# CHAPTER 5: IMPLEMENTATION AND TESTING

## **5.0 IMPLEMENTATION: INTRODUCTION**

In the previous section, the various designs were laid out and a workable one was decided on which shall now be implemented. There has also been given an outline of how the input and output of the proposed system will be like. In this chapter, the developer exhibits sample codes that will help in getting what expected output from the system and the various ways in which the new system can be tested and these are discussed in this section.

## **5.1 Coding and Construction**

This section we will discuss the programming language that was used for developing, programming style, data storage, connection method, processing method as well as the input and output methods.

<?php

include "db.php";

?>

<!DOCTYPE HTML>

<html>

<head>

<meta charset="utf-8">

<meta http-equiv="X-UA-Compatible" content="IE=edge">

<title>Travel Management System</title>

<meta name="viewport" content="width=device-width, initial-scale=1">

<meta name="description" content="" />

<meta name="keywords" content="" />

<meta name="author" content="" />

<!-- Facebook and Twitter integration -->

<meta property="og:title" content=""/>

<meta property="og:image" content=""/>

<meta property="og:url" content=""/>

<meta property="og:site\_name" content=""/>

<meta property="og:description" content=""/>

<meta name="twitter:title" content="" />

<meta name="twitter:image" content="" />

<meta name="twitter:url" content="" />

<meta name="twitter:card" content="" />

<link href="https://fonts.googleapis.com/css?family=Quicksand:300,400,500,700" rel="stylesheet">

<!-- Animate.css -->

<link rel="stylesheet" href="css/animate.css">

<!-- Icomoon Icon Fonts-->

<link rel="stylesheet" href="css/icomoon.css">

<!-- Bootstrap -->

<link rel="stylesheet" href="css/bootstrap.css">

<!-- Magnific Popup -->

<link rel="stylesheet" href="css/magnific-popup.css">

<!-- Flexslider -->

<link rel="stylesheet" href="css/flexslider.css">

<!-- Owl Carousel -->

<link rel="stylesheet" href="css/owl.carousel.min.css">

<link rel="stylesheet" href="css/owl.theme.default.min.css">

<!-- Date Picker -->

<link rel="stylesheet" href="css/bootstrap-datepicker.css">

<!-- Flaticons -->

<link rel="stylesheet" href="fonts/flaticon/font/flaticon.css">

<!-- Theme style -->

<link rel="stylesheet" href="css/style.css">

<!-- Modernizr JS -->

<script src="js/modernizr-2.6.2.min.js"></script>

<!-- FOR IE9 below -->

<!--[if lt IE 9]>

<script src="js/respond.min.js"></script>

<![endif]-->

</head>

<body>

<div class="colorlib-loader"></div>

<div id="page">

<nav class="colorlib-nav" role="navigation">

<div class="top-menu">

<div class="container-fluid">

<div class="row">

<div class="col-xs-2">

<div id="colorlib-logo"><a href="index.php"><img src="images/logo.png" style="height: 80px"></a></div>

</div>

<div class="col-xs-10 text-right menu-1">

<ul>

<li class="active"><a href="index.php">Home</a></li>

<!-- <li class="has-dropdown">-->

<!-- <a href="tours.php">Tours</a>-->

<!-- <ul class="dropdown">-->

<!-- <li><a href="#">Destination</a></li>-->

<!-- <li><a href="#">Cruises</a></li>-->

<!-- <li><a href="#">Hotels</a></li>-->

<!-- <li><a href="#">Booking</a></li>-->

<!-- </ul>-->

<!-- </li>-->

<li><a href="charges.php">Flight Charges</a></li>

<!-- <li><a href="hotels.php">Hotels</a></li>-->

<li><a href="services.php">Services</a></li>

<!-- <li><a href="blog.php">Blog</a></li>-->

<!-- <li><a href="about.php">About</a></li>-->

<li><a href="contact.php">Contact</a></li>

</ul>

</div>

</div>

</div>

</div>

</nav>

### **5.2 TESTING**

Before the system can be installed on a client’s machine it is essential to conduct tests so as to check for errors such as syntax errors and some errors which might compromise on the quality of the system.

The testing was carried out in the following phases:

* Unit testing
* Module testing
* System testing
* Acceptance testing

### **5.2.1 Unit testing**

The testing technique focuses on a unit of the program which can either be a function or a module.

Two different techniques that we used for the unit testing and these are:

**Black box testing**- this involved testing of the inputs and outputs produced by the system without taking into consideration the internal operations of the system. This involves checking outputs such as reports to verify whether they were producing the required outputs.

**White box testing**- this pays detail to the internal processes of the system. It focuses on the internal working detail of a unit and identifies errors not shown through black box.

### **5.2.2 Module testing**

This is also called link testing. It tests a collection of intergraded modules into a subsystem. It ensures job streams are correct. There is detection of interface mismatches and rigorous exercise of the interface between programs. The modules, which are linked together, were tested.

### **5.2.3 Interface testing**

In this section the following conclusions were drawn about the interface:

* All data content contained within the window is properly addressable with a mouse function keys and keyboard shortcuts.
* All functions that relate to the windows are available when needed.
* All the windows close properly.
* All tools on interface serve a function.
* All relevant pull-down menus, tool bars, dialog boxes, buttons, icon, and other controls are available and properly displayed for the windows.
* All the information needed from the user is accessible from the interface tools, i.e., can the interface effectively accepts.

### **5.2.4 System testing**

This testing technique involves cycle tests all programs and ensure that everything necessary is in place for instance proper documentation. It involves testing of the whole system to measure efficiency and effectiveness of the system. It is essential to measure the systems functionality with stated objectives and this is done during the process of system testing. Functions such as security and output generation will be taken into account as users go through the system. There are also other issues that are taken into consideration such as compatibility of the software to the hardware and how the system will adapt to computer threats.

### **5.3 SECURITY**

#### 5.3.1 Physical Security

The servers and all client machines will be stored in locked rooms. The security features of this kind are already in place. The use of security guard will be implemented to ensure that the system will not be vandalized.

#### 5.3.2 Software Security

Authorization to access the system will be granted according to user levels and a user will also be required to supply a password before he/she can gain access to the system.

## **5.4 INSTALLATION**

To install the system, for the tests and training

Get the file from the device using a flash and Click My Computer on the desktop and right click the mouse. Click Explore to view all the drives on your computer.

Select Compact Disc (D:) or flash drive and right click the mouse as above. This time you can choose either Open or Explore. Select project and copy it.

Use either wamp or xampp of these servers to start the control panel so that your server will start running.

Set the systems home page to be the default page when you start internet explorer. Double click internet explorer on the desktop to access the system.

You can then safely run the program

**5.4.1 To install and host the system for final use.**

The final installation stage involves the uploading and hosting of the Airport Travel web-based system on to the web server to enable online access to everyone.

1. Click the "File" menu followed by the "Site Manager" item on the menu. A dialog box will appear.

2. Click the "New Site" button on that dialog box. This creates a new item under

"My FTP Sites" called "New FTP site". Rename "New FTP site" to the name of your site if you wish. By default, the keyboard cursor would have been placed in the name portion of "New FTP site" allowing you to change the name immediately. If you have lost the cursor because you accidentally clicked somewhere else in the dialog box, you can get it back by simply clicking once on the name. Note that this name can be anything you wish - it is not required for accessing your site. However, you will probably make your life easier if you change the name to that of your site rather than the cryptic "New FTP site".

3. Under the tab "General”, enter the name of your FTP server in the "Host" input box. Enter the hostname into the space provided.

4. Leave the "Port" and the "Server type" entry boxes alone. Use your mouse and select "Normal" from the drop-down list box for "Logon type". This will enable the "User" and "Password" boxes for the next step.

5. Enter your user id or your login name (or whatever your web host calls it) into the "User" input box. Likewise, enter your password into the "Password" input box. Note that this information is automatically saved onto your computer and will be re-used the next time you run FileZilla, so you do not have to re-enter them again. (It also means that you should not use FileZilla in this way on computers that others may have access to, such as those found in an Internet cafe or a public library.)

6. Click the "Connect" button. FileZilla will proceed to log you into your server. If it is successful, you will see a directory listing of your website's account in the right-hand side of the FileZilla window. The left-hand side of the FileZilla window shows the directories and files on your own computer.

7. Only upload a specific subdirectory on the web server, such as in the "www" or "public\_html" directory, change to that directory by double clicking its name in the folder portion of the right window pane (the "Remote Site" window pane).

FileZilla will open that folder and show you its contents in the files portion of the Remote Site window pane.

8. Next, locate the file that you wish to upload in the left window pane (the "Local Site" pane). Both window panes behave mostly like a Windows Explorer windows, so navigating them should not be unduly hard. Once you have located the files you wish to upload, double click it to upload it to your website.

Alternatively, you can drag that file from the left window pane to the right window pane.

The file will be uploaded to the folder that is currently open on the right window pane, so make sure you have changed to the directory you want before dragging the file there.

9. As FileZilla proceeds to upload your file to your site, you should be able to see the upload progress in the bottommost window pane in FileZilla. When the upload has completed, you can disconnect from your website. Do this by clicking the "Server" menu followed by the "Disconnect" item.

Congratulations! You have successfully uploaded a file to your website using an FTP client,

## **5.5 TRAINING**

Training will be provided to the end users before using or operating the system. To assist with the training, a user manual will be provided. For **User Manual** refer to **Appendix.** Training will be provided in-house by the system developer. Training will make the users to be confident with system and hopefully they will be impressed with the functionality of it.

Training will be done at two levels

 Personal or Module level: This is for the particular modules that concern the particular users.

 Organizational or System Level This was mainly for the management who has to appreciate the development of the system and its functions across organizational departments. In addition, users who have access rights to all modules also had to be versed with the functions of the entire system.

## **5.6 Maintenance**

Regardless of how well designed, constructed and tested a system or application maybe, bugs or errors will inevitably occur. Bugs can be caused by any of the following: Poorly validated requirements. Poorly communicated requirements. Misinterpreted requirements. Incorrectly implemented requirements or designs. Simple misuse of the programs and malicious input.

The fundamentals of the system maintenance will be:

* To make predictable changes to the existing programs
* To correct errors that were made during systems design or implementation.
* To preserve those aspects of the programs that were correct to avoid the possibility that “fixes” programs to cause other aspects of those programs to behave differently.

### **5.6.1 System Maintenance**

To carry out this stage, the following were checked for.

Response time- this is the overall time between a request for system activity and the delivery of the response by the system and the efficiency of the computer itself and this is the time from the input of a request to the CPU until the output is delivered to the system.

System review will ensure that the system meets the objectives. Periodic reviews will be held to ensure that the system conforms to user’s expectations and requirements. It is used in checking the overall performance of the system. The importance of carrying system review is to ensure that the system functions according to the specified specifications. The system needs to cope up with changes in external environment thus updating the system is necessary to cope up with new user requirements. There are three types of maintenance namely:

**1) Corrective maintenance –** Fixing errors reported by the systems users which could be coding errors, design errors, or requirements errors.

**2) Adaptive maintenance** – Altering the system to suit some new environments for example, different hardware platform or operating systems. Functionality does not radically change. The enhancement will result from the ever-changing business environment in the banking sector. The general application software has to be changed if the different hardware platform or operating system has to be used. The system will be altered if the changing environment triggers a change to the system.

**3) Perfective maintenance** – This is carried out when there is need to change the whole system to make it more efficient. Implementing new functional or non-functional system requirement generated by users as their organization or business changes. This process ensures that the newly implemented system meets the system development objectives established for it. Errors in development or use of a system must be corrected by this maintenance process. In this stage, we will have periodic reviews with the users or the representatives of the organization to audit the system so as to ensure that it is operating properly and meeting its objectives. When a system has been implemented, monthly reviews will be held so that if there are any problems arising, they may be attended to as a matter of urgency. After a year, annually reviews will be held so that if there are any changes due to changes in the business environments, they may be attended to so that the system continues to meet business needs.

### **5.7 System evaluation**

This project eliminates the use of paper for storing records and passenger’s request. With this system, apart from deciding to make payments at the company counter, payments can also be done online and Airport Travel Company can then handle all aspects of travel management easily.

The incorporation of web-based airport travel management system can help a community expand business opportunities, reduce sprawl, and create a sense of community through transit-oriented development. For these reasons, areas with good public transit systems are economically thriving communities and offer location advantages to businesses and individuals choosing to work or live in them

### **5.8 File conversion and System changeover**

Several methods were taken into account before selecting the best conversion method to use. The methods that were taken are as follows:

### **5.8.1 Pilot conversion**

Pilot is a selective implementation method. Installation of the new system is to those to those departments that require the use of the system. Cost is relatively moderate since only one or two locations run both systems. Risk is also relatively moderate when this method is used.

### **5.8.2 Direct conversion**

This conversion method sees a complete overhaul in use of the existing system. The new system is then implemented and starts operating.

The old system is completely done away with as people shift into the use of the new system.

This strategy has relatively low cost of implementation, however there is an

Imminently high risk of the new system failing to meet the requirements or fail to give better functionalities than the old one.

### **5.8.3 Parallel conversion**

This involves running the two systems together at the same time. This gives the user a better background to the new system and also backup to refer to in case the new system fails. The implementation costs are relatively high as both systems will be operating simultaneously for the whole changeover period specified. Risk is relatively low due to the existence of backup from the old system still in operation.

### **5.8.4 Decision**

The parallel conversion method was the most favored so both the new and existing systems will run in parallel for a period not exceeding twelve months after which feedback on the performance between the two systems will be provided for adjustments if necessary.

### **5.9 System review**

This project develops a system which provides a real time Airport Travel services for travelers.

The traveler will be able to utilize this online travel management system web portal to perform the transactions of purchasing tickets, booking conveyances which will be needed at their destination and make necessary payment at their own free time. The travel agents are the

administrators of the system. They are able to add, edit and retrieve information and generate reports to assist them with their daily operations.

## **5.10 RECOMMENDATIONS**

It is worth mentioning that this research work is open for further enhancement, with the expectation that it becomes more robust and better enhanced. In addition, certain   
constraints, such as inadequate information sources for each of the destinations in Zimbabwe and outside Zimbabwe, some features were not included which would have made the system a more robust management system. Some of these features include the following;

1. In this study, only a few destinations were used. Therefore, an improved system should incorporate every destination for better insight on available attractions.
2. Provision of advertisement platform so that travellers will be able to get latest information on all the destinations.
3. A fully functional reservation platform so that booking could be made via credit cards.
4. Provision of content scheduler to eliminate outdated information.

## **5.11 CONCLUSION**

In this project, we presented some considerations for the implementation of the online Airport Travel management system as it incorporates both the customers and the administrators. The often complaints by customers about the manual system. Since time is one of the most fundamental resource available to people and it is of the essence that it is respected even when used for pleasure or relaxation. Airport Travel reduces the few minutes or hours in which travelers queue up to buy tickets and gain entrance into the bus for travel.