Appendix I: Installation guide

This guide explains what are the steps to follow in order to install the application properly prepared to use it.

What we'll need:

- Apache HTTPD Web Server
  - Apache Version Used: Apache 2.2.6
- PHP
  - Last version is PHP 5.2.5, but I have used version 5.2.3 that was the last at the moment I started the project.
- Zend Optimizer: We'll use this to optimize all of the PHP development we'll be doing.
  - Zend Optimizer Version 3.3
- MySQL Database Server
  - Last version is MySQL 5.0.45, but I have used version 5.0.41 that was the last at the moment I started the project.
- phpMyAdmin Database Manager
  - phpMyAdmin Version Used: phpMyAdmin 2.11.4

I will explain the installation for a Windows operating system, but it can be done for other operating systems.
And also exists packages that includes Apache+MySQL+PHP+phpMyAdmin with an easy installation for different operating systems:

- MAMP: for Mac OS X. http://www.mamp.info

Download locations:

- MySQL: http://dev.mysql.com/downloads/mysql/5.0.html

You have all the necessary installers on the directory "installers" in the CD.
Install Apache

Locate the Apache installer apache_2.2.6-win32-x86-no_ssl.msi and double click it. This will launch the Apache automated installer for us, there are a few options we'll need to set along the way.

1. This first screen we'll see will be the front of the installer. Basically this just gives you a little information about what we're about to install. Click on Next.

![Image of the Installation Wizard screen](image1)

2. Next we'll have a license agreement that we must accept to continue the installation of Apache. Select "I accept the terms in the license agreement" and click Next.

![Image of the License Agreement screen](image2)
3. The next screen we have basically explains what we're installing and some useful information about the application and where we can locate updates and so on. Click Next.

![Apache HTTP Server 2.2 Installation Wizard](image)

4. Next we have the server information. This is just basic configurations for the server and doesn't take any time at all.

![Apache HTTP Server 2.2 Installation Wizard](image)

**Network Domain:** localhost  
**Server Name:** localhost  
**Administrator's Email Address:** Your email here

Then we'll select "for All Users, on Port 80, as a Service – Recommended". This will start Apache as a service and run it automatically when the system reboots. This would be the best solution for users that want something quick and simple.

Click Next.
5. Next we have the selection of how we'd like to install it. Most users would simple use the default selection which is Complete. I'd prefer my documents be in another location as I'd like to organize the rest of my server applications in one folder in root. So we'll select Custom for this project and continue. Click Next.

![Apache HTTP Server 2.2 - Installation Wizard](image)

6. From the next window that appears, select "Apache HTTP Server" and click on the "Change..." button located in the bottom right.

![Apache HTTP Server 2.2 - Installation Wizard](image)

This will bring up a window similar to this one where we're able to change the location of the installation folder. I prefer all of my server applications to be in "C:\Server\Apache2.2\" so I can organize all of them in one folder. So we'll change the default to "C:\Server\Apache2.2\".
Click Ok and Next.

7. Once we've finished the above, the application will bring us to the ready to install window. Simple click on Install and the installer will begin the installation of Apache using our custom configurations.

8. As it's installing we'll see a window similar to this and several DOS windows will appear and disappear. This is normal, so do not worry about this. They will go away on there own and nothing needs to be done with them. The last DOS window will give a success status if everything went well.
9. Once everything is finished, we'll get a window similar to this. Simply click on Finish and we're done.

Apache is now installed in the location we provided and is configured using the settings we specified during installation.

10. Now we can test to see if Apache is installed and running correctly. Let's open our favorite browser and give it a try. Simply type in http://localhost/ as the URL and hit enter.

If you get a page similar to this, then everything went just fine and Apache is now installed and working correctly.
Remember that we setup Apache to run as a service so the only time the server needs to be stop or restarted is when changes to the httpd.conf file are made. This file contains all the configurations for the server.

httpd.conf is located inside the folder: C:\Server\Apache2.2\conf

We need to a little change at httpd.conf, change this line:

```html
<IfModule dir_module>
    DirectoryIndex index.html
</IfModule>
```

for this one:

```html
<IfModule dir_module>
    DirectoryIndex index.html index.php
</IfModule>
```

Install MySQL

Just bring up the MySQL zip file mysql-5.0.45-win32.zip and open it up. Inside this zip file will be a setup for, named "setup.exe". This file can be extracted or ran just where it is. Once it’s extracted and has been started, we’ll get a screen similar to this.

1. We’ll simple click next here.

![MySQL Setup Wizard](image)

2. The next screen we’ll see will be the selection for the setup type for our installation. We’re going to select Custom sense we have a few custom requests for the installer to perform.
3. The next screen we’re going to come to will be allow us to select the features we’d like to install in this session. We’ll leave this alone as its all setup correctly for what we’re trying to do.

We will need to change the location for the installation, so we’ll just select MySQL Server and then click on the Change button located in the bottom right.
Simply type in the location, in this case we’ll use “C:\Server\MySQL”. Then click on Ok.

4. We are now ready to install, just click on Install and sit back for a minute.

5. Once everything has been installed, you have to click next two times, are only promotional steps.

6. Now we get to configure the server to run the way we’d like for it to run. Click Finish.
7. The next screen is the start page for the Server Instance Configuration Wizard. Simply click next.

8. We’ll want to select Standard Configuration from the next screen.

Once this option has been selected, click on Next.
9. Now we get to make a few choices about our server, for this project we'll use "Install As Windows Service" and make sure "Launch the MySQL Server automatically" option is checked.

![MySQL Server Instance Configuration Wizard]

10. Next we'll need to select a root password, simply type a password you'd like to use for root access and let's write it down so we don't forget it. Also remember to check "Enable root access from remote machines". This will insure we can edit anything if needed from a remote location later on.

![MySQL Server Instance Configuration Wizard]

Default password of user root for the application is "root". If you have chosen one different we'll do a little change on Setup of the application later.

11. The next screen is simply the start screen for the configuration utility, letting us know what it's about to perform. Simply click on Execute.
12. Once everything is finished it will look like this and give a little information below about what has happened and if everything went ok.

13. Once we've finished the install we can check to make sure that MySQL is installed and working properly. Find the folder in the start menu where MySQL is located and launch the "MySQL Command Line Client"

14. Once this is open simply enter the password we just set and if the client allows access with no errors, MySQL is now installed and working properly. There is no need to leave this command line client open, simply type "exit" and enter. This should close the client out.
We have finished installing MySQL and it's working correctly.

**Install PHP**

Start by opening the installer *php-5.2.5-win32-installer.msi*.

1. This is the first window we'll see with the PHP installer. Simply read over everything here and click on next.

2. Here we have the License Agreement that we all must agree to before we can continue with the installation of this application. Simply click on I Agree and we'll continue to the next step.
3. We will need to change the location for the installation, so click on the Browse button.

Simply type in the location, in this case we'll use "C:\Server\PHP\". Then click on Ok and Next.
4. Now we need to select the web server that we want to setup. Selects Apache 2.2.x Module and clicks on Next.

5. Here we need to select the directory containing the Apache configuration files. Click Browse button and select C:\Server\Apache2.2\conf\ and click Ok and Next.

6. Now we have to select the features that we want to install. Open extensions and select the extensions: Multi-Byte-String, MYSQL, MYSQLi and PDO->MySQL and click on Next.
7. Now we have ready to install. Click Install button.

8. After a minutes we'll see a window like this:

Now we have PHP installed, but we will need to restart Apache server.
Right-click over Apache server icon, and click Open Apache Monitor:

This new window will be open, click on Restart button, on right side of the window:

To check the correct working of PHP we'll create a file phpinfo.php with this content:

```
<?php
phpinfo();
?>
```

Save it on C:\Server\Apache2.2\htdocs\, close the file and then open your favorite browser and type this in the location bar: http://localhost/phpinfo.php
If you see the following page then PHP is installed and setup correctly on your server.

![PHP Version 5.2.5](image)

We have to do some modifications on `php.ini` located on `C:\Server\Apache2.2\PHP\`, we must to check some variables:

- `short_open_tag = On`

**Install Zend Optimizer**

So let's start off by executing the installer `ZendOptimizer-3.3.0a-Windows-i386.exe`.

1. This will bring us to a window similar to this one, simple click on Next.

![Zend Optimizer Installation Wizard](image)
2. Next we must agree to Zend's License Agreement, simply click on Yes.

3. Next the application would like to know where to install Zend, simply click on browse.

Find the new location, or type it in the URL bar. In this case we're using "C:\Server\Zend" as we'd like to keep everything in its own folder.
Now with the new location in we can simply click Next and continue with the installation.

4. Next we'll need to select the type of web server we're using. In this case we used Apache 2.x, so simply select Apache 2.x from the list and click on Next.

5. We'll need to specify the location of php.ini. Select Browse button and put C:\Server\PHP, then click Ok and Next.
6. We'll need to specify the location of Apache, normally the program will find it for us, but just in case make sure it's correct and if not correct it. In this case the location of Apache was "C:\Server\Apache2.2". After this has been confirmed or input correctly, click on Next.
7. Next, verify all the information, and click Install button.

![InstallShield Wizard Pre-Install Summary]

8. You must stop Apache server and click Yes.

![Web Server Restart]

9. Finally Zend Optimizer is installed and a window like this will be show:

![InstallShield Wizard Complete]

Now, you can start again the Apache server.

98
Install phpMyAdmin

First let’s start by extracting the files to the proper location. Start by opening the phpMyAdmin-2.11.4-all-languages.zip. Extract all of these files into the “htdocs” folder under the folder name “phpMyAdmin”. This will help us to keep up with where it’s installed, so now once we’ve unzipped everything we could load it up by using:

http://localhost/phpMyAdmin/

This will load just fine if PHP is setup correctly, but will return an error. This is normal and phpMyAdmin still needs to be configured to work correctly.

So now we’re going to open the sample configuration file for phpMyAdmin which is located in the root folder for phpMyAdmin and is name “config.sample.inc.php”. Locate this line:

$cfg['Servers'][$i]['auth_type'] = 'cookie';

and change for this:

$cfg['Servers'][$i]['auth_type'] = 'config';

And add this two new lines:

$cfg['Servers'][$i]['user'] = 'root';
$cfg['Servers'][$i]['password'] = 'root';

Make sure to change the root password for the password you set on MySQL installation if this is not ‘root’.

Now we can check again http://localhost/phpMyAdmin/ and we must see a window like this:
Setup application
In this part we are going to setup all the web application on the server we have configured.

Copy web application files
We need to copy all the web application files to web server folder.

First we delete all the content of C:\Server\Apache2.2\htdocs\ folder, except phpMyAdmin directory.

Then we can copy all the files inside the directory webApp of the CD-ROM to C:\Server\Apache2.2\htdocs\.

Setting database
We need to import the database that will use the application to the MySQL Database Server.

For do that we’ll load the page: http://localhost/phpMyAdmin/ and click Import, located on the bottom of the page, we will see a page like this:

Click on Browse button and selects the file create_db.sql located inside the directory sql of the CD-ROM. Then click Go, on the bottom-right of the window.
We'll see this message, informing that has been successfully imported. Now on the left part of the page we can see a new database named webproject with 11 tables. We have the database successfully imported to own MySQL Database Server.

**Change db.php password**

If you chose a password for user root on MySQL configuration different than 'root' you'll need to follow this steps.

You will have to change the password on the php file that allow to access to the MySQL database. The file is *db.php*, located in the directory `C:\Server\Apache2.2\htdocs\includes`.

You just have to change this line with the password you choose for your MySQL Database Server, on the part `$pass = “put your password here”:`

```php
/*
 * Constructor method: every time we create DB object this function will be executed
 */
function DB($db = "webProject", $host = "localhost", $user = "root", $pass = "root") {
    $this->database = $db;
    $this->server = $host;
    $this->user = $user;
    $this->password = $pass;
}
```

**Setup internal file**

For the proper functioning of the embed charts and graphs, we need to setup the javascript file named *embedded.js* located in the directory `C:\Server\Apache2.2\htdocs\includes\js`.

```javascript
function reloadChart(id, value, valueName, chart) {
    find苞("chart").reloaded('http://localhost/includes/user/chart/' + chart + ".php?id=-" + id + ");
    find苞("chart" + id + ").reloaded("http://localhost/includes/user/chart/" + chart + ".php?id=" + id + ");
}

function reloadChartDateMap(map) {
    new Ajax.Request('http://localhost/webapp/includes/user/chart/map_data.php', {method: 'get',
        parameters: 'id=' + id + ",map", 'value': map},
        oncomplete: function() {
            var flashMovie = $map; 
            var data = ";responseText;
            flashMovie.setData(data);
        });
    
}
```

We need to replace “localhost” for you public domain, example: “www.webvisualizer.com”.

101
Appendix II: Operation manual

This manual is a guide with the intention to help users and administrators how to use and administrate the application.

User guide
The initial page that one user see at first time that enters to the web application is the next:

Consult development data in ICT
Any user can consult development data clicking on the tab development data on the up part of the page.
Then can consult an index clicking over that index on the left menu or in the main of the page. Also can consult indices by one country clicking over the country in the main of the page or selecting the country on the left menu.

In a page of one index of ICT we can see a chart with the values for the different countries, we can change the parameter of the index clicking on it, located over the chart. Also we can see a table with the all values and a link to see this data over the world map graph, clicking on “See this data on the world map”.

In a country page we can see the data for each index clicking over it, we’ll see a chart with the different values of parameters of the index and a table with all the data for each index.
On the left menu also we can choose to see the development data in a world map graph clicking on "World Map". We'll see:

Login and register
If we want to create a chart first we'll have to login to the system click on the login tab on the top of the page.
Now we can login with our username and password and click Login. If don’t have an account we can register a new one clicking on register “here”, locate under the login button.

Now we can register like a new user filling the form. The blue fields are required fields.

**Initial page and profile**
Once we have logged to the application, the first page to see will be our my space:
On the left menu we can see a new menu named user menu where we have all the things we can do.

If we click over our username, we'll go to our profile:

We can edit our profile clicking over "Edit profile":

107
We can change our password clicking on "Change password":

And also we can delete the account clicking "Delete account", we'll need to confirm this action:
Upload data and create charts

To create a chart or graph first we will need to upload our data, to do this click on “Upload data”, located on the user menu on the left side.

Here, we have some examples of CSV files for charts bar, pie and area and another for world map graph. Selects a CVS file and click on Upload button. When the upload finishes we’ll see a page like this.
Now, we enters the name for the data and optional a description for the data. Then click Save, or cancel otherwise.

If we click on “My data” on the user menu we can see a list of our data:

We can see the each data selecting “Show” on the list.

Also we can see the data like a XML.
At this moment we can create a chart if we have uploaded some data, click on "Create a chart" on the user menu.

Enters a title for the chart and a description if is necessary, selects the data that we want to use and finally selects the type of chart. Then click Create.

Note: if we want to do a world map graph the data must to use the template that you can download from the upload data page, this template contains the names of the countries.

We can see a list of all chart click on "My charts" on the user menu:
Now we can see the data for each chart clicking on "Show" on the list, and we can see the chart clicking on the title of the chart. Also we can delete a chart clicking on "delete".

An example of bar chart:

![Bar Chart Example](http://example.com/bar-chart.png)

And an example of world map graph:

![World Map Graph Example](http://example.com/world-map-graph.png)

When can embed any chart or graph copying the code that we can find clicking on "Embed code" and paste this code on our web page.
Admin guide
There is a default admin user on this application, you only have to login with:

Username: admin
Password: admin

Once you have logged you will see your page like an admin:

You can see that a new menu has add on the left menu, now you have the user menu and also the admin menu. You can admin all the users, data and charts of all the system.
Admin users

Click on “Admin users” on the admin menu.

We can see a list of users and other for admins, we can convert a user to an admin or vice versa, and we can delete any user except ourselves.

Admin data

Click on “Admin user’s data” on the admin menu.
On this page we can select any data to see it clicking on “Show”, and we can delete any data, if we do we will delete also the charts that uses this data.

**Admin charts**

Click on “Admin user’s charts” on the admin menu.

We can select to see any chart clicking on the title of the chart, also we can see the data of each chart clicking on “Show” on the data column.
If we click on “delete” we’ll delete the chart.