Online Centralised Tourism Package System

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Abstract

The Online Centralised Tourism Package System is developed for the convenience of travel agencies and travelers. Online Centralised Tourism Package System is developed to fulfill the needs of the travel agency as well as travelers. It aims to centralize tourism packages offered by the local travel agencies, to allow potential tourists to compare the offers and be a smart consumer. It creates a win-win situation, where it gives an opportunity to travel agencies to increase their sales.

This proposed system facilitate the online tourism package booking , help to promote Malaysia's tourism industry as well as help the travelers choose appropriate tourism packages based on the location, budget, date range desired as well as the activities that they prefer.

It is believed that this web based system will gradually become an essential to every travel agency in the future, and help the growth of Business-to-Business and Business-to-Consumer e-commerce in Malaysia.

Acknowledgement

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I have learned a lot and gain a lot throughout the process of developing this project. Passions and friendship is one thing that guided me through this. Without you all, there will not have this project and me. Thank you.

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Chapter 1: Introduction

1.1 Introduction

Traveling means go from one place to another place or making a journey along or through a country. The internet, the media of the information age, is like a vast ocean of compute across the world connected together by a network of cables. Today, the internet has provided to be a medium of disseminating information more effectively. With the rapid development of internet, it has become a major influence in tourism industry. More and more travel agencies realize the impact and importance of internet technology in order to promote tourism industry. Many travelers started to accept the way to obtain information regarding the vacation from the internet. With the electronic travel information system, travelers no need to go from one travel agency to another in order to get sufficient information to compare the prices and services provided by each travel agency.

Online Centralised Tourism Package System is developed to fulfill the needs of the travel agency as well as travelers. It aims to centralize tourism packages offered by the local travel agencies, to allow potential tourists to compare the offers and be a smart consumer. It creates a win-win situation, where it gives an opportunity to travel agencies to increase their sales.

In a nutshell, Online Centralised Tourism Package System provides convenience to both the travel agencies and travelers.

1.2 Problem Domain

1.2.1 Limitations on the existing travel sites

Currently, most of the travel sites allow the user to search in catalogues of tourism products to get tour packages desired. Usually, the common selection criteria are asked by the websites to perform searches for those items that match the user's request. Two limited situations could happen: either there could be too many results or on the contrary, no result at all. This will take longer time for the user to get the tourism products desired.

1.2.2 Lack of online tourism package booking feature in the existing travel sites

Some of the existing travel sites in Malaysia only provide information about traveling in Malaysia. If the user is interested to book a tourism package, after reading on the information provided in the website, yet they cannot do the online booking of the package, this may frustrate the user, because he or she need to spend more time to find out which travel agency provides packages that they desired.

1.2.3 Negligence of customer services

Most of the travel agencies in Malaysia apply the information system in their offices, to ease the staff's burden in the daily operations. They do not implement the information system online. Therefore, their tourism information system tend to be more focus on the internal operation functionality, and neglect the customer services, which are crucial to attract new customers as well as retain existing customers.

1.3 Project Objective

1.3.1 To improve the limitation on the existing travel sites

Online Centralised Tourism Package System is developed to implement travel recommender feature, which will recommend the tourism packages that fulfill users' preferences, by asking users questions on the activities they prefer, location, budget, date range desired, which can provide better recommendations to them. This will facilitate the decision making of user.

1.3.2 To design and develop a system that provide online tourism package booking feature

Online Centralised Tourism Package System is developed to facilitate the online tourism package booking by the travelers, by allowing the travel agencies registered with the system to upload their packages in the system website, and travelers can book the packages through the website. This will help the travelers save lots of time and thus improve the traveler's satisfaction toward traveling in Malaysia.

1.3.3 To design and develop a system that provide customer service in an efficient way

Online Centralised Tourism Package System is implemented online to facilitate the promotion of tour packages offered by travel agencies and provide satisfying customer services. The travelers can search for tour packages which suit their needs and do an online booking easily.

1.4 Project Scope

1.4.1 Target users for Online Centralised Tourism Package System

1.4.1.1 Travelers from Malaysia

Target users for Online Centralised Tourism Package System will include travelers from Malaysia only.

1.4.1.2 Local travel agencies

Local travel agencies which offer vacation packages for tourists to visit destinations in Malaysia are also target users for Online Centralised Tourism Package System.

1.4.2 Vacation Packages Offered

The vacation packages advertised in Online Centralised Tourism Package System website are the various vacation packages which offered by local travel agencies to visit destinations in Malaysia.

1.4.3 Language used in the system

English will be the only language used in the proposed system, as English is an international language, which is more widely understood by most of the user.

1.4.4 Delivery Medium

The proposed system is a web-based system, so the user can access the system easily, anytime, anywhere, as long as they have established internet connection.

Chapter 2: Literature Review

2.1 E-Commerce and Tourism

Electronic commerce (EC) can be defined as technology mediated exchanges between parties (individuals or organizations), as well as the electronically based intra or interorganizational activities that facilitate such exchanges. There is an undeniable fact that tourism information systems have become one of the most important application areas for electronic commerce today. In year 1998, 33.8 million tourists use Web-based tourism information systems to plan a trip compared to only 3.1 million tourists do so in year 1996. There is a prediction that, 30% of the entire tourism business will be implemented through Internet within the next 10 years (Garzotto et al, 2004).

More and more tourists search and book desired tourism products online and, therefore, there is a need for flexible, specialized, accessible, interactive products and communication between tourists and tourism organizations. Innovative methods should be used by tourism organizations to enhance their competitive advantage by either maintaining their price leadership in the market or by differentiating their products and services (Garces et al, 2004; Ma et al, 2003).

E-Commerce supports various functional activities in tourism organizations:

1) E-Commerce provides new medium to market products and services globally, and opportunities for new business providing information and other knowledge-based intangible products.
2) Through direct, information rich and interactions with customers, the tourism products and services can be promoted more effectively. Customer satisfaction can

be enhanced because they can just spend less time to search information and make enquiries online, as well as compare tourism products and services.

3) Electronic Data Interchange (EDI) for EC reduces lead time, administrative and communication costs in purchasing. For example, passenger lists can be transferred using EDI.

4) High quality tourism products and services can be designed more easily to satisfy current and potential customers' needs by utilizing EC for market research.

5) Some tourism products can be further externalized using EC applications, such as Enterprise Resource Planning (ERP) and database technologies.

6) Compared to conventional distribution channel, EC establishes a direct online distribution channel, which reduces time, administrative and communication costs.

7) Human Resource Management can be facilitated using online training and personnel selection especially for tourism companies which have high turnover and personnel mobility (Garces et al, 2004).

Due to the rapid web development, the needs of consumers change. They are increasingly less loyal, prefer to take vacations of shorter duration more frequently, and take less time between choosing and consuming a tourism product. Thus, Internet travel sites are providing new market functionality and technology, emphasizing on personalized intelligent tools for travelers (Werthner & Ricci, 2004).

The major milestones in Internet commerce development in the tourism industry include:

1) There is more than a simple web page which has e-mail contacts, it also establishes links to useful and up-to-date tourism information and web forms for customer interactions.

2) There is interaction between consumers and website via (a) value-added features such as electronic cards or sharing of travel experiences in Web-based guest books, and (b) online customer support through internal site search engines and searchable databases.

3) Online bookings for tourism products and services gradually gain acceptance of tourism organizations and tourists.

4) Consumers can do transactions online via secure Internet channels when Internet commerce is fully adopted (Doolin et al, 2002).

In a nutshell, travel and tourism have shown how e-commerce may change the structure of an industry, and in the process create new business opportunities.

2.2 Case-Based Reasoning and Travel Recommendation

Recommender systems can be defined as applications which are used by e-commerce sites to provide product suggestion and information to consumers in assisting them make decisions (Ricci, 2002).

According to the way recommendations are made, recommender systems can be classified into 3 categories: content-based, collaborative- based, and knowledge-based. In content-based recommendations, items similar to what user preferred previously will be recommended to the user, such as what are implemented by travelocity.com. In collaborative recommendations, items that preferred by the people with similar taste and preferences previously will be recommended to the user, such as what are implemented by Amazon.com. Knowledge-based recommendations use knowledge about users and the products to build up a recommendation. These systems often combine both content-

based and collaborative methods and may be "conversational". Conversational systems imitate a real dialogue between the "inquirer" and the "advisor" to solve user needs. Knowledge-based recommendations may be based on Case-Based Reasoning. (Adomavicius & Tuzhilin, 2005; Ricci & Werthner; Ricci, 2002).

In case-based reasoning (CBR), in order to solve a current problem, previous, already solved similar cases are retrieved from case base. The retrieved cases are reused to try to solve the current problem. The proposed solution is revised and adapted if necessary. Finally, the final solutions as part of a new case are retained (Harrison, 1997). For example, if a CBR system is used to suggest flights to the user, some personal data and preferences (airline company, type of seat, destination, etc) may be asked by the system. Then the most similar case (or cases) that best match the user input are retrieved from a case of flights solutions. The user may be asked some questions to select one case in the list and an offer from that case is built finally (Ricci & Werthner).

In the recommendation system, two limit situations could happen: either there could be too many results returned, or on the contrary, no result at all. To overcome this problem, case-based reasoning can be integrated with interactive query refinement. With interactive query refinement, a more flexible dialogue management is permitted. Failures which caused by over- or underspecified user requirements is tackled by suggesting constraint relaxation or tightening respectively (Ricci, 2002).

However, the existing recommender systems still require improvements, and capabilities of recommender systems can be extended to represent user behaviour and description about the recommended items with better methods, to model recommendation with more advanced methods, to form various contextual information

into the recommendation process, to utilize muticriteria ratings, and to develop less intrusive and more flexible recommendation methods (Adomavicius & Tuzhilin, 2005).

2.3 Trip Planning Behaviour

Tourism is the world's largest and fastest growing industry. According to the World Travel and Tourism Council, tourism accounts for approximately 10% of the world's gross domestic product. There is an estimation that tourism will be a $10.0 trillion industry by the year 2010 (Luz Pagan et al, 2000).

We need to understand what motivates the tourists and what influences their decision making regarding travel, so that we can serve tourists effectively. The reasons people travel varies, including business purposes, recreation and to visit friends and relatives. Tourists involve in decision making on destinations, attractions, lodging and modes of transportation before going for a trip (Luz Pagan et al, 2000).

Careful trip planning accounts for the success of any major trip. Trip planning involves selecting a destination, route, mode of transportation and time by travelers. Trip planning includes various activities, for instance information gathering, selecting a destination and etc. Each individual traveler usually experiences different trip planning process. Despite individual travelers' characteristics, a basic framework for the trip planning process has been established as shown in Figure 1.1. At each step, several choice dimensions are involved, including purposes of trip, destination, accompanying travelers, date and time, modes of transportation to destination, places to go or activities, accommodations, modes of transportation within destination, schedule of day trips and route (Luz Pagan et al, 2000).

2.4 Reviews on Existing Systems

2.4.1 Travelocity (www.travelocity.com)

This site provides places of interest from all over the world. By clicking a region on the map, travelers can choose the destination from Asia, Africa, Europe, South Pacific, Carribbean, Canada, Antartica, Eastern US, Western US, Mexico or Latin America and find vacation that they preferred. Below is the main page of Travelocity.

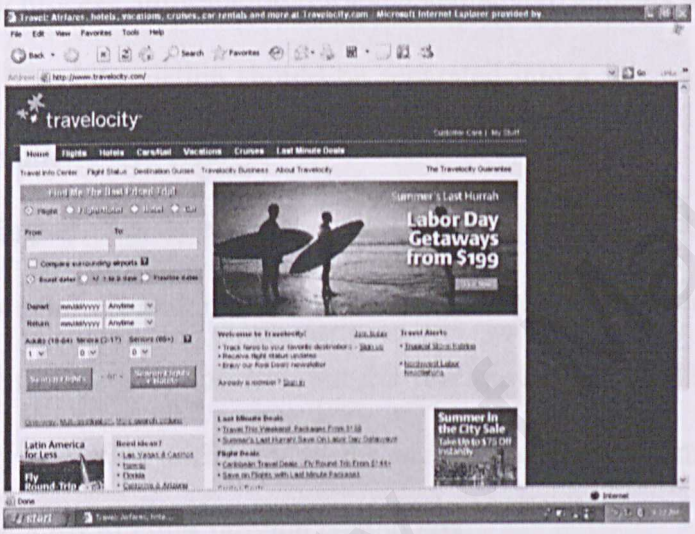

Figure 2.1 : Main Page of Travelocity

Positive Reviews of the System

1) This site provides fast searching in some modules such as flights, lodging, cars, vacations, cruises and deals. This saves a lot of time and makes the searching process more efficient.

2) It provides tools that allow travelers to customize the trip that best suits them, insuring a trip with great value.

3) It provides satisfied customer services to the user where users can send an email through a feedback form provided by the system. Travelocity responds fast to the users' request.

Negative Reviews of the System

1) The Graphical User Interface (GUI) of this site looks crowded. Many items such as the searching process, information retrieved and advertisements are crammed into a single page. The information should be separated into a few pages so that users can see the information more clearly.
2) The searching criteria is not clear. For instance, to search for a hotel, users are required to enter an address which is used to find a hotel near to the place. This seems easy for the local tourists, but the foreign tourists who are not familiar with that country will face difficulty to do so. Instead, the system should let users to choose from a list of cities through combo box.

2.4.2 Expedia (www.expedia.com)

This site more emphasizes on assisting travelers to plan their trip at the reasonable price. Travelers may choose to travel the countries all over the world. Below is the main page of Expedia.com.

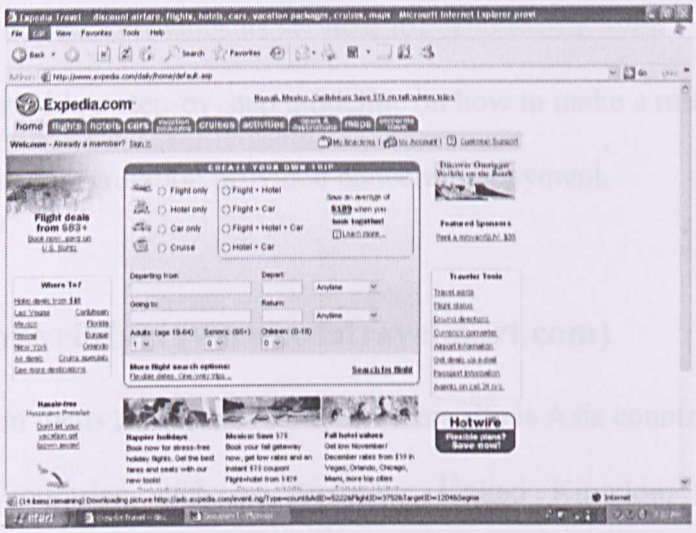

Figure 2.2 : Main Page of Expedia.com

Positive Reviews of the System

1) There is a good color matching of the icons and the background of this site.

2) This site provides travelers' tools including all the important information that could be useful to travelers, such as currency converter, driving direction and airport information.

3) Travelers are free to pick and choose hotels, airlines and cars to come up with the right combination for them.

4) All the information provided for each cruises, flights and accommodation are very detailed. These are very helpful in assisting their customers to make the best decision before doing any booking.

Negative Reviews of the System

1) This site does not allow its customers to select their destination, but instead have to key in the destination themselves in which there is no reference to which city or

country that Expedia provides its services to.

2) It does not provide a step-by-step guideline on how to make a reservation or purchase.

3) There is no any information provided concerning payment.

2.4.3 AsiaTravelMart (www.asiatravelmart.com)

The main focus for the destinations in this site is Asia countries. However, it also covers some countries such as Australia, United Kingdom and New Zealand. AsiaTravelMart provides sufficient and essential information as well as complete services to the users. Below is the main page of AsiaTravelMart.com.

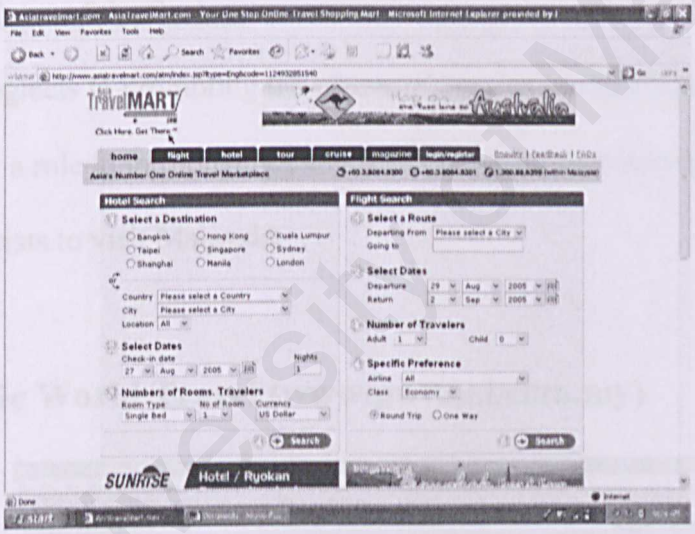

Figure 2.3 : Main Page of AsiaTravelMart.com

Positive Reviews of the System

1) Travelers are allowed to choose their own preferred currency to do transactions while making online bookings with AsiaTravelMart. This especially benefits international travelers as they can choose any of the 8 major currencies, which are USD Dollar, Japanese Yen, Australian Dollar, Pound Sterling, Euro, Hong Kong Dollar, Malaysian

Ringgit and Singapore Dollar to make payment.

2) AsiaTravelMart has huge bargaining power. Thus, travelers can enjoy low prices when book hotel rooms, flight, rent car during peak festival periods.

3) AsiaTravelMart has a cancellation and refund policy for the travelers who decide not to go ahead with the travel itinerary and want refund.

4) The travel vouchers and receipts can be conveniently printed from the user's printer, which are used to exchange for flight tickets or as proof of purchase in exchange for their travel products.

Negative Reviews of the System

1) This site neglects in promoting the places of interest in Malaysia. In my opinion, it should play a role in introducing the places of interest in Malaysia, in order to attract foreign tourists to visit Malaysia.

2.4.4 **Pacific World Travel (www.pwtmal.com.my)**

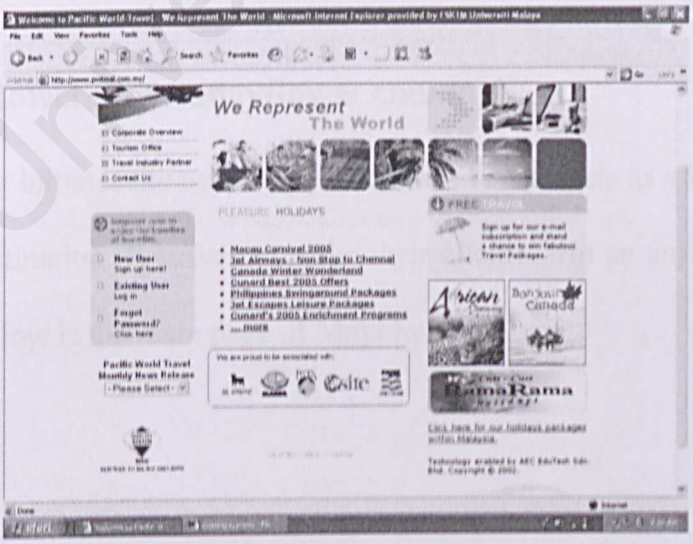

Figure 2.4 : Main Page of Pacific World Travel

Positive Reviews of the System

1) This site provides the physical facilities, for instance premises, local communication, dedicated sales executives for the specific purposes of handling field sales
2) It organizes direct mailing and personal distribution of timetables, brochures, tariffs and other promotional material to keep people knowledgeable.

Negative Reviews of the System

1) This site concentrates more on business purposes than the individual travelers. So, it does not provide any description about the places of interest or accommodation. Users cannot get much information from this site.
2) It provides e-partner program that allow the partners to promote their products or services online. But it only establishes a link to the partners' site. It does not offer any advanced feature for the e-partner.
3) It does not include the features like classifications or rating of the hotels. These types of information are usually requested by the travelers.

2.4.5 MayFlower (www.mayflower.com.my)

The Mayflower initiates the traveling destinations in Malaysia as a holiday and conference destination. It strives to make their clients' trip an enjoyable and delightful experience. Below is the main page of MayFlower.

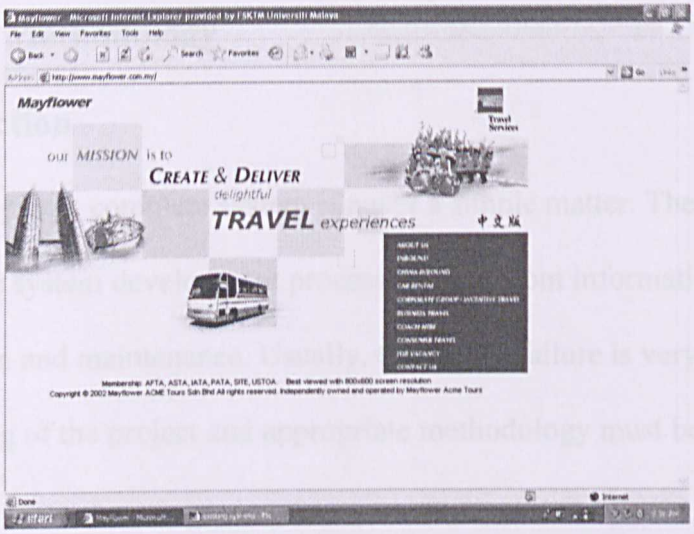

Figure 2.5 : Main Page of MayFlower

Positive Reviews of the System

1) This site provides useful facilities for the travelers, include the transportation, shore excursions, scheduled coach tours, driving tours, car rental company, package tours, hotel reservations, agent representation, airline ticketing, meeting and incentive planning.

2) It provides information on accommodation services based on the state in Malaysia, together with the rating of accommodation service provider based on the MayFlower's assessments.

Negative Reviews of the System

1) This site does not provide much information about the places of interest. Users cannot get much particulars on the traveling destinations, but they can do the booking online.

Chapter 3 : Methodology

3.1 Introduction

Developing a complete system is never a simple matter. There are many facts involved in the system development process starting from information research to implementation and maintenance. Usually, the risk of failure is very high. Therefore, proper planning of the project and appropriate methodology must be adopted to produce a good outcome.

This chapter will draw out the suitable methodology for the proposed system, the stages involved and appropriate software tools. The Waterfall Model with Prototyping I use is illustrated as below (Pfleeger, S. L, 2001).

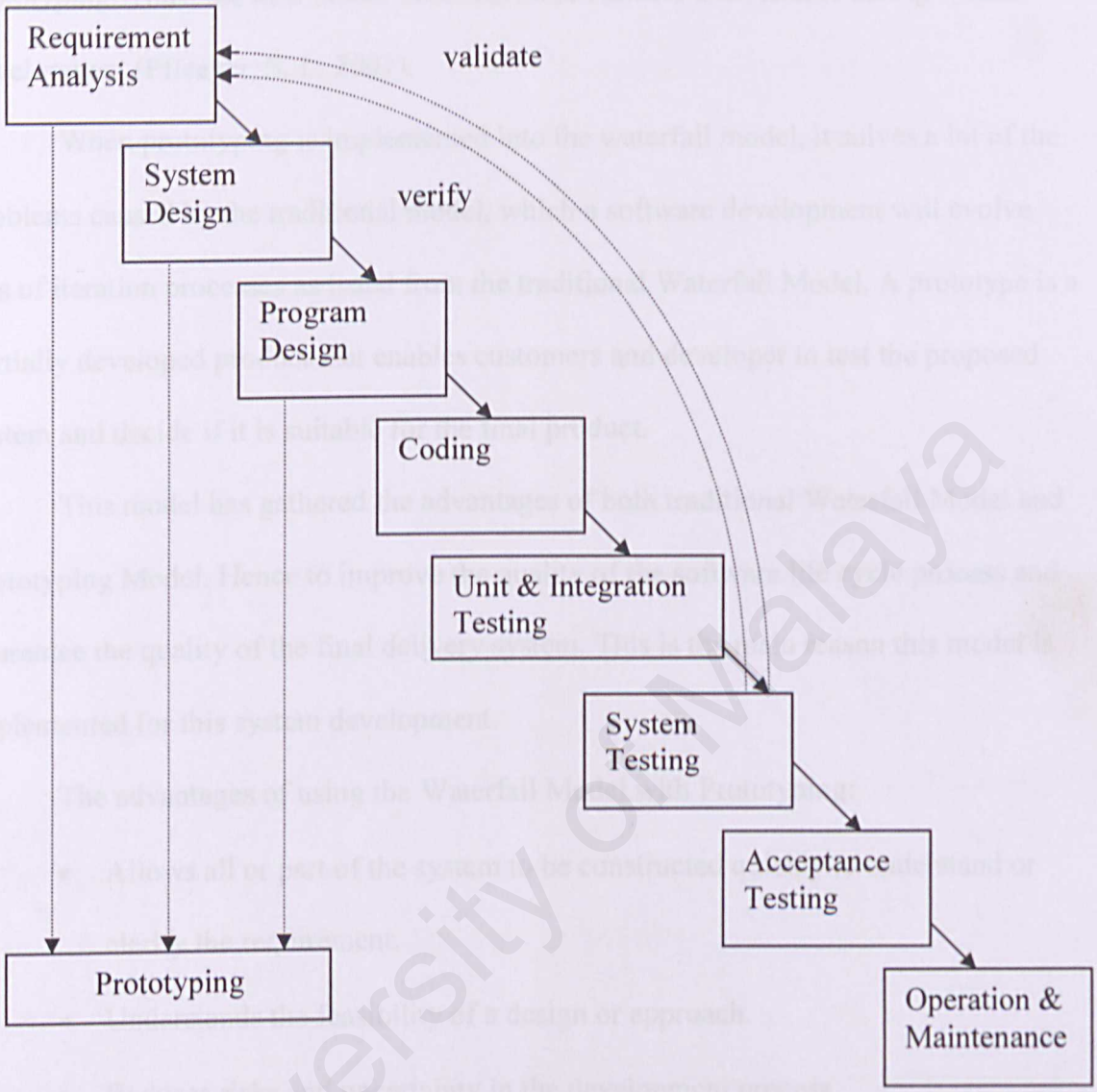

Figure 3.1 : The Waterfall Model with Prototyping

3.1.1 Consideration of Methodology-Waterfall Model with Protyping

Waterfall Model was the earliest model and many of the new approaches are modified from this model. When the waterfall model had been designed, it received many critics and influence but it can be improved by implementing the model with

prototyping. Thus, the new model becomes more suitable and reliable during system development (Pfleeger, S. L, 2001).

When prototyping is implemented into the waterfall model, it solves a lot of the problems caused by the traditional model, which a software development will evolve lots of iteration processes as listed from the traditional Waterfall Model. A prototype is a partially developed product that enables customers and developer to test the proposed system and decide if it is suitable for the final product.

This model has gathered the advantages of both traditional Waterfall Model and Prototyping Model. Hence to improve the quality of the software life cycle process and guarantee the quality of the final delivery system. This is the main reason this model is implemented for this system development.

The advantages of using the Waterfall Model with Prototyping:

- Allows all or part of the system to be constructed quickly to understand or clarify the requirement.
- Understands the feasibility of a design or approach.
- Reduces risks and uncertainty in the development process

(Pfleeger, S. L, 2001).

The Waterfall Model with Prototyping approach that will be adapted in the proposed system encompasses the activities at requirement analysis, system design, program design, coding, unit and integration testing, system testing, acceptance testing and operation and maintenance. Each of the stage is discussed below.

Requirement Analysis

The main activity at this stage is to understand the proposed system and determine the system requirement. This will involve data gathering and system analysis. Other task is observing the existing electronic travel information system in order to produce a system which can fulfill the users' requirements. Thus, the accuracy of the proposed system is specified correctly.

System Design

This stage defines what the system does, including functional requirement and non-functional requirement. Besides that hardware and software requirements for the system are determined after considering its suitability.

Program Design

The algorithms are defined and document for each module in the design tree that will be realized as code. Unified Modeling Language (UML) Diagrams are drafted out which resemble the functionality of the system and its subsystem.

Coding

This stage involves transforming the algorithms defined during the previous phases into a computer understandable language. The program will be coded using selected programming language and application development tools following the design specification.

Unit and Integration Testing

Unit and integration testing is carried out to ensure that each module behave according to its specification defined during program design phase. Every module is checked for the presence of bugs.

System Testing

During this stage, the entire system will be checked to ensure that it behaves according to the software requirement specification.

Operation and Maintenance

The continuous detection and repair of bugs are carried out.

3.2 Requirement Gathering Methods

3.2.1 Library Research

By doing research for the information relevant to the proposed system in the library, lots of information and requirements can be gathered.

3.2.2 Internet Research

Internet resources is also important during the process of gathering requirements.

3.3 Software and Hardware Comparison

3.3.1 Software

3.3.1.1 Programming Language

3.3.1.1.1 ASP.Net

ASP.Net is a web development technology based on the Microsoft .Net Framework. The .Net Framework, in turn, is based on the Common Language Runtime(CLR), imparting all the CLR benefits to ASP.Net applications. Some of these benefits are automatic memory management, cross-language integration, interoperability

with existing code and system, and simplified deployment (Parihar, Singhal & Pandey, 2002).

ASP.Net combines unprecedented developer productivity with performance, reliability, and deployment (Why ASP.Net?, 2005).

Developer Productivity

ASP.Net helps you deliver real world web applications in record time via the following features:

i) Easy Programming Model

-ASP.Net makes building real world web applications dramatically easier. ASP.Net server controls enable an HTML-like style of declarative programming that let you build great pages with far less code than with classic ASP. ASP.Net pages work in all browsers, including Netscape, Opera, AOL and Internet Explorer.

ii) Flexible Language Options

-ASP.Net lets you leverage your current programming language skills. Unlike classic ASP, which supports only interpreted VBScript and Jscript, ASP.Net now supports More than 25 .Net languages (including built-in support for VB.Net, C#, and Jscript.Net), giving you unprecedented flexibility in you choice of language.

iii) Great Tool Support

-Visual Studio.Net adds the productivity of Visual Basic-style development to the web. Now you can visually design ASP.Net web forms using familiar drag-drop-double-click techniques, and enjoy full-fledged code support including statement completion. Visual Studio.Net also provides integrated support for debugging and

deploying ASP.Net web applications.

iv) Rich Class Framework

-The .Net Framework offers over 4500 classes that encapsulate rich functionality such as XML, data access, file upload, regular expressions, image generation, performance monitoring and logging, transactions, message queing, SMTP mail, and etc.

Improved Performance and Scalability

ASP.Net lets you use serve more users with the same hardware via the following features:

i) Compiled execution

-ASP.Net is much faster than classic ASP, while preserving the "just hit save" update model for ASP. However, no explicit compile step is required. ASP.Net will automatically detect any changes, dynamically compile the files if needed, and store the compiled results to reuse for subsequent requests. Dynamic compilation ensures that your application is always up-to-date, and compiled execution makes it fast.

ii) Rich Output Caching

-ASP.Net output caching can dramatically improve the performance and scalability of your application. When output caching is enabled on a page, ASP.Net executes the page just once, and saves the result in memory in addition to sending it to the user. When another user requests the same page, ASP.Net serves the cached result from memory without re-executing the page. Output caching is configurable, and can be used to cache individual regions or an entire page. The performance of data-driven pages can be dramatically improved by eliminating the need to query the database on every request.

iii) Web-Farm Session State

-ASP.Net session state lets you share session data user-specific state values across all machines in your Web farm. Now a user can hit different servers in the web farm over multiple requests and still have full access to her session. Since business components created with the .Net Framework are free-threaded, you no longer need to worry about thread affinity.

iv) Microsoft. Net Outperforms J2EE.

-In a head-to-head comparison of performance and scalability between Sun's Java Pet Store J2EE blueprint application and the ASP.Net implementation, Microsft .Net significantly outperformed J2EE. The bottom line: the ASP.Net implementation required only $1/4^{th}$ as many lines of code, was 28x faster (that's 2700%), and supported 7.6x as many concurrent users as J2EE, with only $1/6^{th}$ as much processor utilization.

Enhanced Reliability

ASP.Net ensures that your application is always available to your users.

i) Memory Leak, DeadLock and Crash Protection

-ASP.Net automatically detects and recovers from errors like deadlocks and memory leaks to ensure your application is always available to your users.

Easy Deployment

ASP.Net makes deploying server applications easier.

i) "No touch" application deployment

-Each ASP.Net application, along with its components and configuration information, is self-sufficient. Deploying an ASP.Net application has been highly simplified. You simply need to copy the directory to IIS to deploy an ASP.Net application.

ii) Dynamic update of running application

-ASP.Net now lets you update compiled components without restarting the web server. In the past with classic COM components, the developer would have to restart the web server each time he deployed an update. With ASP.Net, you simply copy the component over the existing DLL – ASP.Net will automatically detect the change and start using the new code.

However, ASP.Net has limitations such as it must run on Microsoft Windows Platform such as Windows 2000, Windows Server 2003 or Windows XP Professional.

3.3.1.1.2 Java

Java is a high-level programming language developed by Sun Microsystems. Java is an object-oriented language similar to C++, but simplified to eliminate language features that cause common programming errors. Java source code files (files with a .java extension) are compiled into a format called byte code (files with a .class extension), which can then be executed by a Java interpreter. Compiled Java code can run on most computers because Java interpreters and runtime environments, known as Java Virtual Machines (VMs), exist for most operating systems, including Unix, the Macintosh OS, and Windows.

Java is a general purpose programming language with a number of features that make the language well suited for use on the World Wide Web. Small Java applications are called Java applets and can be downloaded from a web server and run on your computer by a Java-compatible Web browser, such as Netscape Navigator or Microsoft Internet Explorer (What is Java?, 2005). Some of the advantages of Java:

- **Java is distributed.** Java is designed to support applications on networks. Java supports connectivity through classes in java.net.
- **Java is robust.** Java is designed for writing highly reliable or robust software. Java puts a lot of emphasis on early checking for possible problems, later dynamic (runtime) checking, and eliminating situations that are error prone.
- **Java is secured.** Java is intended to be used in networked environments. There are three features in Java's runtime environment that make it secure; Runtime memory let, Bytecode verifier and File access restrictions.
- **Java is architecture-neutral.** Java program are compiled to an architecture neutral byte-code format. The primary advantage of this approach is that it allows a Java application to run on any system that implements the Java Virtual Machine.
- **Java is portable.** Java's portability comes from the neutral construction of its architecture. The Java environment can also be ported to new operating systems and hardware platforms.
- **Java is multithreaded.** Multithreaded occurs when an operating system runs more than one program simultaneously. Java can prioritize its threads.
- **Java is dynamic.** Java can adapt to an evolving environment. Java programs allow for new instance variables and methods in a library's object without affecting the dependent client objects (Huang, 1996).

Although there are many advantages of Java, but must Java applications can't really challenge the speed of C because the code is interpreted, not compiled, and there are many runtime checking operations.

3.3.1.1.3 PHP

PHP, the PHP Hypertext Processor, is an open source server-side scripting language for web servers, which provides a real alternative to ASP, ColdFusion, Mod_Perl or JSP if your aim is to provide dynamic web pages. The traditional way to produce this type of dynamic pages is via CGI scripts, but these are separate programs which must be executed as a new process for each page hit, so they scale badly and rapidly become memory and processor hogs as server loads increase.

PHP solves this problem by becoming a part of the web server, essentially extending the functionality of the server itself, so that the server can do the processing without having to spawn extra processes. It's not alone in doing this, but unlike most other scripting languages for web page development PHP also offers excellent connectivity to most of the databases in use today. Perhaps the greatest advantage of PHP, when compared to other scripting languages such as ASP or ColdFusion, is that it is open source and cross-platform. PHP's natural home is on Linux servers running Apache server software, but it runs equally well on any other Unix or Windows platform, and can be used with other web servers (Understanding PHP, 2004).

The advantages of PHP are:

1. You can develop web applications in PHP very rapidly, as compile and link is is eliminated in PHP scripting language.
2. PHP applications are very stable and do not depend on the browser technologies unlike Javascript applications which depend on browsers. PHP will give you the freedom to select any server platform.
3. PHP has excellent database connectivity to all SQL database servers.

4. PHP has C++, Perl, Javascript like syntax featues and has programs like 'ptags/ctags' to navigate the source code.
5. PHP runs on all Unixes, Linux, Mac OS X and Microsoft Windows platform.
6. PHP has a very large user base and developer base (Limitations of PHP, n.d.).

The limitations of PHP are:

1. PHP is NOT 100% pure Object-Oriented scripting language. But in near future PHP may support 100% object-oriented scripting (PHP may imitate most of the syntax of Java language).
2. PHP will NOT give the performance of "C" or "C++" language. Because it is scripting language and is interpreted, it will be a bit slower than the optimized "C++" programs.

Features	ASP.NET	Java	PHP
Web server	Microsoft Internet Information Service (IIS)	Microsoft Internet Information Service (IIS) & Personal Web Server (PWS)	Any web server, including Apache, Netscape, & Microsoft Internet Information Service (IIS)
Platforms	Microsoft Windows 2000/XP	Full environment available only for Microsoft Windows 95/NT, Macintosh, Sun Solaris. Other platforms must wait for 3rd party support.	Most popular platforms, including the Solaris Operating Environment, Microsoft Windows, Mac Operating System, Linux, and other UNIX variants.
Scripting language	Supports more than 25.NET language(including built-in support for VB.NET, C#,& JScript.NET)	Java	PHP
Compiled	Much faster than	Fast	Fast

execution	ASP. It will automatically detect any changes, dynamically compile the files if needed, and store the compiled results to reuse for sub sequent requests.		
Extensive tool support	Yes	Yes	Yes

Table 3.1 : Comparison between ASP.Net, Java and PHP

3.3.1.2 Database Management System

3.3.1.2.1 Microsoft Access

Microsoft Access is a popular data management application that store information in tables which it manages directly from the local disk. It is a Windows based database management system. It is one of the programs in the Microsoft Office suite.

With Access, data can be entered, stored and manipulated in a variety of ways. It also allows querying a database for information. It can be used as a front-end that is an interface to information that is located elsewhere and handled by another storage management system. In this case, Access acts as a client that connects to a server that provides the data.

Access has its strengths, such as easy to use interface. However Access also has its limitations. It is generally used as a personal or single-user application, typically for managing limited amounts of data. As its storage management limitations, it is not commonly used for database hundreds of megabytes in size (DuBois, 2003).

3.3.1.2.2 MySQL

The MySQL database server is the world's most popular open source database. It is a true multi-user, multi-threaded RDBMS (Relational Database Management System) server that uses SQL to interact with and manipulated data. MySQL is a client/server implementation that consists of a server daemon mysql and many different client programs or libraries.

Its architecture makes it extremely fast and easy to customize. Extensive reuse of code within the software and minimalistic approach to providing functionally-rich features has resulted in a DBMS unmatched in speed compactness, stability and ease of deployment. The unique separation of the core server from the storage engine makes it possible to run with strict transaction control or with ultra-fast transactionless disk access.

MySQL server provides a few important features including multithreading capabilities that enable the database to perform multiple tasks concurrently, allowing the server to process client requests efficiently support for various programming languages and handle large databases. It is available for Windows, Linux and UNIX.

MySQL's rising popularity benefits from the open source software movement. The term open source refers to software that can be freely obtained and customized to fulfill corporate, educational or personal requirements.

One of the limitations of MySQL has been its lack of an official GUI to administer it. Performing routine backups, adding new users, or any other number of basic administration tasks has required using a third party solution or the MySQL client, which is a command prompt (Good, 2004).

3.3.1.2.3 Oracle

Oracle is a multi-user database. It provides unprecedented ease-of-user and it pretends and pre-configured for dynamic workgroup and line-of-bus environments. It includes a fully integrated set of easy-to-use management tools, full distribution and replication and web features. Oracle also provides the highest levels of availability through fast fail over, easier management, and zero data loss disaster protection, with Data Guard, the only complete data protection solution available on the market. Oracle can runs on UNIX, Linux and Windows platform. However, it is expensive and separate licenses are required for each of its database engine.

3.3.1.2.4 Microsoft SQL Server 2000

Microsoft SQL Server 2000 is a relational database management and analysis system for e-commerce, line-of-business, and data warehousing solutions. Microsoft SQL Server 2000 has the following features:

- Internet Integration.

  The SQL Server 2000 database engine includes integrated XML support. It also has the scalability, availability, and security features required to operate as the data storage component of the largest Web sites. The SQL Server 2000 programming model is integrated with the Windows DNA architecture for developing Web applications, and SQL Server 2000 supports features such as English Query and the Microsoft Search Service to incorporate user-friendly queries and powerful search capabilities in Web applications.

- Scalability and Availability.

  The same database engine can be used across platforms ranging from laptop computers running Microsoft Windows® 98 through large, multiprocessor servers running Microsoft Windows 2000 Data Center Edition. SQL Server 2000 Enterprise Edition supports features such as federated servers, indexed views, and large memory support that allow it to scale to the performance levels required by the largest Web sites.

- Enterprise-Level Database Features.

  The SQL Server 2000 relational database engine supports the features required to support demanding data processing environments. The database engine protects data integrity while minimizing the overhead of managing thousands of users concurrently modifying the database. SQL Server 2000 distributed queries allow you to reference data from multiple sources as if it were a part of a SQL Server 2000 database, while at the same time, the distributed transaction support protects the integrity of any updates of the distributed data. Replication allows you to also maintain multiple copies of data, while ensuring that the separate copies remain synchronized. You can replicate a set of data to multiple, mobile, disconnected users, have them work autonomously, and then merge their modifications back to the publisher.

- Ease of installation, deployment, and use.

  SQL Server 2000 includes a set of administrative and development tools that improve upon the process of installing, deploying, managing, and using SQL Server across several sites. SQL Server 2000 also supports a standards-based

programming model integrated with the Windows DNA, making the use of SQL Server databases and data warehouses a seamless part of building powerful and scalable systems. These features allow you to rapidly deliver SQL Server applications that customers can implement with a minimum of installation and administrative overhead.

- Data warehousing.

  SQL Server 2000 includes tools for extracting and analyzing summary data for online analytical processing. SQL Server also includes tools for visually designing databases and analyzing data using English-based questions.

  The limitation is SQL Server 2000 only works on Windows-based platforms, including Windows 9x, Windows NT, Windows 2000, Windows CE and Windows XP (Chigrik, 2003).

The following table shows the comparison between Microsoft Access, MySQL, Oracle and Microsoft SQL Server 2000.

Features	**Microsoft Access**	**MySQL**	**Oracle**	**Microsoft SQL Server 2000**
Database storage	Does not handle large amount of data well.	Handles large amount of data well.	Very extensive database system, with many tools, extensions and features.	Handles large amount of data well.

Performance	Slow and not suitable to be the backend database for a web site.	Faster and more robust because it is designed to provide high performance access to information on web page.	Faster because it is known to provide high transaction rates.	Faster and more robust because it is designed to provide high performance access to information on web page.
Scalability	Limited in what it can do with respect to real database manipulations.	Highly scalable in the database management system.	Scalability is one of its most powerful features.	Highly scalable in the database management system.
Price	Less expensive and its simplicity made it more user-friendly.	Can be obtained for free.	More expensive compare to Microsoft Access.	More expensive compare to Microsoft Access.

Table 3.2 : Comparison between Microsoft Access, MySQL, Oracle and Microsoft SQL Server 2000

3.3.1.3 Web Server

3.3.1.3.1 Apache

Apache is an open-source (source code is freely available and can be shared) HTTP Web server software. It is currently the most popular web server on the Net. It is usually run on Unix operating system versions like Linux or BSD, but it can also be run on Windows. It is a full-featured server with many powerful add-ons freely available (Web Hosting Glossary, n.d.).

Apache is also designed to work with a wide range of languages, either via the CGI model, or through the use of dynamic modules by directly incorporating the language interpreter into the Apache environment. This significantly speeds up the execution of dynamic components for languages like PHP, Perl, and Python (Brown, 2003).

Apache's security and administration system is not this well-integrated with the OSs it supports. Although there are modules and adaptors that support a variety of different authentication and security sources, including Active Directory, the Unix password file, and LDAP servers, the resulting server is relatively isolated from the system it supports (Brown, 2003).

3.3.1.3.2 Internet Information Server (IIS)

Microsoft's Internet Information Server is an Internet file and application server (enterprise-level web server). It is actually a group of Internet server (HTTP, FTP, SMTP, and NNTP). Internet Information Server can be used alone as a web server, to in conjunction with compatible technologies to set up Internet commerce, to access and manipulate data from a variety of data sources, and to build web applications that take advantage of server script and component code to deliver client – server functionality. With Internet Information Server, Microsoft includes a set of programs for building and administering web sites, a search engine, and a support for writing web-based applications that access database.

Internet Information Server includes security features and promises that it is easy to install. It works closely with the Microsoft Transaction Server to access database and

provide control at the transaction level. Internet Information Server is the most popular commercial web server for Windows 2000 in use today. While posting a web page to Internet Information Server is easy, configuring it to ensure maximum performance and security for applications can be challenging.

Microsoft IIS have some disadvantages, including:

- It is intended to run on a single platform for example Intel compatible processors and Windows NT operating system.
- Cross-side scripting problem.
- Denial-of-service vulnerability

Features	**Apache**	**Internet Information Server (IIS)**
Company	Apache Group	Microsoft Corporation
Platforms	UNIX, Windows NT/2000, experimentally support Windows 95/98.	Windows 2000/XP
Price	Freeware.	Include with Windows 2000/XP Pro.

Table 3.3 : Comparison between Apache and IIS

3.4.2 Hardware

3.4.2.1 Operating System

3.4.2.1.1 Windows XP Professional

Windows XP Professional integrates the strength of Windows 2000 Professional, such as standards-based security, manageability, and reliability, with the best business features of Windows 98 and Windows Millennium Edition, such as Plug & Play,

simplified user interface, and innovative support services. This combination creates the best desktop combination operating system for business.

Windows XP features several enhancements that prevent problems with system-thus averting downtime, and allowing maximization of productivity. Windows XP Professional starts with the proven code base of Windows 2000, which features a 32-bit computing architecture, and a fully protected memory model.

Reliability improvements have been made to the operating system itself, the software and hardware used with the operating system, and how the entire system responds to user actions.

User will benefit from the added reliability in several ways, including: broader application compatibility, improved device and hardware support, side-by-side dynamic link library support that helps your system safely share components, an easier way to close unresponsive applications, system installation and update improvements, backup and recovery improvements, and better support systems.

There are some disadvantages with Windows XP, including it consumes disk space enormously and its interface very consuming in resource system.

3.4.2.1.2 Windows Server 2003

Windows Server 2003 is a multipurpose operating system capable of handling a diverse set of server roles, depending on your needs, in either a centralized or distributed fashion. Some of these server roles include:

- File and print server
- Web server and web application services
- Mail server
- Terminal server
- Remote access and virtual private network (VPN) server
- Directory services, Domain Name system (DNS), Dynamic Host Configuration Protocol (DHCP) server, and Windows Internet Naming Service (WINS)
- Streaming media server

Windows Server 2003 has the following benefits:

- Dependable

  Windows Server 2003 is the fastest, more reliable, most secure Windows operating system ever offered by Microsoft.

- Productive

  Windows Server 2003 provides the tools that simplify deployment, management, and administration and maximize productivity.

- Connected

  Windows Server 2003 provides the extensible application platform for quickly building solutions that keep employees, partners, systems and customers connected.

- Best Economics

  When combined with products and services from the many Microsoft hardware, software, and channel partners, Windows Server 2003 provides the choices that help you get the greatest return on your infrastructure investments (Microsoft, 2005).

3.4.2.1.3 Linux

Linux is an extremely powerful Unix operating system that is completely free. It has all the features of commercial operating systems including true multitasking, virtual memory, shared libraries, proper memory management and TCP/IP networking. It runs on many different processors including Intel x86, Motorola 68k series (Amiga and Atari), DEC Alpha, Sun Sparc, Mips and Motorola PowerPC (Linux, 2004).

Linux, like all Unix variants, is designed to handle multiple concurrent users. It provides multiple scripting languages, referred to as shell scripts. Among them are the Bourne shell, the C shell, Perl, Python and Ruby (Horowitz, 2005).

3.4.2.1.4 Mac OS

Mac OS X is a super-modern operating system that combines the power and stability of UNIX with the simplicity and elegance of the Macintosh.

Built using many of the same technologies that power the Internet itself, Mac OS X gives you the power to get online faster and easier, and do more when you get there with best-of-class Internet applications such as Mail, Microsoft Internet Explorer 5.1, QuickTime Player and iTools.

Mac OS X provides a foundation for great new applications that are built for Mac OS X. So whether at the office, at home, in the studio, or in the classroom, Mac OS X will make your computer run faster and more reliably, while bringing the simplicity and familiarity of today's Macintosh to a whole new level (Mac OS, 2004).

Feature	**Windows XP Professional**	**Windows Server 2003**	**Linux**	**Mac OS**
Web Server Ready	Internet Information Server (IIS) & Apache.	Internet Information Server (IIS) & Apache.	Apache	Apache
User Interface	GUI	GUI	Strong command line plus GUI via Windows manager.	Strong command line plus GUI via Windows manager.
Stability	Very stable.	Stable.	Very stable.	Very stable.
Security	Internet Connection Firewall that allows restricts access.	Secure login procedures and support for web security	Also able to log users who have entered the system.	Also able to log users who have entered the system.
Price	Expensive	Expensive	Free download	Expensive

Database	SQL Server, Oracle & MySQL	SQL Server, Oracle & MySQL	Postgress SQL & MySQL	Postgress SQL & MySQL

Table 3.4 : Comparison between Windows XP Professional, Windows Server 2003, Linux and Mac OS

Chapter 4 : System Analysis

4.1 Introduction

System analysis is the most important phase in software development life cycle. It is the process of gathering and interpreting facts, diagnosing problems and using the information to recommend improvements to the system. The information gathered in this phase has provided alternative strategies to develop this system. This alternative strategy is in terms of what development tools are most suitable to develop this system. From the literature reviews that I done in Chapter Two, I will summarize why I choose a certain development tool to develop my system.

The purposes of this analysis phase are:

- Decide the hardware and software to be used to develop my proposed system, this include the operating system, web application language, web technology, web browser, web server.
- Justify what are the functional requirements of my system in each module.
- Analyse the strengths and smart features of the existing system which can be incorporated in my proposed system.
- Introduce new and good features in the modules of my system.
- Justify what are the non-functional requirements that should be considered during system development.

4.2 Functional Requirements

These are statements of services the system should provide, how the system should react to particular inputs and how the system should behave in particular situations. These requirements depend on the type of software being developed, the expected users of the software and the type of system where the software is used.

Functional user requirements may be high-level statements of what the system should do but functional system requirements should describe the system services in detail. In principle, requirements should be both complete and consistent. Completeness means that they should include descriptions of all facilities required. While consistency means that there should be no conflicts or contradictions in the descriptions of the system facilities (Sommerville, 2004).

4.2.1 Tour As Guest

The system shall give basic rights to the guest

- to search for package using basic search and travel recommender
- view the package details
- view the organisation's background
- make contact with the organisation
- view the FAQs page
- send feedback to the organisation.

If the guest has registered, the system shall allow him/her

- to log in into the system to reserve and book a package

4.2.2 Tour As Member

Start using the system as a registered member. The members shall be able to access all the functions available to the non-registered user as well as to reserve a package, modify a reservation or personal details and book a package after confirmation of reservation is given by travel agency involved. The members shall be able to view their transaction history.

4.2.3 Tour As Travel Agency

The Travel Agency shall be

- able to search and view the agency/package information
- allowed to add new package/agency information as well as to update and delete the existing package records or agency information.
- able to keep track of the current package reservation and booking records .
- able to give confirmation of reservation to member.

4.2.4 Tour As Administrator

The database administrator shall be

- allowed to view and search agency/package/member information
- allowed to delete agency/member.
- allowed to register a new travel agency and approve an agency application

- **Usability**

  When using the system, the users should be able to use more of the "mouse click" rather than having to type. Clearly defined buttons should be available for users to click on when selecting options on what to do.

- **Security**

  The system should request users to key in their username and password to identify them. It should also prevent unauthorized access into the system.

- **User Friendliness**

  The system should have an attractive and pleasant Graphical User Interface (GUI) that does not need their users to possess sophisticated computer knowledge or skills.

4.4 Summaries on Hardware and Software That I Chosen

4.4.1 Software

4.4.1.1 Programming Language-ASP.Net

I choose to use ASP.Net to develop my system due to the following advantages that ASP.Net possesses:

i) Easy programming model

ii) Flexible language options

iii) Great tool support

iv) Rich class framework

v) Faster compiled execution

vi) Rich output caching

vii) Easy deployment of web application

4.4.1.2 Database Management System- Microsoft SQL Server 2000

I choose to use Microsoft SQL Server 2000 due to the following advantages that Microsoft SQL Server 2000 possesses:

i) Internet Integration

The SQL Server 2000 database engine includes integrated XML support. It also has the scalability, availability, and security features required to operate as the data storage component of the largest Web sites.

ii) Scalability and Availability

SQL Server provides powerful and scalable support for large database and complex queries.

iii) Enterprise level database features

The SQL Server 2000 relational database engine supports the features required to support demanding data processing environments.

iv) Ease of installation, deployment and use

SQL Server 2000 includes a set of administrative and development tools that improve upon the process of installing, deploying, managing, and using SQL Server across several sites.

4.4.1.3 Web Server-Internet Information Server

I choose to use Internet Information Server because in order to use ASP.Net to develop my system, I must have Internet Information Server installed.

4.4.2 Hardware

4.4.2.1 Development Platform- Windows XP Professional

I choose to use Windows XP Pro due to the following advantages that Windows XP Professional possesses:

i) Lower total cost of ownership

ii) Networking and communication services

iii) Easier to use and manage

iv) Industrial-strength reliability and highest level of security

v) Integrated administration tools

Chapter 5: System Design

5.1 Structure Design

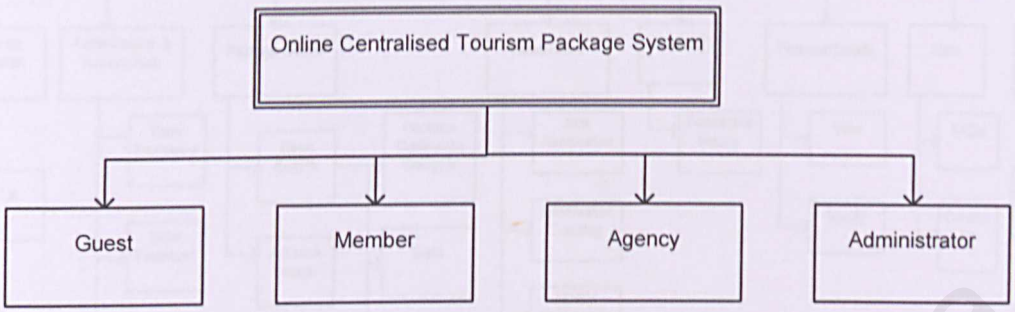

Figure 5.1(a) : Structure Chart for OCTPS Main System

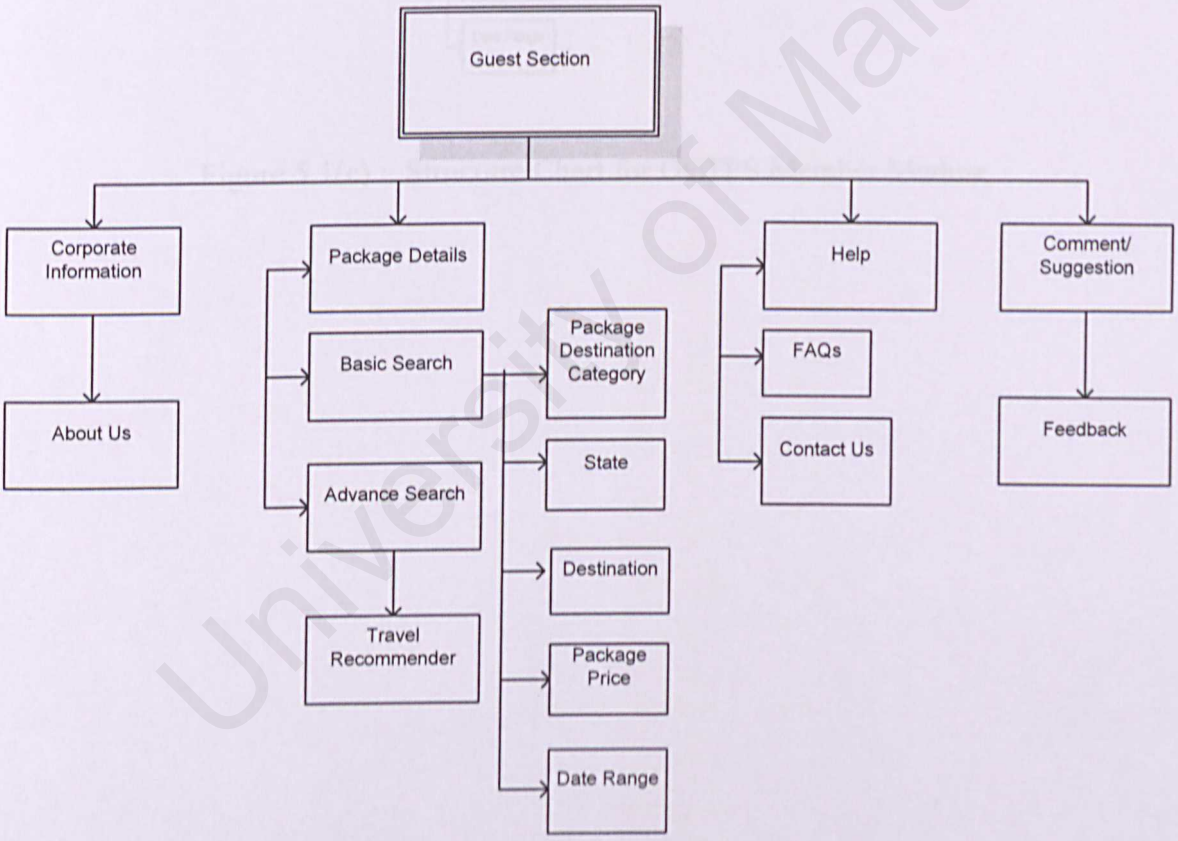

Figure 5.1(b) : Structure Chart for OCTPS Guest Module

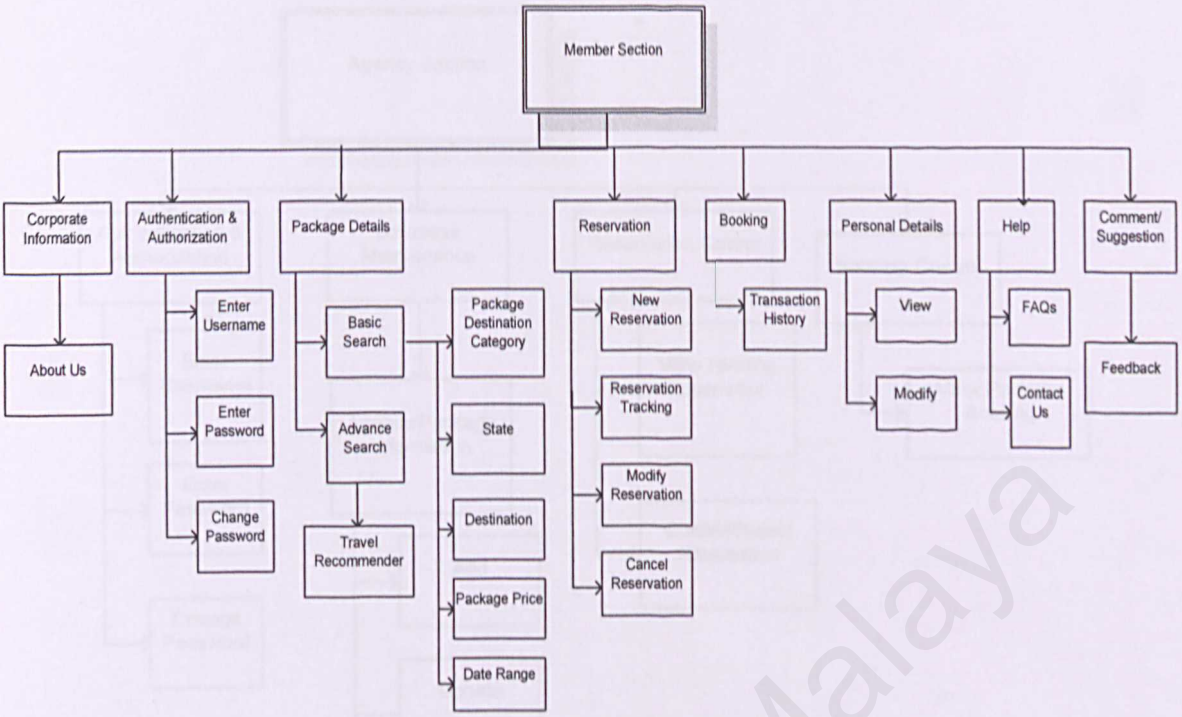

Figure 5.1(c) : Structure Chart for OCTPS Member Module

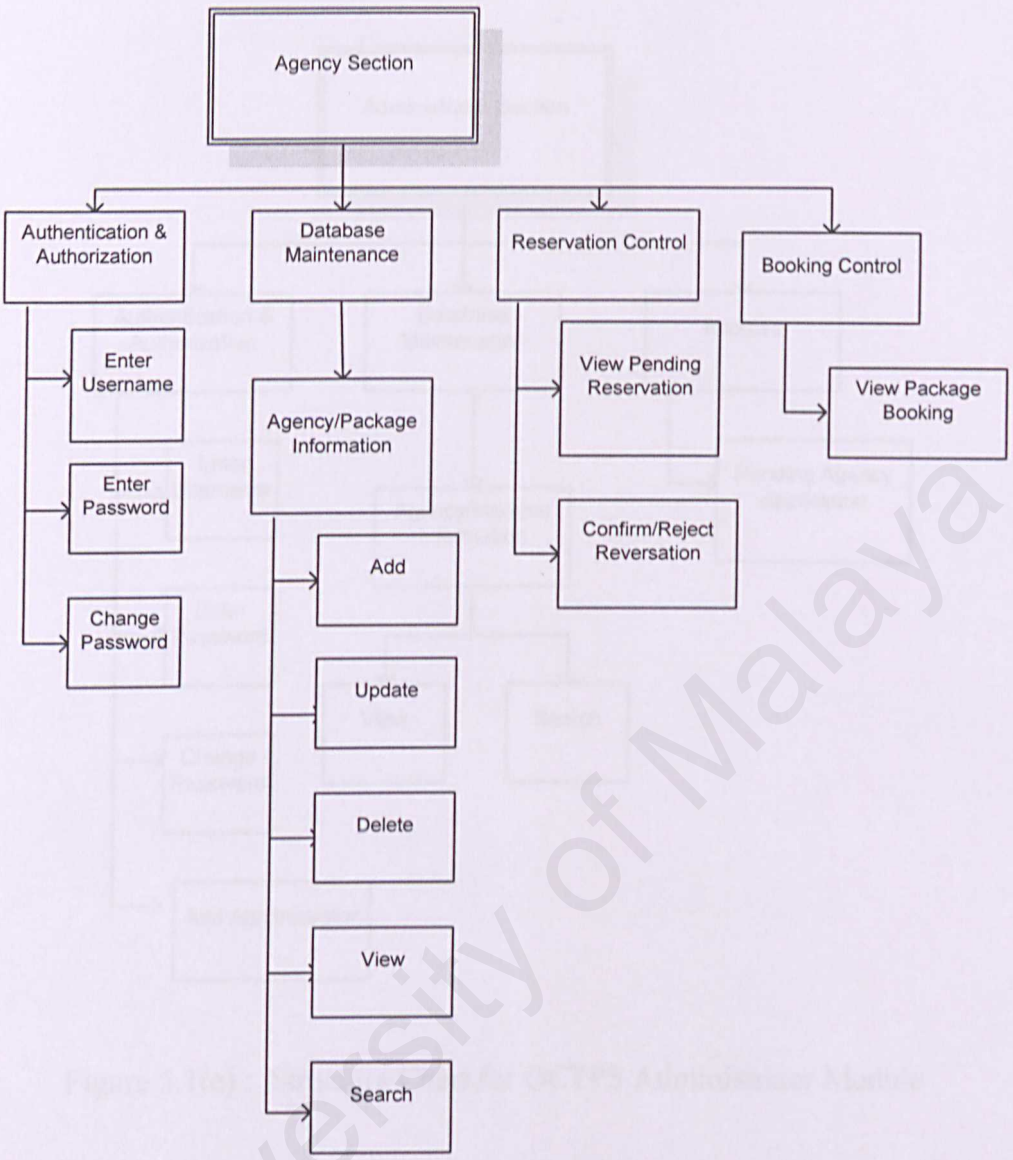

Figure 5.1(d) : Structure Chart for OCTPS Agency Module

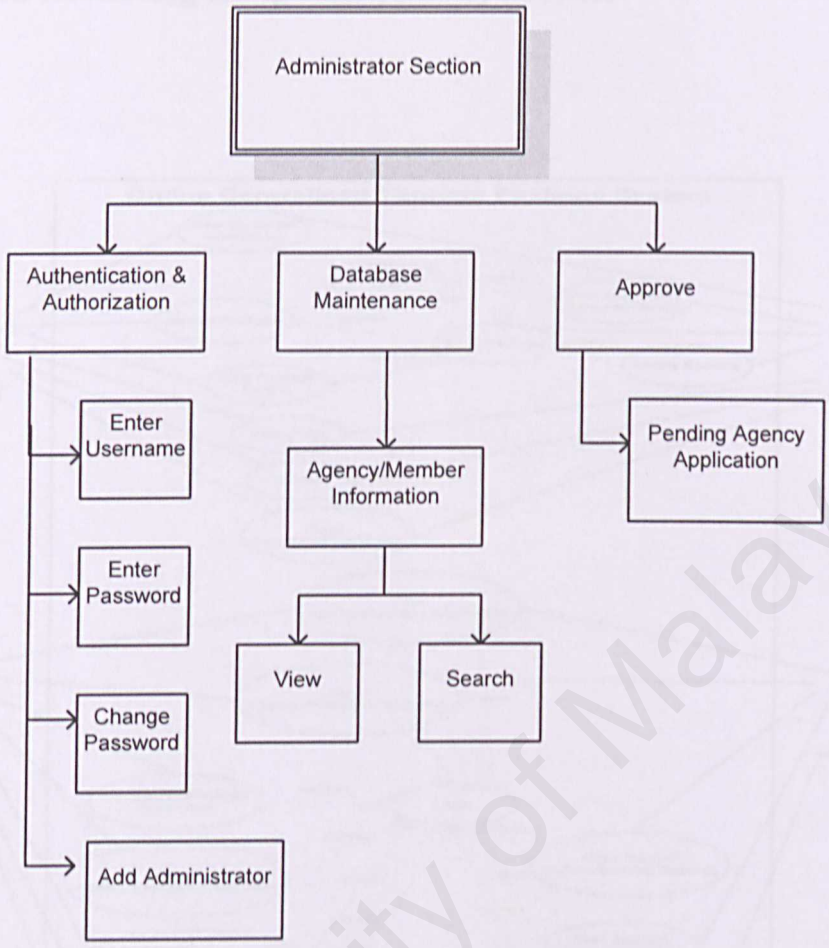

Figure 5.1(e) : Structure Chart for OCTPS Administrator Module

5.2 Unified Modeling Language (UML) Models

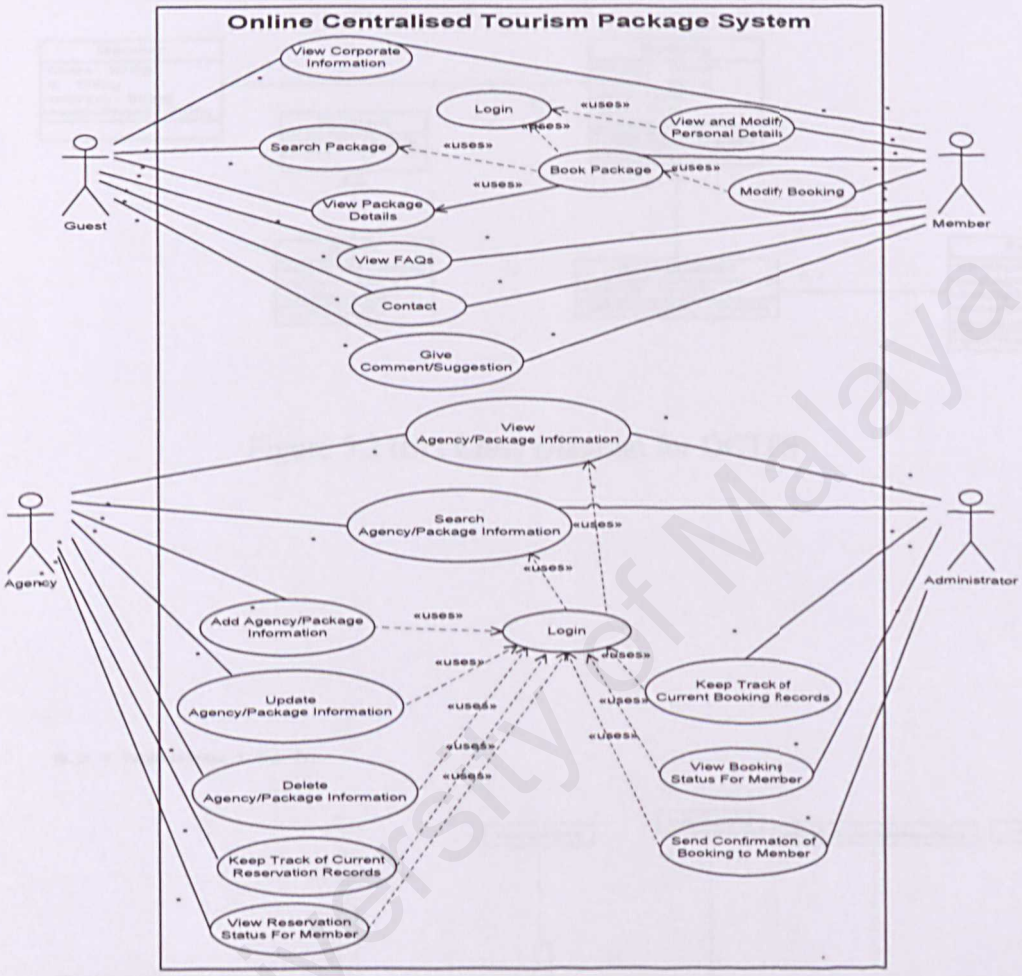

Figure 5.2 (a) : Use case diagram for OCTPS

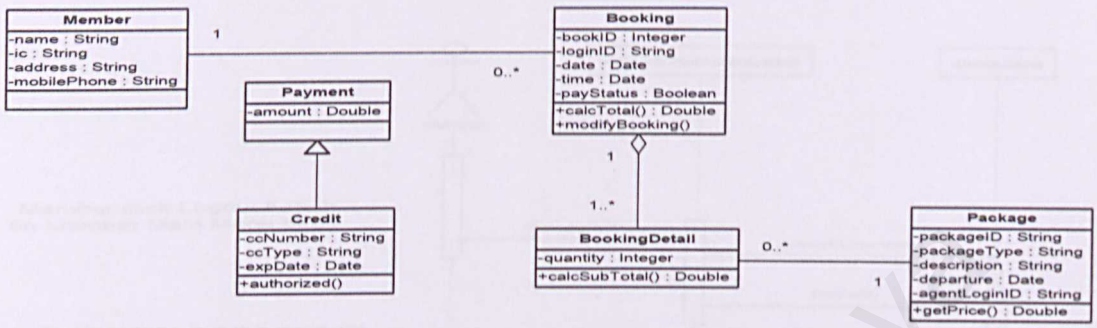

Figure 5.2 (b) : Class Diagram for OCTPS

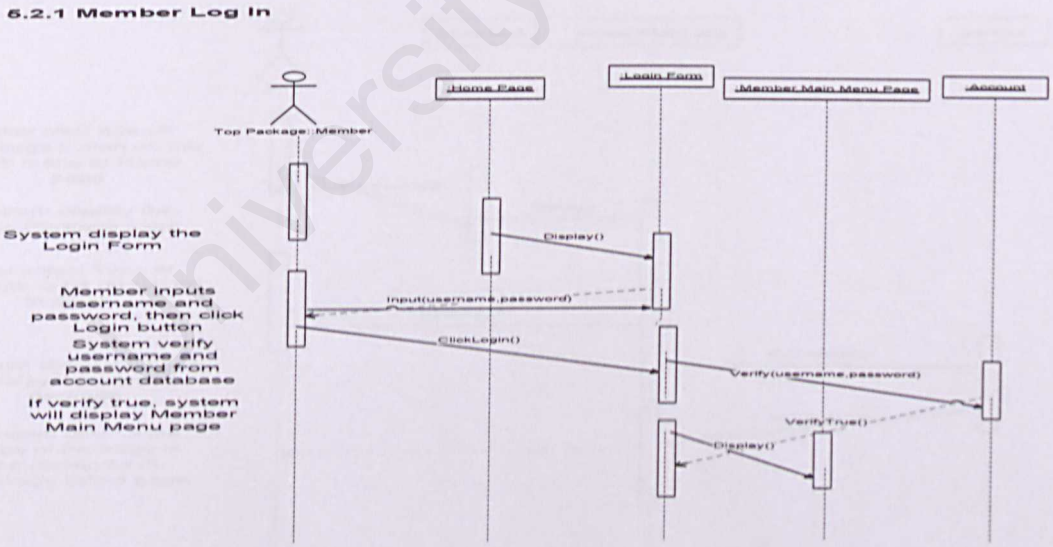

Figure 5.2 (c) : Sequence Diagram for Member Log In

5.2.2 Member Log out

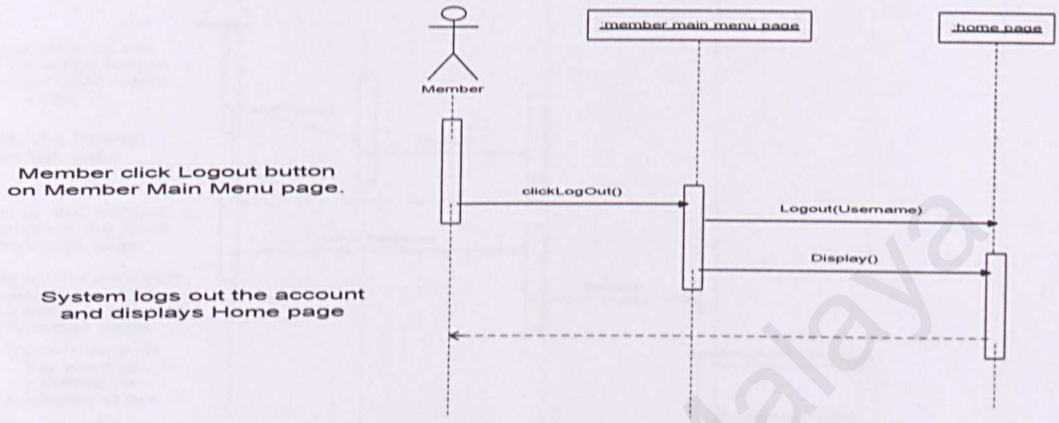

Figure 5.2 (d) : Sequence Diagram for Member Log Out

5.2.3 View packages

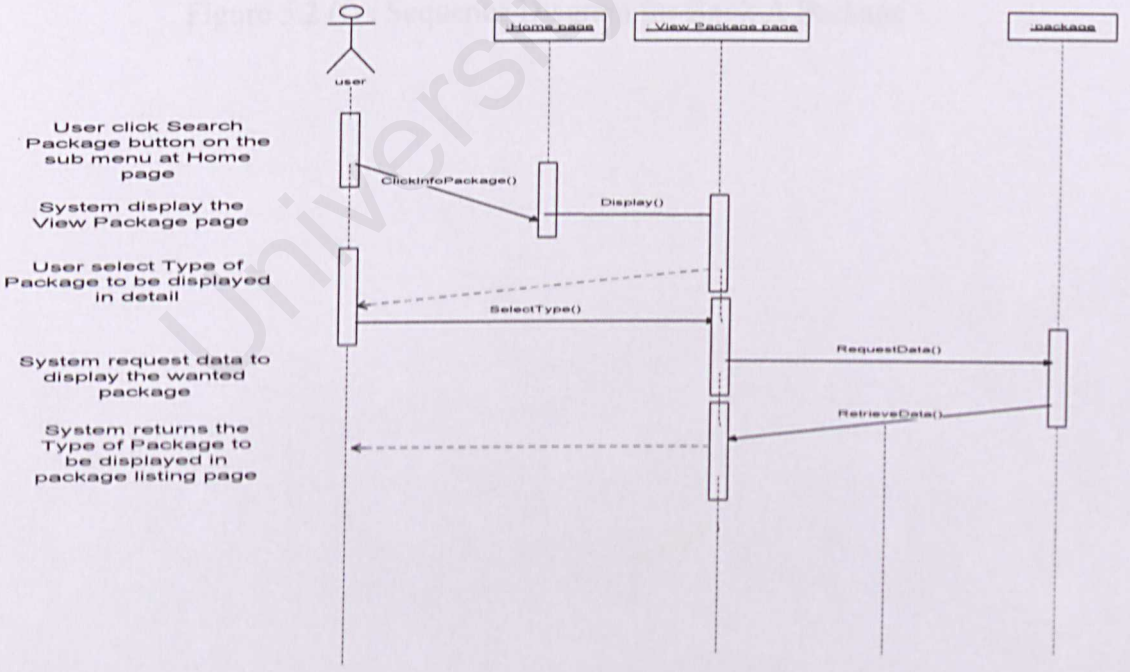

Figure 5.2 (e) : Sequence Diagram for View Packages

5.2.4 Book A Package

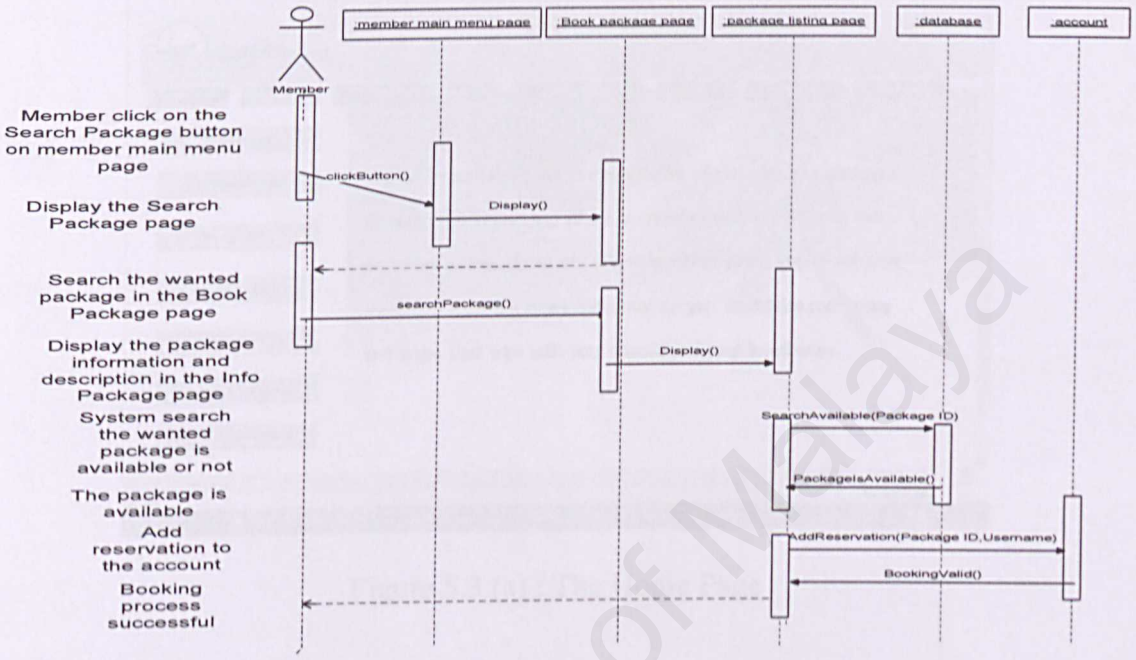

Figure 5.2 (f) : Sequence Diagram for Book A Package

5.3 User Interface Design

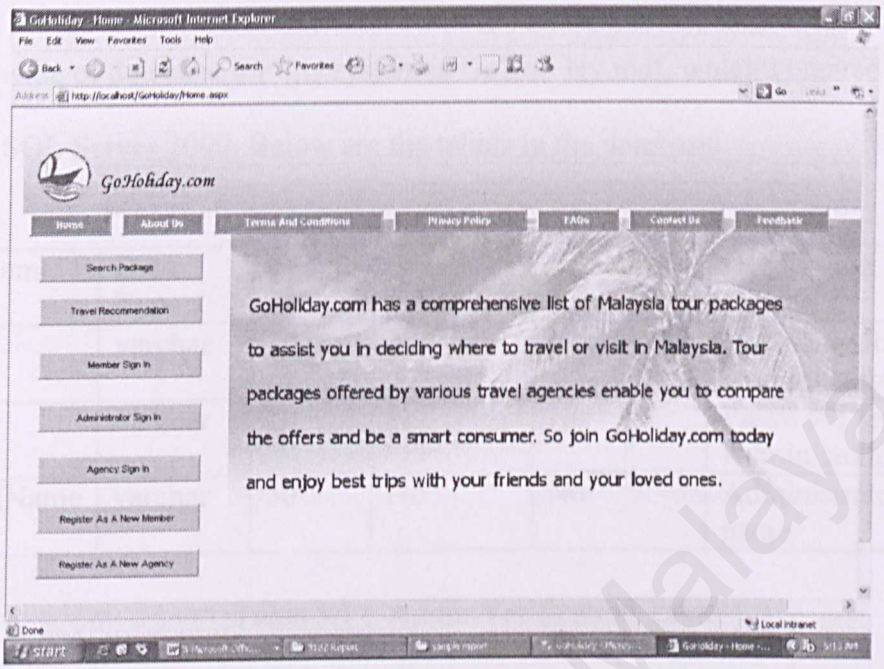

Figure 5.3 (a) : The Home Page

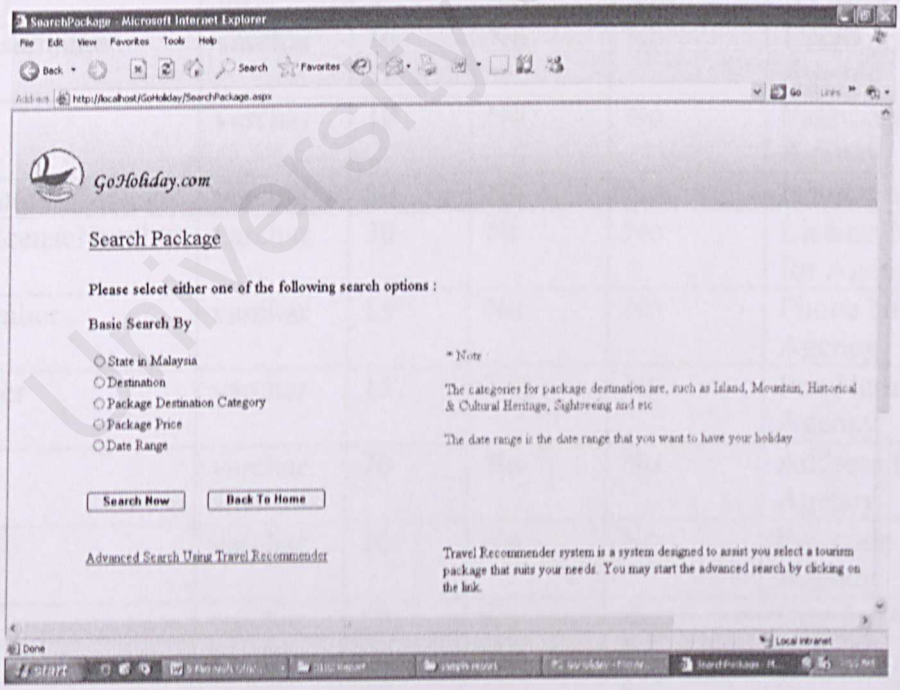

Figure 5.3 (b) : The Search Package Page

5.4 Database Design

The name of database for this system is GoHoliday.mdf, which I created in Microsoft SQL Server 2000. Below are the tables in the database:

Column Name	Data Type	Length	Allow Nulls	Primary Key	Description
Username	varchar	10	No	Yes	Username for Administrator
Password	varchar	10	No	No	Password for Administrator
AdminFullName	varchar	50	No	No	Administrator full name

Table 5.1 : AdminVerification Table

Column Name	Data Type	Length	Allow Nulls	Primary Key	Description
AgencyID	Int	4	No	Yes	ID for Agency
AgencyUsername	varchar	10	No	No	Username for Agency
Password	varchar	10	No	No	Password for Agency
AgencyName	varchar	50	No	No	Name for Agency
AgencyLicenseNumber	varchar	30	No	No	License Number for Agency
PhoneNumber	varchar	15	No	No	Phone Number for Agency
FaxNumber	varchar	15	Yes	No	Fax Number for Agency
Address	varchar	70	No	No	Address for Agency
Postcode	varchar	10	No	No	Postcode for Agency
City	varchar	50	No	No	City for Agency
State	varchar	50	No	No	State for Agency
Country	varchar	70	No	No	Country for Agency
Email	varchar	30	Yes	No	Email Address for Agency
Url	varchar	30	Yes	No	Url for Agency

Registered_Date	datetime	8	No	No	The registered date for Agency
AgencyStatus	varchar	50	No	No	The status for agency registration

Table 5.2 : AgencyInfo Table

Column Name	Data Type	Length	Allow Nulls	Primary Key	Description
StateID	Int	4	No	Yes	ID for Malaysia State
State	varchar	50	No	No	The name for Malaysia State

Table 5.3 : MalaysiaStateInfo Table

Column Name	Data Type	Length	Allow Nulls	Primary Key	Description
PackageActivityCategoryID	Int	4	No	Yes	ID for the package activity category
PackageActivityCategory	varchar	100	No	No	The name for the package activity category
Description	varchar	200	No	No	Description for the package activity category

Table 5.4 : PackageActivityCategory Table

Column Name	Data Type	Length	Allow Nulls	Primary Key	Description
FeedbackID	Int	4	No	Yes	ID for feedback
SenderName	varchar	50	No	No	The name for Sender
SenderEmail	varchar	30	No	No	Email of Sender
Subject	varchar	50	No	No	Subject of Feedback
Feedback	varchar	250	No	No	Feedback details
SendFeedBackDate	datetime	8	No	No	The date feedback was sent

Table 5.5 : Feedback Table

Column Name	Data Type	Length	Allow Nulls	Primary Key	Description
PackageDestinationCategoryID	Int	4	No	Yes	ID for the package destination category
PackageDestinationCategory	varchar	100	No	No	The name for the package Destination category
Description	varchar	200	No	No	Description for the packageDestination category

Table 5.6 : PackageDestinationCategory Table

Column Name	Data Type	Length	Allow Nulls	Primary Key	Description
PackageID	Int	4	No	Yes	ID for Package
PackageName	varchar	50	No	No	The name for Package
AgencyName	varchar	50	No	No	The agency that offer the package
StartDate	datetime	8	No	No	The start date for package
EndDate	datetime	8	No	No	The end date for package
Destination	varchar	100	No	No	Destination for package
PackageDestinationCategory	varchar	100	No	No	The category for package destination
PackageActivityCategory	varchar	100	No	No	The category for package activity
Accommodation	varchar	100	Yes	No	The accommodation during the trip if have
Price_Adult	money	8	No	No	The adult price for the package
Price_Child	money	8	No	No	The child price for the package
Images1	varchar	100	Yes	No	The path of image1
Images2	varchar	100	Yes	No	The path of

					image2
Image3	varchar	100	Yes	No	The path of Image3
Images4	varchar	100	Yes	No	The path of Image4
AddDate	datetime	8	No	No	The date for package added
Capacity	int	4	No	No	The maximum pax for the package
NumberBooked	int	4	No	No	The number of people already booked the package

Table 5.7 : PackageInfo Table

Column Name	Data Type	Length	Allow Nulls	Primary Key	Description
ReserveID	Int	4	No	Yes	ID for Package Reservation
Username	varchar	10	No	No	The username for member
FullName	varchar	50	No	No	The full name of member
PhoneNumber	varchar	15	No	No	The phone number of member
Address	varchar	70	No	No	The address of member
Email	varchar	30	No	No	Email address of member
PackageID	int	4	No	No	The ID for package
PackageName	varchar	50	No	No	The name of package
AgencyName	varchar	40	No	No	The agency that offer the package
StartDate	datetime	8	No	No	The start date of package
EndDate	datetime	8	No	No	The end date of package
Destination	varchar	50	No	No	The destination of package
Accommodation	varchar	100	Yes	No	The accommodation of package if have
AdultTravelerNumber	Int	4	No	No	The number of adult take this package

ChildTravelerNumber	Int	4	Yes	No	The number of children take this package
Price_Adult	money	8	No	No	The adult price for the package
Price_Child	money	8	No	No	The child price for the package
TotalAmt	money	8	No	No	The total amount of reservation
ReserveDate	datetime	8	No	No	The date of reservation
ReserveStatus	varchar	50	No	No	The status of reservation

Table 5.8 : PackageReservation Table

Column Name	Data Type	Length	Allow Nulls	Primary Key	Description
BookingID	Int	4	No	Yes	ID for the package booking
ReserveID	Int	4	No	No	ID for the package reservation
Username	varchar	10	No	No	Username of member
AgencyName	varchar	50	No	No	Agency provide the package
CCNumber	varchar	50	No	No	Credit Card Number for payment
CCType	varchar	50	No	No	Credit Card Type for payment
CCValidationNumber	varchar	50	No	No	Credit Card validation Number
CCHolderName	varchar	50	No	No	Credit Card Holder name
BookDate	datetime	8	No	No	Date for package booking
CCExpMonth	varchar	20	No	No	Expiry month of credit card
CCExpYear	varchar	20	No	No	Expiry year of credit card

Table 5.9 : PackageBooking Table

Column Name	Data Type	Length	Allow Nulls	Primary Key	Description
Username	varchar	10	No	Yes	Username for member
Password	varchar	10	No	No	Password for member
FullName	varchar	50	No	No	Name for member
ICNumber	varchar	20	No	No	IC Number of member
Gender	varchar	10	No	No	Gender of member
PhoneNumber	varchar	15	No	No	Phone Number for member
Address	varchar	70	No	No	Address for member
Postcode	varchar	10	No	No	Postcode for member
City	varchar	50	No	No	City for member
State	varchar	50	No	No	State for member
Country	varchar	70	No	No	Country for member
Email	varchar	30	Yes	No	Email Address for member

Table 5.10 : UserInfo Table

Chapter 6 : System Development

6.1 Development Environment

The basic tools used for the system development are:

i. Microsoft Visual Studio .Net 2003

ii. Microsoft Window XP Professional (Operating System)

iii. Microsoft SQL Server 2000 (Database Management System)

iv. Microsoft .Net Framework 1.1

v. Internet Information Server

vi. Notepad (Editor for HTML)

vii. Adobe Photoshop 6.0 (Image creation Tool)

viii. Microsoft Internet Explorer 6.0 (Web browser)

6.2 System Development

6.2.1 Website Development

As the proposed system is a web-based system, the website is developed using ASP. Net, where I used VB.Net as the scripting language. For certain functions which can be better achieved using other languages, such as pop up confirmation message box and etc, I used Javascript to implement it.

CSS (*Cascading Style Sheets*) is also used to gain better control of the interface design.

6.2.2 Database Development

The database for the proposed system is developed using Microsoft SQL Server 2000. The database includes tables to keep users' details including users' authentications information, package information, and package reservation and booking details.

6.3 Interface Implementation

6.3.1 Home Page

The name for the website developed is GoHoliday.com. To access the website, the user can type in the browser, http://localhost/GoHoliday/Home.aspx . The following screen shot is the home page of GoHoliday.com. At the home page, the user can access the About Us, Terms And Conditions, Privacy Policy, FAQs, Contact Us and Feedback Page by clicking on the upper navigation menu. While on the left hand side of the page, there is Search Package, Travel Recommendation, Member Sign In, Administrator Sign In, Register As A New Member and Register As A New Agency navigation menu. A guest can search and view the tourism packages offered by the agency in this website, but he or she cannot reserve and book the package, which is the exclusive privilege for the member registered with GoHoliday.com.

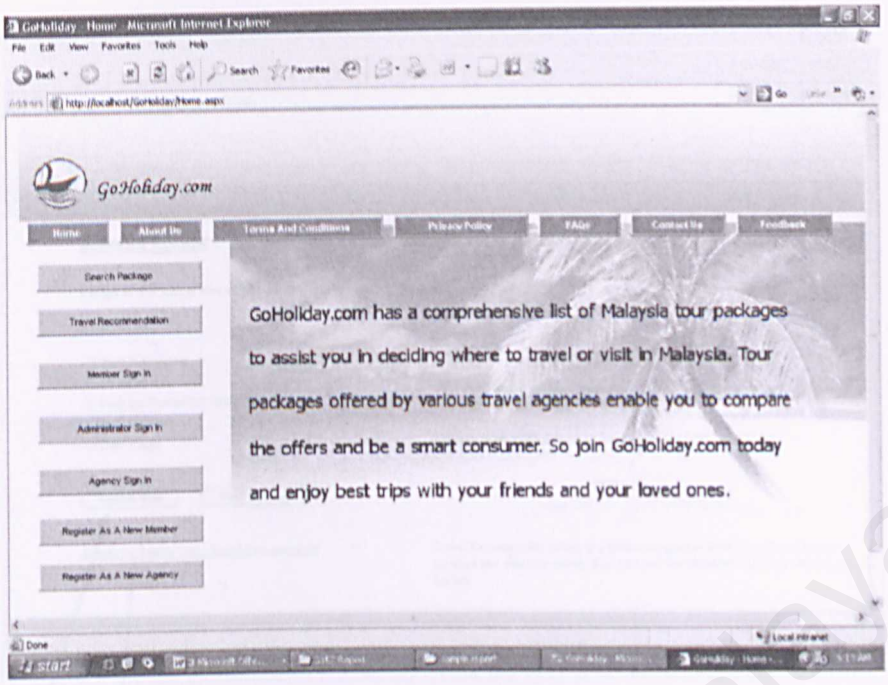

Figure 6.1 : The Home Page

6.3.2 Search Package Page

This page is accessible to any users who click on the Search Package Button on the home page. There are two types of search options, Basic Search and Advanced Search. To perform a basic search of tourism packages available, users may select to search by State in Malaysia, Destination, Package Destination Category, Package Price or Date Range. Package Destination Category refers to the destination that user prefer is either an Island, Mountain, Historical & Cultural Heritage, Sightseeing or etc. By clicking on the Search Now Button, another page which let the user to select particular value will be appeared. While the Advanced Search Using Travel Recommender is suitable for the user who does not really know exactly where he or she want to travel to, because the Travel Recommender will recommend the suitable package for the user.

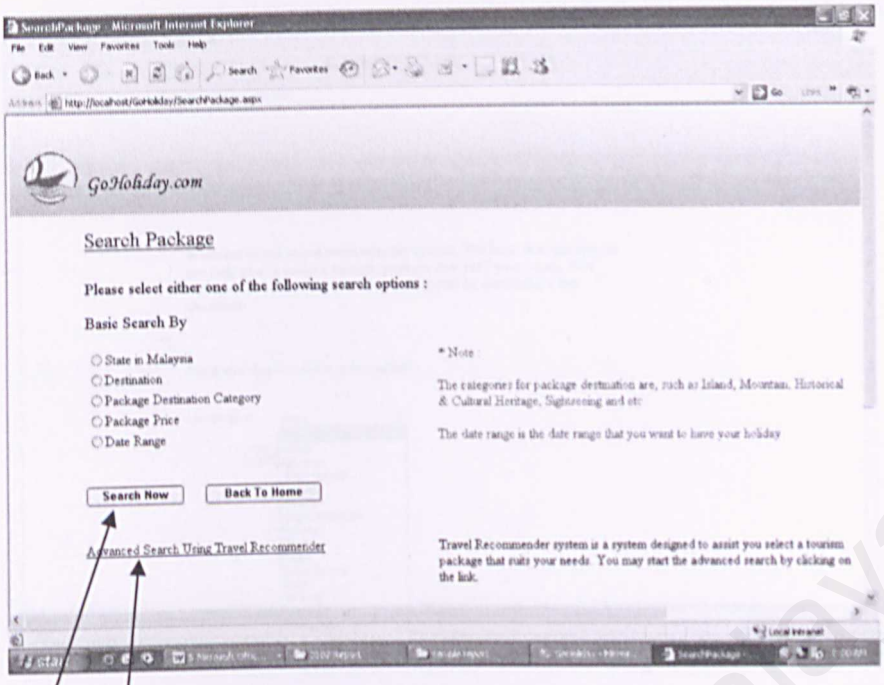

Figure 6.2 : The Search Package Page

Search Now

Advanced Search Using Travel Recommender

6.3.3 Travel Recommender Page

This is the first page of the Travel Recommender System. Three questions will be asked, and the users nay select their answer from the drop down list. They will be asked on which state they prefer to go, the category for the package destination and the kind of activity they prefer. After that, the system will perform search on the packages and display the results. Below is the screen shot of the Travel Recommender page.

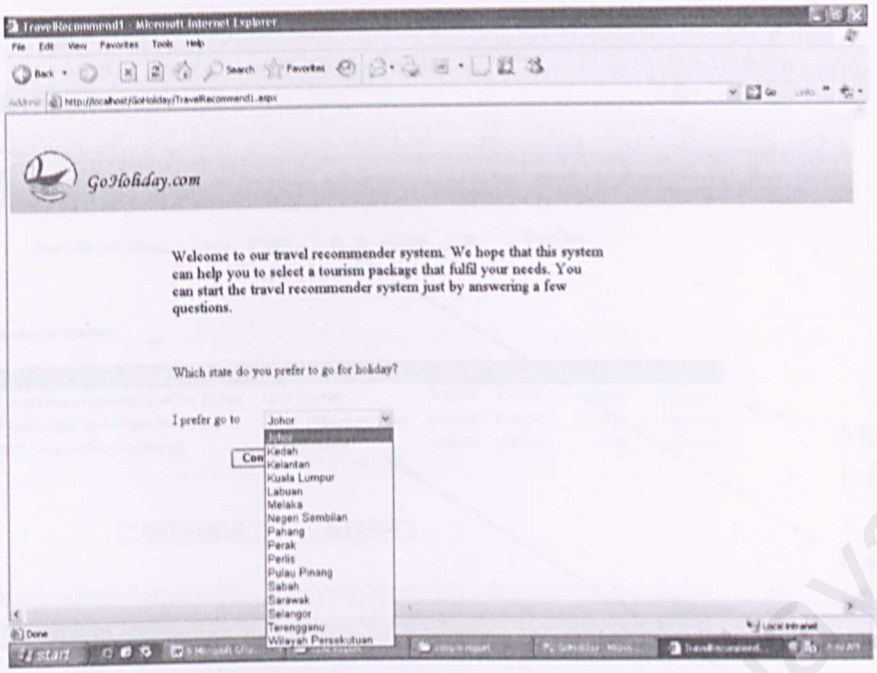

Figure 6.3 : The Travel Recommender Page

6.3.4 Search Package By Date Range Page

In this page, the users may select the date range that they prefer to go for a trip, by clicking the calendar image, which will pop up a calendar for user to select a date. After that, the users may click on Search Now Button, and the system will search for the packages that fall between the selected dates. The search result will be displayed on the same page. Users may click on More Info Link to see more information about the selected package.

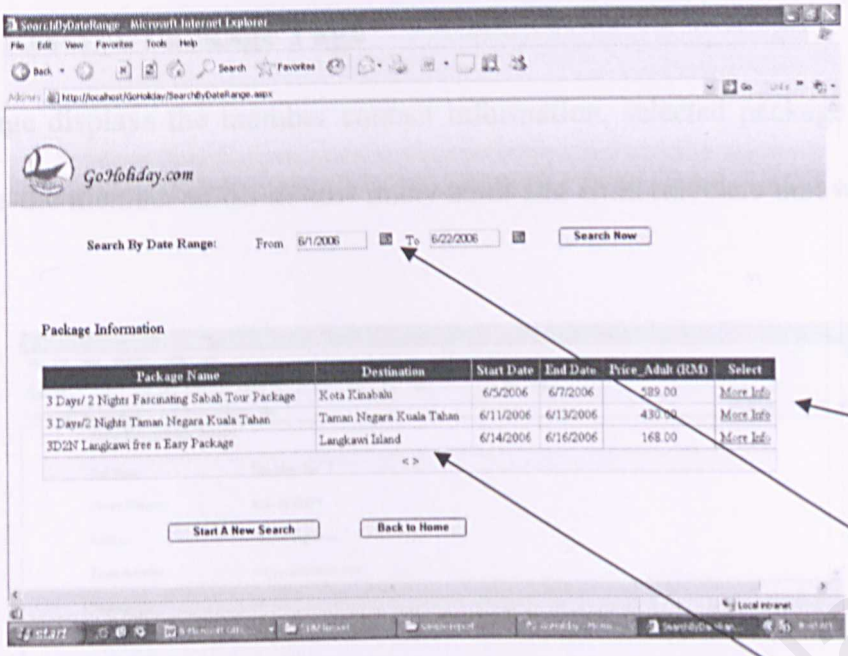

Figure 6.4 : The Search Package By Date Range Page

6.3.5 Package Information Page

This page displays the detailed package information. If the user who select the package is a member, he or she may click on Reserve Now Button to reserve the package.

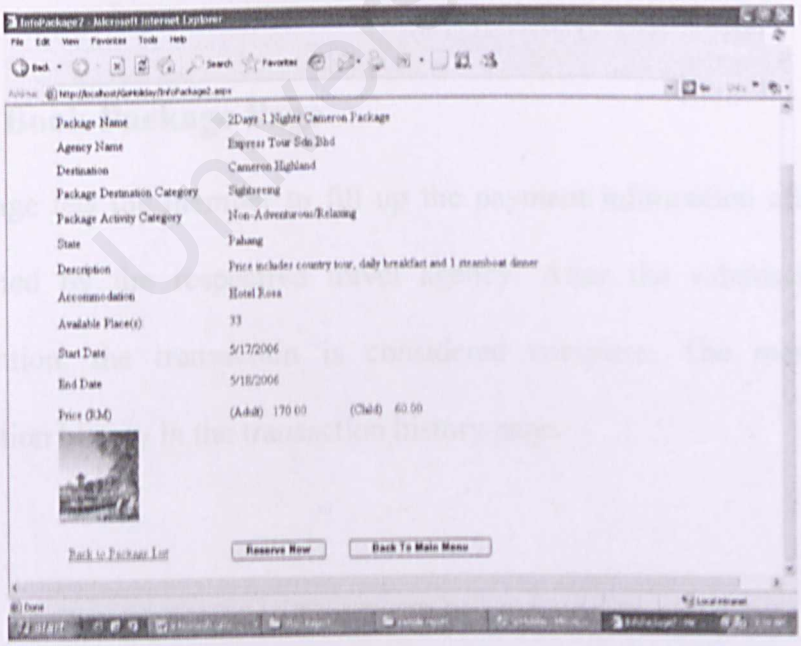

Figure 6.5 : The Package Information Page

6.3.6 Reserve Package Page

This page displays the member contact information, selected package information and also lets the member to fill in how many adult and child travelers that want to go for this trip.

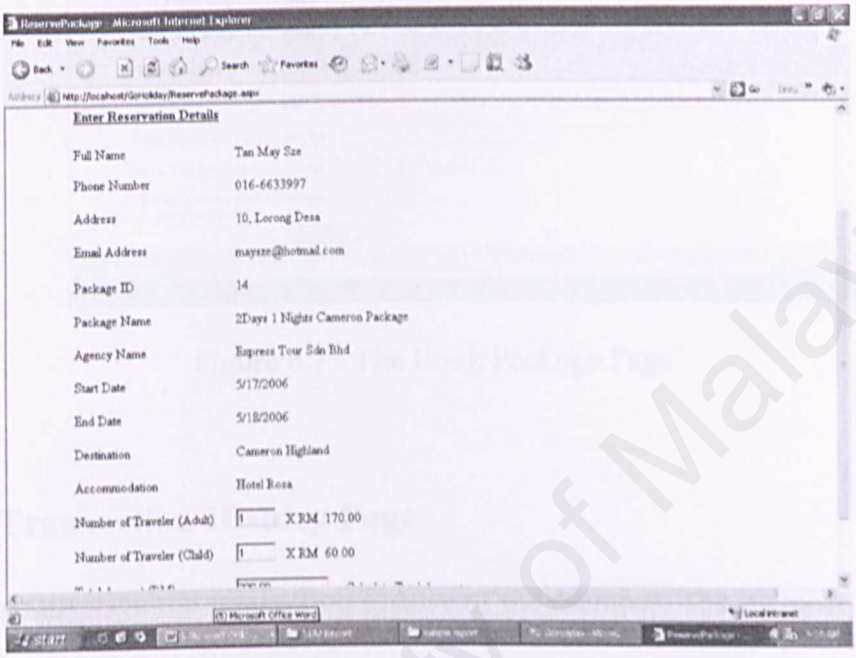

Figure 6.6 : The Reserve Package Page

6.3.7 Book Package Page

This page lets the member to fill up the payment information after the reservation is confirmed by the respective travel agency. After the submission of the payment information, the transaction is considered complete. The member can view the transaction history in the transaction history page.

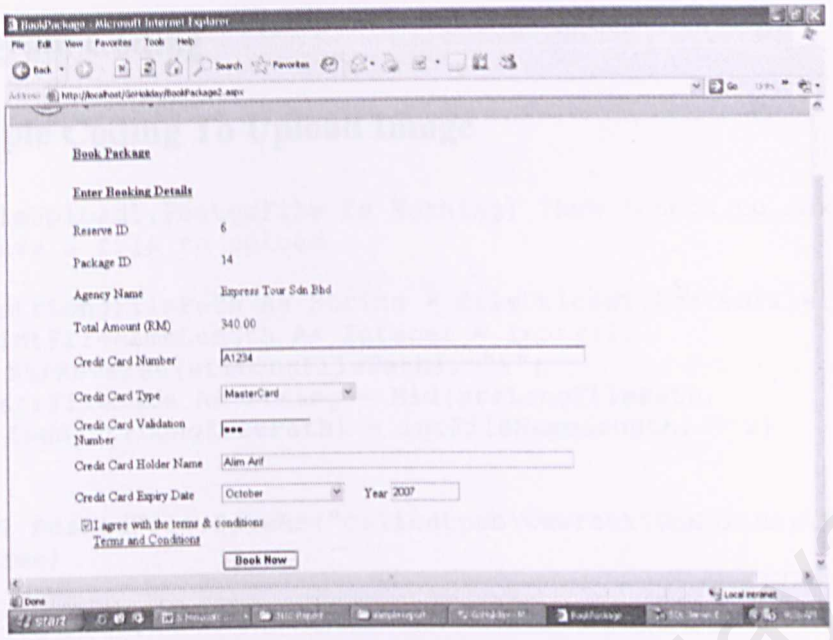

Figure 6.7 : The Book Package Page

6.3.8 Transaction History Page

This page displays the transaction history of the member. The member may print it out as the proof of booking the package.

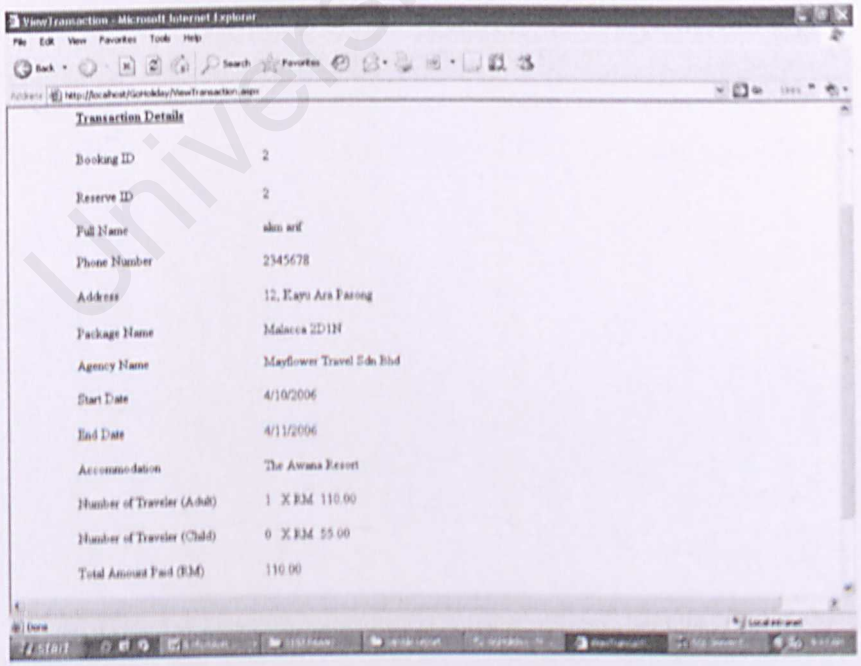

Figure 6.8 : The Transaction History Page

6.4 Program Coding

6.4.1 Sample Coding To Upload Image

```
If Not (fileUpload1.PostedFile Is Nothing) Then 'Check to make sure we
actually have a file to upload

      Dim strLongFilePath As String = fileUpload1.PostedFile.FileName
      Dim intFileNameLength As Integer = InStr(1,
          StrReverse(strLongFilePath), "\")
      Dim strFileName As String = Mid(strLongFilePath,
          (Len(strLongFilePath) - intFileNameLength) + 2)


fileUpload1.PostedFile.SaveAs("c:\inetpub\wwwroot\GoHoliday\Packages\"
& strFileName)

      Session("Image1")  =  "c:\inetpub\wwwroot\GoHoliday\Packages\"  &

strFileName

End If
```

Chapter 7 : System Testing

7.1 : Introduction of Testing Process

Testing is the verification and validation process. Verification is refers as a set of the activities that ensure the system have implementing the correct specific function. Meanwhile, validation is refers as the different set of activities that ensuring the system that have been develop is meet the user requirements.

The main objective of testing is to discover the defects from the system from the early stage and interface problem when the system is integrated. Due to the errors that have been done during the system development and design stage or during the components are integrated to make up the system, failures might be happen even thought the entire system has been developed. Therefore, the more suitable approach must be chosen to reduce the possibility of errors in a program.

Bottom-up approach has been used in system testing for Online Centralised Tourism Package System. Each module at the lowest level of the system hierarchy is been tested individually first. Then, all the tested modules would be related to the next module testing. This approach is repeated until all the modules are tested successfully.

7.2 Testing Process

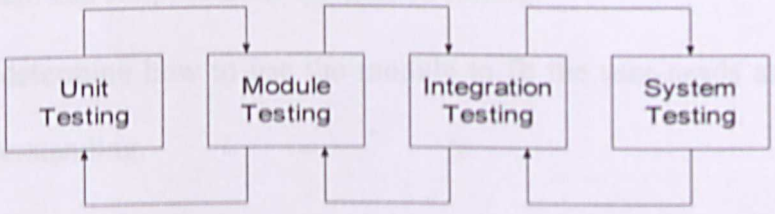

Figure 7.1: Testing Process of Online Centralised Tourism Package System

Testing only is successful when a fault is discovered or failure occurs as result of testing procedures. Figure 7.1 shows that the testing process approaches that have been used by Online Centralised Tourism Package System. Each testing is repeated before further on for the next testing.

7.2.1 Unit Testing

Unit testing is the small unit in the testing process that aims at the verification of the smallest. It is the process used to test the individual component to make sure they are function correctly. Each component is been tested individually without the interference of other component. The technique have been used during this process are code review. Codes are reviewed through line by line to identify any run-time error or syntax error. Once discovered the error, they are corrected immediately. For example, during developing Online Centralised Tourism Package System website, each page of the website has been created separately to ensure the position of the information and the action of the page is correct. Besides that, ASP.Net coding also been done part by part to avoid the confusion. Therefore, unit testing bring several benefits such as below:

- Allow the programmer to make sure the module still works correctly.
- Testing parts by part of a program then continuing on testing the entire system can simplified the integration testing.
- To determine how to use the module to fit the user needs and gain a basic understanding.

7.2.2 Module Testing

Module consists of a collection of dependent components to perform a certain task or function. Module testing also same as unit testing, only performed individual module testing without interference of other system module. Different possible test cases are applied to the module and the test results would be verified. Unusual results will be analyzed and they would help in debugging sub-modules in order to produce the desired output.

Online Centralised Tourism Package System consists of four modules, and inside each module there are several components. Therefore, module testing was tested when combining one component to the other existing part.

7.2.3 Integration Testing

After the module testing, all module were combined together to form a complete system. Integration testing is the initial system testing activity where used to tested integrated component for defects. Besides that, it also ensures the validation linking and dynamic relationship establishments between modules at the whole system and between sub-modules contained in all individual modules. Several important aspects are checked to ensure that the flow of the data in Online Centralised Tourism Package System is well organized and are user friendly to all the system users.

7.2.4 System Testing

Sub-system are integrated together to develop the completed system. System testing that attempts to discover defects to ensure that entire system rather than of its individual components is validation where it must be combined with other system element such as hardware, end user and database. This is important because the defects might be occur during the combining where will bring the failure or fault to the whole system. System testing are also including the test on the performance, reliability, accuracy and others criteria. Besides that, it also concerned whether the system is meets its functional and non-functional requirements. Normally, tester that were involved in this testing is no the developer.

7.3 Performance Testing & Acceptance Testing

Performance testing is the performed to compare the integrated modules with the non-functional system requirements. These requirements include security, interoperability, flexibility and reliability. The purpose of this testing is to test the run time performance of this system within the context of an integrated system. Acceptance testing is the final stage of the testing process before the system is accepted for operational use. Acceptance testing may reveal errors and omissions in the system requirements definition because of the different type of data is been used for the testing. Besides that, this testing may also reveal requirements problem where the system's facilities do not really meet the user's needs or the system performance is unacceptable.

Chapter 8 : Discussion and Conclusion

8.1 Project Problems and Solutions

8.1.1 Difficulties in choosing a Development Technology, Programming Language and Tools

There are many software tools available to develop a web-based database system currently as stated in the earlier chapters. Each of the different technology and tool has their strength and weaknesses. In addition, the availability of the required tool for development was also a major consideration. A tough decision was needed to choose from ASP.Net, Java and PHP. In order to solve this problem, seeking advices and views from project supervisor, course mates and even seniors engaging in similar projects were carried out. Furthermore, surfing the internet and visiting the library to get the extra information will help a lot to clarify some doubts.

8.1.2 Lack of Knowledge and Experience in the Web Development

This lack of knowledge and experience has proved to be an obstacle in the beginning. The developer has struggled to understand the concepts of web programming and application, and differentiate them from the conventional programming concepts to which he is more accustomed.

Putting a lot of hard work and seeking advice from course mates who are using the same tools can solve this problem. There are also abundant reference materials available for the developer on the subject.

Therefore, this problem only proved to be slightly delaying the schedule, with several weeks with little progress. After the knowledge and skills has been familiarized, everything went on rather smoothly.

8.1.3 Determining the Scope of the System

It is impossible to build a full-scale complete system within the time frame given. Online Centralised Tourism Package System includes guest, member, agency and administrator section. It is a huge program. Inexperience with the current reservation system available was another hindrance to implement the workable reservation system. Many discussions were held with project supervisor to outline the scope of project to be built during the initial stage of the project. After the scope has been defined, analysis of current reservation system was as reported in Chapter Two.

8.2 System Advantages

8.2.1 Gather all travel agencies in Malaysia

Gather all travel agencies in Malaysia 'under one roof' to avoid unhealthy competition among themselves and provide more choices and reasonable prices to the customers.

8.2.2 Provide a Travel Recommender System

This Online Centralised Tourism Package System provides two strength features. The system will give recommendation to the tourist to help them choose their ideal packages. It also provides a search function to the user to search their packages.

8.2.3 Help the user save a lot of time and money

This Online Centralised Tourism Package System centralised all travel packages from all travel agencies registered with GoHoliday.com, and this make customers easy to compare with other packages offered by other agencies. As a result, the tourist can save a lot of time and money using the Online Centralised Tourism Package System to make a online reservation and booking,

8.2.4 Simple and user-friendly interface

The user interface of this system is easy to understand and user-friendly. The web pages are designed to suit a wide spectrum of user and also administrators to manage the system. The learning curve is short, and the user should be able to use the system with ease within minutes. The user manual can help the user to handle this system.

8.2.5 Easy accessibility

This system is web-based, so it can be accessed easily using the web browser, Internet Explorer 6.0, which could be downloaded free from Microsoft's web site.

8.2.6 Integrate with Mailing Capabilities

The current system is completed with a mail server services. With this mailing capabilities, administrator can easily send out confirmation mail, receive enquiries or feedbacks from the user and reply to them. It also helps the administrator to have a well communication with the user.

8.3 Weakness of the System

The attitudes of the travel agencies are uncontrollable, because the travel agencies can make changes to the package without notification to the administrator. Besides that, this system is limited to only provide tourism packages to travel in Malaysia.

8.4 System Limitations

Due to project boundaries, there are some limitations:

8.4.1 Browser Limitations

This system can only run in Internet Explorer 4.0 and above.

8.4.2 User Limitations

This system is limited for the Malaysian citizen and also travel agencies in Malaysia only. Besides that, agency must always update their packages, in order to have the latest related information on the website.

8.5 Future Enhancements

Future enhancement can be done to make the system more advance and ease to use. Several enhancements that could extend the usability of the proposed system are as below:

i. **Extend the ability of browser**

In future, this Online Centralised Tourism Package System can be tuned to fulfill other browser requirements such as Netscape Navigator for execution. This is because

Netscape Navigator has a sizeable share in the browser market besides Internet Explorer, and it has a lot of users in the world.

ii. More Administration Task

The system should include more features to ease maintenance process. For example, user grouping according to access rights, analytical tools, data mining and database backup.

iii. Online Demonstration Help System

Online demonstration help system may also be incorporated to reduce the system learning curve to enhance usability among its users.

iv. Other Language Support

Other language support can be incorporated, to facilitate the user with the understanding of the contents displayed on the site, which in turn will expand the target user for this system.

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Appendix : User Manual

1.1 Introduction

Online Centralised Tourism Package System facilitates the online tourism package booking, help to promote Malaysia's tourism industry as well as help the travelers choose appropriate tourism packages based on the location, budget, date range desired as well as the activities that they prefer.

This manual is a guide to help user to use this system effectively to achieve the goal. This manual is divided mainly into four sections, which are Guest, Member, Agency and Administrator Section.

1.2 Guest Section

1.2.1 Getting Started

A guest may begin using the system at http://localhost/GoHoliday/Home.aspx . At the home page, the user can access the About Us, Terms And Conditions, Privacy Policy, FAQs, Contact Us and Feedback Page by clicking on the upper navigation menu. While on the left hand side of the page, there is Search Package, Travel Recommendation, Member Sign In, Administrator Sign In, Register As A New Member and Register As A New Agency navigation menu. A guest can search and view the tourism packages offered by the agency in this website, but he or she cannot reserve and book the package, which is the exclusive privilege for the member registered with GoHoliday.com.

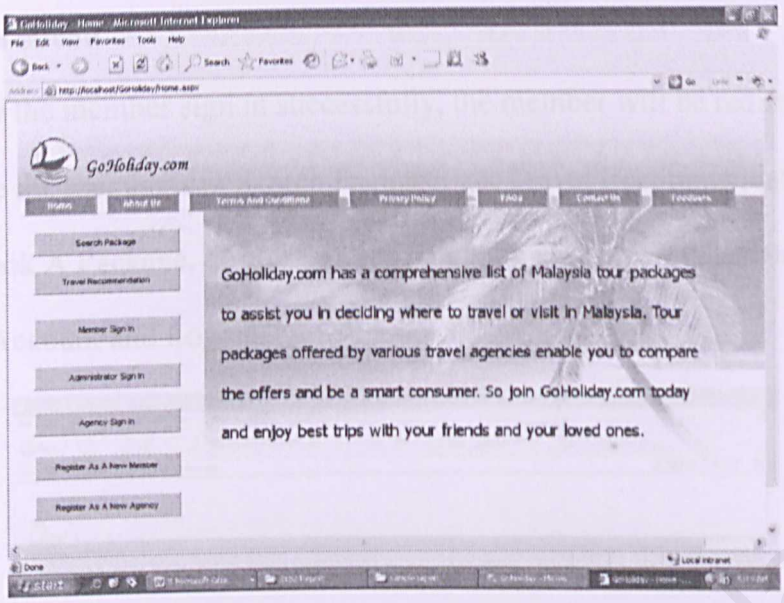

Figure 1 : The Home Page

1.3 Member Section

1.3.1 Getting Started

A member can begin using the system by clicking on the Member Sign In menu, which located on the left hand side of home page. Then the member sign in page will be displayed.

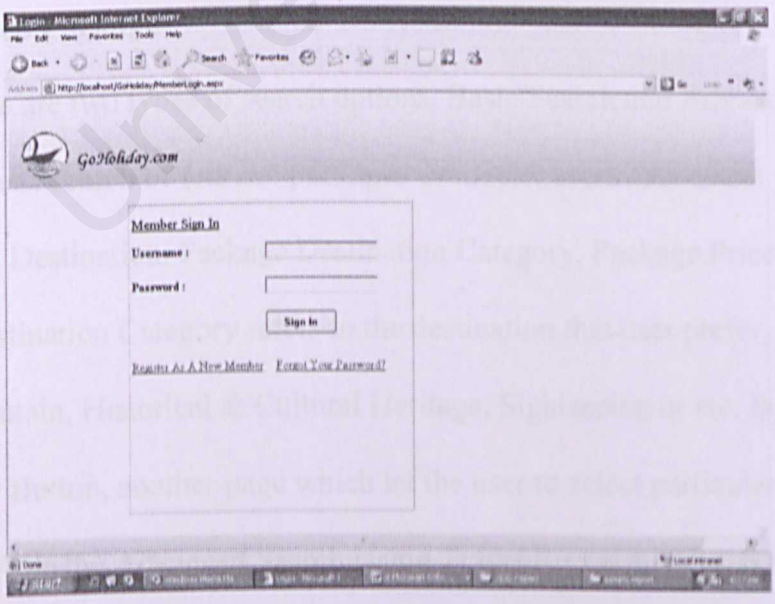

Figure 2 : The Member Sign In Page

1.3.2 Main Menu

After the member sign in successfully, the member will be redirected to the main menu, where the member can Search Package, get Travel Recommendation, Reserve A Package, Book A Package, do Reservation Tracking, retrieve Transaction History, update My Account and Logout.

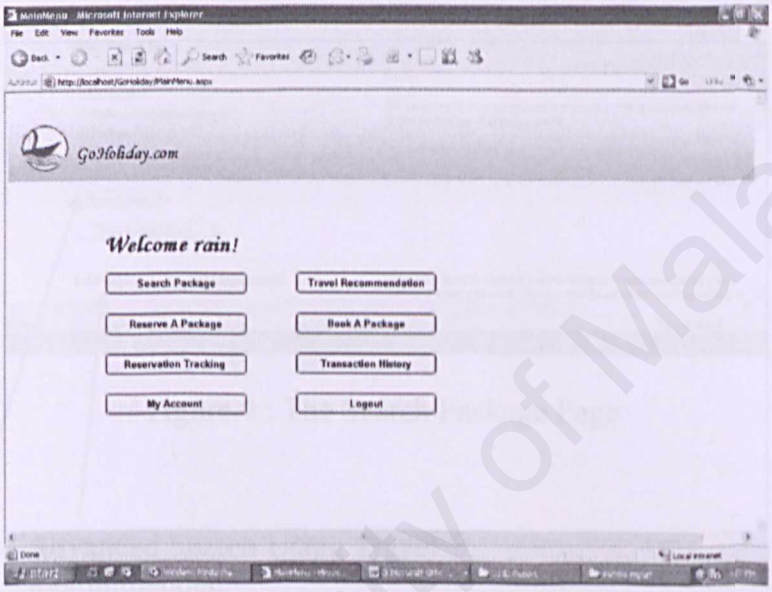

Figure 3 : The Member Main Menu Page

1.3.3 Search Package

There are two types of search options, Basic Search and Advanced Search. To perform a basic search of tourism packages available, users may select to search by State in Malaysia, Destination, Package Destination Category, Package Price or Date Range. Package Destination Category refers to the destination that user prefer, is either an Island, Mountain, Historical & Cultural Heritage, Sightseeing or etc. By clicking on the Search Now Button, another page which let the user to select particular value will be appeared. While the Advanced Search Using Travel Recommender, is suitable for the

user who does not really know exactly where he or she want to travel to, because the Travel Recommender will recommend the suitable package for the user.

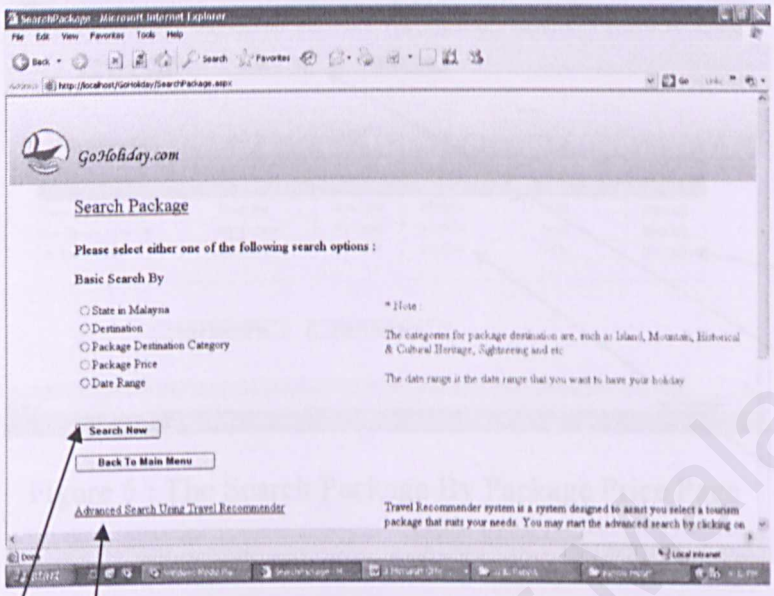

Figure 4 : The Search Package Page

Search Now

Advanced Search Using Travel Recommender

1.3.4 Search Package By Package Price

In this page, the users may select the package price range that they are willing to pay for a trip, by clicking the drop down list, which will display price range for user to select. After that, the users may click on Search Now Button, and the system will search for the packages which price is within the selected range. The search result will be displayed on the same page. Users may click on More Info Link to see more information about the selected package.

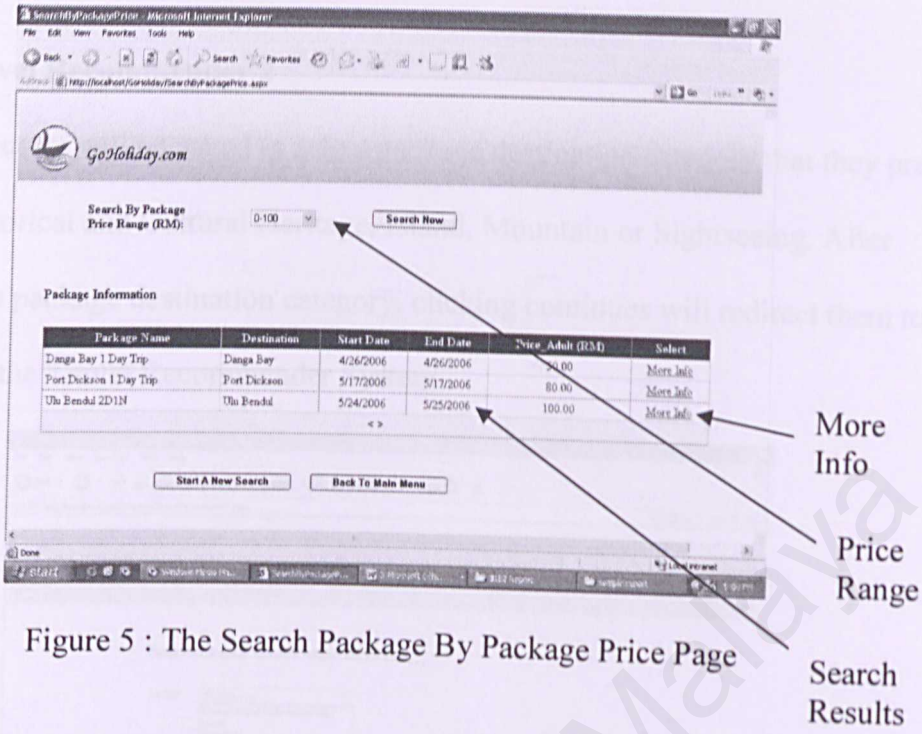

Figure 5 : The Search Package By Package Price Page

1.3.5 Travel Recommender 1

This is the first page of the Travel Recommender System. The users will be asked on which state they prefer to go. After selecting the state, clicking continue will redirect them to the second page of the Travel Recommender System.

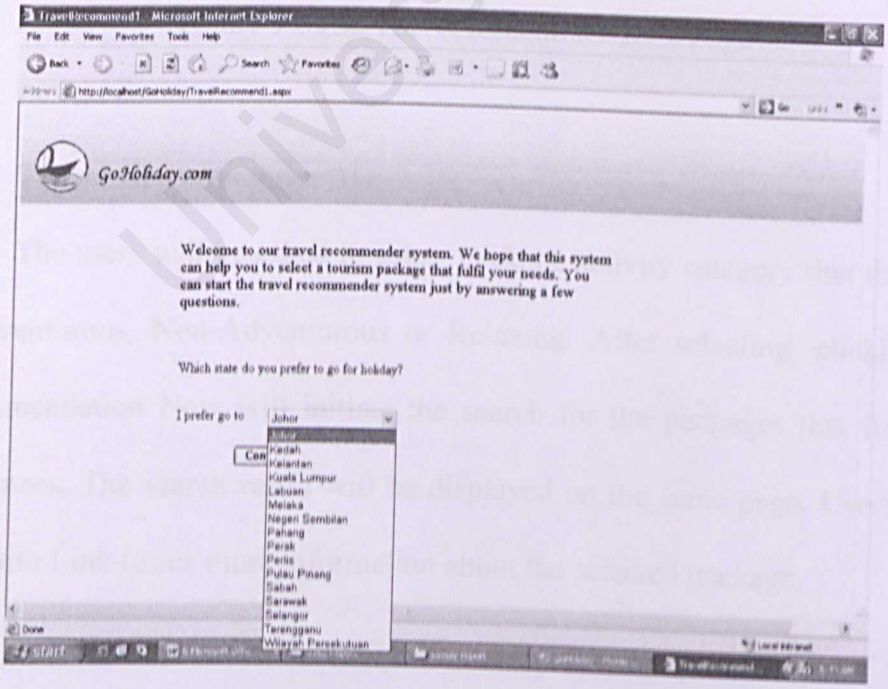

Figure 6 : The Travel Recommender 1 Page

1.3.6 Travel Recommender 2

The users will be asked to select package destination category that they prefer, such as Historical and Cultural Heritage, Island, Mountain or Sightseeing. After selecting the package destination category, clicking continues will redirect them to the last page of the Travel Recommender System.

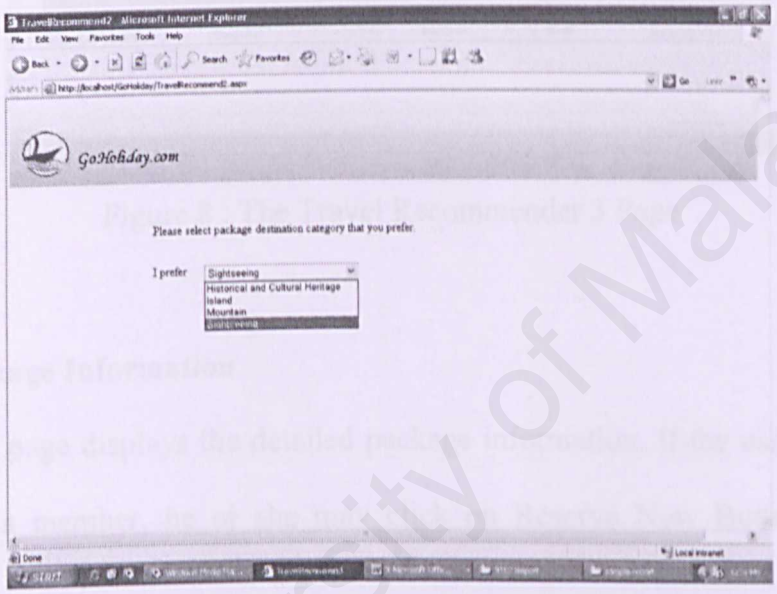

Figure 7 : The Travel Recommender 2 Page

1.3.7 Travel Recommender 3

The users will be asked to select package activity category that they prefer, such as Adventurous, Non-Adventurous or Relaxing. After selecting, clicking Get Travel Recommendation Now will initiate the search for the packages that fulfill the users' preferences. The search result will be displayed on the same page. Users may click on More Info Link to see more information about the selected package.

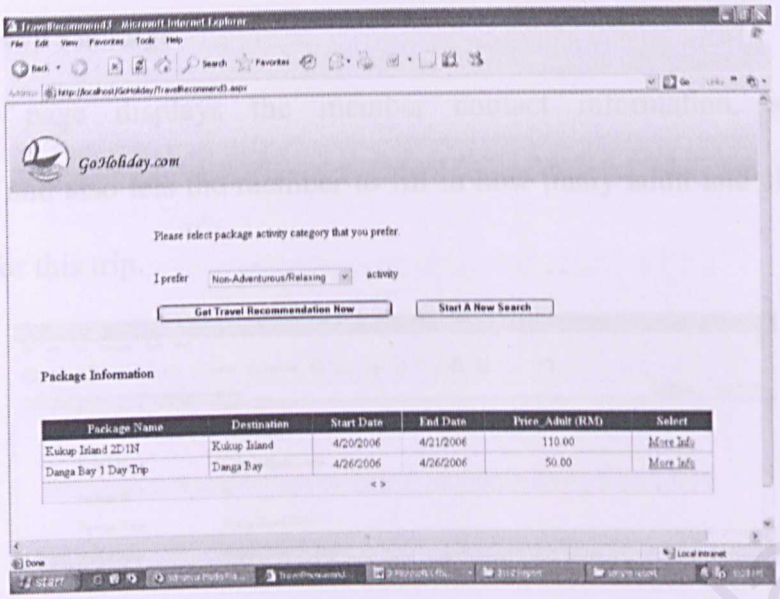

Figure 8 : The Travel Recommender 3 Page

1.3.8 Package Information

This page displays the detailed package information. If the user who selects the package is a member, he or she may click on Reserve Now Button to reserve the package.

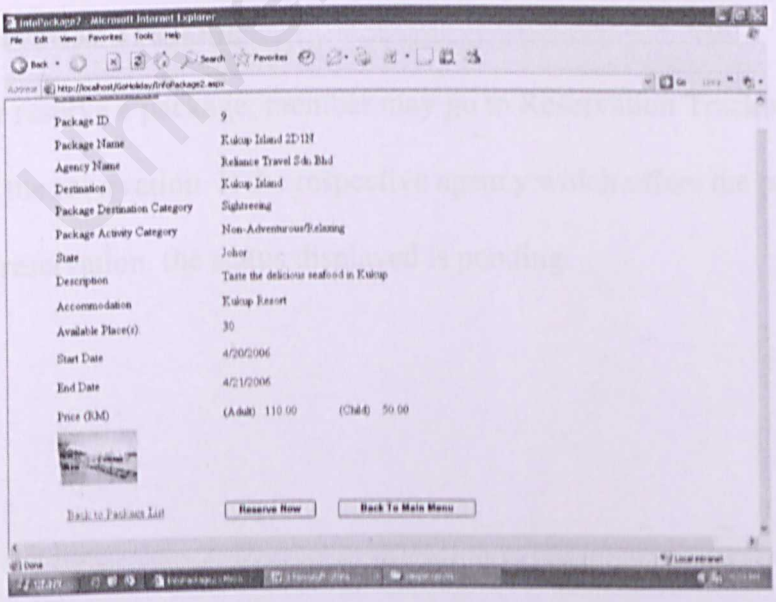

Figure 9 : The Package Information Page

1.3.9 Reserve Package

This page displays the member contact information, selected package information and also lets the member to fill in how many adult and child travelers that want to go for this trip.

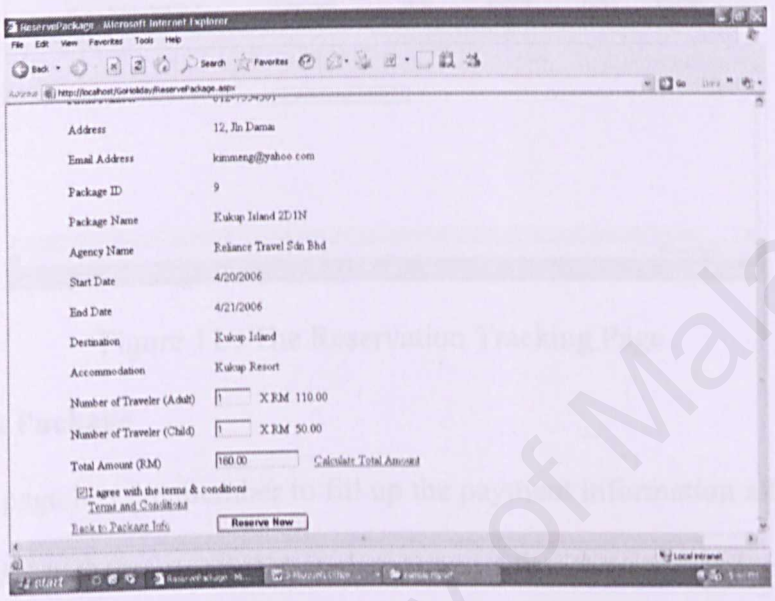

Figure 10 : The Reserve Package Page

1.3.10 Reservation Tracking

After reserve a package, member may go to Reservation Tracking page to check the status of the reservation. If the respective agency which offers the package haven't confirm the reservation, the status displayed is pending.

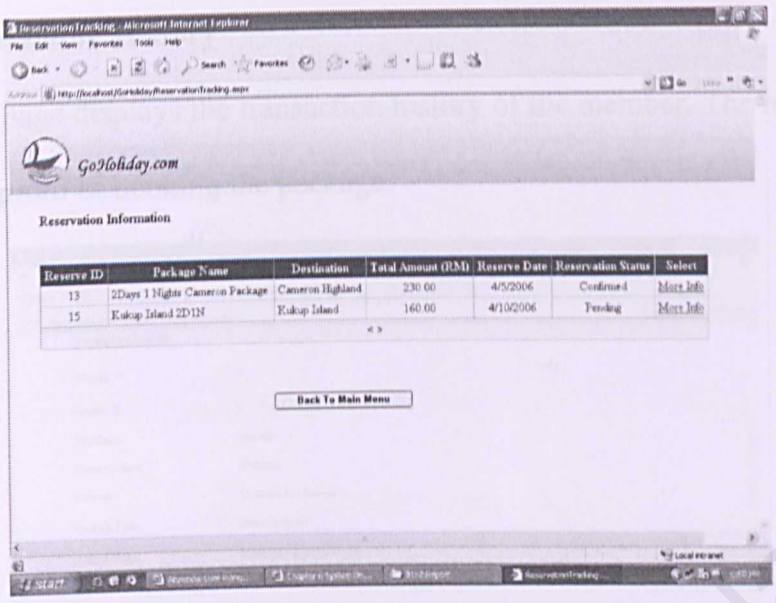

Figure 11 : The Reservation Tracking Page

1.3.11 Book Package

This page lets the member to fill up the payment information after the reservation is confirmed by the respective travel agency. After the submission of the payment information, the transaction is considered complete. The member can view the transaction history in the transaction history page.

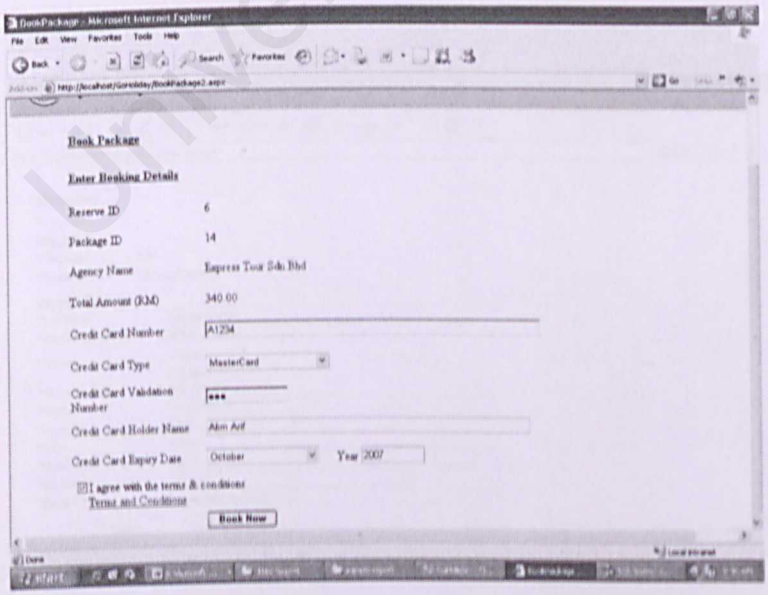

Figure 12 : The Book Package Page

1.3.12 Transaction History

This page displays the transaction history of the member. The member may print it out as the proof of booking the package.

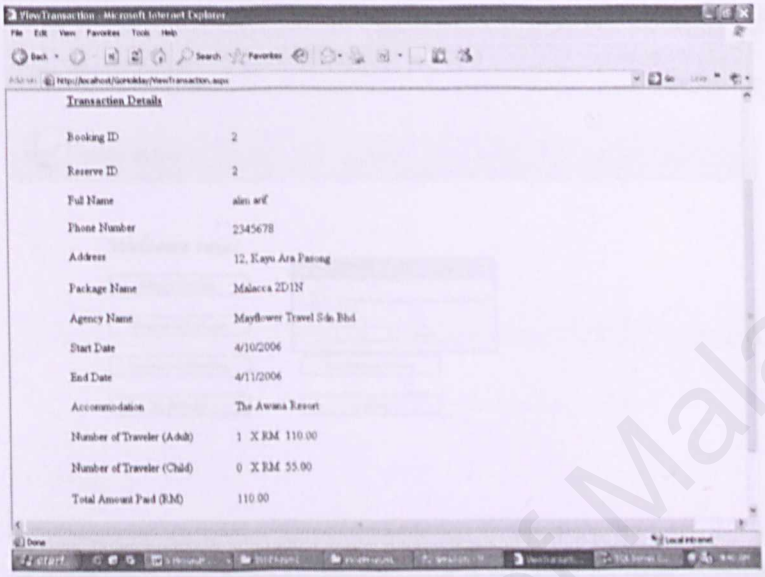

Figure 13 : The Transaction History Page

1.3.13 My Account

Members may update their member account information or change password in this page.

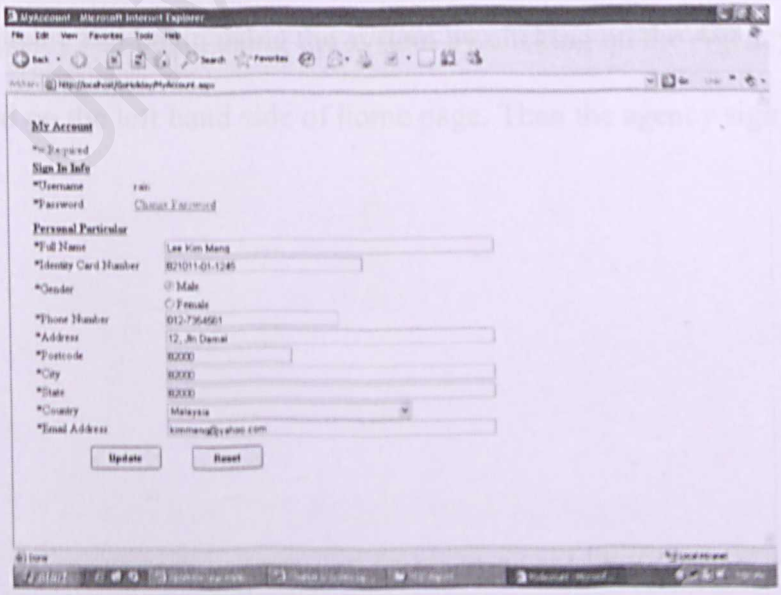

Figure 14 : The My Account Page

1.3.14 Logout

After clicking the Logout button, a confirmation message box will be displayed. Member may click ok to logout.

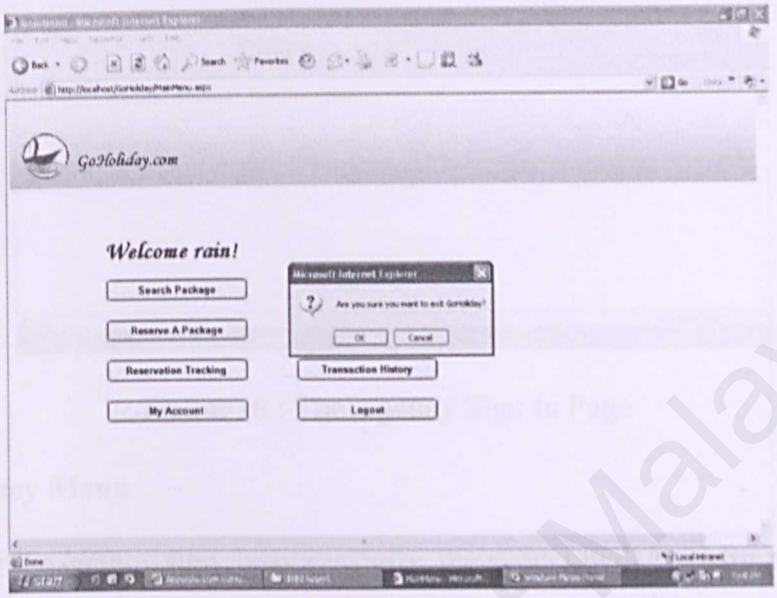

Figure 15 : The Member Main Menu Page

1.4 Agency Section

1.4.1 Getting Started

An agency can begin using the system by clicking on the Agency Sign In menu, which located on the left hand side of home page. Then the agency sign in page will be displayed.

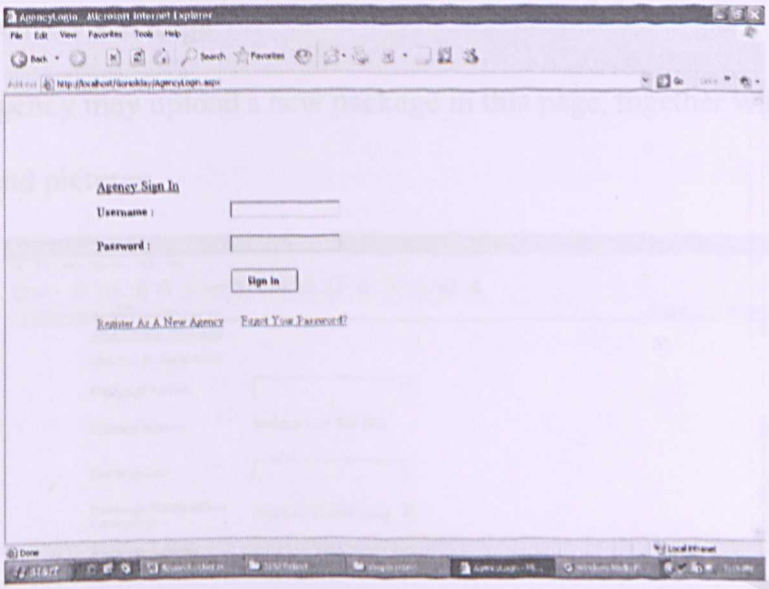

Figure 16 : The Agency Sign In Page

1.4.2 Agency Menu

After the agency sign in successfully, the agency will be redirected to the agency menu, where the agency can Update the Agency Account Info, Add A Package, Update Package, Delete Package, View Pending Reservation, View Package Booking and Logout.

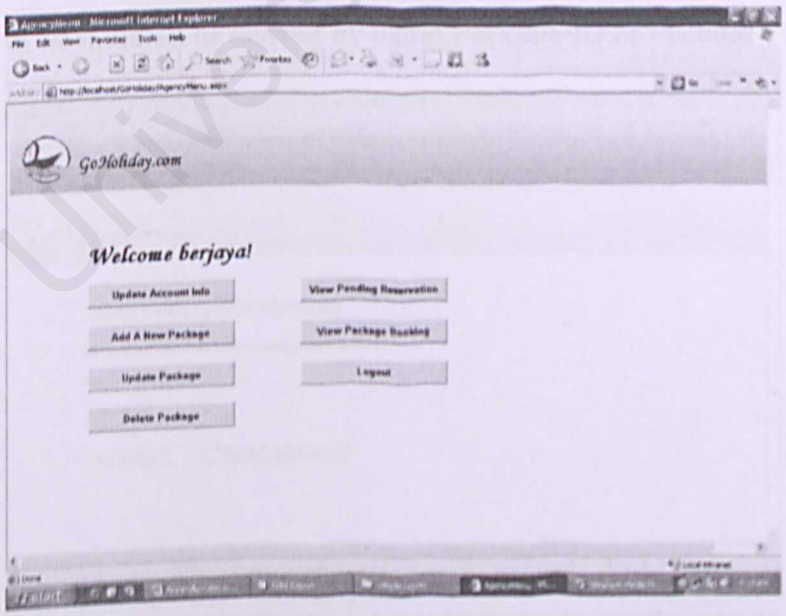

Figure 17 : The Agency Menu Page

1.4.3 Add A New Package

The agency may upload a new package in this page, together with the package information and pictures.

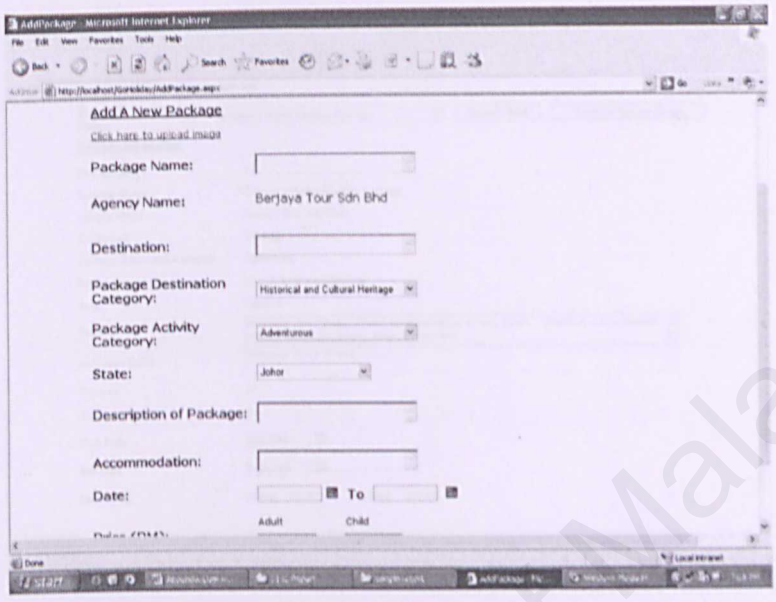

Figure 18 : The Add A New Package Page

1.4.4 Update/Delete Package

The agency may update or delete the package offered. The agency may search the package to be updated or deleted by using Package ID or Package Name.

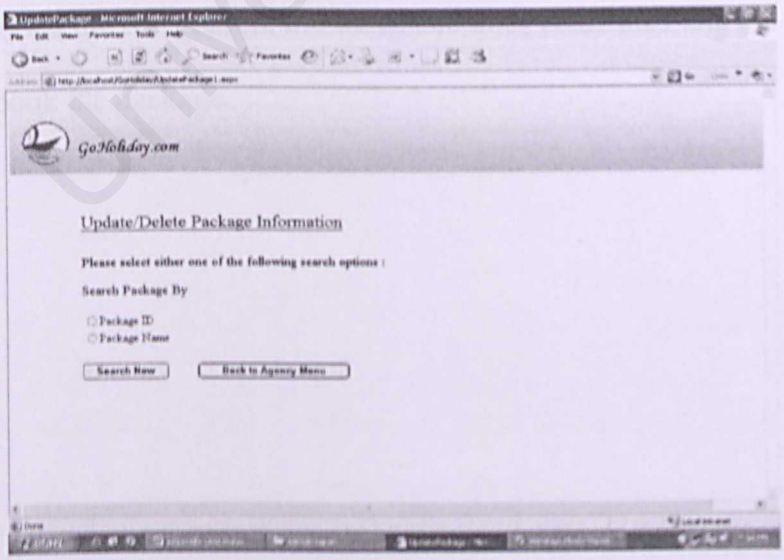

Figure 19 : The Update/Delete Package Page

1.4.5 Update/Delete Package 2

The package information in textbox can be updated, while the selected package can also be deleted, for example when the package has been cancelled.

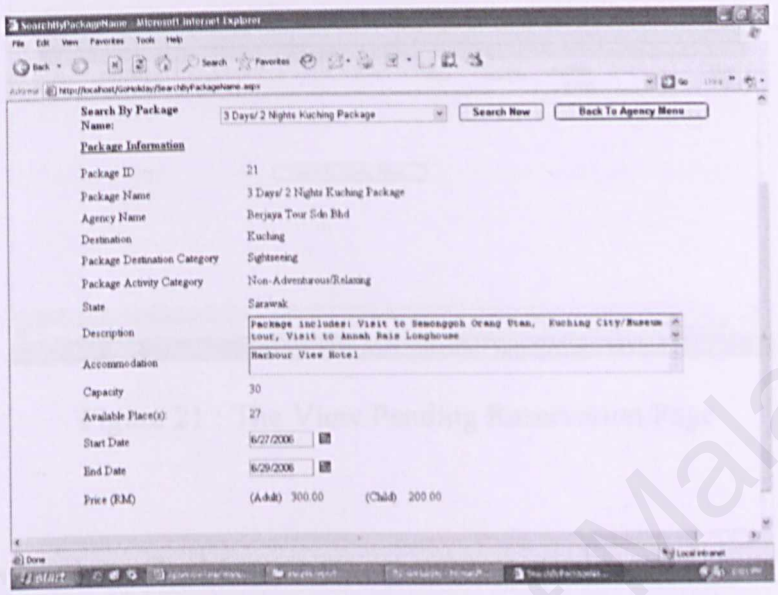

Figure 20 : The Update/Delete Package 2 Page

1.4.6 View Pending Reservation

The agency may view the pending package reservation by member. After the agency confirms the reservation, the status becomes confirmed and the member can proceed to book the package.

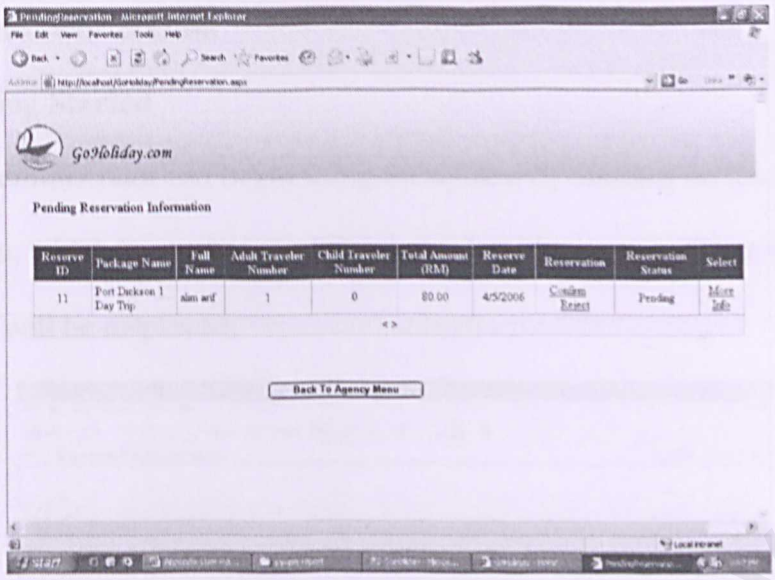

Figure 21 : The View Pending Reservation Page

1.4.7 View Package Booking

The agency may view the package booking details, including the payment information by member.

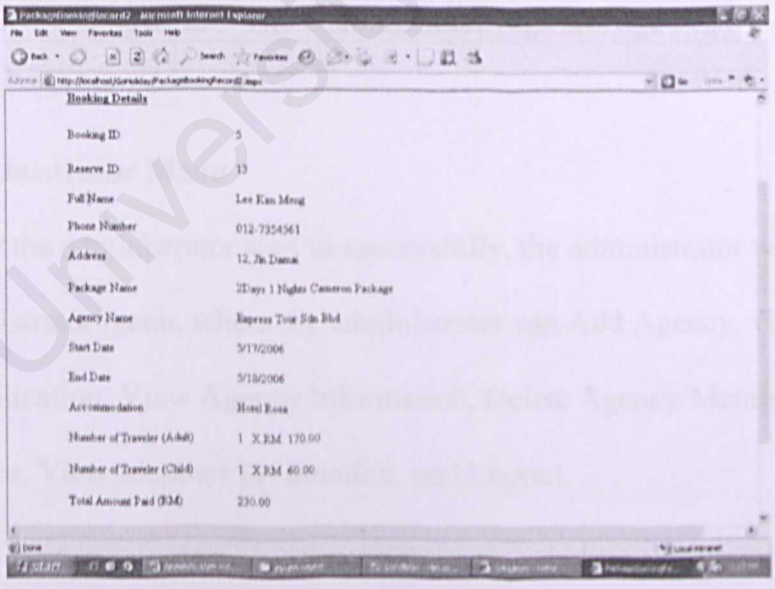

Figure 22 : The View Package Booking Page

1.5 Administrator Section

1.5.1 Getting Started

An administrator can begin using the system by clicking on the Administrator Sign In menu, which located on the left hand side of home page. Then the administrator sign in page will be displayed.

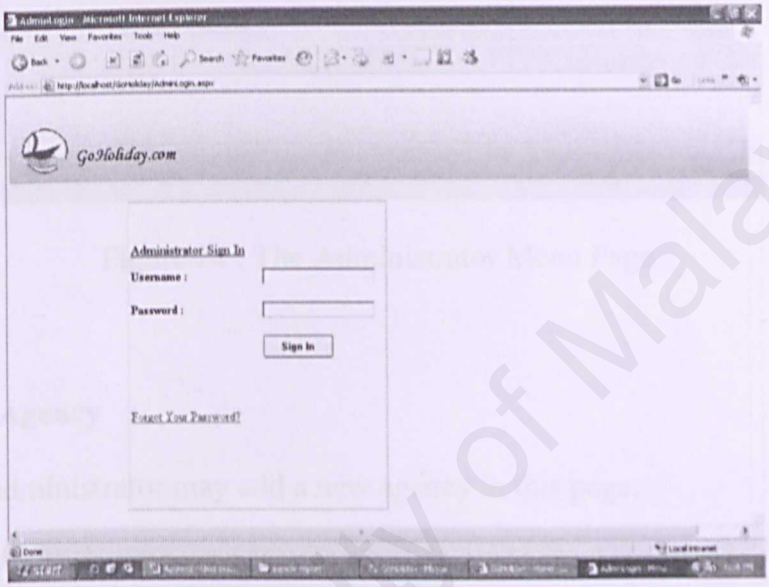

Figure 23 : The Administrator Sign In Page

1.5.2 Administrator Menu

After the administrator sign in successfully, the administrator will be redirected to the administrator menu, where the administrator can Add Agency, view Pending Agency Application, View Agency Information, Delete Agency/Member, Add Administrator, View Member Information, and Logout.

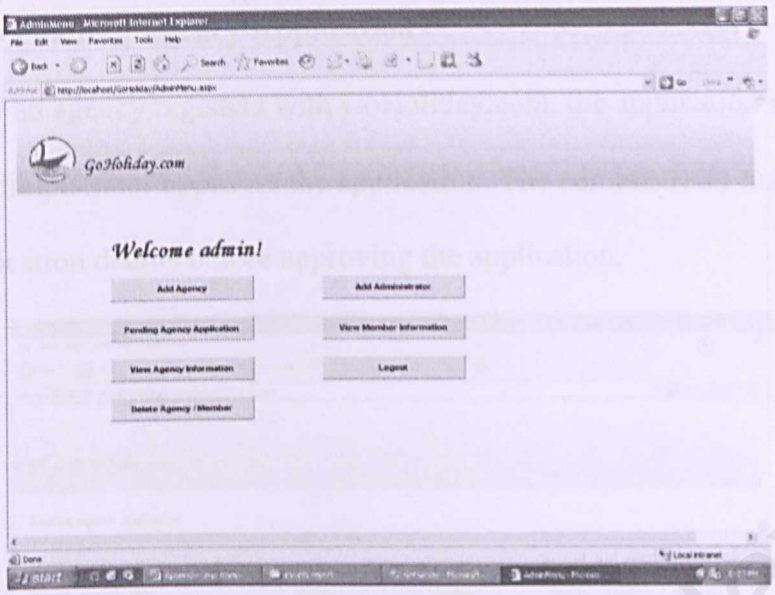

Figure 24 : The Administrator Menu Page

1.5.3 Add Agency

The administrator may add a new agency in this page.

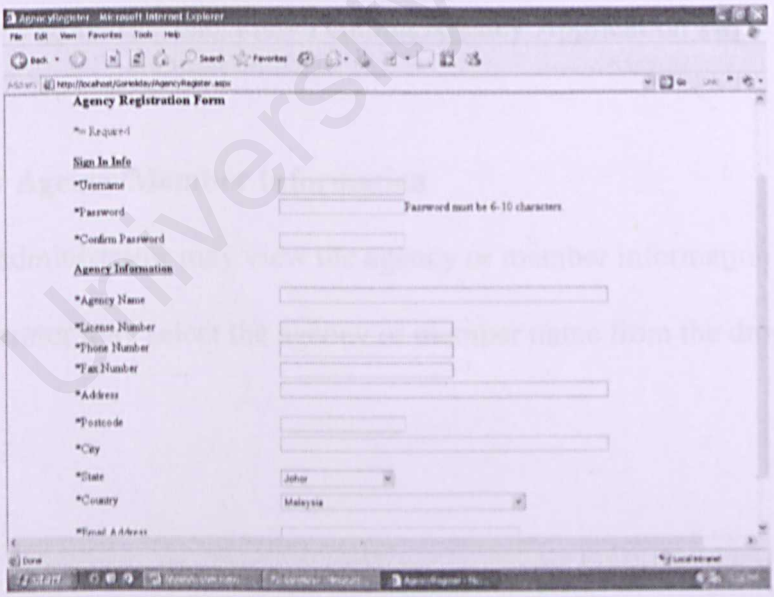

Figure 25 : The Add Agency Page

1.5.4 View Pending Agency Application

After an agency registers with GoHoliday.com, the application status is pending before the administrator approves the application. The administrator may view the agency application details before approving the application.

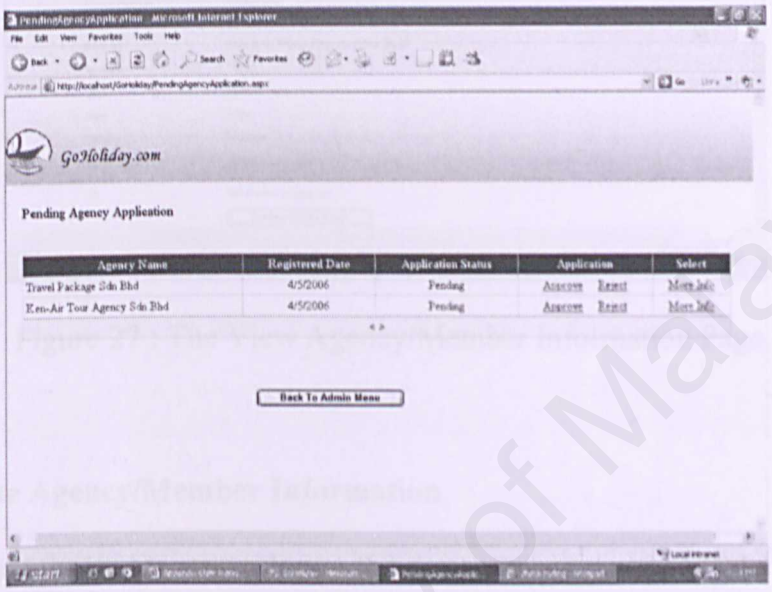

Figure 26 : The View Pending Agency Application Page

1.5.5 View Agency/Member Information

The administrator may view the agency or member information in this page. The administrator may select the agency or member name from the drop down list.

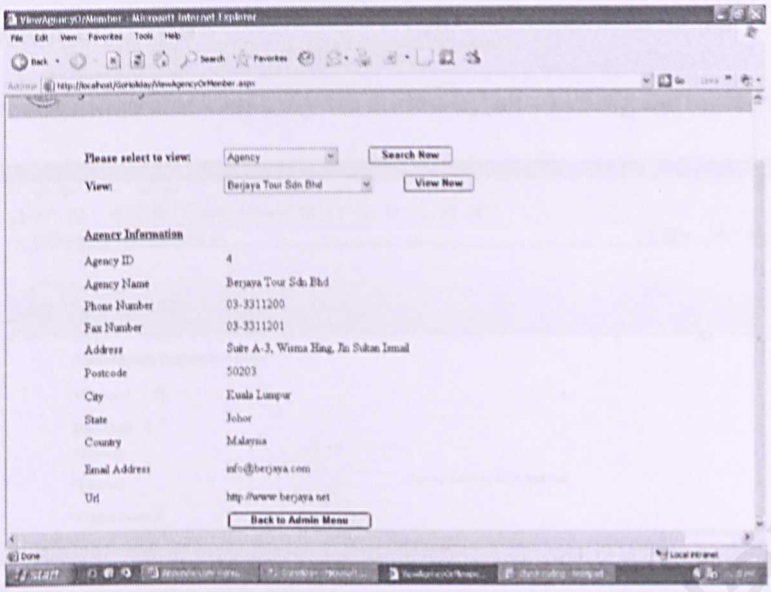

Figure 27 : The View Agency/Member Information Page

1.5.6 Delete Agency/Member Information

The administrator may select to delete agency or member, if the administrator receives complaints, such as the agency offers the package at higher price or the member reserve the package indiscriminately. This is to preserve the integrity of GoHoliday.com.

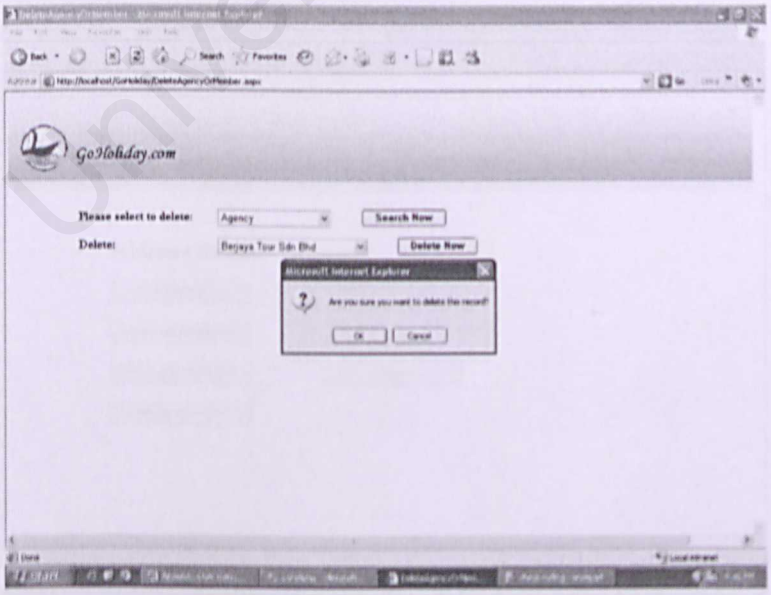

Figure 28 : The Delete Agency/Member Page

1.5.7 Add Administrator

A new administrator can only be added by an existing administrator.

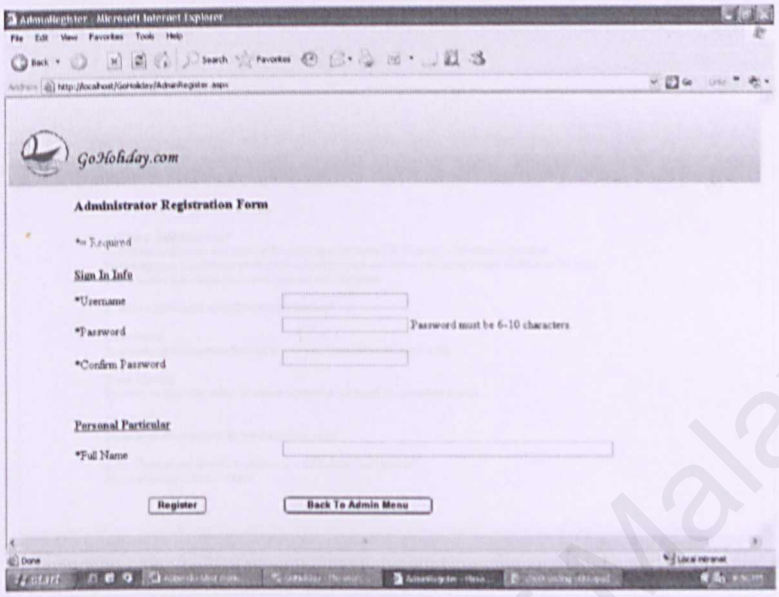

Figure 29 : The Administrator Register Page

1.5.8 Logout

After clicking the Logout button, a confirmation message box will be displayed. Member may click ok to logout.

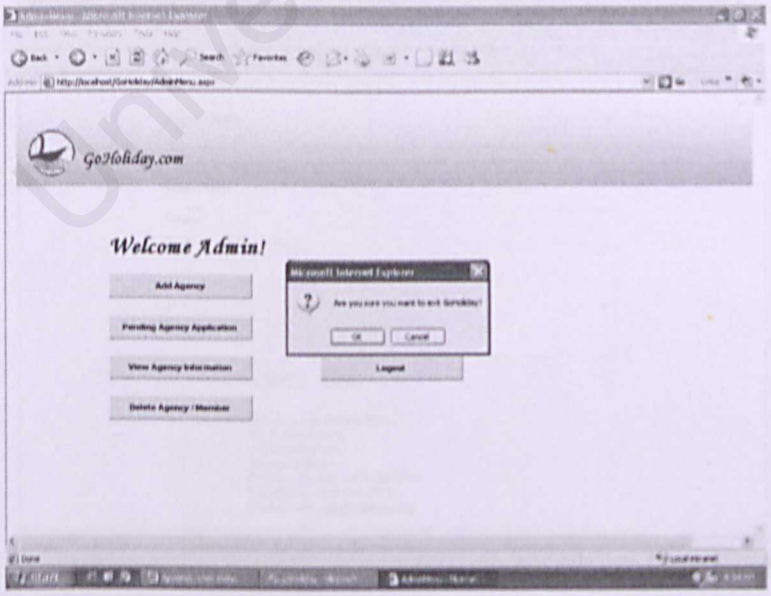

Figure 30 : The Administrator Menu Page

1.6 FAQs

The user may view the Frequently Asked Questions of GoHoliday.com.

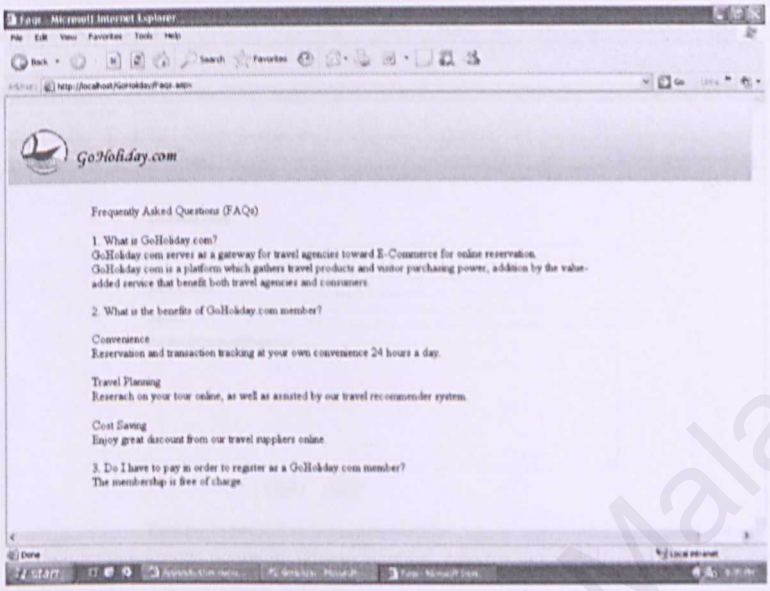

Figure 31 : The FAQs Page

1.7 Contact Us

If users have any enquiries regarding GoHoliday.com, they may send the enquiries via the Contact Us page.

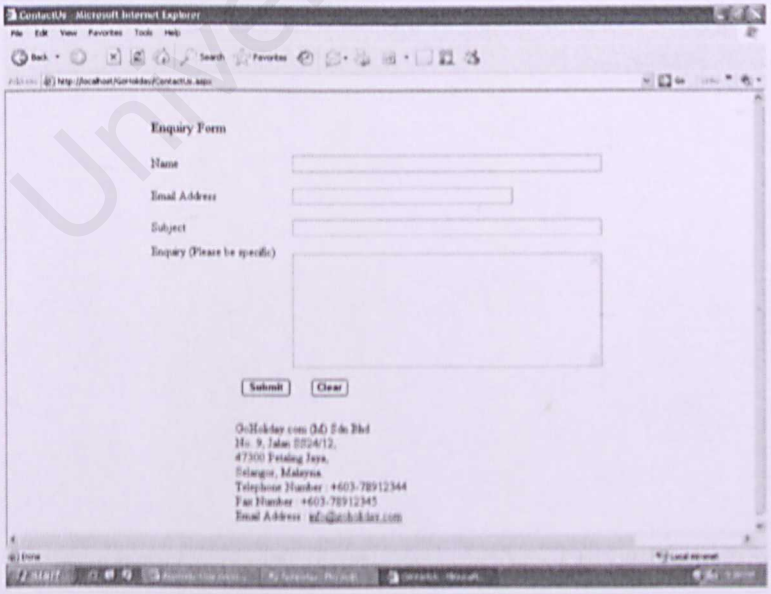

Figure 32 : The Contact Us Page

1.8 Feedback

The users may send their feedback, comment or suggestion to GoHoliday.com by filling the feedback form.

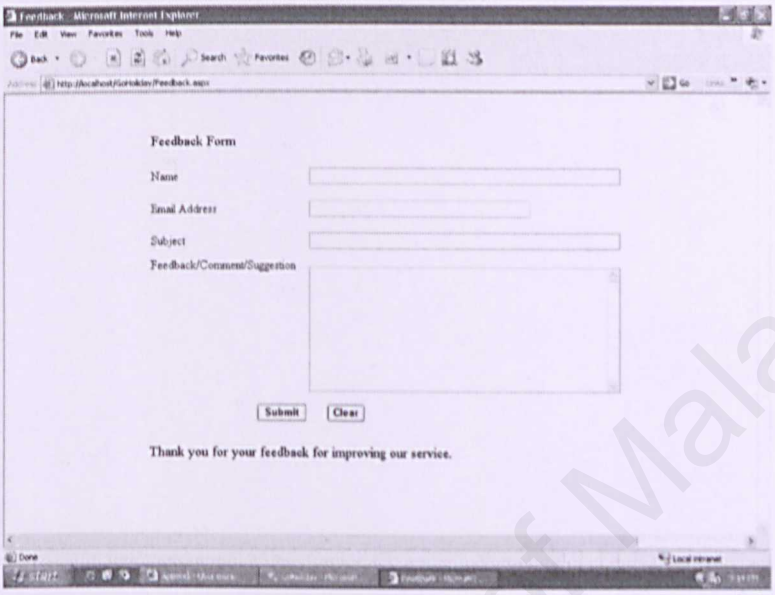

Figure 33 : The Feedback Page