210] in capacity 1
required by a[60] over [119,164] in capacity 1
required by a[59] over [524,577] in capacity 1
required by a[58] over [496,549] in capacity 1
required by a[57] over [556,587] in capacity 1
required by a[56] over [496,527] in capacity 1
required by a[55] over [428,467] in capacity 1
required by a[54] over [634,682] in capacity 1
required by a[53] over [576,624] in capacity 1
required by a[52] over [518,566] in capacity 1
required by a[51] over [460,508] in capacity 1
required by a[50] over [254,275] in capacity 1
required by a[49] over [211,232] in capacity 1
required by a[48] over [166,187] in capacity 1
required by a[47] over [130,151] in capacity 1
required by a[46] over [240,277] in capacity 1
required by a[45] over [204,241] in capacity 1
required by a[44] over [168,205] in capacity 1
required by a[43] over [24,69] in capacity 1
required by a[42] over [285,317] in capacity 1
required by a[41] over [586,631] in capacity 1
required by a[40] over [531,576] in capacity 1
required by a[39] over [476,521] in capacity 1
required by a[38] over [144,202] in capacity 1
required by a[37] over [134,192] in capacity 1
required by a[36] over [124,182] in capacity 1
required by a[35] over [148,177] in capacity 1
required by a[34] over [169,188] in capacity 1
required by a[33] over [146,165] in capacity 1
required by a[32] over [123,142] in capacity 1
required by a[31] over [100,119] in capacity 1
required by a[30] over [77,96] in capacity 1
required by a[29] over [54,73] in capacity 1
required by a[28] over [31,50] in capacity 1
required by a[27] over [0,19] in capacity 1
required by a[26] over [513,584] in capacity 1
required by a[25] over [474,545] in capacity 1
required by a[24] over [435,506] in capacity 1
required by a[23] over [322,353] in capacity 1
required by a[22] over [291,322] in capacity 1
required by a[21] over [260,291] in capacity 1
required by a[20] over [211,253] in capacity 1
required by a[19] over [736,760] in capacity 1
required by a[18] over [691,715] in capacity 1
required by a[17] over [641,665] in capacity 1



required by a[16] over [591,615] in capacity 1
required by a[15] over [493,522] in capacity 1
required by a[14] over [322,353] in capacity 1
required by a[13] over [272,303] in capacity 1
required by a[12] over [557,615] in capacity 1
required by a[11] over [512,570] in capacity 1
required by a[10] over [259,322] in capacity 1
required by a[9] over [225,288] in capacity 1
required by a[8] over [137,174] in capacity 1
required by a[7] over [127,164] in capacity 1
required by a[6] over [117,154] in capacity 1
required by a[5] over [107,144] in capacity 1
required by a[4] over [97,134] in capacity 1
required by a[3] over [87,124] in capacity 1
required by a[2] over [77,114] in capacity 1
required by a[1] over [67,104] in capacity 1

PuntoCarga = Discrete Resource

required by Carga[69] over [479,482] in capacity 1
required by Carga[68] over [441,444] in capacity 1
required by Carga[67] over [403,406] in capacity 1
required by Carga[66] over [343,346] in capacity 1
required by Carga[65] over [313,316] in capacity 1
required by Carga[64] over [283,286] in capacity 1
required by Carga[63] over [253,256] in capacity 1
required by Carga[62] over [223,226] in capacity 1
required by Carga[61] over [165,168] in capacity 1
required by Carga[60] over [119,122] in capacity 1
required by Carga[59] over [524,527] in capacity 1
required by Carga[58] over [496,499] in capacity 1
required by Carga[57] over [556,559] in capacity 1
required by Carga[56] over [496,499] in capacity 1
required by Carga[55] over [428,431] in capacity 1
required by Carga[54] over [634,637] in capacity 1
required by Carga[53] over [576,579] in capacity 1
required by Carga[52] over [518,521] in capacity 1
required by Carga[51] over [460,463] in capacity 1

required by Carga[50] over [254,257] in capacity 1
required by Carga[49] over [211,214] in capacity 1
required by Carga[48] over [166,169] in capacity 1
required by Carga[47] over [130,133] in capacity 1
required by Carga[46] over [240,243] in capacity 1
required by Carga[45] over [204,207] in capacity 1
required by Carga[44] over [168,171] in capacity 1
required by Carga[43] over [24,27] in capacity 1
required by Carga[42] over [285,288] in capacity 1
required by Carga[41] over [586,589] in capacity 1
required by Carga[40] over [531,534] in capacity 1
required by Carga[39] over [476,479] in capacity 1
required by Carga[38] over [144,147] in capacity 1
required by Carga[37] over [134,137] in capacity 1
required by Carga[36] over [124,127] in capacity 1
required by Carga[35] over [148,151] in capacity 1
required by Carga[34] over [169,172] in capacity 1
required by Carga[33] over [146,149] in capacity 1
required by Carga[32] over [123,126] in capacity 1
required by Carga[31] over [100,103] in capacity 1
required by Carga[30] over [77,80] in capacity 1
required by Carga[29] over [54,57] in capacity 1
required by Carga[28] over [31,34] in capacity 1
required by Carga[27] over [0,3] in capacity 1
required by Carga[26] over [513,516] in capacity 1
required by Carga[25] over [474,477] in capacity 1
required by Carga[24] over [435,438] in capacity 1
required by Carga[23] over [322,325] in capacity 1
required by Carga[22] over [291,294] in capacity 1



required by Carga[21] over [260,263] in capacity 1	Margen[15] = 0
required by Carga[20] over [211,214] in capacity 1	Margen[16] = 0
required by Carga[19] over [736,739] in capacity 1	Margen[17] = 0
required by Carga[18] over [691,694] in capacity 1	Margen[18] = 0
required by Carga[17] over [641,644] in capacity 1	Margen[19] = 5
required by Carga[16] over [591,594] in capacity 1	Margen[20] = 0
required by Carga[15] over [493,496] in capacity 1	Margen[21] = 0
required by Carga[14] over [322,325] in capacity 1	Margen[22] = 0
required by Carga[13] over [272,275] in capacity 1	Margen[23] = 0
required by Carga[12] over [557,560] in capacity 1	Margen[24] = 0
required by Carga[11] over [512,515] in capacity 1	Margen[25] = 0
required by Carga[10] over [259,262] in capacity 1	Margen[26] = 0
required by Carga[9] over [225,228] in capacity 1	Margen[27] = 8
required by Carga[8] over [137,140] in capacity 1	Margen[28] = 0
required by Carga[7] over [127,130] in capacity 1	Margen[29] = 0
required by Carga[6] over [117,120] in capacity 1	Margen[30] = 0
required by Carga[5] over [107,110] in capacity 1	Margen[31] = 0
required by Carga[4] over [97,100] in capacity 1	Margen[32] = 0
required by Carga[3] over [87,90] in capacity 1	Margen[33] = 0
required by Carga[2] over [77,80] in capacity 1	Margen[34] = 0
required by Carga[1] over [67,70] in capacity 1	Margen[35] = 0
Margen[1] = 0	Margen[36] = 0
Margen[2] = 0	Margen[37] = 0
Margen[3] = 0	Margen[38] = 0
Margen[4] = 0	Margen[39] = 0
Margen[5] = 0	Margen[40] = 0
Margen[6] = 0	Margen[41] = 0
Margen[7] = 0	Margen[42] = 0
Margen[8] = 0	Margen[43] = 0
Margen[9] = 0	Margen[44] = 0
Margen[10] = 0	Margen[45] = 0
Margen[11] = 0	Margen[46] = 0
Margen[12] = 0	Margen[47] = 0
Margen[13] = 0	Margen[48] = 2
Margen[14] = 0	Margen[49] = 0
	Margen[50] = 0
	Margen[51] = 0
	Margen[52] = 0
	Margen[53] = 0
	Margen[54] = 0
	Margen[55] = 0
	Margen[56] = 0
	Margen[57] = 0
	Margen[58] = 0
	Margen[59] = 0
	Margen[60] = 0
	Margen[61] = 0
	Margen[62] = 0
	Margen[63] = 0
	Margen[64] = 0
	Margen[65] = 0
	Margen[66] = 0
	Margen[67] = 0
	Margen[68] = 0
	Margen[69] = 0

