ABSTRACT

This project is to develop a web-based configurable template for e-commerce capabilities. This web-based template is used to generate web-based e-commerce package that fulfill the requirements of the dealers involved. This template can later be edited and updated as requirements change and evolve. Changes will be reflected in the web site created. This project is called WebEcommerce.

Overall, WebEcommerce consists 3 major sections. First, WebEcommerce Template Setup that is a password protected web-based application that running in the dealer's server. With just a few steps, dealer can setup their own web site. Second, WebEcommerce Template Maintenance that also is a password protected web-based application that running in the dealer's server. It only allows for registered dealer that having their ID and password to update or modify the information in the created web site. Lastly, WebEcommerce Web Site that purposely tailored to dealer requirement. This web site will use by dealer for their daily transaction that interact with customer like e-shopping, e-ordering and e-payment.

Based on the research, there is non of the company in Malaysia provided e-commerce template like propose in this thesis report. But it is very popular in oversea. In order to improve the existing system from oversea company, a lot of survey and analysis have been done especially on the layout and flexibility of the template that already exist. Besides, research for software and tools that used to develop this project have been done, then will just decide the most suitable tools to use in this project.

After the literature review, will forward to analysis of the requiremenst. DFD that related to this project will be work out. The next section of this report is system design. Some of the example of the system design will be included in this project. The following section is system implementation that include techniques and approach that used to build the system and describe in more details manner. The last section will be the system testing. This section includes the testing process and approach used to test the system.

This package is tailor to dealer so called Dealership E-Commerce Development Project. With joining this project will not just enhance relationships with dealers and customers, but also giving the opportunity to help the dealer's business fly!

ACKNOWLEDGEMENTS

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Thank you very much.

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PROJECT OVERVIEW

CHAPTER 1: PROJECT OVERVIEW

1.0 INTRODUCTION

Today, e-commerce is much more than putting your catalog on the Web and taking orders. It's about capturing customers and maintaining worthwhile relationships. Creating value at all customer touch points. Linking your processes and enterprise with those of your trading partners. Making a name for your business—locally and globally—and using the goldmine of customer data you possess to get to market faster and to stay ahead of the competition. You need a solution that's not only fast but fearless. One that's flexible and gives you confidence, knowing that your solution fits your current business model and will grow with your future business goals. Therefore, the author and another three of the team members would like to propose a **Dealership E-Commerce Development Project** as our thesis title.

Based on the research, we find that nowadays a lot of company involve themselves in developing an e-commerce project. But most of the time those companies not really know what their dealers need and make them pay for large e-commerce functions even if they don't need them. So, in this project will provided an e-commerce package that is tailored to the dealer needs and their business goals. This allows the dealers to have more choices in various web layout and easy setup their own site with e-commerce capabilities.

The e-commerce packages are included:

- Order of products through on-line form
- Online purchase
- User-friendly ordering
- E-shopping with medium-sized catalog of items (20 – 50 items)
- Credit card processing
- Secure server
- Easy add or edit for web template design

Above are the benefits that dealers will get when they register as a member of this package. At the same time, this project also included a user-friendly back office administration to keep track the records of dealers. One main products database will be setup to control the inventory as we called it e-store.

With joining this project will not just enhance relationships with dealers and customers, but also giving us the opportunity to help your business fly!

1.1 PROJECT SCOPE

This thesis project had been categorized into 4 main modules there are included **E-Payment System**, **Online Shopping Cart & Ordering System**, **Online Inventory Control System**, and **Configurable Web-Site Template**. Each module will be fully in charge by each group members and the author will be focus on developing the Configurable Web-Site Template for e-commerce system namely WebEcommerce.

This project not just emphasis on ordering, selling, payment like what we heard about e-commerce but it also provide a web-site service that is dealer can easy setup their own web site as e-commerce web site to promote their product by just with a few mouse click. They can choose the layout of the web site as they like and also modify it when necessary with just a few simple steps to follow. This kind of service make dealers can be more concentrating on product and business control.

Nowadays, it is so easy to use your favorite editor to write an HTML page and link it to other pages; so easy in fact that sites are built page by page, link by link, without an overall structure. But, when the number of pages on a site grows beyond a certain point, the site becomes unmaintainable. First generation content management tools attempt to impose some order on the chaos, but there is a limit to their effectiveness when the fundamental problem is the page-at-a-time development process. Therefore, come out the requirements for the next generation Web sites that generally we called it as template based Web site as a natural solution to the problems of using Web site based on static HTML pages.

According to the discussion in previous section, will bring some idea to enhance this thesis project. Besides the dynamically of the web site, it is also an user-friendly package either in the front end or in the back end using for modification and data updating. The template design will be more attractive with include the element of multimedia such as audio, video, animation, graphic and text.

Now, the author will discuss more detail for the scope of WebEcommerce. WebEcommerce consists of 3 major sections, namely WebEcommerce Template Setup, WebEcommerce Template Maintenance and WebEcommerce Web Site. Each section will be describe as below:

- WebEcommerce Template Setup

  It allows the dealer to create a web site that suits the company.

- WebEcommerce Template Maintenance

It allows the dealer to maintain and update choices made in the template, and to maintain login accounts by using a web browser.

- WebEcommerce Web Site

  It is the web site that will own by dealer. All the requirements and changes that done in WebEcommerce Template Setup and WebEcommerce Template Maintenance will be reflected in this web site created.

1.2 OBJECTIVE

The objective in developing the web site template in this e-commerce web site is one of the way for dealer to **promote their product via internet**. As we know, the cost for build up a web site by hiring a group of professional web designer is quite high. It is also quite difficult for those who are not really familiar in this field to find a good web designer to help them to build up a web site. For this reasons, this project provides a web site service to let them **set up their own web site with ease** by using WebEcommerce Template Setup. Different of layouts are provided and let them to choose based on their company needed.

It is **easy to maintenance** by using WebEcommerce Template Maintenance. Because of the dynamically of the web site template that have been created, will make it more **user friendly in modification or data updating part**. Dealer can change or edit their web site either the content or the design whenever they like.

Besides, flash animation presentation also included in this web site. Macromedia's Flash is a versatile animation and video format that combines text, photographs, animating vector graphics, audio, and video applications. This dynamic slideshow format **enhances the quality of your promotional material**, as it can illustrate many services in a short period of time. Flash is excellent for showing transitions, such as before and after photographs, and can be used as a full presentation, or a customer directed tour.

1.3 EXPECTED OUTCOMES

The expected outcome would be shown in 3 parts, which separately as below:

- WebEcommerce Template Setup

WebEcommerce Setup Template is a password protected web-based application that running in the dealer's server. This application acquires all necessary information from the new registered dealer. This information will be stored in database and for later use. Finally, the appropriate web site is generated.

- WebEcommerce Template Maintenance

  WebEcommerce Template Maintenance also is a password protected web-based application that running in the dealer's server. It only allows for registered dealer that having their ID and password to update or modify the information in the created web site. A login is required before permission to enter the WebEcommerce Template Maintenance is to prevent unauthorized access to the system. It makes dealer more confidence for using this system and to ensure security and confidentially of stored data.

- WebEcommerce Web Site

  WebEcommerce Web Site that purposely tailored to dealer requirement. This web site will use by dealer for their daily transaction that interact with customer like e-shopping, e-ordering and e-payment. This web site contain 8 main menu that is About Us, Member Area, Location Map, Contact Us, HotDeal, Calender of Event, Our Product and, Shopping Cart. Overall, features that contain in this web site are included:

  - Flash animation at the intro
  - Layout design that have been chosen by dealer
  - Main menu and submenu that follow the sorting of dealer need
  - Company's logo, name and slogan at the top of every web page
  - Advertisement banner
  - List and the photo of product that will be promote
  - Sound effect if necessary

1.4 TOOLS TO USE

Tools either hardware or software very important in project development. Which tools to be use in our project will clearly influence the schedule of whole system progress and maybe will inflect the expected outcomes. After consider in many factors such as cost, quality and productivity, we find that the requirements of tools as below:

1.4.1 Hardware Requirements

Minimum hardware requirements to develop this thesis project are listing below:

- 486 processor or higher running Windows 98
- 30MB of disk space
- 32MB of RAM
- CD-ROM drive

1.4.2 Software Requirements

Tools	Requirements
Application Platform	Microsoft Windows 98
Web Server	Apache
Web Database Management	MySQL 3.23
Web Application Programming Language	PHP
Web Application Development Tool	EditPlus 2.10
Web Browser	Microsoft Internet Explorer
Designing Tools	Macromedia Flash 5
	Adobe Photoshop 6

1.5 TIMETABLE OF EXPECTED ACTIVITIES

The activities involved in each month are listed in the Table 1.1 and see Table 1.2 as the schedule of the project development.

Beginning Date	Activities
June, 2001	1. Research on possible software/ tools used. 2. Research on existing system.
July, 2001	1. Analysis user requirements 2. Research on other possible web site layouts.
August, 2001	1. Learn related software/tools.

November, 2001	2. Start up design user interface. 3. Start to develop the system from module to module.
December, 2001	1. System development.

Table 1.1: Expected Activities Involved in Project Development

Date	Jun-01				Jul-01				Aug-01				Sep-01				Oct-01				Nov-01				Dec-01				Jan-02				Feb-02				Mar-02			
Activities	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Planning																																								
Requirement Analysis																																								
Section Design																																								
Section Coding & Testing																																								
Integration & System Testing																																								
Operation & Maintenance																																								
System Documentation																																								

Table 1.2: Schedule of The Project Development

CHAPTER 2
LITERATURE REVIEW

CHAPTER 2: LITERATURE REVIEW

2.0 INTRODUCTION

This chapter will discuss briefly about the literatures and survey that have been done through some finding such as related books, articles available from net, senior's thesis and so on. Analysis on these materials also has been done. A comprehensive and detail review will be covered in this chapter as below.

2.1 E-COMMERCE SYSTEM ARCHITECTURE CHARACTERISTIC

System architecture is important in developing e-commerce applications. E-commerce is a business solution, not one specific product. Therefore, e-commerce must included several components and features for maximum effectiveness and they are:

- Flexibility and scalability

  The e-commerce design and infrastructure must be able to adjust and expand. Software in the e-commerce environment must be able to interpret different data formats and transform these formats into a universal format that can be recognized by multiple applications. In addition, the software must be able to fine-tune its response to various clients and business partners.

- Security

  Authentication, encryption and restricted access must be anticipated carefully in the applications. In e-commerce applications, various trading partners may receive different security levels, depending on the degree of trust and volume of business in each relationship.

- Communication

  Communication link service requires flexibility because a typical e-commerce application has multiple communication requirements.

- Web support

  Software modules in an e-commerce system must support web capability.

- Data storage

Data must be regularly saved in archive storage for appropriate transaction management. Such management provides the capability to track every transaction almost in real time.

- User support

  E-commerce design and operations personal must continuously support users. Quality user support generally results in a system that can be more easily achieve peak performance.

2.2 DYNAMIC WEB SITE

Linking your web site to live data is a tremendous advantage, but the benefits of database interaction go beyond extending the capabilities of your web sites.

With particular tools you can create dynamic, data-driven web-pages like need to build up in this thesis project. Dynamic web pages are becoming the norm for a good reason. Consider the following:

- Static Web pages

  Static web pages are made up of text, images and HTML formatting tags. These pages are manually created and maintained so that when information changes, so must the page. This usually involves loading the page into an editor, making the changes, reformatting text if needed, and then saving the file. Of cause, not everyone in the organization can make these changes. The webmaster or web design team is responsible for maintaining the site and implementing all changes and enhancements. This often means that by the time information finally makes it on to the web site, it's out-of date.

- Dynamic Web pages

  Dynamic web pages contain very little actual text. Instead, they pull needed information from other applications. Dynamic web pages communicate with database to extract employee directory information, spreadsheets to display accounting figures, client/server database management systems to interact with order-processing applications and more. If a database already exists, why re-create it for web page publication?

2.3 EXISTING SYSTEM REVIEW

From the result of survey, we will understand the problems that face by user of the system and then do the appropriate analysis on it that will be discuss in the following chapter.

2.3.1 Studying the Existing Systems

Studying the existing system is important. We can improve the existing system by putting good and related features in this propose system by studying the strengths of the existing system. The studies were focus mainly on the 3 web pages below.

2.3.1.1 dirART.com

URL: http://www.dirgart.com/

DirART.com is a company that provide web site design and business service. DirART.com is selling a package that includes a web site template design for their customer. This web site template will be design to fit the business of customer as request. This package can buy by any company as long as they pay for the cost. That means any type of business also can buy the package. The problem is dirART.com not really can understand the requirements of those companies. Less of requirement analysis will come out a web site template that can't fit the style of business of their customer.

DirART.com also sell a package that includes an advanced web site with advanced features. These features are like newsgroup, multimedia (audio clip, flash animation presentation and etc.), merchant credit card account and so on. These features are interesting and useful for customer to promote their product through web. But, what I have found is every features a highly cost. For example, to add an audio clip, multimedia element, it cost you $50 for a minute.

For those who are interested in this package, they can't preview the web site template design to see how good the features are. Customer will not confidence with the design even how good they describe or explain it in thousands words. So, preview of the design is important and needed.

2.3.1.2 everySolution.com

URL: http://www.everysolution.com/home.shtml

EverySolution.com also provide a various E-commerce packages that you can add to the web design package of your choice. They are 3 main packages, which are E-commerce Basic, E-commerce Plus and E-commerce Pro. Features and cost of each package are list in Table 2.1.

E-commerce Basic	**E-commerce Plus**	**E-commerce Pro**
Features: o Order of products through on-line form to email o Small catalog of items (1 – 20 items) o Automatic order processing (order emailed to you!) o User-friendly ordering. **Cost** o $125 (in Canadian dollars)	**Features:** o Online ordering o Credit card processing o Secure server o Medium-sized catalog of items (20 – 50 items) o User-friendly ordering **Cost:** o $245 (in Canadian dollars)	**Features:** o Credit card processing o Secure server o Large-sized catalog of items (50 + items) o User-friendly ordering **Cost:** o $495 (in Canadian dollars)

Table 2.1: Features and Cost of Each Package

From the features that have been included in each e-commerce package, I find that everySolution.com is more emphasize on business side like ordering and payment. They already missed out a features that are quite popular and needs to include to web site nowadays, that is multimedia element. A web site, which is without multimedia element will look dull and can't attract more surfers go to your site. Unquestionable, the company can maintain the status of their business, but they definitely hard to attract the new customer to see or buy their product or service.

2.3.1.3 Superbmarket.net

URL: http://www.superbmarket.net/

Also the same, Superbmarket.net is a company that provides web site template design service with several kind of template design. From the web site of superbmarket.net, they also list out the service with the cost clearly. Users are allowed to preview the web site template that has been design by superbmarket.net.

The site is quite user-friendly that lets user preview the template and then just fill up a form and submit it to buy the template. These good features will keep using in my thesis project.

After preview some of the template designs by superbmarket.net, I found that the web design looks quite static like an old version of web site design. This is because it less involve multimedia element like animation.

2.3.2 Results

This review process can be summarized as below:

- Those provided packages are for all kind of company. That's meant no limit for certain company.
- The company that provide the service of web site template not really understand the various requirement of their customer, so will come out a template design can't fit the style of business of their customer.
- The web site template design needs to be improved. The template design looks static and has to change to more interactive.
- The existing templates are less flexibility. There are not allows user to change the font size, type, color and the background color of the web site.
- Multimedia elements seldom found.
- Every package cost highly.
- Some of the site not allows to preview the template design.

2.4 INTERNET REVIEW

2.4.1 Understanding The World Wide Web

The World Wide Web is currently the most talked about publishing medium. Recent statistics indicate that close to 20 million people browse the web on a regular basis.

Hembrecht and Quist, a leading investment firm, forecasts that by the year 2002 the number of regular web users will grow to 200 million.

What has made the World Wide Web so popular? That, of cause, depends on whom you ask most will agree that these are the two primary reasons:

- **Ease of use.** Publishing information on the web and browsing for information are relatively easy tasks.
- **Quantity of content.** With hundreds of thousands of web pages to choose from, and thousands more being created each day, there are sites and pages to cater to almost every surfer's tastes.

A massive potential audience awaits your web site and the services it offers. You could and should be offering much more than just static text and images. Those needed features are like below:

- Dynamic, data-driven web pages.
- Database connectivity.
- Intelligent, user-customized pages.
- Sophisticated data collection and processing.
- Email interaction.

2.4.2 Internet

Much ambiguity and confusion surround the Internet, so start with a definition, simply put, the Internet is the world's largest network.

The networks found in most offices today are **Local Area Networks (LANs)**, which comprise a group of computers in relatively close proximity to each other and linked by special hardware and cabling. Some computers are clients (more commonly known as workstations), others are servers (also known as file servers). All these computers can communicate with each other to share information. Now imagine a bigger network, one that spans multiple geographical locations. This type of network is typically used by larger company with offices in multiple locations. Each location was its own LAN that links the local computers together. All these LANs are, in turn, linked to each other via some communications medium. The linking can be anything from 28.8 baud modem to high-speed T1 connections and fiber-optic links. The complete group of

interconnected LANs, is called a **WAN**, or **Wide Area Network**. WANs are used to link multiple locations within a single company.

The local access points, more commonly known as POPs, or Points of Presence, are use by phone companies, online services, and local Internet Service Providers (also known as ISPs).

The common language is IP, the Internet Protocol, except that the term "language" is a misnomer. A protocol is a set of rules governing behavior is certain situations. Foreign diplomats learn local protocol to ensure that they behave correctly in another country. The protocols ensure that there are no communication breakdowns or serious misunderstandings. Computers need protocols to ensure that they can communicate with each other correctly and to be sure that data is exchanged correctly. IP is the protocol used to communicate across the Internet. So every computer connected to the Internet must be running a copy of IP.

The unique identifiers are IP addresses. Every computer, or host, connected to the Internet was a unique IP address. These addresses are made up of four sets of numbers separated by periods, for example 206.246.150.10. Some hosts have fixed (or static) IP addresses; others have dynamically designed addresses. Regardless of how an IP address is obtained, no two hosts connected to the Internet may be using the same IP address at any given time.

2.4.3 Web Pages

Information on the World Wide Web is stored in pages. A page can contain any of the following:

- Text
- Headers
- Lists
- Menus
- Tables
- Forms
- Graphics
- Multimedia

Web pages are plain text files constructed using HTML, the hypertext markup language. HTML is implemented as a series of easy-to-learn tags, or instructions. Web page

authors use these tags to mark up a page of text. Browsers then use these tags to render and display the information for viewing. Web pages can also contain hypertext jumps which are links to other pages or web sites. Users can click on links to jump to other pages on the same web site or any page on any site. The word "web" World Wide Web refers to this ability to jump to any web page on any web server and back again. Pages on a web server are stored in different directories. When requesting a web page, a user may provide a full path (directory and file name) to specify a particular document.

2.4.4 URLs

Every web page on the World Wide Web has an address. This is what you type into your browser to instruct it to load a particular web page.

These addresses are called Uniform Resource Locators (URLs). URLs are not just used to identify WWW pages or objects. Files on a FTP server, for example, also have URL identifiers. WWW URLs are made up of up to 5 parts. There are

- The protocol to use to retrieve the object. This is always "http" for objects on the WWW.
- The web server from which to retrieve the object. This is specified as a DNS name or an IP address.
- The host machine port on which the web server is running. If omitted, the specified protocols default port is used; for web servers that is port 80.
- The file to retrieve or the script to execute.
- Optional script parameters also known as the query string.

2.4.5 Web Browser

Web browsers are client programs used to access web sites and pages. The web browser has the job of processing received web pages, parsing the HTML code and displaying the page to the user. The browser will attempt to display graphics, tables, forms, formatted text or whatever the page contains.

The most popular web browser now is use is Netscape Navigator and Microsoft Internet Explorer. Web page designers have to pay close attention to the differences between browsers because different web browsers support different HTML tags. Unfortunately there is not one single browser that supports every tag currently in use.

Furthermore, the same web page often looks different on two different browsers because every browser renders and displays web page objects differently.

2.5 APPLICATION PLATFORM

2.5.1 Windows 98

Windows 98 represents the next stage in the evolution of the Windows operating system, and a major step forward for system administrators. Many of us have been riding the crest of this evolution since some earlier version. Few of us worked with Windows 1.1 after its release in 1985. While Microsoft had brought a multitasking graphical user interface to the PC, both the PC and the software were not quite up to coping with such demands.

Architectural of Windows 98 improved to be faster, smarter and easier. This is an upgrade to Windows 95, but the list of significant improvements seems endless:

- Windows 98 is the ultimate maintenance release. It includes more than 150 updates, bug fixes, and usability tweaks to the original Windows 95 code. These were originally included in service packs and downloadable patches from Microsoft. Even the unsupported-but-indispensable Power Toys collection is brand-new for this release.
- In all, Windows 98 contains drivers for more than 1,200 new devices, and virtually all of them support Plug and Play for simplified setup. Some categories of hardware supported in Windows 98 didn't even exist when Windows 95 first hit store shelves. Most significant of all are peripherals that use the Universal Serial Bus (USB).
- Windows 98 is generally faster overall, although you may notice that some tasks take longer than they would on the same system running Windows 95.
- And if you have a dial-up Internet connection, you'll find substantial improvements in the Dial-Up Networking features, including a simplified wizard for creating connections and support for ***multilink*** connections, which use two phone lines for faster data transfers.

2.5.2 Windows NT

What is Windows NT? The two letters tacked onto the end of the name stand for *New Technology*. As that bold label suggests, this is not the Windows that most people have

been using for the past few years. Yes, Windows NT 4.0 can run most of your old MS-DOS and Windows programs, but the software that's actually doing the work is very different.

Windows NT was designed for use by big corporations, so it does some things very well and the ability to run for weeks on end without crashing. Not surprisingly, the things it doesn't do so well--games and multimedia, for example--are distinctly un-businesslike.

Despite these fundamental differences, though, this is still Windows. Windows NT, like MS-DOS and Windows 95, is a computer operating system--a complex program that helps you organize the work you do with your PC every day.

2.5.3 Linux

Linux is a free, UNIX work-alike designed for Intel processors on PC architecture machines. Linux is not UNIX, as UNIX is a copyrighted piece of software that demands license fees when any part of its source code is used. Linux was written from scratch to avoid license fees entirely, although the operation of the Linux operating system is based entirely on UNIX. It shares UNIX's command set and look-and-feel, so if you know either UNIX or Linux, you know the other, too.

Linux supports a wide range of software, from TeX (a text formatting language) to X (a graphical user interface) to the GNU C/C++ compilers to TCP/IP networking. Linux is also compliant with the POSIX.1 standard, so porting applications between Linux and UNIX systems is a snap.

New users of UNIX and Linux may be a bit intimidated by the size and apparent complexity of the system before them. There are many good books on using UNIX out there, for all levels of expertise ranging from novice to expert. However, few (if any) of these books cover, specifically, the topic of using Linux. Although 95 percent of using Linux is exactly like using other UNIX systems, the most straightforward way to get going on your new system is with a book tailored for Linux (such as this one, amazingly enough!).

2.5.4 UNIX

UNIX is an increasingly popular operating system. Traditionally used on minicomputers and workstations in the academic community, UNIX is now available on personal

computers, and the business community has started to choose UNIX for its openness. Previous PC and mainframe users are now looking to UNIX as their operating system solution.

UNIX, like other operating systems, is a layer between the hardware and the applications that run on the computer. It has functions that manage the hardware and functions that manage executing applications. So what's the difference between UNIX and any other operating system? Basically two things: internal implementation and the interface that is seen and used by users. For the most part this book ignores the internal implementation. If you wish to know these details, many texts exist that cover them. The interface is what this book describes in detail. The majority of UNIX users need to be familiar with the interface and need not understand the internal workings of UNIX.

The UNIX system is actually more than strictly an operating system. UNIX includes the traditional operating system components. In addition, a standard UNIX system includes a set of libraries and a set of applications.

One important advantage that results from the UNIX standard interface is application portability. Application portability is the ability of a single application to be executed on various types of computer hardware without being modified. This can be achieved if the application uses the UNIX interface to manage its hardware needs. UNIX's layered design insulates the application from the different types of hardware. This allows the software developer to support the single application on multiple hardware types with minimal effort. The application writer has lower development costs and a larger potential customer base. Users not only have more applications available, but can rely on being able to use the same applications on different computer hardware.

2.5.5 Linux Versus UNIX

UNIX is a trademark of X/Open. Linux is not a trademark, and has no connection to the trademark UNIX or X/Open.

UNIX is one of the most popular operating systems worldwide because of its large support base and distribution. It was originally developed as a multitasking system for minicomputers and mainframes in the mid-1970s, but it has since grown to become one of the most widely used operating systems anywhere, despite its sometime confusing interface and lack of central standardization.

UNIX is a multitasking, multiuser operating system. This means that there can be many people using one computer at the same time, running many different applications. (This differs from MS-DOS, where only one person can use the system at any one time.)

Under UNIX, for users to identify themselves to the system, they must log in, which entails two steps: Entering your login name (the name by which the system identifies you), and entering your password, which is your personal secret key to logging in to your account. Because only you know your password, no one else can log in to the system under your username.

In addition, each UNIX system has a hostname assigned to it. It is this hostname that gives your machine a name, gives it character, class, and charm. The hostname is used to identify individual machines on a network, but even if your machine isn't networked, it should have a hostname.

Versions of UNIX exist for many systems, ranging from personal computers to supercomputers. Most versions of UNIX for personal computers are quite expensive and cumbersome. Where does Linux fit in? Well, Linux is free (solves the expensive part), very powerful, and easy to install and maintain by an individual (so much for the cumbersome part).

2.6 WEB SERVER

A web server is a program that servers up web pages upon request. Web servers typically don't know or care what they are serving up. When a user at a specific IP address requests a specific file, the web server tries to retrieve that file and send it back to the user. The requested file might be the HTML source code for a web page, a GIF image, VRML worlds, AVI files and so on. It is the web browser that determines what should be requested, not the web server.

2.6.1 How Web Server Work

All the server does is process that requested, as shown in Figure 2.1 below.

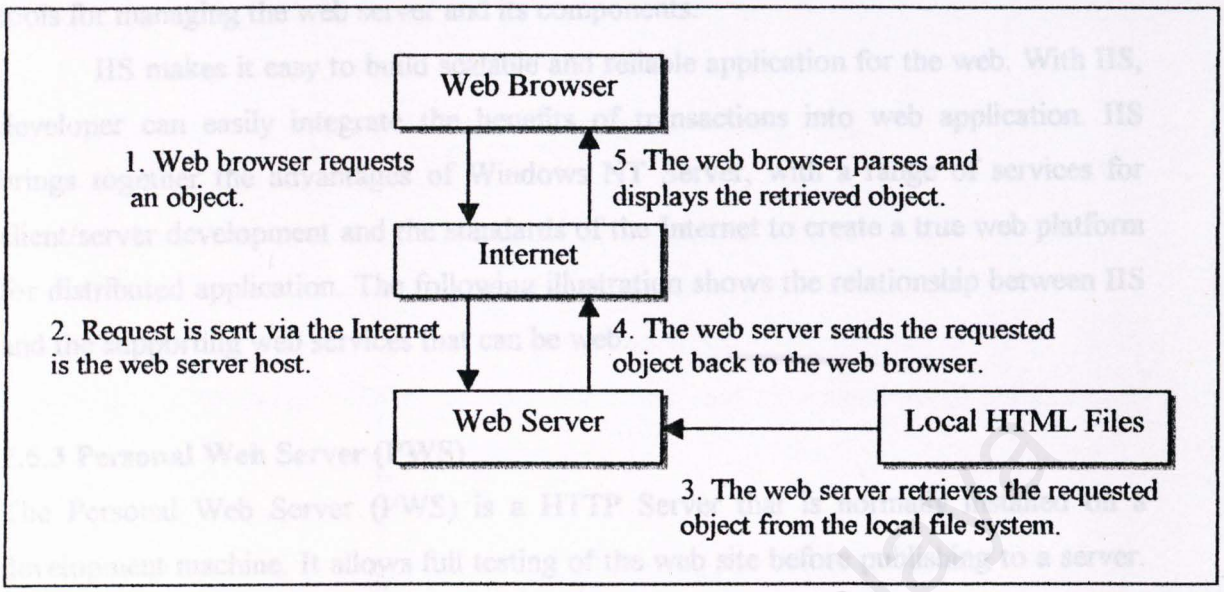

Figure 2.1: How The Web Server Works

Web severs are often not the only IP-based applications running on a single host. In fact, aside from performance issues, there is no reason why a single host cannot run multiple services. For example, a web server, FTP server, DNS server and a SMPT POP3 mail server can run at the same time. To ensure that each server application only responds to requests and communications from appropriate clients, each server is assigned a port address.

Most servers use a standard set of port mappings. Most web servers use port 80, but you can change that. If desired, web servers can be installed on nonstandard ports to hide web servers. You can also host multiple web servers on a single computer by mapping each one to a different port.

2.6.2 Internet Information Server (IIS)

Internet Information Server (IIS) is a high performance web application server for Windows NT Server. IIS brings many advanced capabilities to web professionals, both as a web server for corporate Intranets and public Internet sites and as a platform for the next generation of line-of-business applications. In addition, IIS is a very robust and secure environment for running a web server.

IIS incorporates World Wide Web (WWW), File Transfer Protocol (FTP), Index Server and Secure Sockets Layer (SSL) services, IIS provide a comprehensive set of tools for managing the web server and its components.

IIS makes it easy to build scalable and reliable application for the web. With IIS, developer can easily integrate the benefits of transactions into web application. IIS brings together the advantages of Windows NT Server, with a range of services for client/server development and the standards of the Internet to create a true web platform for distributed application. The following illustration shows the relationship between IIS and the supporting web services that can be web.

2.6.3 Personal Web Server (PWS)

The Personal Web Server (PWS) is a HTTP Server that is normally installed on a development machine. It allows full testing of the web site before publishing to a server. It is one of many features available for Windows 95/98/98SE/ME and the NT workstation through the Windows NT Option Pack.

Here's what the Personal Web Server does:

- Allows webs to be published as a whole, with a single command.
- Publish from local to remote, remote to local, or remote to remote websites.
- Provides the functionality of CGI, IDC, ASP, ISAPI programs, and the FrontPage WebBots on your local computer, so that you can test your webs locally in your browser before making them public. All of these technologies require a server and/or FrontPage server extensions to run.
- Set permissions and properties of webs and folders. FrontPage communicates with the server to do this. Especially important if you want to use interactive technology, such as CGI, IDC, or ASP.
- Sets up virtual directories on the server.
- You can actually browse your webs from another computer on the Internet, when you are logged on. This can be handy for demonstrating them to clients, friends, etc.

2.6.4 Apache

Apache has been shown to be substantially faster, more stable, and more feature-full than many other web servers. Apache exists to provide a robust and commercial-grade

reference implementation of the HTTP protocol. It must remain a platform upon which individuals and institutions can build reliable systems, both for experimental purposes and for mission-critical purposes.

So, what is Apache? The Apache http server:

- is a powerful, flexible, HTTP/1.1 compliant web server
- implements the latest protocols
- is highly configurable and extensible with third-party modules
- can be customized by writing 'modules' using the Apache module API
- provides full source code and comes with an unrestrictive license
- runs on Windows NT/9x, Netware 5.x, OS/2, and most versions of Unix, as well as several other operating systems
- is actively being developed
- encourages user feedback through new ideas, bug reports and patches
- implements many frequently requested features, including:
    - DBM databases for authentication
    - Customized responses to errors and problems
    - Multiple DirectoryIndex directives
    - Unlimited flexible URL rewriting and aliasing
    - Content negotiation
    - Virtual Hosts
    - Configurable Reliable Piped Logs

2.7 WEB DATABASE MANAGEMENT

2.7.1 Microsoft SQL Server 7.0

Microsoft SQL Server 7.0 is the compact database for rapidly developing applications that extend enterprise data management capabilities to devices. Microsoft SQL Server has the familiar feel of SQL Server

Microsoft SQL Server is a client/server database engine, client/server model is important. Client/server can be defined as an application that is split into 2 parts:

- One part runs on the server,
- The other part runs on workstations.

The server side of the application provides security, fault-tolerance, performance, concurrency and reliable backups. The client side provides the user interface and can contain empty reports, queries and forms. The idea is to have the best of both worlds by taking the advantages of both and pairing them.

2.7.2 Oracle 8I

Microsoft SQL Server with plenty of features and an architecture that enables developers to adapt databases to application needs. Oracle features of particular interest to Web developers include encryption and secure sockets, connection pooling, WebDB, Web assistants, Java-enabled and XML-enabled databases, and the capability to act as an Enterprise JavaBeans (EJB) container.

Oracle 8i is suitable for multitier application architectures and it integrates with Oracle Application Server, Oracle Message Broker, and other software. To support distributed Java computing, Oracle 8i uses a Java server architecture known as JServer. It includes a built-in Java Virtual Machine (JServer VM), an Internet Inter-ORB Protocol (IIOP) interpreter, and Java Object Request Broker (ORB). The JServer VM runs inside the Oracle database engine and it can access shared memory in the System Global Area. The JServer VM is programmable by developers writing Java stored procedures, EJB, and CORBA servers.

Oracle 8i includes XML parsers that support both Document Object Model (DOM) and SAX programming. The Java version 2 parsers also include a processor for doing Extended Stylesheet Language Transformations (XSLT). Oracle also provides parsers for C/C++ and PL/SQL, its proprietary SQL dialect. It also has an XML Class Generator and XML SQL Utility for Java.

For Web developers, Oracle offers a Web application server that supports Java servlets, a JWeb cartridge (server plug-in), Web Assistants, and a site builder program known as WebDB. WebDB includes a Site Creation Wizard and the tools needed for creating and maintaining a Web site. Site developers use a database schema for storing the Web site in an Oracle database. WebDB includes a Style Administrator, News Administrator, and Access Managers for managing security.

2.7.3 MySQL 3.23

MySQL is a small, compact database server ideal for small - and not so small - applications. In addition to supporting standard SQL (ANSI), it compiles on a number of platforms and has multithreading abilities on Unix servers, which make for great performance. For non-Unix people, MySQL can be run as a service on Windows NT and as a normal process in Windows 95/98 machines.

MySQL is a complex program and takes some time to compile. If you get an error, check the documentation to see if there is anything specific that you've missed for your particular OS.

In addition, there is a shareware version of MySQL for Windows users. It is an older version of MySQL.

There are very good reasons for using MySQL that clearly explain as below:

- **MySQL has no subqueries**. Instead of performing one complex query that is entirely processed on the database end, MySQL users have to perform 2 or more serial queries that each must go over inter-process or network communication between the app and the database. This significantly reduces the speed advantages of MySQL.
- **MySQL has no stored procedures**. If a series of DB actions need to be performed in a block, MySQL requires each SQL statement to be sent from the app, again in a serial manner, again over IPC or network.
- **MySQL has no triggers or foreign key constraints**. Data invariants must be maintained by application-level code, which requires building carefully-planned abstractions to guarantee integrity (for every means of accessing your DB), and even more unnecessary back-and-forth communication between the app and the database.
- **MySQL only has table-level locking**. Only one user can write to a table at the same time. For web usage, that falls under the category of "pathetic."

2.8 WEB APPLICATION PROGRAMMING LANGUAGE

2.8.1 Hypertext Markup Language (HTML)

HTML stands for HyperText Markup Language. HTML is based on SGML (Standard Generalized Markup Language), a much bigger document-processing system. To write

HTML pages, you won't need to know a whole lot about SGML, but it does help to know that one of the main features of SGML is that it describes the general *structure* of the content inside documents, not that content's actual appearance on the page or on the screen. This will be a bit of a foreign concept to you if you're used to working with WYSIWYG (What You See is What You Get) editors.

HTML is a *markup language*. Writing in a markup language means that you start with the text of your page and add special tags around words and paragraphs. Without HTML, the World Wide Web wouldn't exist. HTML allows the individual elements on the Web to be brought together and presented as a collection. Text, images, multimedia, and other files can all be packaged together using HTML. This section explains the basic principles behind the interaction between HTML and the World Wide Web.

2.8.2 Client-side Scripting Language

A client-side scripting language is interpreted and executed by the web browser, which places less burden on the web server. Processes executed on the client-side are faster as a response does not have to fetch over the network whenever the user of the browser performs an action.

2.8.2.1 VBScript

VBScript is a member of Microsoft's Visual Basic family of development products. Other members include Visual Basic (Professional and Standard Editions) and Visual Basic for Applications, which is the scripting language for Microsoft Excel. VBScript is a scripting language for HTML pages on the World Wide Web and corporate intranets.

Using VBScript within your Web pages enables you to create a very dynamic and interactive experience for the Web surfers who visit your site. This is true whether you have a site that is visible to the entire Internet or an intranet site visible only to users of your company's LAN or WAN.

2.8.2.2 JavaScript

JavaScript is a lightweight object-based scripting language created by Netscape Communications Corporation for developing Internet applications. JavaScript is lightweight in that there isn't a great deal to learn and you can be productive with it very

quickly, in contrast to much more complex languages such as Java. As a scripting language, JavaScript is meant to tell an application what to do. Unlike languages used to create applications, it cannot do anything without the application.

You can develop server applications or client applications with JavaScript. You can embed JavaScript statements in Web pages, which are written in HTML (Hypertext Markup Language). JavaScript is an extension to HTML that lets you create more sophisticated Web pages than you ever could with HTML alone.

JavaScript is not another version of the Java programming language, nor is it any new project of the Java team. Following the release of Java, Netscape continued to push the development of the World Wide Web further and released JavaScript as another means of adding client-side programs to Web documents.

JavaScript is also executed on the client-side, therefore lessening the load on a Web server. JavaScript programs are usually less complex and smaller than Java applets and do not have to be compiled before execution. They can be written directly in a Web page and executed (interpreted) by the browser that requests it. JavaScript is currently supported by the Netscape browser.

2.8.2.3 Differences Between Java and JavaScript

Java and JavaScript have some similarities but more differences than their names may reveal. JavaScript is a scripting language and HTML-page oriented (the script is embedded in the HTML source), while Java is a complete programming language that can be used in and outside the Web world (standalone programs may be developed using Java, for example).

On one hand, Java applets are only referenced inside the HTML source of a page and executed inside the browser's window. JavaScript scripts are actually embedded in the HTML source and are also executed by the browser on the document's window.

Java programs consist of classes and respective methods, and their objects are declared and safely typed. JavaScript is a smaller language with an easier syntax that has some data types already built-in.

Another difference comes from the execution strategy. JavaScript programs are interpreted while Java applets must be precompiled before execution (a pseudo-interpretation, in fact). Object references in JavaScript are checked at runtime while in Java they exist at compile time.

Both languages pretend to be secure, and Web programs developed with them cannot (or should not), in particular, write to the hard disk. Java also has security features concerning network functioning. Java seems to comply with security issues better than JavaScript.

2.8.3 Server-side Scripting Technologies

A server-side scripting language is executed on the server that serves the web site's files rather than on the browsers that receive those files.

2.8.3.1 Active Server Page (ASP)

Active Server Pages are a key component of Microsoft's dynamic web content strategy. With Active Server Pages, a software developer can create interactive and personalized web pages for their World Wide Web site or corporate intranet without having to understand the internals of a web server or complex application programming interfaces. In addition, Active Server Pages is extensible via software components written using Microsoft's Component Object Model so you'll be able to take advantage of code you've already written using languages such as Visual Basic, C++ or Java.

Active Server Pages were introduced with release 3 of Microsoft's web server, Internet Information Server or IIS. Active Server Pages are actually a series of dynamic link libraries or DLLs that are installed on your web server by either a standalone installation program or as part of the Visual Studio 97 setup for Visual InterDev. These DLLs give IIS the ability to interpret and process information via the use of a script file (called an ASP script) that is resident in your web application directory.

2.8.3.2 Common Gateway Interface (CGI)

In order to make it easier to create scripts that work with multiple web servers, a standard script interface was created. Common Gateway Interface (CGI) is a standard for communication between Web documents and CGI scripts you write. CGI scripting, or programming, is the act of creating a program that adheres to this standard of communication. A CGI script is simply a program that in some way communicates with your Web documents. Web documents are any kind of file used on the Web. They can be HTML documents, text files, image files, or any number of other file formats. The existence of this gateway between programs you write and your Web document allows

you to create much more dynamic and interactive Web pages than you could with HTML alone.

CGI scripts are a very powerful way to extend the capabilities of your web server and you have probably used the without even realizing it. If you have ever used an Internet search engine, or any intelligent forms, you have probably used CGI scripts. The beauty of CGI is that it is simple to implement, portable and completely transparent to the end user. (See Figure 2.2)

Pros of Coding Intermediate Applications Using CGI

- Currently faster than interpreted Java
- Supported by all servers and clients
- Can use familiar programming language
- Less initial programming work
- You can differentiate between text clients and graphical clients

Cons of Coding Intermediate Applications Using CGI

- You hit the limitations of what you can do rather quickly
- CGI uses up a lot of processing time, while Java harnesses the power of the client

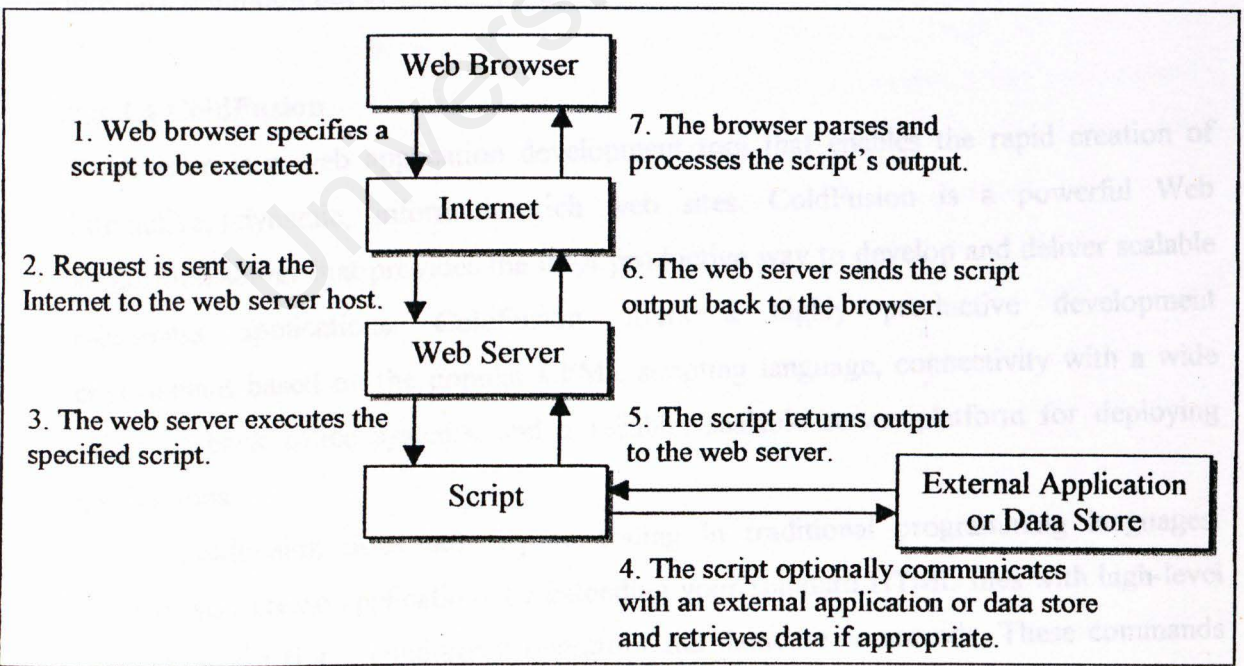

Figure 2.2: How CGI Work

2.8.3.3 Comparison CGI and Java/JavaScript

CGI applications are closely related to a Web server, both-application and server-respecting the CGI specifications. Also, CGI applications are executed on the server side, while Java or JavaScript programs are executed on the client side.

In general, applications that require a lot of processing on a server, such as accessing or controlling a database, gateways, or other Internet services or protocols, are better developed with CGI applications. But if you plan to add some dynamics on Web pages, execute animations, graphics, movements, or other features, you will probably be better served by Java and possibly JavaScript. Being executed on the server side, CGI applications put some extra load on a Web server instead of on the client side, as Java and JavaScript do.

Due to its architecture and available system tools (that can be used by a CGI application), a CGI application can easily use the hard disk of a server or initiate network connections on the Internet. Java and JavaScript programs are not able to access directly the server's disk or initiate network connections easily enough (or at all in the case of JavaScript). CGI applications, in fact, are not limited to one programming language. They are limited only by the CGI specifications, which are general enough to allow the use of any programming language, such as C, Perl, C++, and so on, and consequently, the characteristics of any of these languages. Java applets are not an interface definition but are actual programs.

2.8.3.4 ColdFusion

ColdFusion is a web application development tool that enables the rapid creation of interactive, dynamic, information-rich web sites. ColdFusion is a powerful Web application server that provides the most productive way to develop and deliver scalable e-business applications. ColdFusion offers a highly productive development environment based on the popular CFML scripting language, connectivity with a wide range of back office systems, and a reliable, scalable server platform for deploying applications.

ColdFusion does not require coding in traditional programming languages. Instead, you create applications by extending your standard HTML files with high-level formatting functions, conditional operators and database commands. These commands

are instructions to the ColdFusion processor and form the building blocks on which to build industrial-strength applications.

This method of creating web applications has significant advantages over conventional application development:

- ColdFusion applications can be developed rapidly because no coding is required other than use of simple HTML style tags.
- ColdFusion applications are easy to test and roll out.
- The ColdFusion languages contain all the processing and formatting functions you will need (and the ability to create your own functions if you really run into a dead end).
- ColdFusion applications are easy to maintain because there is no compilation or linking step. So the files you create are the files used by ColdFusion.
- ColdFusion provides all the tools you need to trouble shoot and debug applications.
- ColdFusion comes with all hooks needed to link to almost any database application.
- ColdFusion is fast, thanks to its service-based architecture.

2.8.3.5 PHP

PHP is a server-side, cross-platform, HTML embedded scripting language. PHP is a tool that lets you create dynamic web pages. PHP-enabled web pages are treated just like regular HTML pages and you can create and edit them the same way you normally create regular HTML pages. Like ASP, PHP script is processed by the Web server. After the server plays with the PHP code, it returns plain old HTML back to the browser. This kind of interaction allows for some pretty complex operations.

One of the most powerful features of PHP is the way it handles HTML forms. The basic concept that is important to understand is that any form element in a form will automatically result in a variable with the same name as the element being created on the target page.

PHP supports a host of other features right at the technological edge of Internet development. These include authentication, XML, dynamic image creation, WDDX, shared memory support, and dynamic PDF document creation to name but a few. If

that's not enough, PHP is easy to extend, so you can roll your own solution if you're programming savvy.

PHP is an established server-side scripting language for creating dynamic Web pages. As a language that has been designed expressly for the Web, it brings many features that commercial entities are looking for:

- Exceptionally short learning curve
- Quick development time
- Very high performance

In addition, PHP supports all major platforms (UNIX, Windows and even mainframes), and features native support for most popular databases. All these factors make it a very good choice for Web development: such shops working with PHP have reported being able to hire non-programmers and have them producing usable code within days. Programmers familiar with languages such as C, C++ or Java frequently find that they can begin programming in PHP within a few hours.

2.8.3.6 A Comparison of PHP and ColdFusion

Generally, PHP and ColdFusion can be compare depends on following factors:

- Platform Support

  ColdFusion has a relatively limited platform selection. Windows, Solaris, Linux or HP/UX.

  PHP, if you can compile it, it will run.

- Language

  ColdFusion is built for display code. It's scripting language is primitive and does not support standard operator syntax or user-defined functions. But, it is really fast and easy for display pages and database interaction.

  PHP is built to write applications. The language is strong and very flexible. Not as easy for the easy stuff, but much easier for the hard stuff.

- Database Support

  ColdFusion abstracts database connections, making them simple to use, and very easy to change database platform with no code changes. Native database support is only available in the Enterprise product, and limited to just a few large products. Primary database support is through ODBC, which is fine with

Windows, but is not with other platforms.

PHP has extremely strong native database support. Different database have different command syntax, making mid-stream database changes painful. A bit more complex to retrieve results.

- File-System Support

  ColdFusion has adequate file support, but is quirky and not feature-rich.

  PHP has comprehensice file system support.

- Regular Expressions

  ColdFusion has a basic regular expressions capability.

  PHP is on par with Perl for regular expressions.

- Error-Handling

  ColdFusion has good try/catch functionality, making formal error handling possible.

  PHP has no formal error handling. What little error-handling exists is inconsistent, and many errors cannot be trapped in code at all.

- Search Capability

  ColdFusion is bundled with verity, a very capable and feature-rich fuzzy search engine for both file searches and database content searches.

  PHP has no search capability.

2.9 WEB APPLICATION DEVELOPMENT TOOL

2.9.1 Macromedia Dreamweaver 3

Dreamweaver is a professional visual editor for creating and managing Web sites and pages. With Dreamweaver, it's easy to create and edit cross-platform, cross-browser pages.

Dreamweaver provides advanced design and layout tools, as well as making it easy to use Dynamic HTML features such as animated layers and behaviors without writing a line of code. Browser-targeting checks your work for potential problems on all popular platforms and browsers. Macromedia's Roundtrip HTML technology imports HTML documents without reformatting the code—and you can set Dreamweaver to clean up and reformat HTML when you want to.

Dreamweaver is fully customizable. You can create your own objects and commands, modify menus and keyboard shortcuts, and even write JavaScript code to extend Dreamweaver with new behaviors and property inspectors.

Macromedia Dreamweaver is a powerful WYSIWYG site building tool, one just as respected for what it does do as what it doesn't. What it does offer is an intuitive environment for building cross-platform sites. What it doesn't do is alter existing HTML by inserting esoteric tags that add nothing but weight.

Dreamweaver is a favorite of multimedia designers, since it easily integrates with other Macromedia applications, like Flash and Shockwave. It's probably a less popular choice for small staffs or corporate sites, since it doesn't come with a library of Web-ready graphics, like FrontPage and NetObjects does.

2.9.2 Microsoft Visual InterDev 6.0

Visual InterDev is a comprehensive, Web-based application development tool. Visual InterDev provides an integrated environment that brings together various technologies to work towards a common goal of building robust and dynamic applications for the Web. Visual InterDev achieves this integrated development environment through the use of the Developer Studio shell interface, first used in Microsoft's Visual C++. You can open and work on Visual C++ and Visual J++ projects while simultaneously creating your Visual InterDev project. This feature greatly enhances productivity, especially when you're building COM and DCOM components and incorporating these components into your Visual InterDev application.

Visual InterDev enables the developer to build applications that are dynamic and interactive. Visual InterDev enables the developer to build dynamic web pages through the use of client- and server-side script. VBScript is the default scripting language, but JavaScript also can be used.

Database integration is vital to any application. Visual InterDev provides a rich and robust set of visual database tools to immediately enhance your productivity. Visual InterDev supports the major ODBC-compliant databases, both on the desktop and the server.

Managing your web site once it has been developed is a very crucial function. Visual InterDev provides a set of tools to view and maintain your site. These tools are similar and compatible with the site management tools found in Microsoft FrontPage.

Visual InterDev supports the major object-based technologies that exist for developing Web-based applications, including ActiveX controls and Java applets. Visual InterDev supports the use of third-party ActiveX controls and enables you to integrate your own custom ActiveX controls. Visual InterDev also provides Design-time Controls that enable you to set control properties when you're designing your application and then use this functionality at runtime without the overhead of a typical ActiveX control.

In a nutshell, Visual InterDev is an exciting new tool that significantly augments a Web developer's productivity. In this next section, you will learn why you need to use Visual InterDev instead of other development tools.

2.9.3 EditPlus 2.10

EditPlus is an Internet-ready 32-bit Text editor, HTML editor and Programmer's editor for Windows. TextPad users will find EditPlus very easy to get into since most of its features seem to be derived from TextPad. EditPlus supports multiple undo/redo and a powerful search & replace feature with regular espressions. It also supports syntax highlighting for HTML, PHP, ASP, Perl, C/C++ and Java.

Seamless Web browser for previewing HTML pages, and FTP commands for uploading local files to FTP server. Other features include HTML toolbar, user tools, line number, ruler, URL highlighting, auto-completion, cliptext, column selection, powerful search and replace, multiple undo/redo, spell checker, customizable keyboard shortcuts, and more.

CHAPTER 3
SYSTEM ANALYSIS

CHAPTER 3: SYSTEM ANALYSIS

3.0 INTRODUCTION

In order to understand the nature of a program when developing a system, establishing the services that the system should provide and the constraints under which it must operate is very important. This chapter will discuss the methodology used for this thesis project and the requirement analysis.

System analysis is the one of the important phase, which focus on understanding a system domain and the requirement. A requirement is a feature of the system or a description of something the system is capable of doing in order to fulfill the system's purpose. Requirements describe a system's behavior. In particular, the requirements describe the activities of the system, such as a reaction to input and the state of each entity in the system before and after the activity occurs.

Requirements can be divided into two ways: functional and non-functional. Both functional and non-functional requirements are elicited from the dealer in a formal, careful way. This formal requirements elicitation is necessary because dealers are not always good at describing exactly what they want or need.

3.1 METHODOLOGY

Many kind of methodology can be use in developing a system. After studying the existing system and some similar system, I decide using **The Water Fall** model with **Prototyping** in this system development. There are several reasons for why this model was chosen:

- Easy to explain to our client those who are not really familiar in system development.
- Using this model, the development process can help to control the thrashing by including activities and sub-processes, prototyping, that enhance understanding.
- A prototype is a partially developed system that enables customers and developers to examine some aspect of the proposed system and decide if it is suitable or appropriate for the finished system.
- Every step are show clearly in step by step that make our client easy to understand the activities, resources, and constraints involved in system development.
- It presents a very high level view of what goes on during development.

- The waterfall model with prototyping can be very useful in helping us lay out what we need to do.

Figure3.1 Below is the chosen model where the stages are depicted as cascading from one to another.

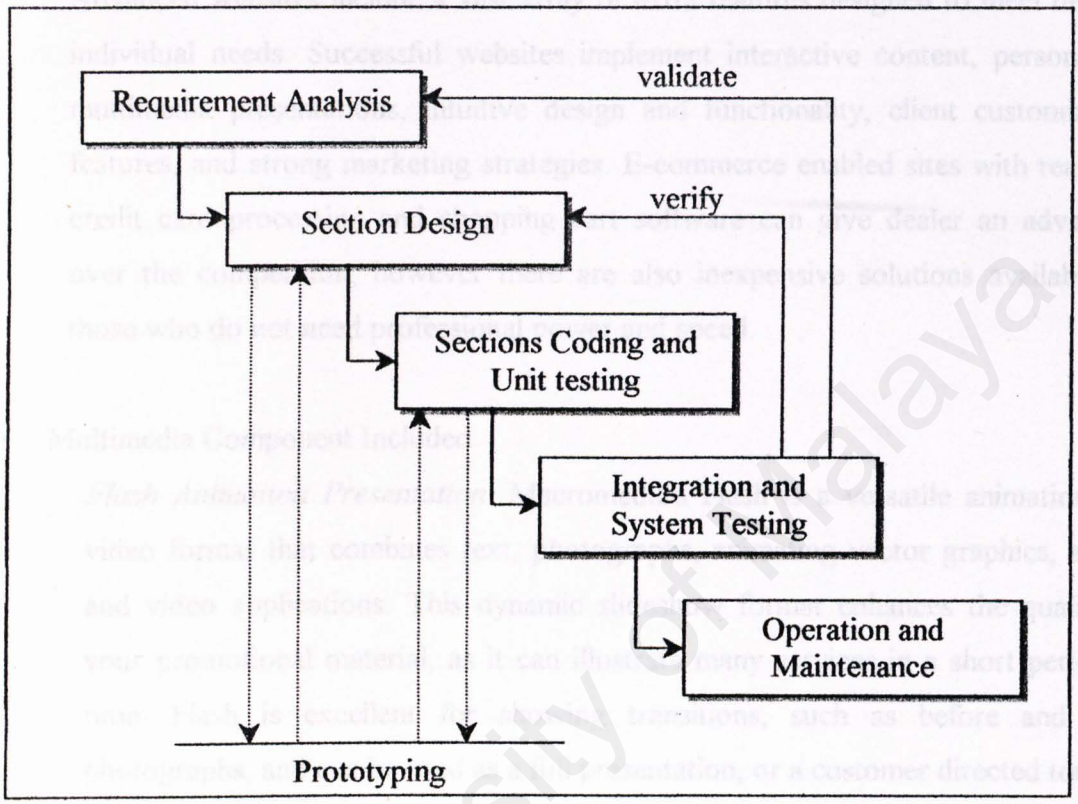

Figure3.1: The Waterfall Model with Prototyping

3.2 FUNCTIONAL REQUIREMENT

3.2.1 Definition

A functional requirement describes an interaction between the system and its environment.

3.2.2 Project Functional Requirement

After done the research, I get the below functional requirement that need for our dealers:

- Basic Web Page

Web template design with navigational toolbar plus 9 pages (About us, Shopping Cart, Contact us, Calendar of Events, Hot Deals, Our Product, Location Map, FAQ, Logout), plus original graphics as design, product images and etc.

- Advanced Web Site

  Advanced websites include a vast array of extra features designed to meet dealer's individual needs. Successful websites implement interactive content, personalized multimedia presentations, intuitive design and functionality, client customization features, and strong marketing strategies. E-commerce enabled sites with real-time credit card processing and shopping cart software can give dealer an advantage over the competition, however there are also inexpensive solutions available for those who do not need professional power and speed.

- Multimedia Component Included

  Flash Animation Presentation: Macromedia's Flash is a versatile animation and video format that combines text, photographs, animating vector graphics, audio, and video applications. This dynamic slideshow format enhances the quality of your promotional material, as it can illustrate many services in a short period of time. Flash is excellent for showing transitions, such as before and after photographs, and can be used as a full presentation, or a customer directed tour.

- Layout Design

  There are 3 different and unique layout designs. Dealers can choose one of out of three as web site layout base on their business needed. The layout design will be change from time to time and it also flexible for dealer to change the layout to new design. Dealer can change the font type, font size, font color, font style and color of the background of each web site that has been created. With a few mouse clicks, dealers can add or edit the page layout.

3.3 NON-FUNCTIONAL REQUIREMENT

3.3.1 Definition

A non-functional requirement or constraint describes a restriction on the system that limits our choices for constructing a solution to the problem.

3.3.2 Project Non Functional Requirement

Below are the requirements from dealers in non-functional way:

- Database Security and Integrity

  The information in the database should only be created, modify and viewed by the rightful user. Database integrity and security must be given high emphasis as it affects the users' confidence in the system. The users' professional privacy and business confidentiality also must be in secure.

- Web site Security

  There seems to be no end to the threats that menace your online business. It might be a hacker vandalizing your home page, a competitor prying into your marketing plans, a thief stealing your credit-card files, a disgruntled employee sabotaging your customer database, or a malicious kid sending you a virus. Particular security procedure must be contained in this system, they are: limit access, password, firewalls, physical access, authenticate users, encrypt sensitive data and etc.

- Help

  The system should provide a user manual to guide the user in using the system.

- Users and Human Factors

  This template-driven web page system will be used by dealers. The interface should be tailored to suit their needs and preferences. The screen layout must include objects that they can readily understand. The GUIs template must not complicate the users to set up their web page, but instead make it easier and more pleasant.

- User-friendliness

  It should be accommodation for all dealers and also able to give a user-friendly interface to ease dealer in using it. Appropriate error handling should be emphasis.

- Reliability

  Produce accurate results and information that pull from database.

- Efficiency

  Provide a good response time to all dealer requests and will not cause any delay processing the dealer request.

- Simplicity

  Make it suits for all level of dealers without formal training.

3.4 SYSTEM FLOW

3.4.1 Data Context Diagram

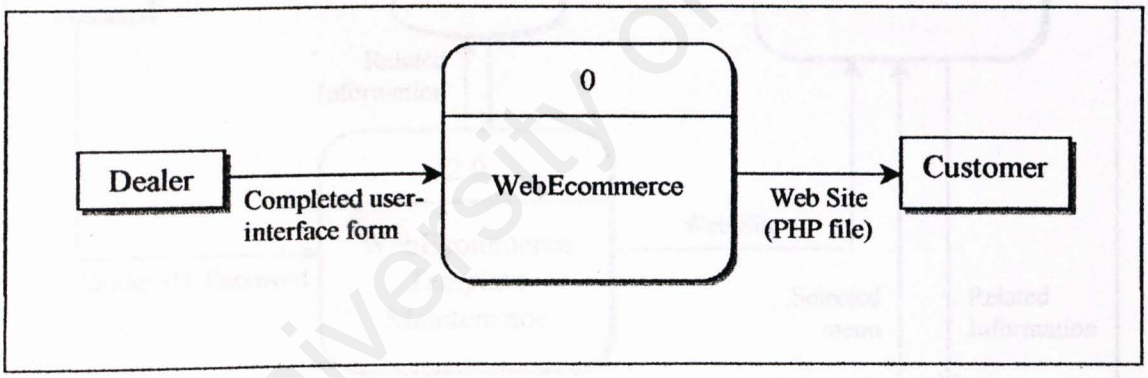

Figure3.2: Data context Diagram

Dealer have to fill up the completed user-interface form that contain in the store back office, so that a web site that is in PHP file will reflect in front the web. The created web site is purposely for e-commerce use by customer from all around the world.

3.4.2 Data Flow Diagram (DFD)

3.4.2.1 Level 0

WebEcommerce is divided into 3 subs module as listed below (see Figure3.3):

- WebEcommerce Template Setup
- WebEcommerce Template Maintenance
- WebEcommerce Web Site

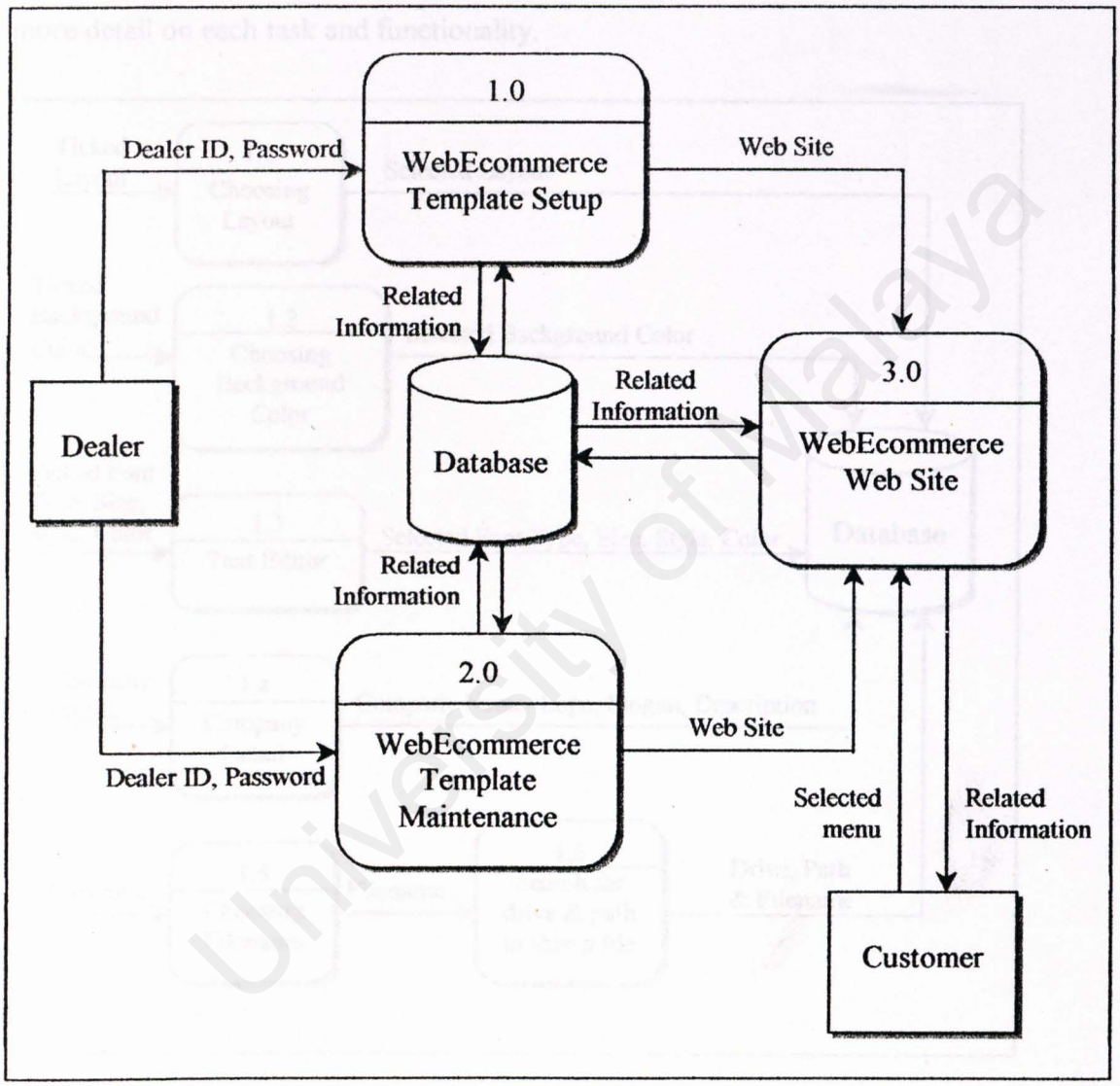

Figure3.3: DFD Level 0

Before access to the system, dealer will be requested to input the dealer ID and password. After that, dealer can setup a web page in *module 1.0 WebEcommerce Template Setup* and update or modify related information in *module 2.0 WebEcommerce Template Maintenance*. Data that have been input or change by dealer will store in

database. At the same time, dealer also can retrieve related information from the same database. Requirement of dealer will be reflected in the created web site. It will be done in *module 3.0 WebEcommerce Web Site*. The web site can be fully access by the Internet surfer (customer).

3.4.2.2 Level 1

From DFD Level 0, all the processes can be decompressed into DFD Level 1 to show more detail on each task and functionality.

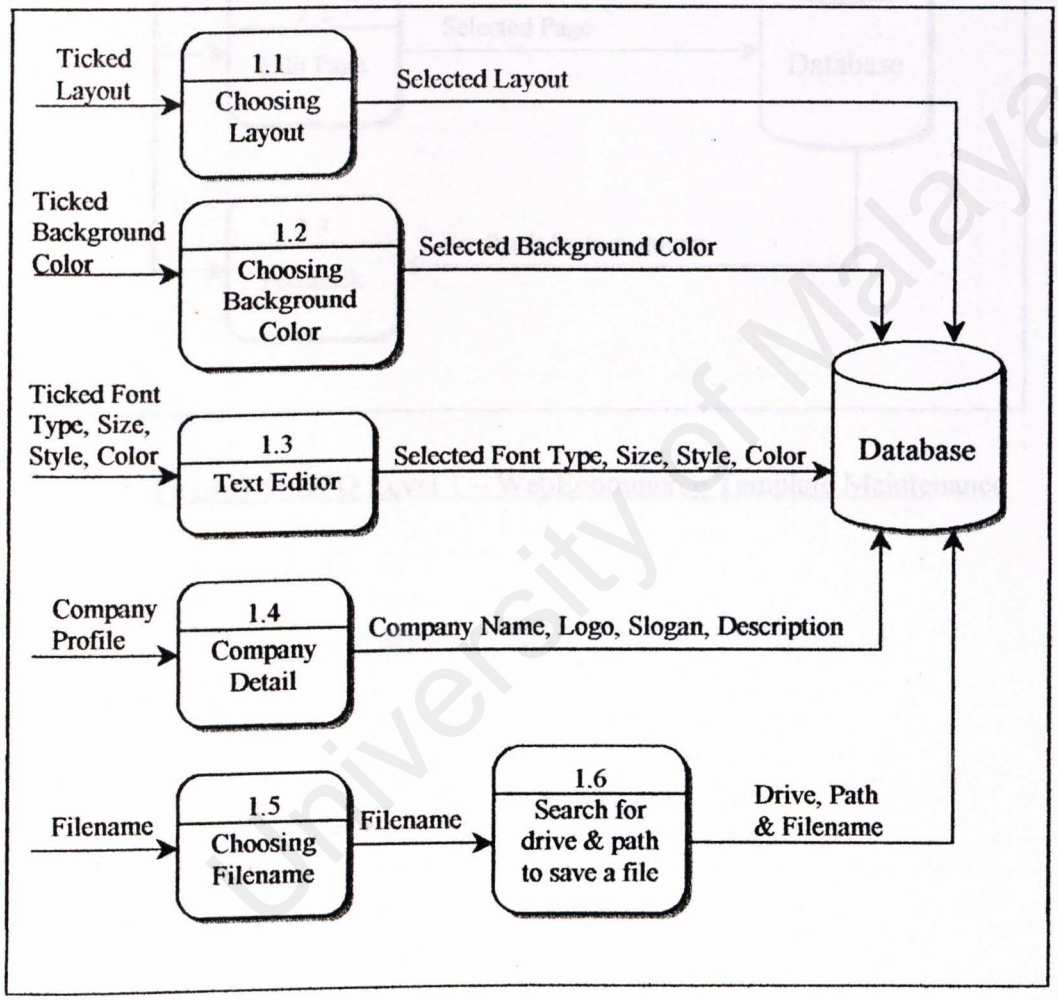

Figure3.4: DFD Level 1 – WebEcommerce Template Setup

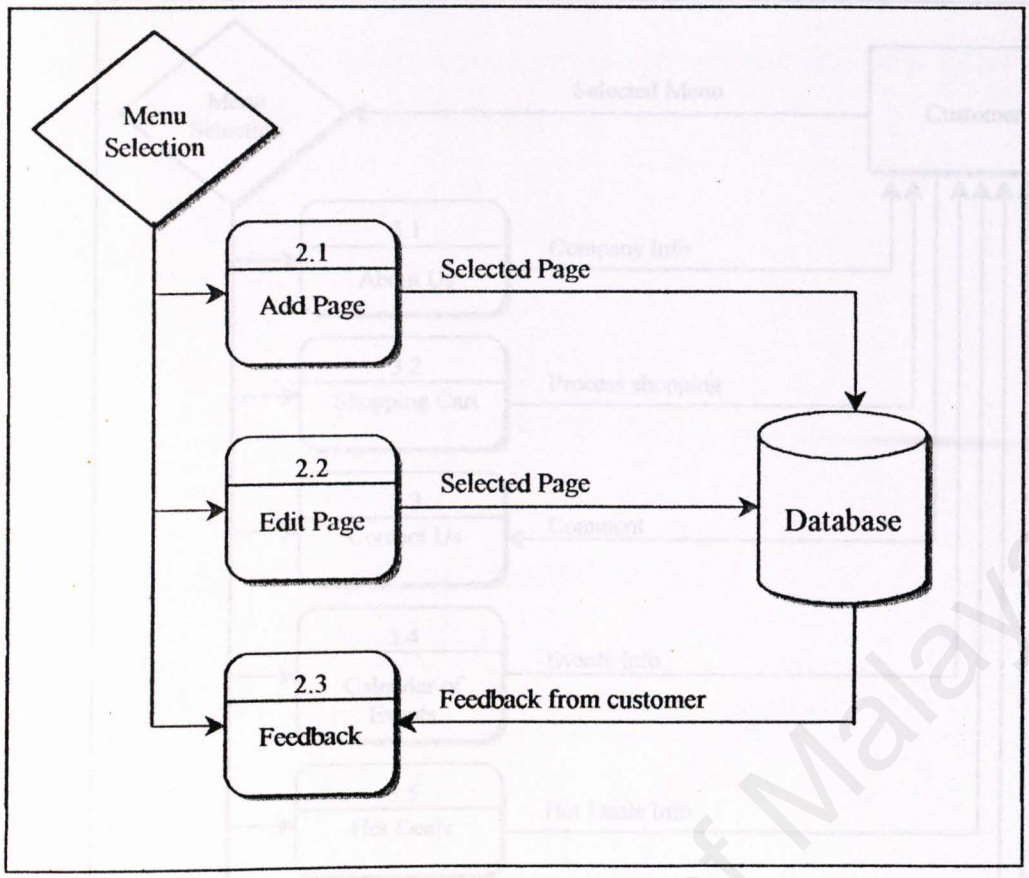

Figure3.5: DFD Level 1 – WebEcommerce Template Maintenance

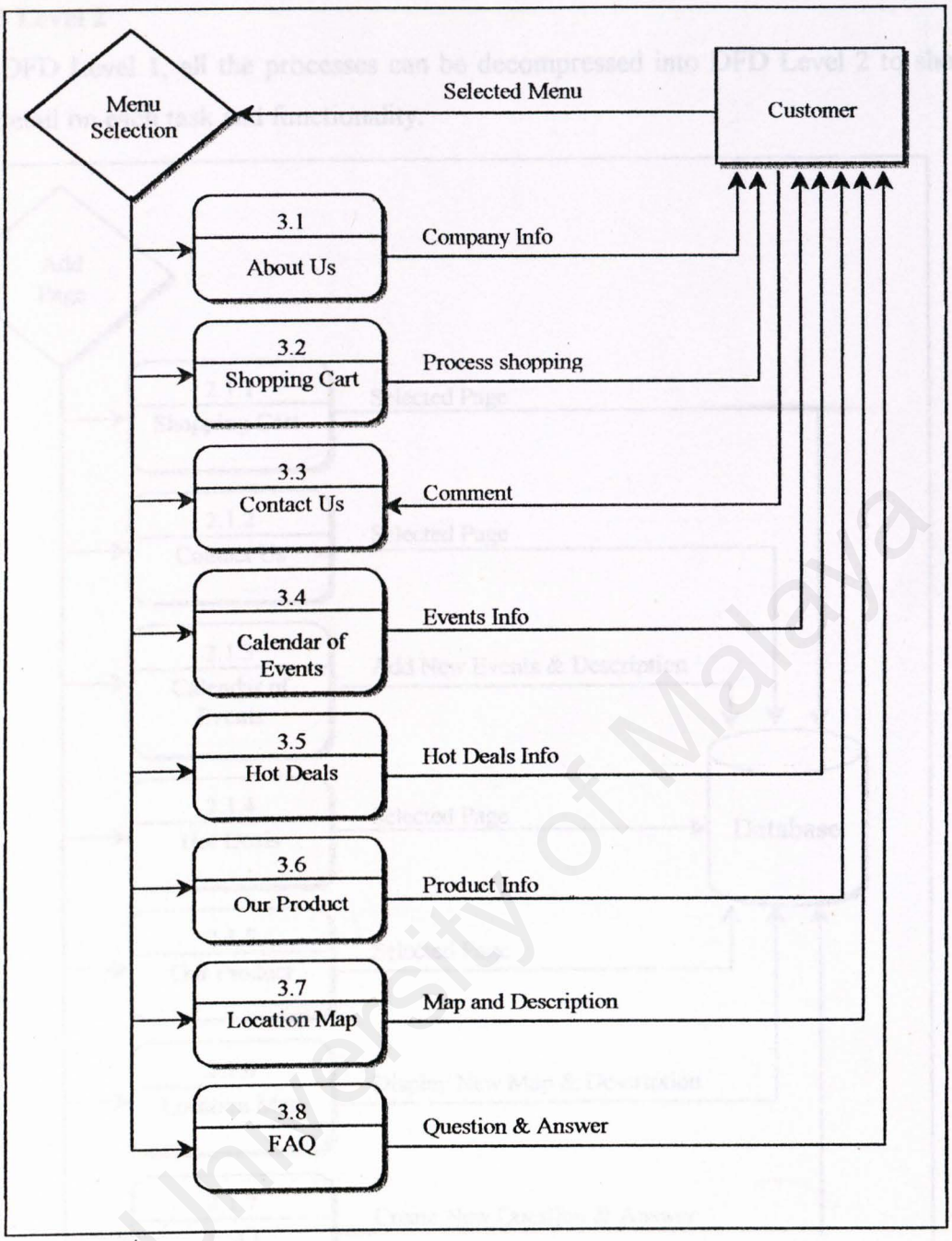

Figure3.6: DFD Level 1 – WebEcommerce Web Site

3.4.2.3 Level 2

From DFD Level 1, all the processes can be decompressed into DFD Level 2 to show more detail on each task and functionality.

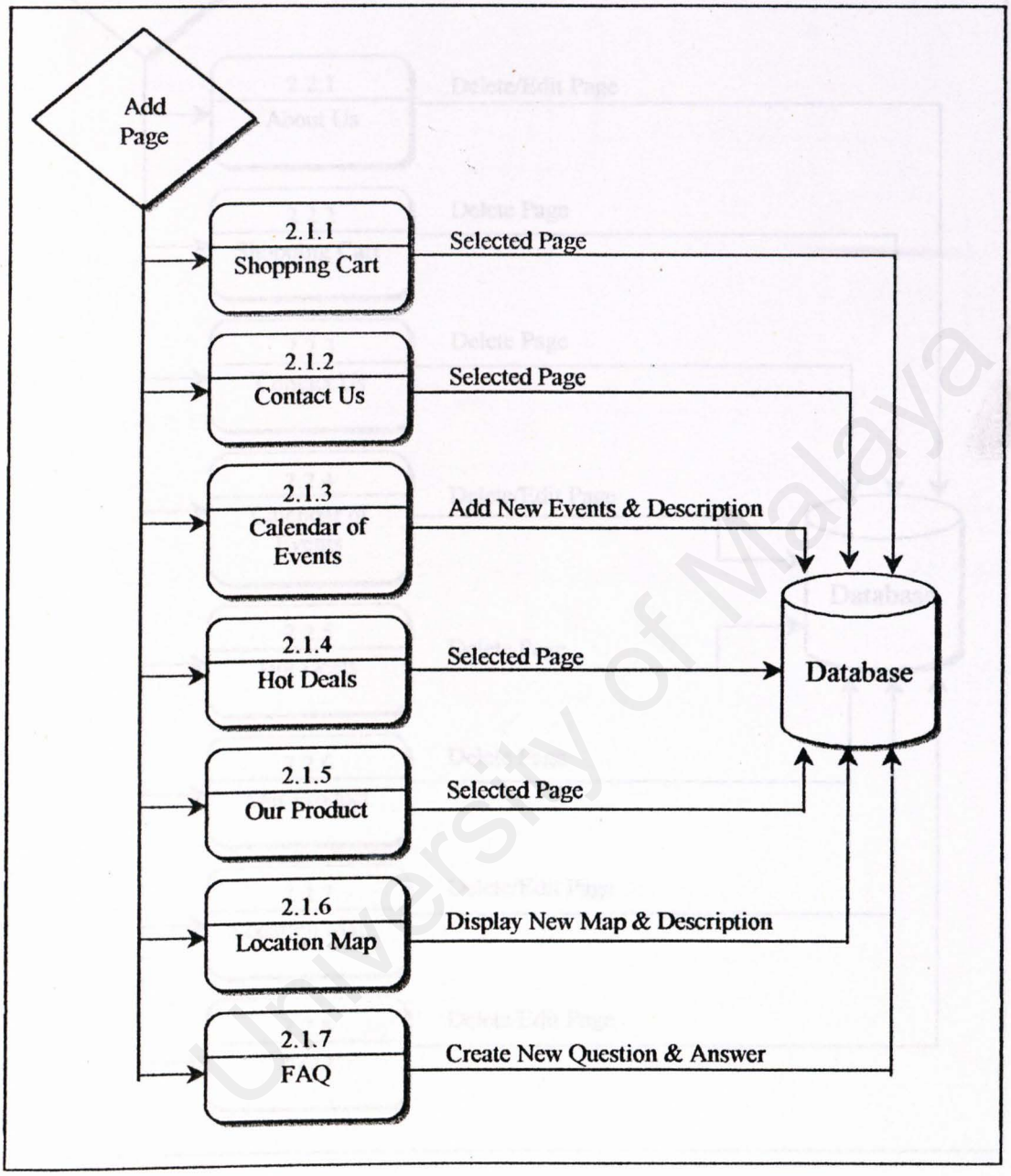

Figure3.7: DFD Level 2 – WebEcommerce Template Maintenance (Add Page)

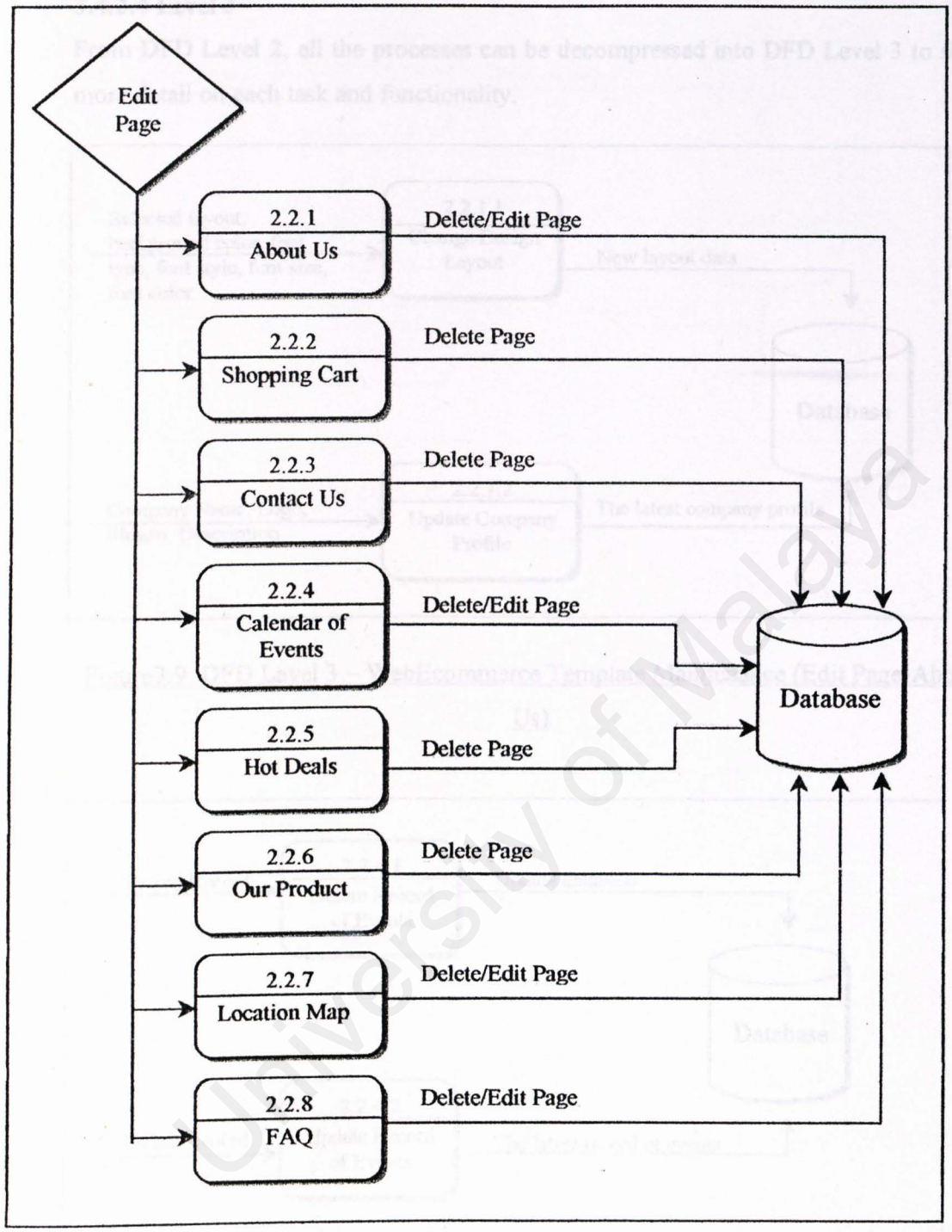

Figure3.8: DFD Level 2 – WebEcommerce Template Maintenance (Edit Page)

3.4.2.4 Level 3

From DFD Level 2, all the processes can be decompressed into DFD Level 3 to show more detail on each task and functionality.

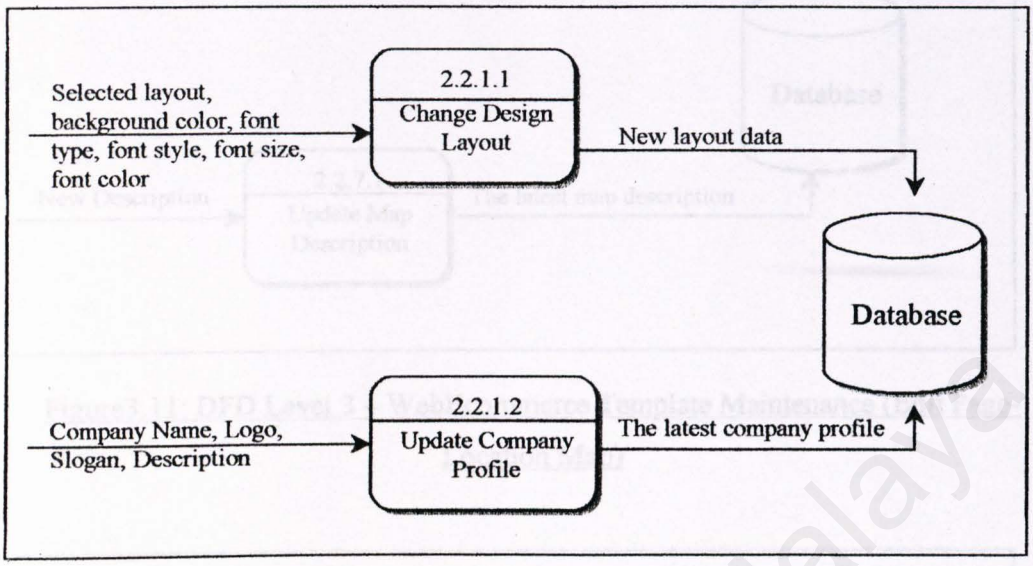

Figure3.9: DFD Level 3 – WebEcommerce Template Maintenance (Edit Page-About Us)

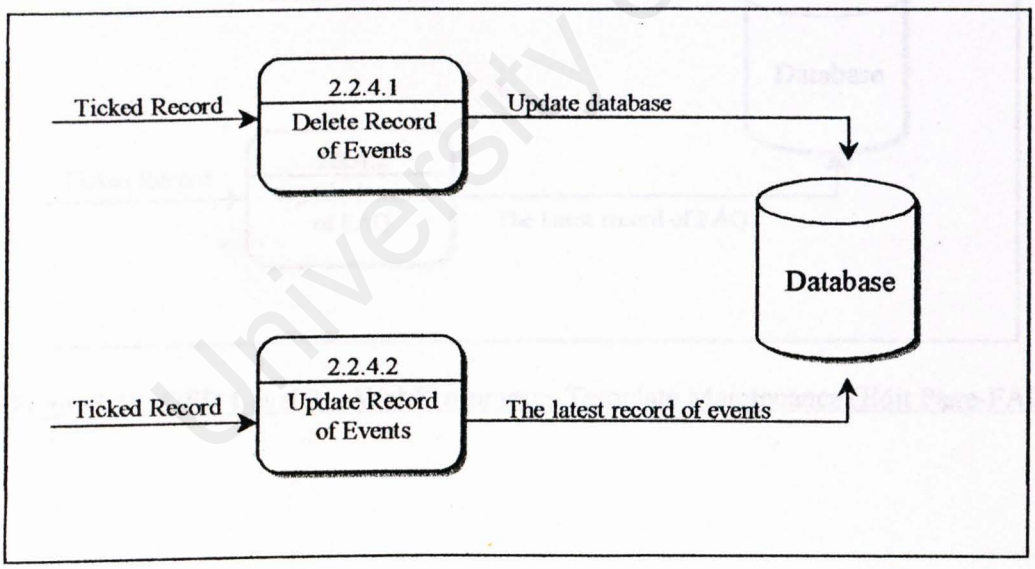

Figure3.10: DFD Level 3 – WebEcommerce Template Maintenance (Edit Page-Calendar of Events)

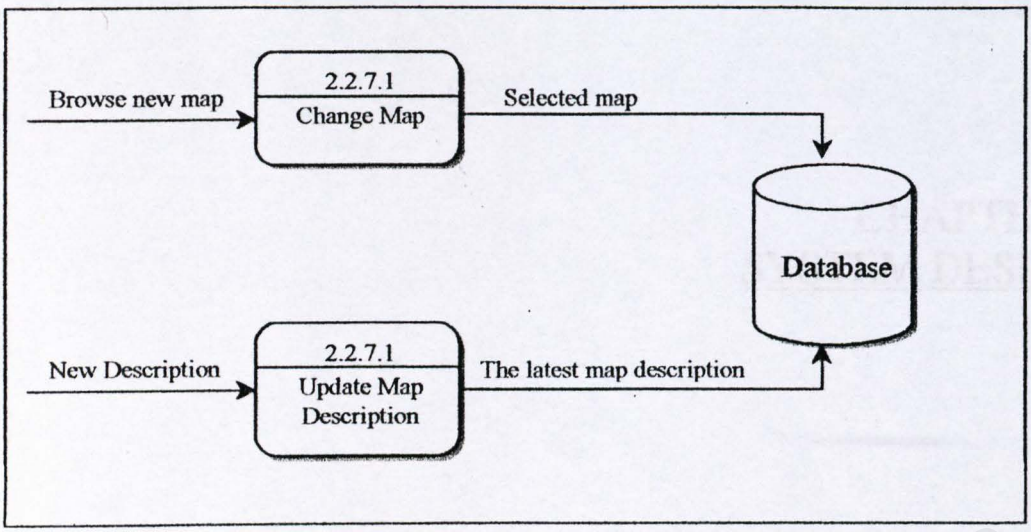

Figure3.11: DFD Level 3 – WebEcommerce Template Maintenance (Edit Page-Location Map)

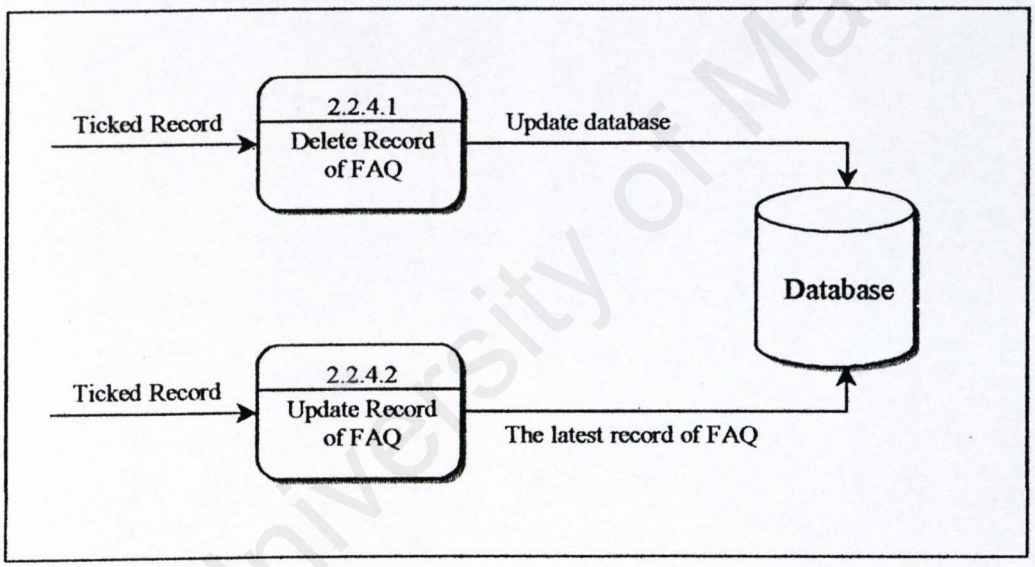

Figure3.12: DFD Level 3 – WebEcommerce Template Maintenance (Edit Page-FAQ)

CHAPTER 4
SYSTEM DESIGN

CHAPTER 4: SYSTEM DESIGN

4.0 INTRODUCTION

Design is a creative problems-solving process. The goal of this chapter is to develop a model of WebEcommerce based on the set of requirements defined in the previous chapter. A good design should have the following characteristic:

- Ease of understanding and use
- Ease of implementation
- Effectiveness
- Accuracy
- Attractiveness
- Consistency
- Simplicity

Generally, this chapter divided into 4 main sections as below and will be discuss one by one:

- Logical Design
- Input Design
- User Interface Design

4.1 LOGICAL DESIGN

The first process in the system design is to define the logical design of the project being developed. The logical design of WebEcommerce has been shown in Figure4.1.

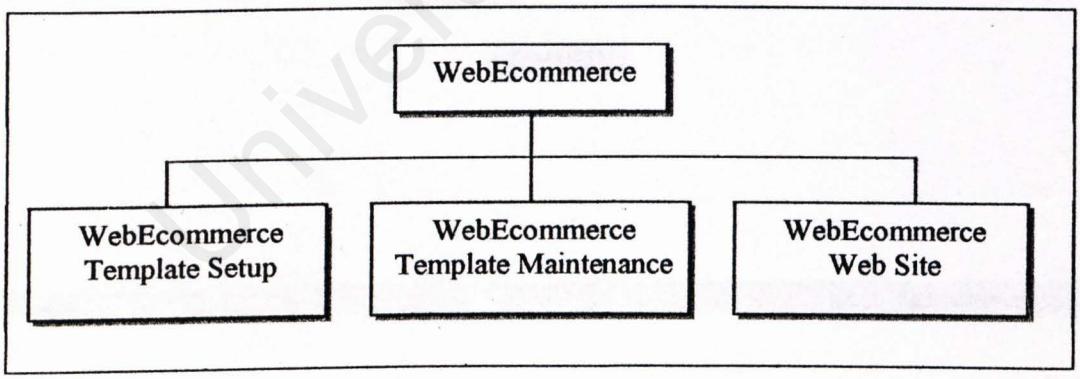

Figure4.1: Logical design of WebEcommerce

4.2 INPUT DESIGN

The method chosen to present screen input to user is template input. The template input is like form displayed on the screen. The user is required to fill data into particular fields, according to the cursor position.

4.3 USER INTERFACE DESIGN

The user interface design is based on the GUI approach. Some of the Human Computer Interface (HCI) general principles of designing an interactive system have been considered and applied. These HCI general principles among others are consistency, recoverability, confirmation and verification message, responsive and reverse action.

4.3.1 Main Page of WebEcommerce

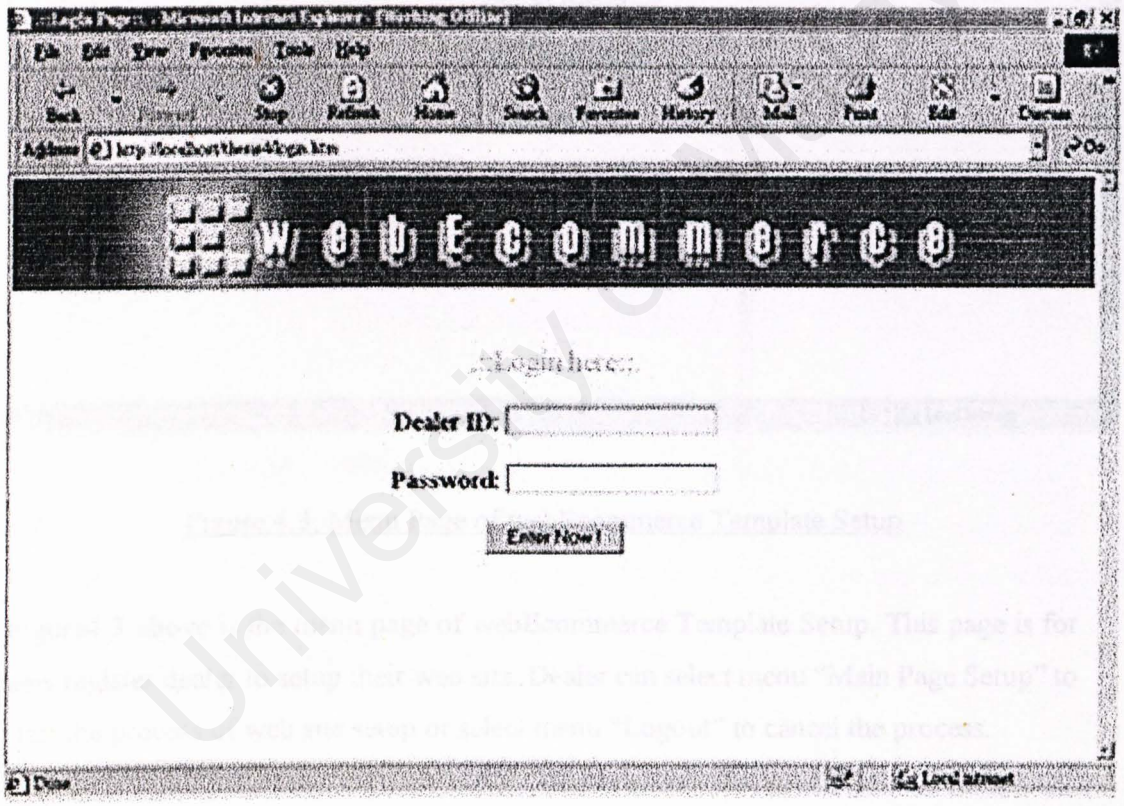

Figure 4.2: Main Page of WebEcommerce

Figure4.2 above is the main page of webEcommerce. It is also a dealer logon page that lets the dealers to logon their ID and password, which is case sensitive. When dealer

presses the "Enter Now!" button, information entered by dealer will be verified. When the entry is found valid, then dealer may successfully navigate to next page; else an error page will prompt out to ask dealer to re-enter their ID and password again.

4.3.2 Menu Page of webEcommerce Template Setup

Figure 4.3: Menu Page of webEcommerce Template Setup

Figure4.3 above is the menu page of webEcommerce Template Setup. This page is for new register dealer to setup their web site. Dealer can select menu "Main Page Setup" to start the process of web site setup or select menu "Logout" to cancel the process.

4.3.3 Choosing A Layout

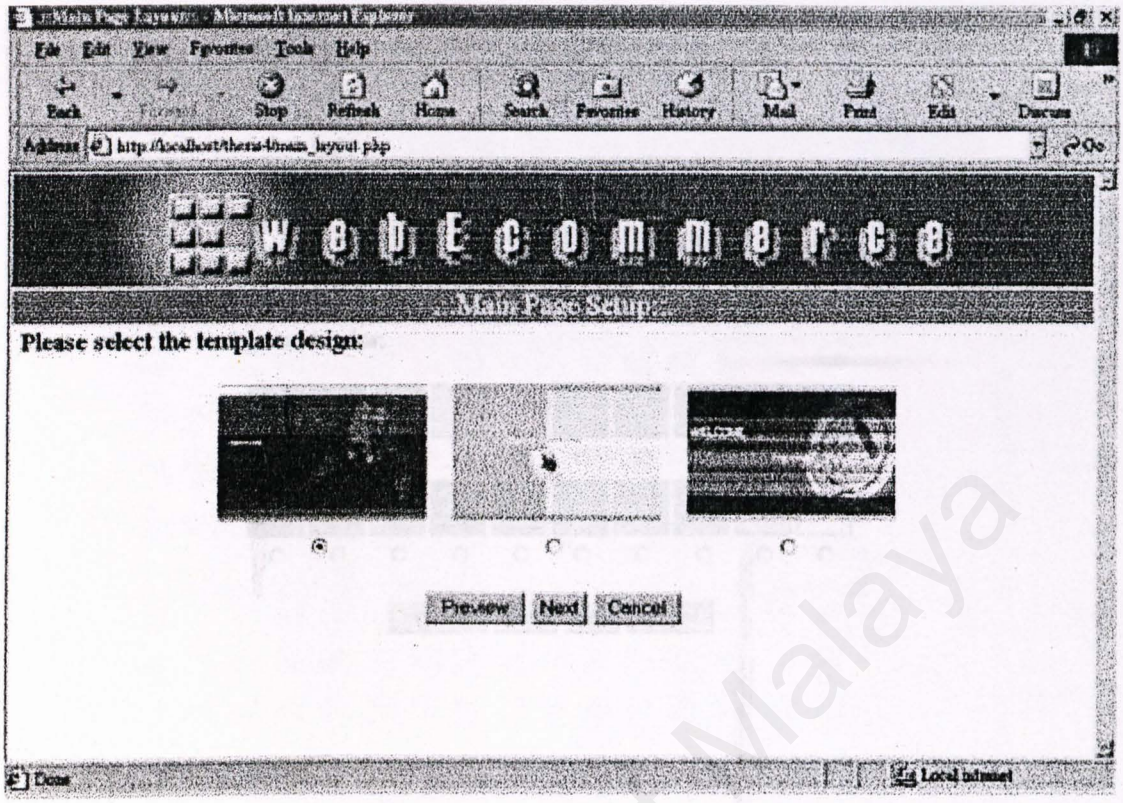

Figure 4.4: Choosing A Layout

Figure 4.4 above customizes dealers to choose one of the layouts out of 3 that have been display there. Dealers allow to preview each layout by just clicking on "Preview" button. After confirm which layout are suit to their web site, dealer can go to next step by clicking on "Next" button. Dealer can cancel the process by just click on the "Cancel" button.

4.3.4 Choosing Background Color

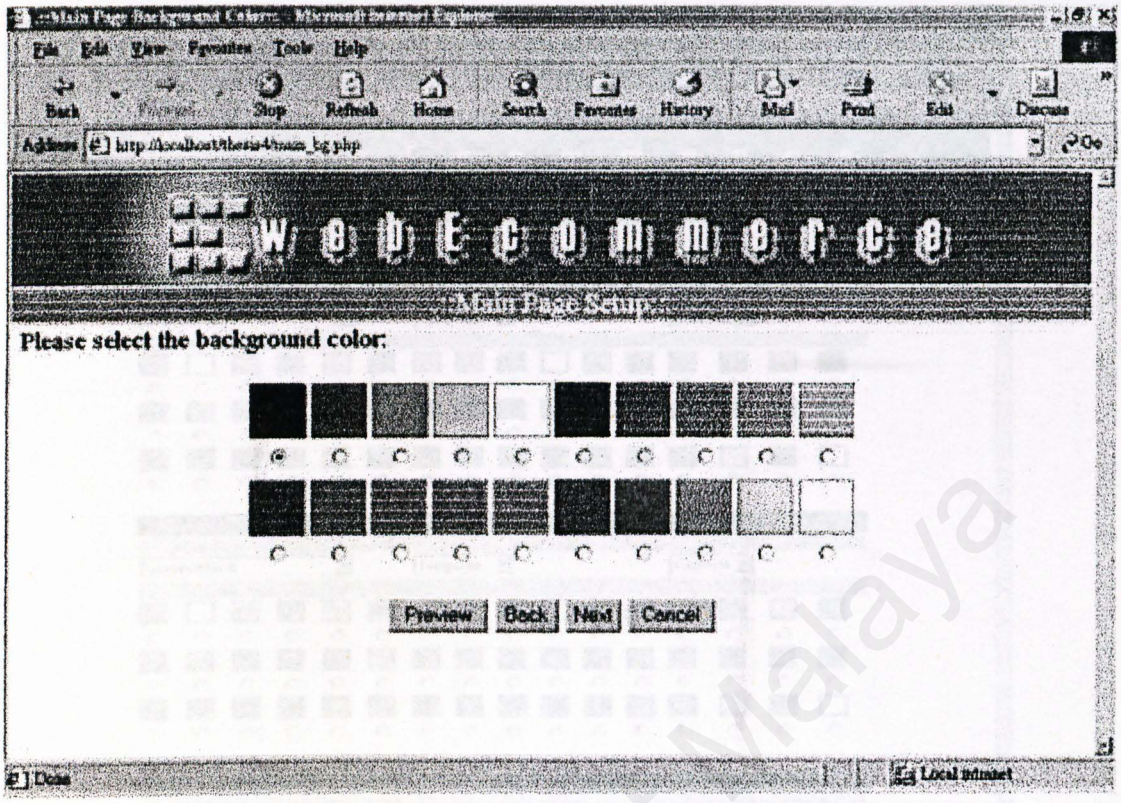

Figure 4.5: Choosing Background Color

Figure 4.5 above customizes dealers to choose one of the background colors out of 20 that have been display there. Dealer can change the background color of the web page by just mouse over the flash movie clip. Dealers allow to preview the changes of the web page after ticked on the background color by just clicking on "Preview" button. After confirm which background color is suit to their web site, dealer can go to next step by clicking on "Next" button. At the same time, dealer is able to back to the previous page by click on "Back" button. Dealer can cancel the process by just click on the "Cancel" button.

4.3.5 Text Editor

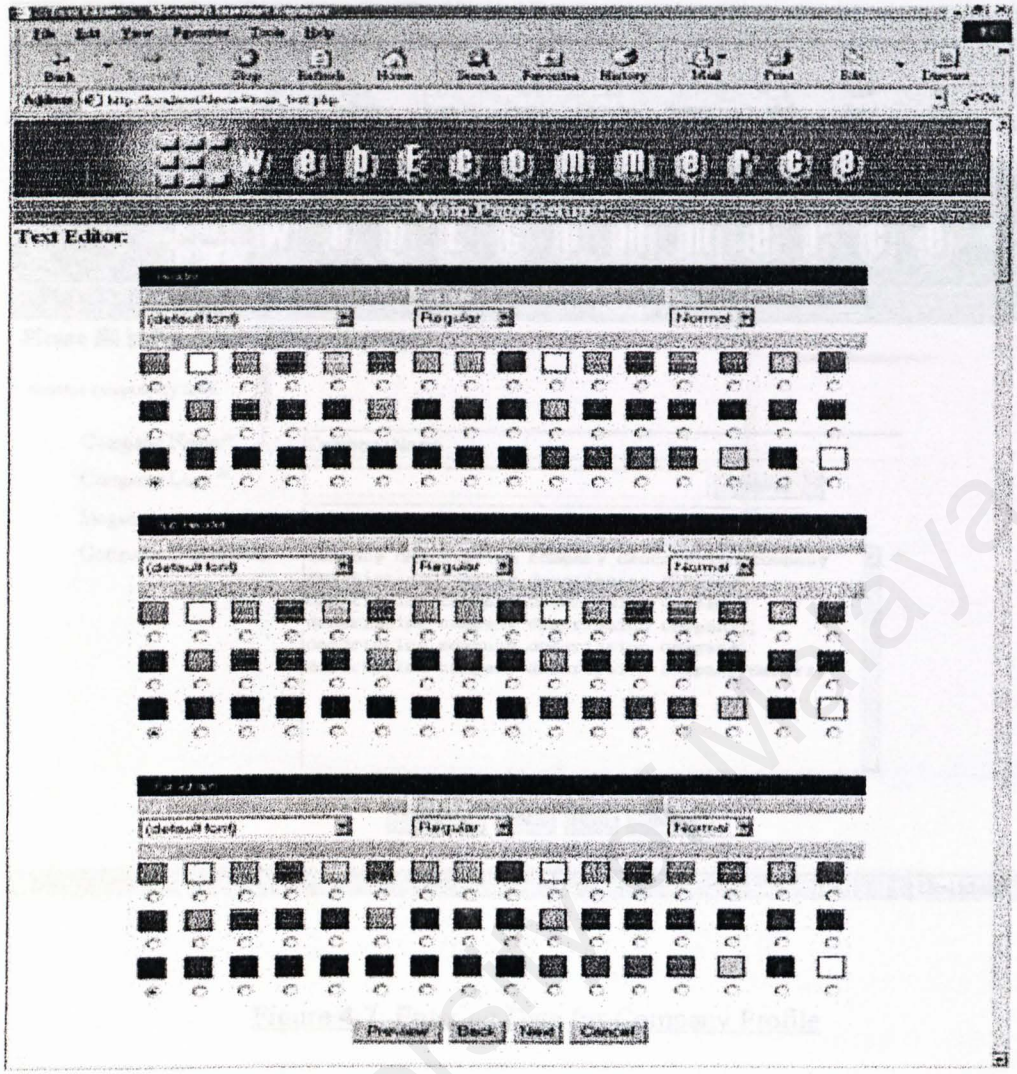

Figure 4.6: Text Editor

Figure 4.6 is use for dealer to edit a block of text. There are 3 main text boxes to be edited, which are the header, sub header and paragraph of text. Besides, dealers may need to enhance their text with different font's attributes that is font, font style, size and font color. After that, dealer can go to next step by clicking "Next" button. Dealers allow to preview the changes of the text by just clicking on "Preview" button. At the same time, dealer is able to back to the previous page by click on "Back" button. Dealer can cancel the process by just click on the "Cancel" button.

4.3.6 Entering Data for Company Profile

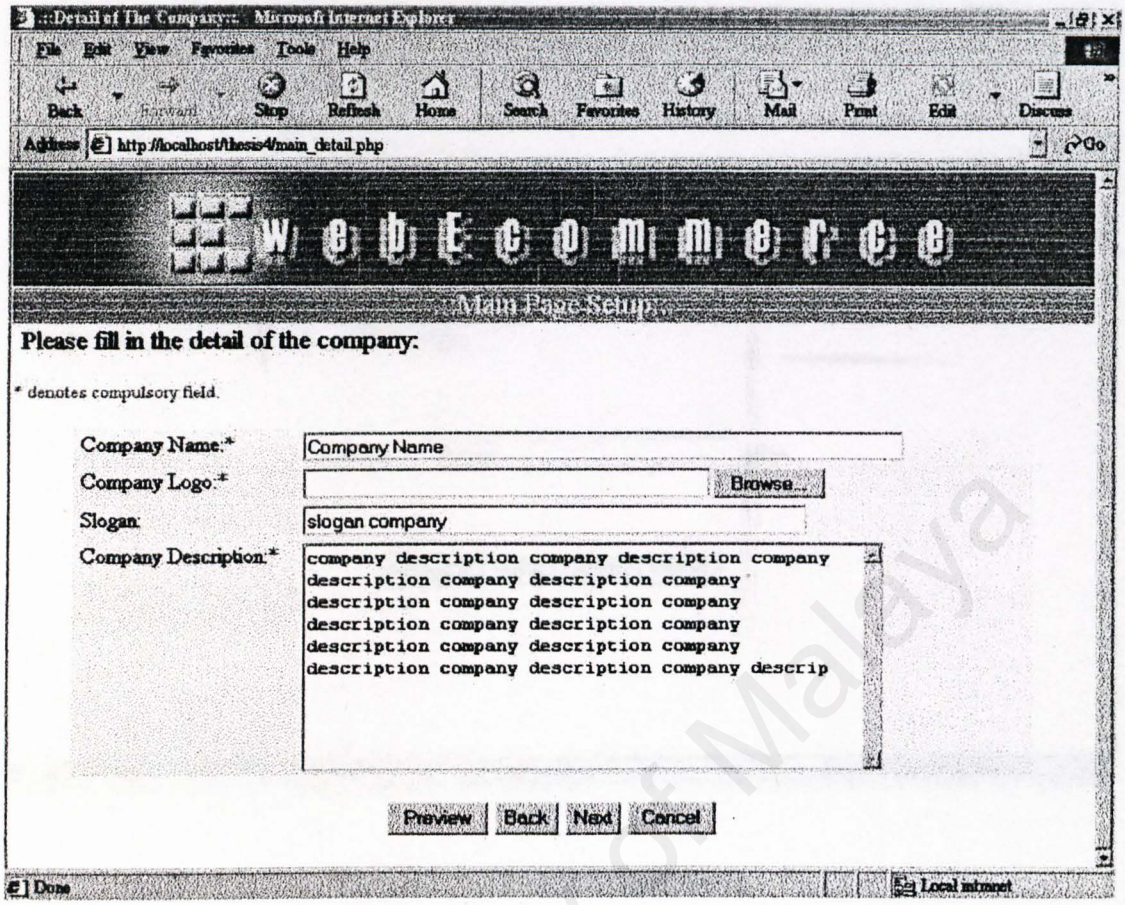

Figure 4.7: Entering Data for Company Profile

Figure 4.7 is purposely for entering data for *About Us* page. Data required is like company name, company logo, slogan and company description. After input all the required data, dealers can go to next time by clicking "Next" button. Dealers allow to preview the changes of the text by just clicking on "Preview" button. At the same time, dealer is able to back to the previous page by click on "Back" button. Dealer can cancel the process by just click on the "Cancel" button.

4.3.7 Choosing A Filename

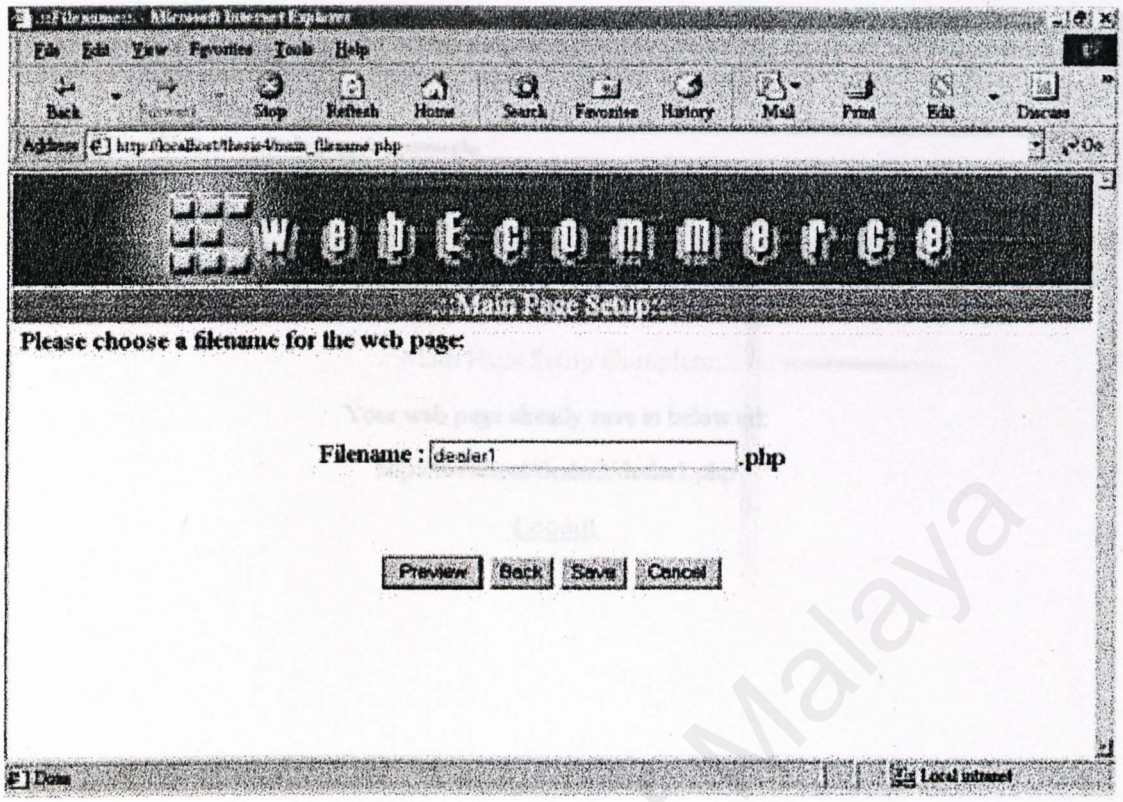

Figure 4.8: Choosing A Filename

Figure 4.8 let the dealer to choose a .php file and then click on "Save" button to save the web page that have been created. Dealers allow to preview the changes of the text by just clicking on "Preview" button. At the same time, dealer is able to back to the previous page by click on "Back" button. Dealer can cancel the process by just click on the "Cancel" button.

4.3.8 webEcommerce Template Setup Complete

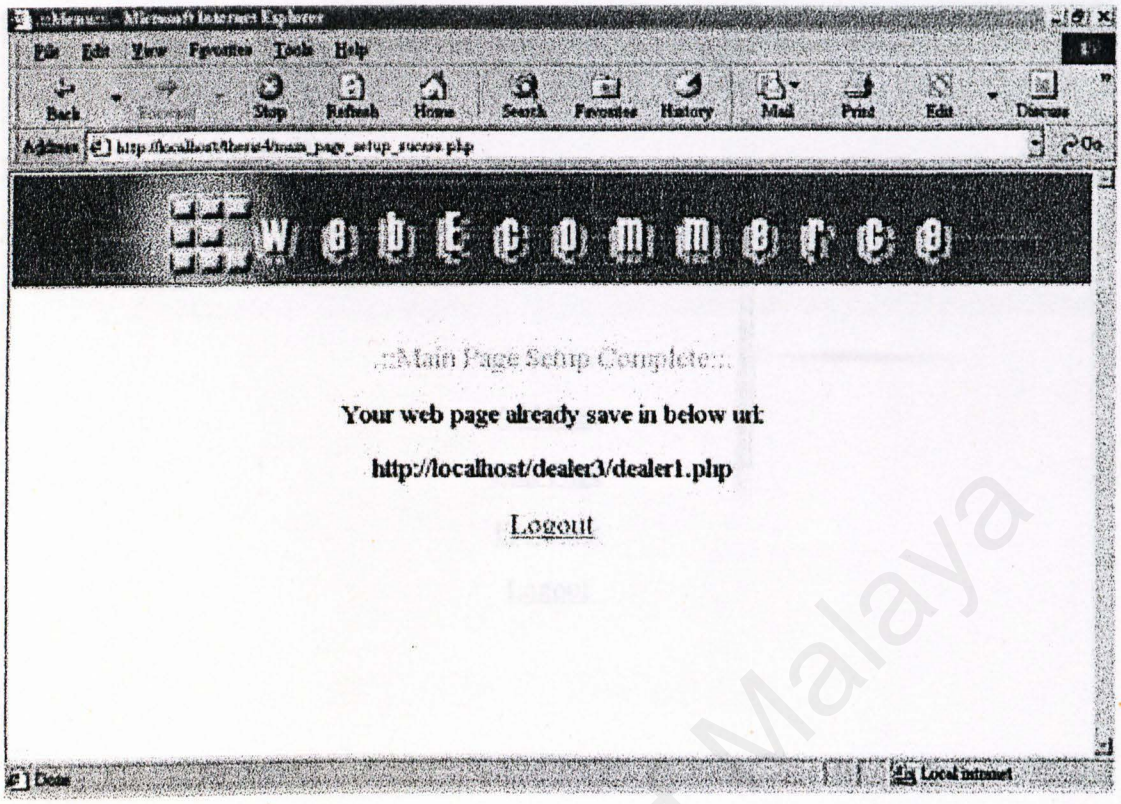

Figure 4.9: webEcommerce Template Setup Complete

Figure 4.9 is a page that purposely thank to dealer for using this WebEcommerce Template Setup and confirm that web site already setup and save in the specific URL. By clicking on "Logout" will back to the main page of webEcommerce.

4.3.9 Menu Page of webEcommerce Template Maintenance

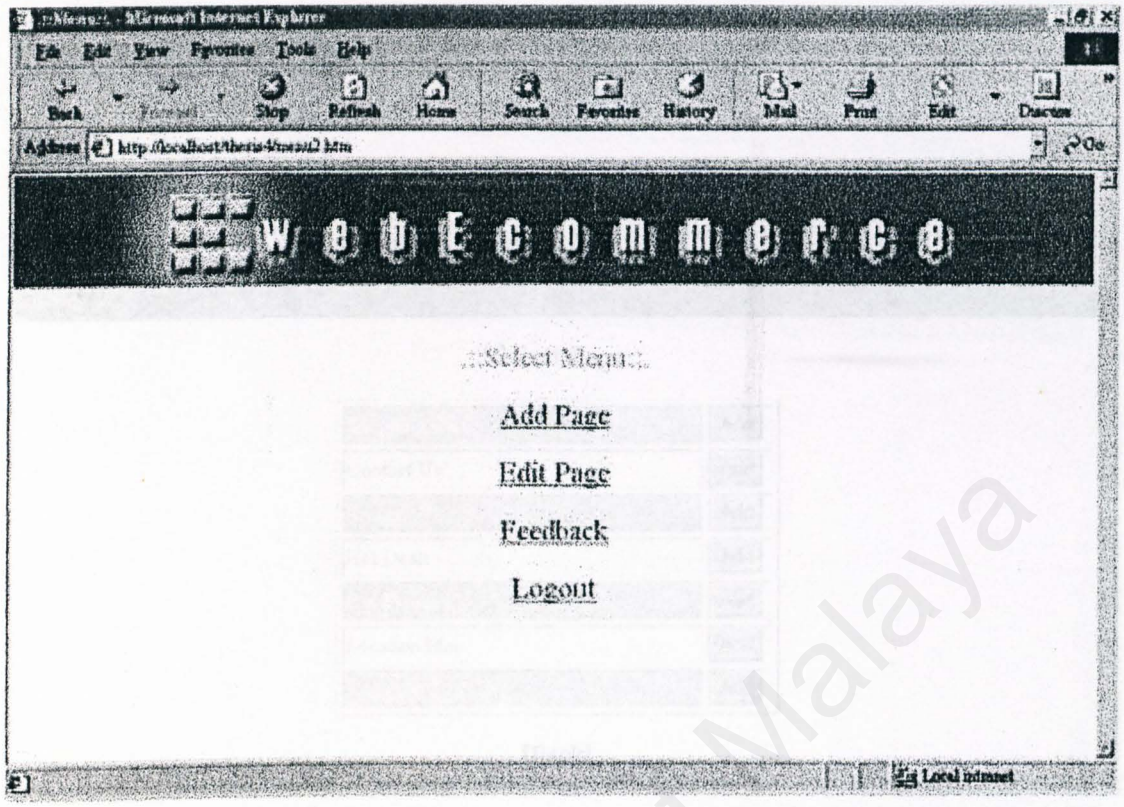

Figure 4.10: Menu Page of webEcommerce Template Maintenance

Figure4.10 above is the menu page of webEcommerce Template Maintenance. This page is for registered dealer to update and maintain their web site. Dealer can select menu "Add Page", "Edit Page" to start the process of web site maintenance or select menu "Logout" to cancel the process. Besides, the "Feedback" menu is for dealer to look for the feedback send by the user that has been visit the web site.

4.3.10 Menu Page of Add Page Selection

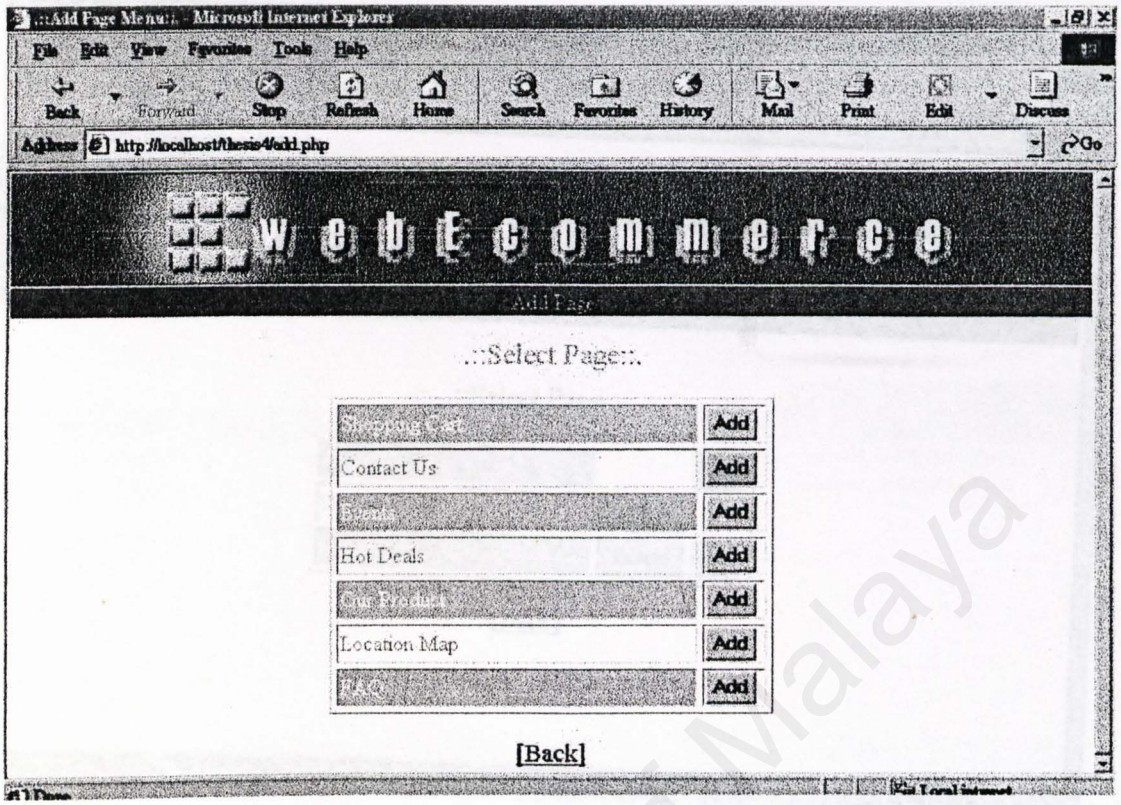

Figure 4.11: Menu Page of Add Page Selection

Figure4.11 above is the Add Page of webEcommerce Template Maintenance. This page is for registered dealer to add web page to their web site by clicking on "Add" button. Dealer can click on [Back] to back to the main menu.

4.3.11 Menu Page of Edit Page Selection

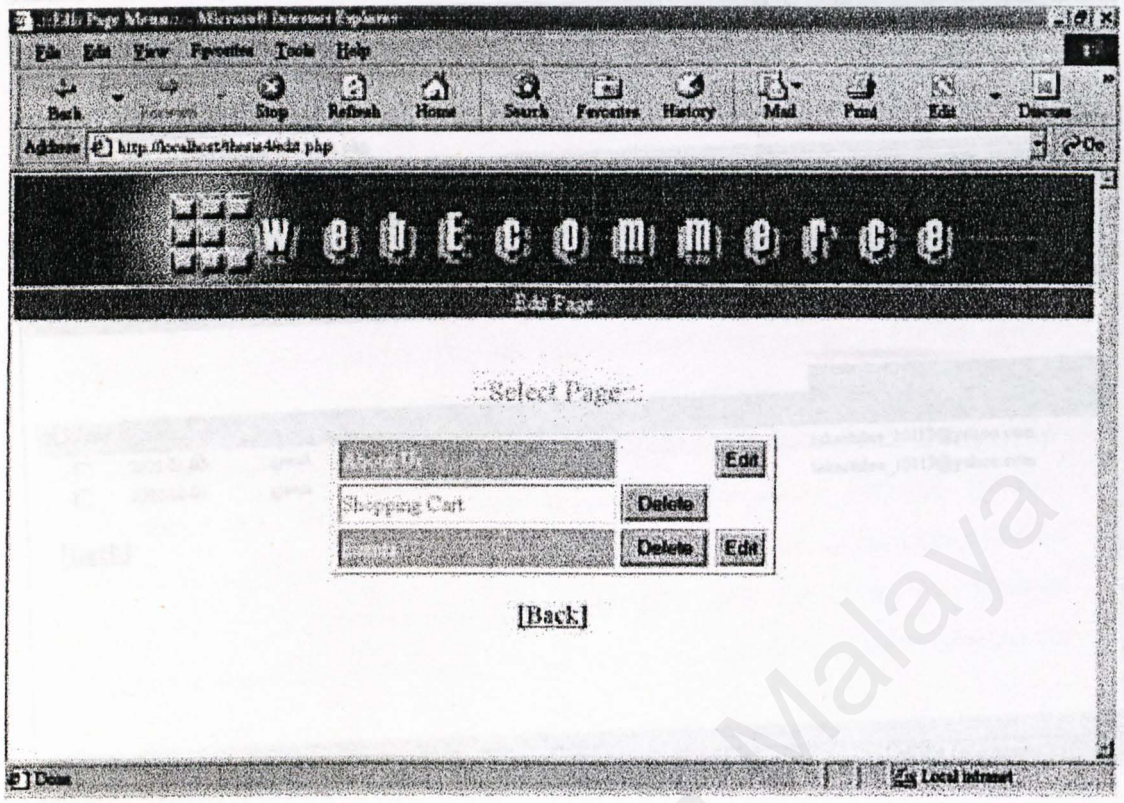

Figure 4.12: Menu Page of Edit Page Selection

Figure4.12 above is the Edit Page of webEcommerce Template Maintenance. This page is for registered dealer to edit and delete web page from their web site by clicking on "Edit" or "Delete" button. Dealer can click on [Back] to back to the main menu.

4.3.12 Menu Page of Feedback Selection

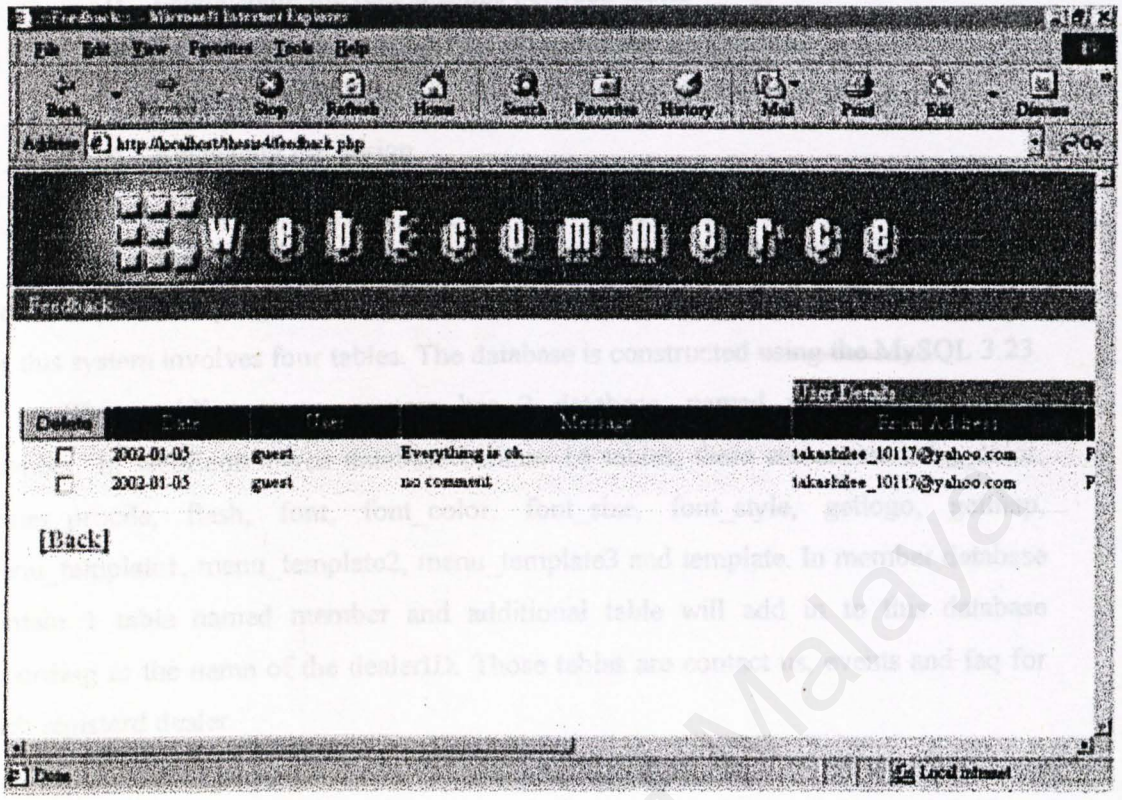

Figure 4.13: Menu Page of Feedback Selection

Figure4.13 above is the Feedback Page of webEcommerce Template Maintenance. This page is let dealer look for the feedback from user that has been visited their web site. Dealer can delete the record by click on "Delete" button or just leave it and click on [Back] to back to the main menu.

4.4 DATABASE DESIGN

In the broadest definition, a database is a collection of information, usually organized in a particular order. A relational database management system (RDBMS) is used to store information in a manner that allows people to look at it in different ways. An RDBMS consists of a database, tables, records, fields, indexes, queries, and views.

Creating a good database design involves seven key activities:

- Modeling the application
- Determining the data required for the application

- Organizing the data into tables
- Establishing the relationships between tables
- Setting index and validation requirements for the data
- Creating and storing any necessary queries for the application
- Reviewing the design

This is the third tier & or back-end, and will be on a large server. It will include the database and a program to manage and write access to it. Database implementation for this system involves four tables. The database is constructed using the MySQL 3.23.

This webEcommerce system has 2 database, named webEcommerce and member. In webEcommerce database contain 14 tables, there are account, bg_color, dealer_procile, flash, font, font_color, font_size, font_style, getlogo, getmap, menu_template1, menu_template2, menu_template3 and template. In member database contain 1 table named member and additional table will add in to this database according to the name of the dealerID. Those tables are contact us, events and faq for each registerd dealer.

4.4.1 Data Dictionary for Table account

Field	Type	Null	Extra
account_id	int(4)	No	auto_increment
dealer_id	varchar(20)	Yes	
template_id	int(1)	Yes	
flash_id	int(1)	Yes	
bg_color	varchar(7)	Yes	
header_font	varchar(30)	Yes	
header_font_style	int(1)	Yes	
header_font_color	varchar(7)	Yes	
header_font_size	int(1)	Yes	
subheader_font	varchar(30)	Yes	
subheader_font_style	int(1)	Yes	
subheader_font_color	varchar(7)	Yes	
subheader_font_size	int(1)	Yes	

paragraph_font	varchar(30)	Yes	
paragraph_font_style	int(1)	Yes	
paragraph_font_color	varchar(7)	Yes	
paragraph_font_size	int(1)	Yes	
company_name	varchar(255)	Yes	
company_logo	int(3)	Yes	
company_desc	varchar(255)	Yes	
slogan	varchar(255)	Yes	
filename	varchar(30)	Yes	
menu1	int(1)	Yes	
menu2	int(1)	Yes	
menu3	int(1)	Yes	
menu4	int(1)	Yes	
menu5	int(1)	Yes	
menu6	int(1)	Yes	
menu7	int(1)	Yes	
menu8	int(1)	Yes	
menu9	int(1)	Yes	
page_about_us	int(1)	Yes	
page_shopping_cart	int(1)	Yes	
page_contact_us	int(1)	Yes	
page_events	int(1)	Yes	
page_hot_deals	int(1)	Yes	
page_our_product	int(1)	Yes	
page_location_map	int(1)	Yes	
page_faq	int(1)	Yes	
request_uri	varchar(255)	Yes	
map_id	int(3)	Yes	
map_explain	varchar(255)	Yes	

Keyname	Unique	Field
PRIMARY	Yes	account_id
id	Yes	account_id

4.4.2 Data Dictionary for Table bg_color

Field	Type	Null	Extra
bg_color_id	int(2)	No	auto_increment
bg_color_name	varchar(5)	Yes	
bg_color_value	varchar(7)	Yes	

Keyname	Unique	Field
PRIMARY	Yes	bg_color_id
id	Yes	bg_color_id

4.4.3 Data Dictionary for Table dealer_profile

Field	Type	Null
dealer_id	varchar(20)	No
password	varchar(20)	No

Keyname	Unique	Field
PRIMARY	Yes	dealer_id
id	Yes	dealer_id

4.4.4 Data Dictionary for Table flash

Field	Type	Null	Extra
flash_id	int(1)	No	auto_increment
flash_name	varchar(30)	Yes	
bin_data	longblob	Yes	
filename	varchar(50)	Yes	
filesize	varchar(50)	Yes	
filetype	varchar(50)	Yes	

Keyname	Unique	Field
PRIMARY	Yes	flash_id
id	Yes	flash_id

4.4.5 Data Dictionary for Table font

Field	Type	Null	Extra
font_id	int(2)	No	auto_increment
font_name	varchar(30)	Yes	
font_value	varchar(30)	Yes	

Keyname	Unique	Field
PRIMARY	Yes	font_id
id	Yes	font_id

4.4.6 Data Dictionary for Table font_color

Field	Type	Null	Extra
font_color_id	int(2)	No	auto_increment
font_color_name	char(3)	Yes	
font_color_value	varchar(7)	Yes	

Keyname	Unique	Field
PRIMARY	Yes	font_color_id
id	Yes	font_color_id

4.4.7 Data Dictionary for Table font_size

Field	Type	Null	Extra
font_size_id	int(1)	No	auto_increment
font_size_name	varchar(15)	Yes	
font_size_value	int(1)	Yes	

Keyname	Unique	Field
PRIMARY	Yes	font_size_id
id	Yes	font_size_id

4.4.8 Data Dictionary for Table font_style

Field	Type	Null	Extra
font_style_id	int(1)	No	auto_increment
font_style_name	varchar(15)	Yes	

Keyname	Unique	Field
PRIMARY	Yes	font_style_id
id	Yes	font_style_id

4.4.9 Data Dictionary for Table getlogo

Field	Type	Null	Extra
logo_id	int(3)	No	auto_increment
bin_data	longblob	Yes	
filename	varchar(50)	Yes	
filesize	varchar(50)	Yes	

filetype	varchar(50)	Yes	

Keyname	Unique	Field
PRIMARY	Yes	logo_id
id	Yes	logo_id

4.4.10 Data Dictionary for Table getmap

Field	Type	Null	Extra
map_id	int(3)	No	auto_increment
map_explain	varchar(255)	Yes	
bin_data	longblob	Yes	
filename	varchar(50)	Yes	
filesize	varchar(50)	Yes	
filetype	varchar(50)	Yes	

Keyname	Unique	Field
PRIMARY	Yes	map_id
id	Yes	map_id

4.4.11 Data Dictionary for Table menu_template1

Field	Type	Null	Extra
menu_id	int(1)	No	auto_increment
menu_name	varchar(30)	Yes	
bin_data	longblob	Yes	
filename	varchar(50)	Yes	
filesize	varchar(50)	Yes	
filetype	varchar(50)	Yes	

Keyname	Unique	Field
PRIMARY	Yes	menu_id
id	Yes	menu_id

4.4.12 Data Dictionary for Table menu_template2

Field	Type	Null	Extra
menu_id	int(1)	No	auto_increment
menu_name	varchar(30)	Yes	
bin_data	longblob	Yes	
filename	varchar(50)	Yes	
filesize	varchar(50)	Yes	
filetype	varchar(50)	Yes	

Keyname	Unique	Field
PRIMARY	Yes	menu_id
id	Yes	menu_id

4.4.13 Data Dictionary for Table menu_template3

Field	Type	Null	Extra
menu_id	int(1)	No	auto_increment
menu_name	varchar(30)	Yes	
bin_data	longblob	Yes	
filename	varchar(50)	Yes	
filesize	varchar(50)	Yes	
filetype	varchar(50)	Yes	

Keyname	Unique	Field
PRIMARY	Yes	menu_id
id	Yes	menu_id

4.4.14 Data Dictionary for Table template

Field	Type	Null	Extra
template_id	int(1)	No	auto_increment
flash_id	int(1)	Yes	
bg_color	varchar(7)	Yes	
header_font	varchar(30)	Yes	
header_font_style	int(1)	Yes	
header_font_color	varchar(7)	Yes	
header_font_size	int(1)	Yes	
subheader_font	varchar(30)	Yes	
subheader_font_style	int(1)	Yes	
subheader_font_color	varchar(7)	Yes	
subheader_font_size	int(1)	Yes	
paragraph_font	varchar(30)	Yes	
paragraph_font_style	int(1)	Yes	
paragraph_font_color	varchar(7)	Yes	
paragraph_font_size	int(1)	Yes	
company_name	varchar(120)	Yes	
company_logo	int(3)	Yes	
slogan	varchar(255)	Yes	
company_desc	varchar(255)	Yes	
filename	varchar(20)	Yes	
menu1	int(1)	Yes	
menu2	int(1)	Yes	
menu3	int(1)	Yes	
menu4	int(1)	Yes	
menu5	int(1)	Yes	
menu6	int(1)	Yes	
menu7	int(1)	Yes	
menu8	int(1)	Yes	

menu9	int(1)	Yes	
map_id	int(3)	Yes	
map_explain	varchar(255)	Yes	

Keyname	Unique	Field
PRIMARY	Yes	template_id
id	Yes	template_id

4.4.15 Data Dictionary for Table member

Field	Type	Null	Extra
member_id	int(3)	No	auto_increment
name	varchar(20)	No	
password	varchar(20)	No	

Keyname	Unique	Field
PRIMARY	Yes	member_id
member_id	Yes	member_id

CHAPTER 5
SYSTEM IMPLEMENTATION

CHAPTER 5: SYSTEM IMPLEMENTATION

5.0 INTRODUCTION

System implementation is a process that converts the system requirements and design into program codes. This phase at time involves some modifications to the previous design. Techniques and approached used to build the system will be describe in more details manner. Basically, the implementation will try to match the design as much as possible. If time allowed, then there will be some enhancement in certain area that necessary.

5.1 DEVELOPMENT ENVIRONMENT

One of the crucial for the rapid development of webEcommerce is development environment of the system. It is consists of hardware and software configurations that is very important factor to determine the successful of the system.

5.1.1 Hardware Configurations

The following hardware specifications have been used to develop this system:

- Intel Pentium (II) 450Mhz processor
- 64MB SD RAM
- 6.4 GB Hard Disk
- 14" 256-colour monitor capable of 800 x 600 resolution
- 1.44 MB Floppy Drive
- 32X CD-ROM Drive
- Speaker
- Other standard desktop PC components

5.1.2 Software Configurations

The software specifications used in the development of this project are illustrated in Table5.1.

Software	Module	Description
Microsoft Windows 98	System Requirements	Operating System
Apache	System Requirements	Web Server
MySQL 3.23	System Requirements	Web Database Management

PHP	System Development	Web Application Programming Language
EditPlus 2.10	System Development	Web Application Development Tool
Microsoft Internet Explorer	System Requirements	Web Browser
Adobe Photoshop 6.0	System Development	Graphics Editor
Adobe Image Ready	System Development	Graphics Editor
Microsoft FrontPage 2000	System Development	HTML editing
Macromedia Flash 5.0	System Development	Authoring tool
Microsoft Word	System Development	Documentation
Flash Player	System Requirements	Plug-In for Flash movie

Table5.1: Software Configurations

5.2 PROJECT DEVELOPMENT

The design must be translated into the form that can be understood by the machine. The development of the webEcommerce basically including 3 stages, which is data preparation, database connection and Coding for functions.

5.2.1 Data Preparation

webEcommerce Template Setup is mainly providing a wizard for dealer to setup their own web site with just a few steps. After that, dealer can use webEcommerce Template Maintenance to maintain and update the data of the website. The output of the system is an e-commerce website, called webEcommerce website, mainly providing e-commerce service that is online shopping, e-payment, and information likes company profile, hotdeals, promotion, calendar of events and so on. Thus, the web page design could be an important factor that determine the successful of the project. Data such as text and graphics are prepared parallel with the web page design and unique for each template design that is provided.

5.2.1.1 Text

The information about dealer's company, FAQ, location map, calendar of events is key in by dealer and it will reflected at the webEcommerce web site.

5.2.1.2 Still Image

Still images, mainly the image of the product, are included in the various pages within the webEcommerce website, there are shopping cart, hot deals, our product. Besides that, image of company's map and company's logo are selected by dealer themselves. The images will be resize to the suitable size and display at the web site.

Every template have specific gif image as background picture. All of the images are edited using graphics editor such as Adobe Photoshop 6.0 and Adobe Image Ready. These images have optimized file size for faster web delivery.

5.2.1.3 Flash Movie

Flash movie for each template are created originally using Macromedia Flash 5.0. Flash is a great authoring tool that can make the web page more attractive and flash movie can be optimized for web delivery (in file format .swf). Action scripts in Flash also used to create the interactive movie for fetus development.

Flash movie used as the presentation before user go to the main page of the web site that is page About Us. Since most of the web user already have Flash Player installed. Flash is lauded for being one of the web most accessible plug-ins.

5.2.2 Database Connection

It is an important step to do before the coding of web pages that involve process of data input by user that involve the database. MySQL server login have to be added first before running the PHP coding or connected to database shown as Figure5.1.

```
<?php
  $DB_SERVER="localhost";          // Database Server machine
  $DB_LOGIN="DECP";                // Database login
  $DB_PASSWORD="DECP";             // Database password
  $DB="webEcommerce";              // Database containing the tables
  $HTTP_HOST="localhost";          // HTTP Host
  $DOCROOT="Thesis";               // Path, where application is installed
?>
```

Figure5.1: Coding of MySQL Server Login

Below are the example codes in PHP that used to connect to database:

```
// Open a persistent connection with the MySQl server
if (!($link = mysql_pconnect ($DB_SERVER,$DB_LOGIN, $DB_PASSWORD))) {
        //  DisplayErrMsg(sprintf("internal error %d:%s\n",
        //    mysql_errno(), mysql_error()));

        DisplayErrMsg(sprintf("internal error %s %s %s %d:%s\n",$DB_SERVER,
        $DB_LOGIN, $DB_PASSWORD,
            mysql_errno(), mysql_error()));
            return 0 ;
}
```

Figure5.2: PHP Code for Connection with The MySQL Server

5.2.3 Coding

Since this is a web-based information system, the scripts are coded using HTML, server side script and client side script that should support and enhance the web application.

5.2.3.1 HTML

HTML is mainly coded with using Microsoft FrontPage 2000, a great HTML editor that provides many functions and user-friendly interface. Data that has prepared such as text, Flash movie and graphics are inserted into the web page easily by using FrontPage. The main use of HTML form is parsing value to PHP form or most of the time HTML scripts are embedded in PHP forms.

5.2.3.2 PHP

PHP script is the main server-side language that use in this project. To create PHP scripts, EditPlus 2.10 is used as the text editor. PHP is mainly used for server-side scripting. In this project, all the server-side scripting is written for process that involves the database. Most of the PHP scripts are embedded with HTML script.

5.2.3.3 Javascript

Since client side script is interpreted by user browser and does not sent to web server for processing, the efficiency of this system is improved and enhanced with the using of

client side scripting. Client side script helps to reduce the network traffic problems since it reduce user requests that need to be sent to the server and get response from the server. Besides save the server resource, client side script also provides a better and quick response to the user. JavaScript used as a client-side script for form validation.

In this project, Javascript is write for the function of the [Back] button in every preview page and also use in some other related pages. It is also used in changing the background color of the webpage when mouse over the flash movie clip.

Below is the code that use to change the background color of the web page:

```
<script language="JavaScript">
<!--
        function changeBgColor(newBgColor) {
                if (window.document && window.document.bgColor) {
                        document.bgColor = newBgColor;
                }
        }
-->
</script>
```

Figure5.3: JavaScript for Change The Background Color of The Web Page

5.2.3.4 Coding Principles

Several principles are applied during the development of this system to ensure that the quality and the proper structure in the code generation. See Figure5.4.

I. Readability

Codes should be easy to read and understandable. It is very important when it comes to the enhancement of the system in the future. Indentation should be follow to keep the coding tidy and easy to read. In addition, the meaningful variables and labels will provide an effective and way in reading the codes.

II. Maintainability

Codes should be easy to read, corrected and revised. Codes that perform functions for a module should be grouped together. On the other hand, the codes should be tried simplify as possible with doing in separate module. It is called loose coupling. Comment should be included along the coding writing. It is quite useful for the code understanding.

III. Robustness

Errors handling should be done to increase the robustness of the system. Appropriate errors message should be displayed response to user's input. System failure should be minimized or avoid it to be happened.

```
<?php

require 'common.inc' ;


// Display error messages
function DisplayErrMsg( $message )
{
        printf("<blockquote><blockquote><blockquote><h3><font
        color=\"#cc0000\">
        %s</font></h3></blockquote></blockquote></blockquote>\n", $message);

} //close function DisplayErrMsg



function authenticateUser($dealer, $password)
{
        global $DB_SERVER, $HTTP__HOST, $DB_LOGIN, $DB_PASSWORD,
        $DB, $DOCROOT ;


// Open a persistent connection with the MySQl server
if (!($link = mysql_pconnect ($DB_SERVER,$DB_LOGIN, $DB_PASSWORD))) {
        //   DisplayErrMsg(sprintf("internal error %d:%s\n",
         //     mysql_errno(), mysql_error()));
        DisplayErrMsg(sprintf("internal error %s %s %s %d:%s\n",$DB_SERVER,
        $DB_LOGIN, $DB_PASSWORD,
           mysql_errno(), mysql_error()));
          return 0 ;
}

// Do the user/password authentication
if (!($result = mysql_db_query("$DB", "select * from dealer_profile where
            dealer_id='$dealer'"))) {
        DisplayErrMsg(sprintf("internal error %d:%s\n",
        mysql_errno(), mysql_error()));
        return 0 ;
}

if (($row = mysql_fetch_array($result)) && ($dealer == $row["dealer_id"]) &&
($password == $row["password"]
            && $password != ""))
  return 1 ;
else
  return 0 ;

} //close function authenticateUser
```

```
function authenticateAccount($dealer)
{
global $DB_SERVER, $HTTP__HOST, $DB_LOGIN, $DB_PASSWORD, $DB,
$DOCROOT;

if (!($link = mysql_pconnect ($DB_SERVER,$DB_LOGIN, $DB_PASSWORD))) {
  DisplayErrMsg(sprintf("internal error %s %s %s %d:%s\n",$DB_SERVER,
  $DB_LOGIN, $DB_PASSWORD,
        mysql_errno(), mysql_error()));
        return 0 ;
}

if (!($result = mysql_db_query("$DB", "select * from account where
          dealer_id='$dealer'"))) {
  DisplayErrMsg(sprintf("internal error %d:%s\n",
        mysql_errno(), mysql_error()));
        return 0 ;
}


if ($row = mysql_fetch_array($result)) {
        setcookie("cookie_account", $row["account_id"]); //existing account
        return 0;
}
else {
        if (!($result1 = mysql_db_query("$DB", "select * from account"))) {
          DisplayErrMsg(sprintf("internal error %d:%s\n",
                mysql_errno(), mysql_error()));
          return 0;
        }
        else {
                $count = 1;
                while($row1 = mysql_fetch_array($result1))
                        $count++;

                setcookie("cookie_account", $count);          //new account

                return 1;
        }
}
} //close function authenticateAccount


?>
```

Figure5.4: Coding Principles in PHP Coding

CHAPTER 6
SYSTEM TESTING

CHAPTER 6: SYSTEM TESTING

6.0 INTRODUCTION

System testing includes the testing process and approach used to test the system. This is a critical phase has been done to make sure the system is fulfills the user requirements. In this phase, a systematically test procedure is need to make sure the system is tested thoroughly and completely. A few steps of test procedure have to go through to complete the system testing, there are unit testing, integration testing, sub-system testing, overall system testing and acceptance testing as shown in the figure below.

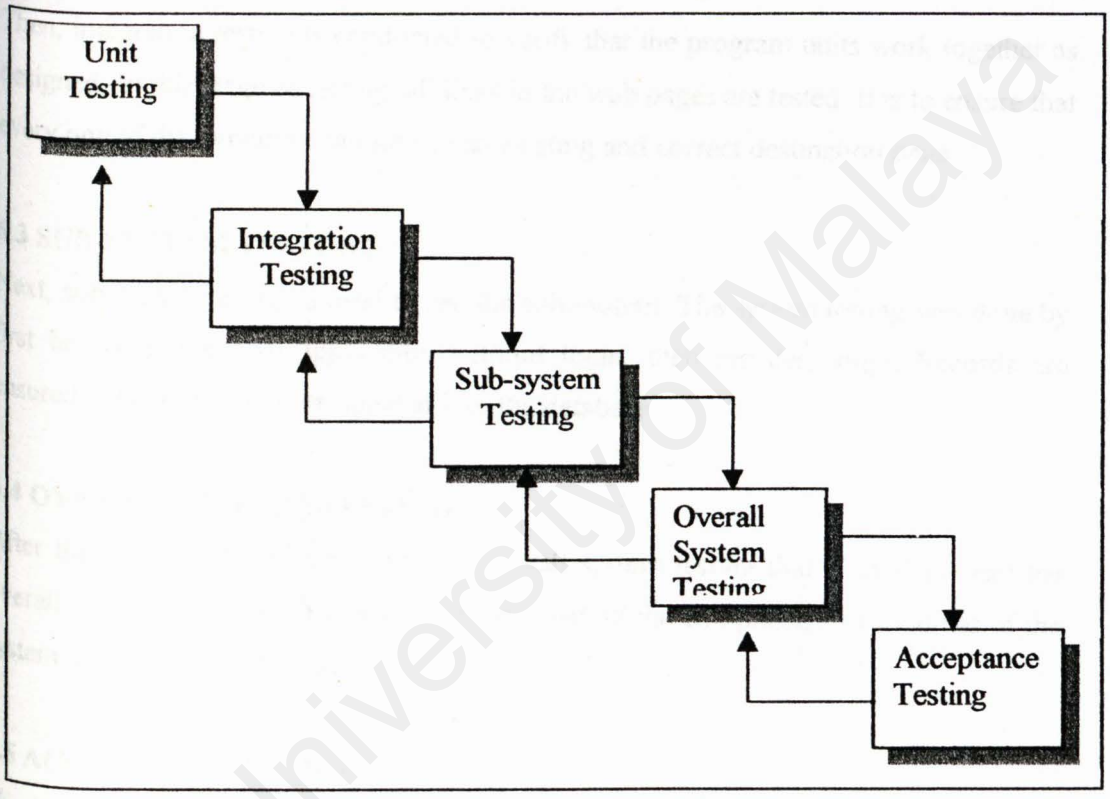

Figure 6.1 The Process of System Testing

6.1 UNIT TESTING

First step in system testing is unit testing. That is each program unit or sub-unit is tested at it owns. The unit testing was conducted throughout the implementation once a new unit was successfully built up. Each unit is tested independently to ensure that it operates correctly.

For webEcommerce Template Setup and webEcommerce Template Maintenance, every functions (such as add page, edit page, delete page) are tested separately. It is to make sure that every functions is doing what is exactly and also ensure that every link is correctly. On the other hand, webEcommerce Web Site is tested to ensure whatever data input by dealer is correct display on the particular page.

For page that process user's input data, user input validation is tested in this stage to ensure proper entry for very fields in the form. Also, each template is tested to make sure no error occur.

6.2 INTEGRATION TESTING

Then, integration testing is conducted to verify that the program units work together as designed. In this stage of testing, all links in the web pages are tested. It is to ensure that every one of the hyperlink can lead to an existing and correct destination page.

6.3 SUB-SYSTEM TESTING

Next, sub-system testing is used to test the sub-system. The system testing was done by first browsing the web application without login, then register, login. Records are ensured have been added or updated into the database.

6.4 OVERALL SYSTEM TESTING

After the sub-system testing, comes to overall system testing that is used to test the overall system. This testing is used to ensure that all the components or modules of the system are functioning properly.

6.5 ACCEPTANCE TESTING

This is the important part in the system testing phase which is done by the user of the system. It is commences when the system is ready to use. Users involved in this stage to make sure the system meets their understanding of the requirements, which may be different from the developer. The feedback or comment from the user is important to improve and upgrade the system to fulfill their needs.

From the acceptance testing that involved user, some comments and suggestion have been collected. Every functions of the system either at the back end or front end, is work exactly without any error such as page linking error and so on. The steps of template setup and

maintenance is easy to understand and also quite friendly user. Most of the user give the same uggestion that is add in more template design. So that dealer can have more choice for the emplate design.

CONCLUSION

CONCLUSION

The purpose of this report is to document essential information gathered & implemented throughout the development of the project. This report included seven chapters there are project overview, literature review, system analysis, system design, system implementation, system testing and conclusion as the last chapter.

Project overview is the first chapter that gives an overview of the project, the objectives and the project planning detail. It gives the overall of what is the propose system that going to develop.

Next chapter is literature overview. This chapter explains the studies done for the existing system and the tools to use to develop the project. This is the hardest part in the whole development of project. It is because we have to do research and compare several software and then decide which one is the most suitable for the propose project. Besides, we also have to study the existing system, so that we can keep the advantage of the existing system and improve the disadvantage.

The third chapter is system analysis. This chapter describes the analysis has been done since the project started. It included DFD context diagram, DFD Level 0 and Level 1 of the system based from the requirement analysis in system development life cycle.

The fourth chapter in this report is system design. This chapter describes the consideration for the input design, logical design and the user interface design in the system development.

The fifth chapter is system implementation. This chapter will be include techniques and approach that used to build the system and describe in more details manner.

The sixth chapter is system testing. This chapter includes the testing process and approach used to test the system.

Conclusion will be the last chapter that will comment the overall system. This chapter will cover from the system development until the system completely ready to use.

As this project has to be done within a short span of time and a lot of technical issues need to be resolved, a lot of problems have been encountered. Solutions have been sought during testing and reference check with course mates. Encountering with these problems has been proven to be a valuable learning experience.

During the system studies and analysis phase, a lot of studies have been carried out. Lack of knowledge in the web application has been a great obstruction. One of the main problems is difficulty in choosing a suitable programming language to build the system. There are many programming languages available in the market, which can be used to develop a web application. To determine which approach to use, seeking advises and views from project supervisor, course mates and lecturers engaging in similar project are carried out. After much reference, studies and surveys, PHP is chosen prior to the short time span available to develop this webEcommerce.

The problem faced during the initial project studies and analysis, were not as crucial compared to the problems faced during implementation and testing period. As there is no prior knowledge in programming in a web-based environment, a lot of studies need to be done. New programming languages like PHP and HTML need to be learnt within a short time span. Besides, programming concepts for web application is quite different from the traditional way of programming. However, all theses obstacles are resolved through discussions with course mates, supervision form project supervisor and self-studies.

This webEcommerce is very easy to use. Users can learn how to use this system very fast. It is easy to understand. The simplicity of this system will enable users to setup their e-commerce website with just a few steps.

This webEcommerce has user friendly interface that will tell the users how to work with this system. A simple and short instructions will be include in certain page, so that easy for user to follow the correct way to use the system. This user friendly interface will shorten the learning curve of the users.

webEcommerce is a password-protected site. By giving authorized dealer ID and password, unauthorized users are prohibited from accessing his or her records stored in the database. This also prevents intruders from intentionally or unintentionally causing vast damages to the system.

Because of the limitation of time and some technical factors, webEcommerce has some limitation. There are only 9 web page include in every created web site. No extra page can be added. That means the flexibility of choosing the web page is limited. Besides this, there is only three templates design for user to choose. It is cannot make the design of the web page as a unique design for each company.

So, there are several enhancements that could extend the usability of the developed system. First, design more templates for dealer to choose. Second, make the web page setup as flexible as possible. That is can let dealer sort the web page sequence. Third, modify the system so that can let dealer add in the sub menu for each main menu and also let dealer choose their own text to represent every menu button.

Through the development of system, some experiences have been gained. First of all, some experiences have been gained in developing a web-based application. Besides, also able to learn the PHP technologies and master the PHP scripting language, which is required to develop a web-based application. Within the period of development webEcommerce, learn how to co-operate and communicate with people, so that can helping in successful the project.

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USER MANUAL

TABLE OF CONTENT

LIST OF ILLUSTRATIONS

1.0 Introduction

WebEcommerce is a system that configures the template setup and maintenance for dealers. This system includes two main sections that is the template setup section and template maintenance section. webEcommerce is very easy to learn and use. All the functions in the system can be easily executed by a simple click on the link or button. This user manual provides the instruction on how to use this system.

2.0 Hardware and Software Requirement

First of all we have to know the software and hardware requirement to run this system which is list in the table below:

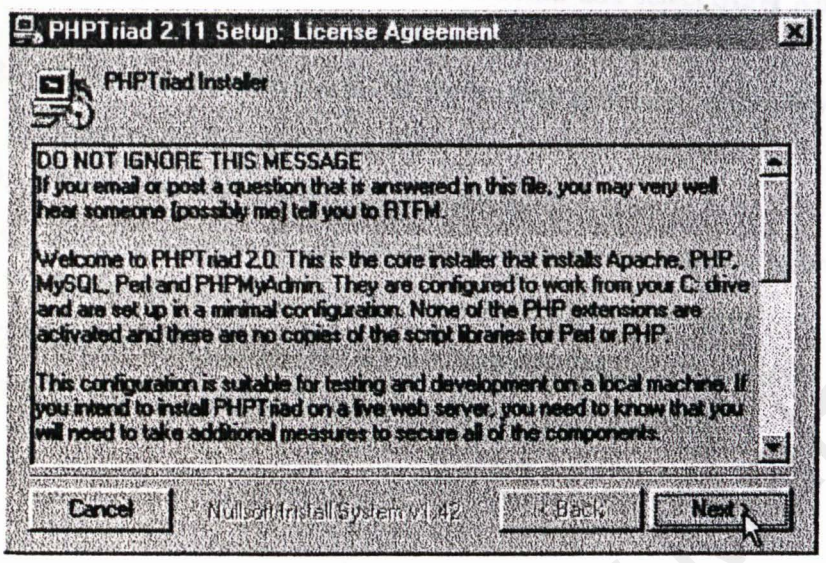
Hardware Requirement
o At least 32 MB of RAM.
o At least 100MB of free space in Hard disk.
o Network connection through existing network configurations or modem.
o 256-color monitor capable of resolution 800X600 pixels.
Software Requirement
o Windows 95/98
o Microsoft Internet Explorer 5.0 or above
o Flash Player 5.0

3.0 Install PHPTriad

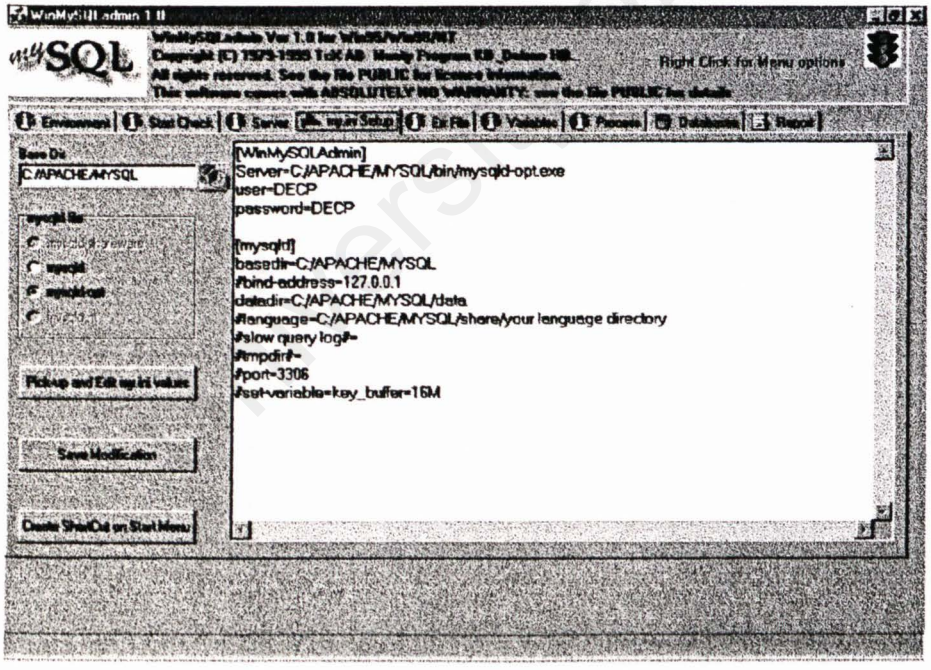
Before using the system, PHPTriad has to install to support and run the PHP coding.

Follow the instructions below step by step.

1. Run the Application file of **phptriadsetup2-11** from CD.



2. Follow all the instruction of installing PHP Triad. Click **Next** button.



3. After install, go to **C → apache → mysql → bin**, click **winmysqladmin** application file to run the MySql admin site.
4. Set the user as "DECP" and the password as "DECP".

5. Open Coding folder from CD and copy the bank folder, customer folder, and dealer folder to **C:\apache\htdocs.**
6. Open Data Base folder from CD and copy the bank folder and dealer folder to **C:\apache\mysql\data.**
7. Go to **Start → Programs → PHPTriad** and select **Start Apache** from the programs list to start the Apache server.
8. Go to **Start → Programs → PHPTriad** and select **Start MySQL** from the programs list to start the MySQL.
9. URL for the MySQL is http://localhost/phpmyadmin.
10. Launch the Internet Explorer browser or Netscape browser to browser the site.
11. URL for dealer section is http://localhost/dealer/admin.php.
12. URL for customer section is http://localhost/customer/index.php.
13. URL for bank section is http://localhost/bank/admin.php.

4.0 User Manual for webEcommerce Template Setup

4.1 Main Page of WebEcommerce

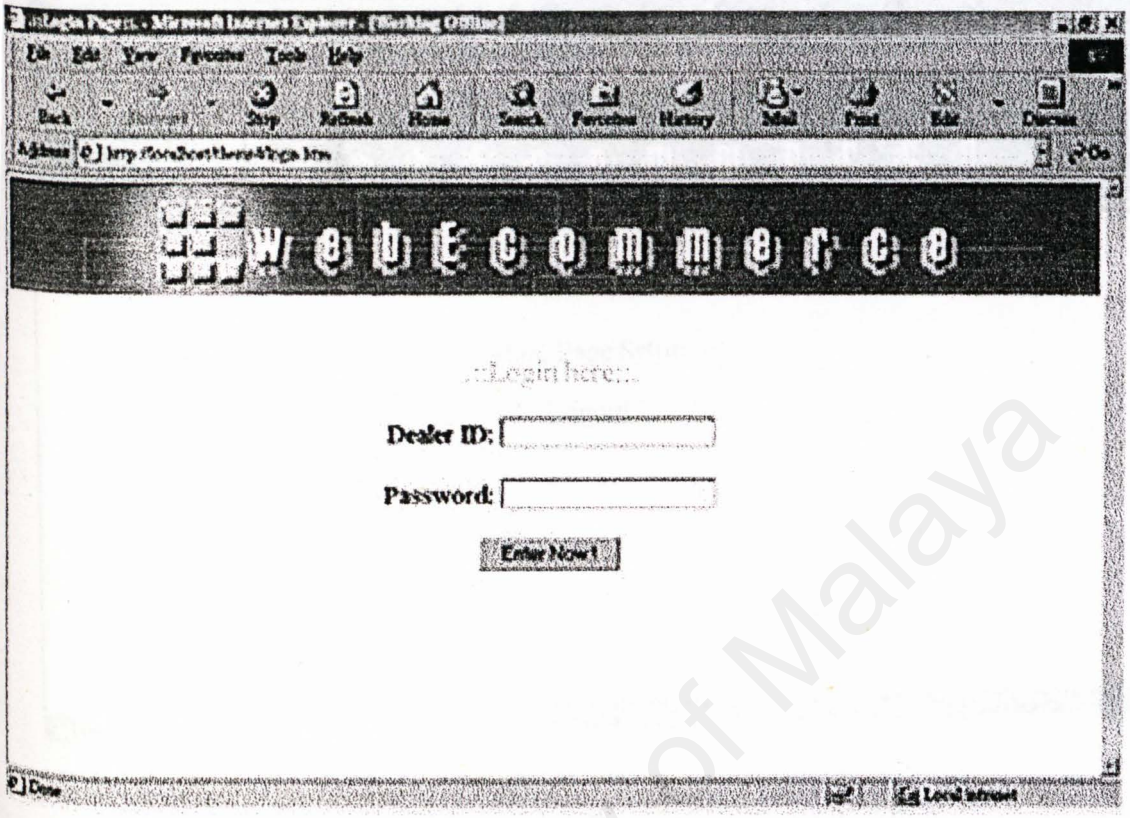


Figure 4.1: Main Page of WebEcommerce

Figure4.1 above is the main page of webEcommerce with URL http://localhost/webEcommerce/login.htm . It is also a dealer logon page that lets the dealers to logon their ID and password, which is case sensitive. When dealer presses the "Enter Now!" button, information entered by dealer will be verified. When the entry is found valid, then dealer may successfully navigate to next page; else an error page will prompt out to ask dealer to re-enter their ID and password again.

Functions provided in web page

Button	Functions
Enter Now!	Link to the login page.

4.2 Menu Page of webEcommerce Template Setup

Figure 4.2: Menu Page of webEcommerce Template Setup

Figure4.2 above is the menu page of webEcommerce Template Setup. This page is for new register dealer to setup their web site.

Functions provided in web page

Button	Functions
Main Page Setup	Link to the main page setup.
Logout	Let user logout from the system.

4.3 Choosing A Layout

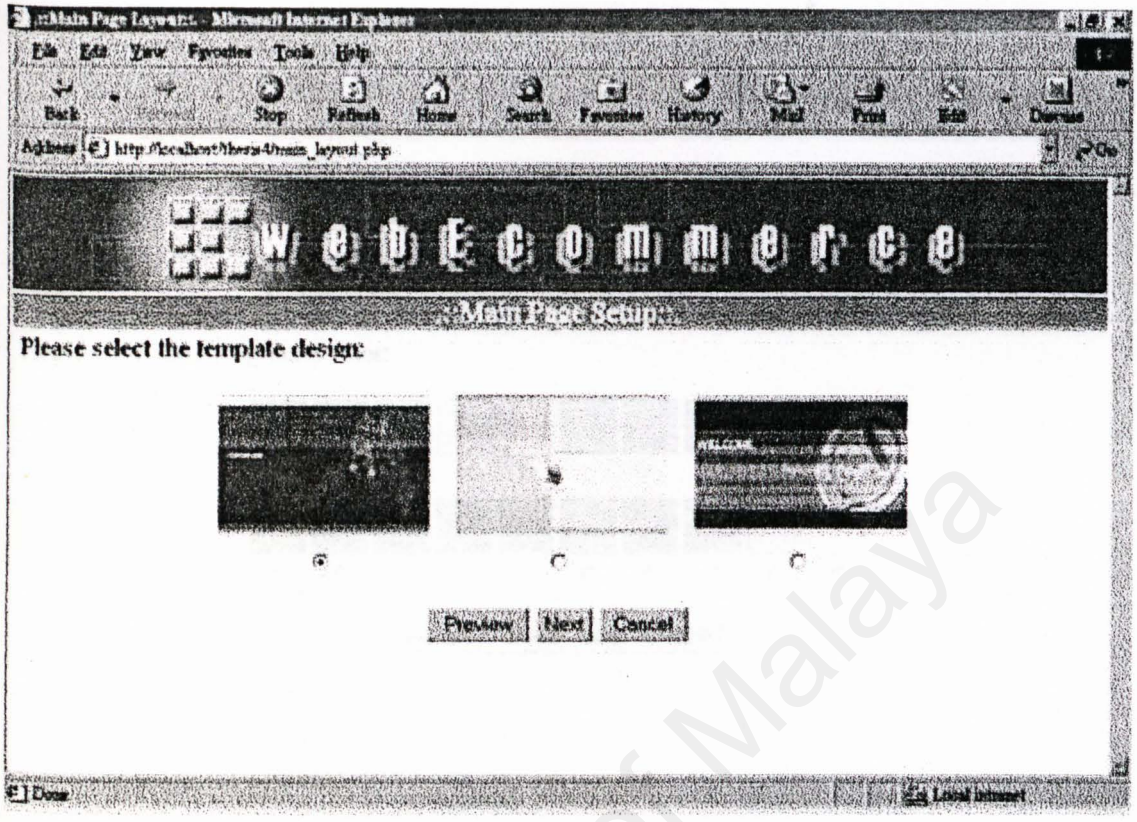


Figure 4.3: Choosing A Layout

Figure 4.3 above customizes dealers to choose one of the layouts out of 3 that have been display there.

Functions provided in web page

Button	Functions
Preview	Link to the preview page.
Next	Link to the next page.
Cancel	Cancel the main page setup process and back to the main page.

4.4 Choosing Background Color

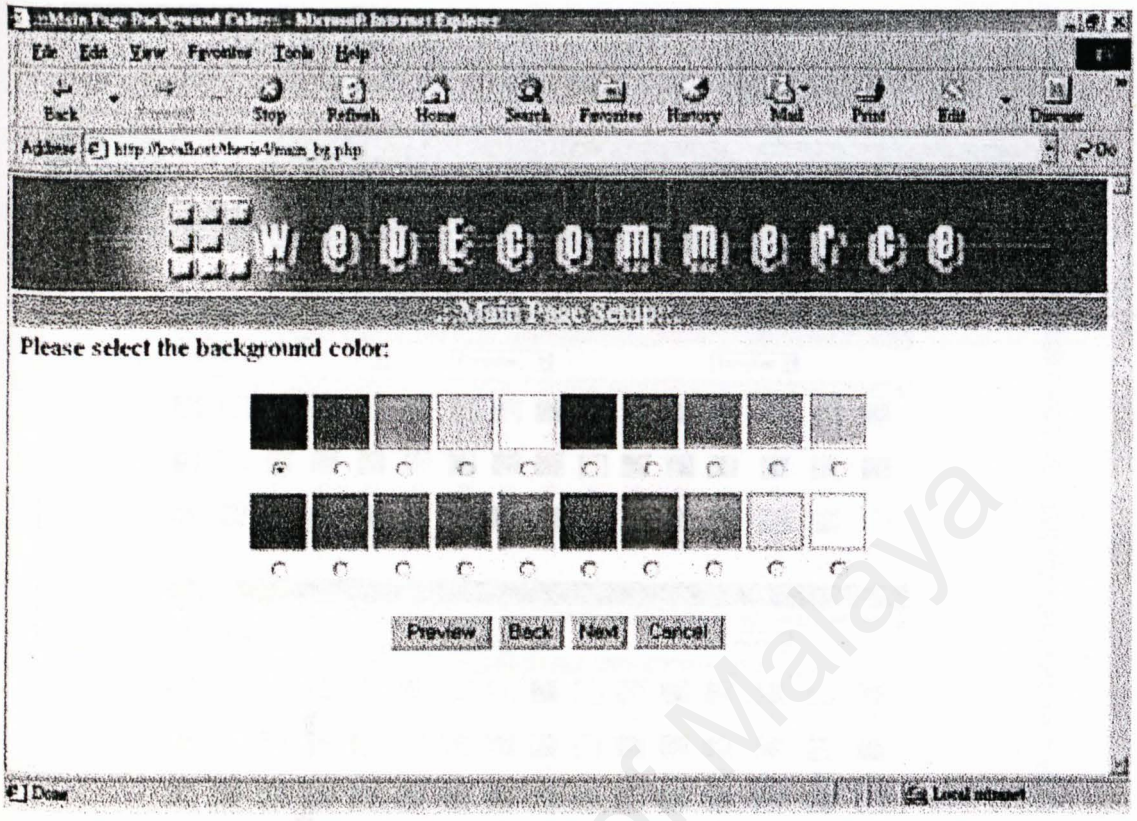


Figure 4.4: Choosing Background Color

Figure 4.4 above customizes dealers to choose one of the background colors out of 20 that have been display there. Dealer can change the background color of the web page by just mouse over the flash movie clip.

Functions provided in web page

Button	Functions
Preview	Link to the preview page.
Back	Link to the previous page.
Next	Link to the next page.
Cancel	Cancel the main page setup process and back to the main page.

4.5 Text Editor

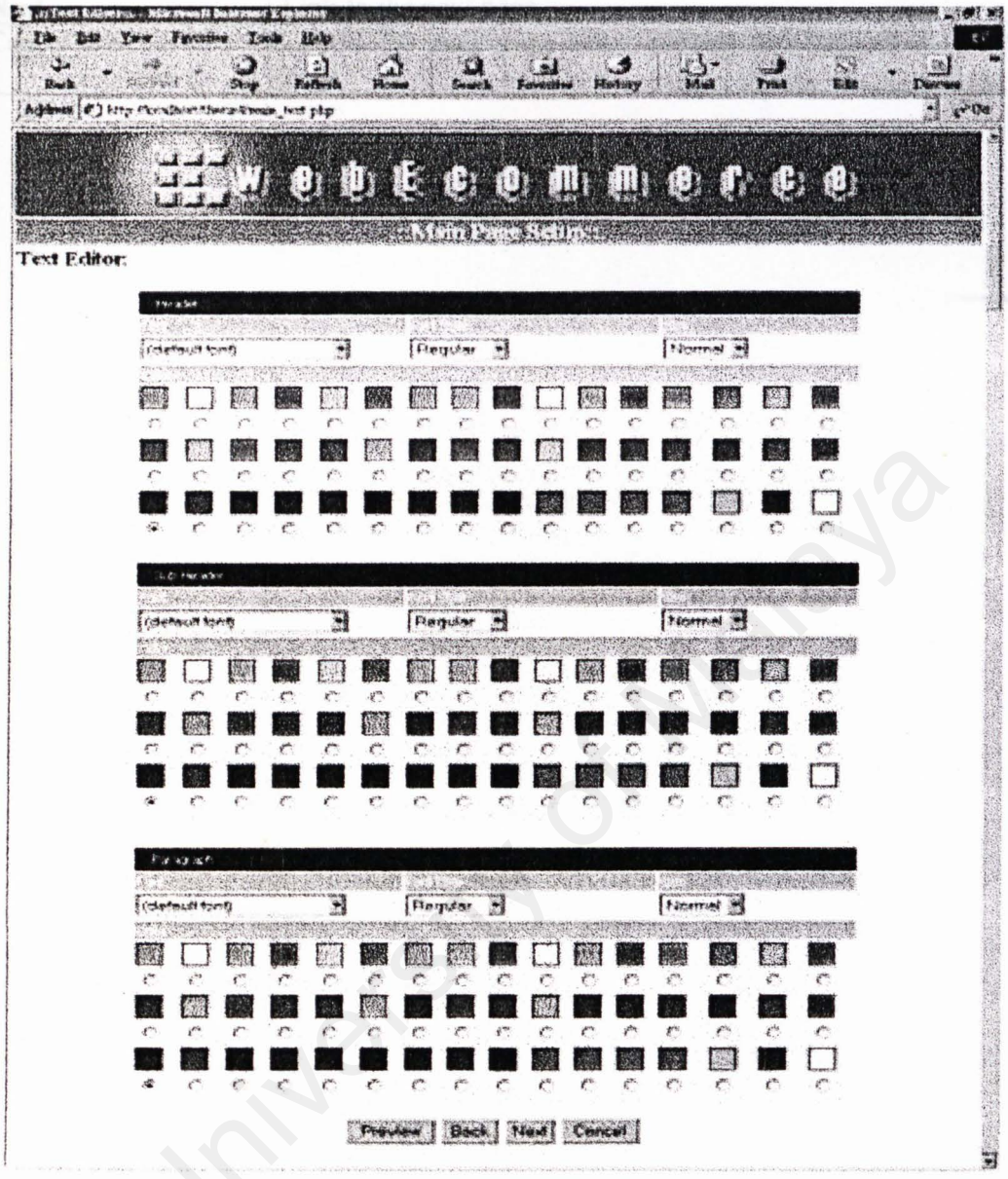


Figure 4.5: Text Editor

Figure 4.5 is use for dealer to edit a block of text. There are 3 main text boxes to be edited, which are the header, sub header and paragraph of text. Besides, dealers may need to enhance their text with different font's attributes that is font, font style, size and font color.

Functions provided in web page

Button	Functions
Preview	Link to the preview page.

Back	Link to the previous page.
Next	Link to the next page.
Cancel	Cancel the main page setup process and back to the main page.

4.6 Entering Data for Company Profile

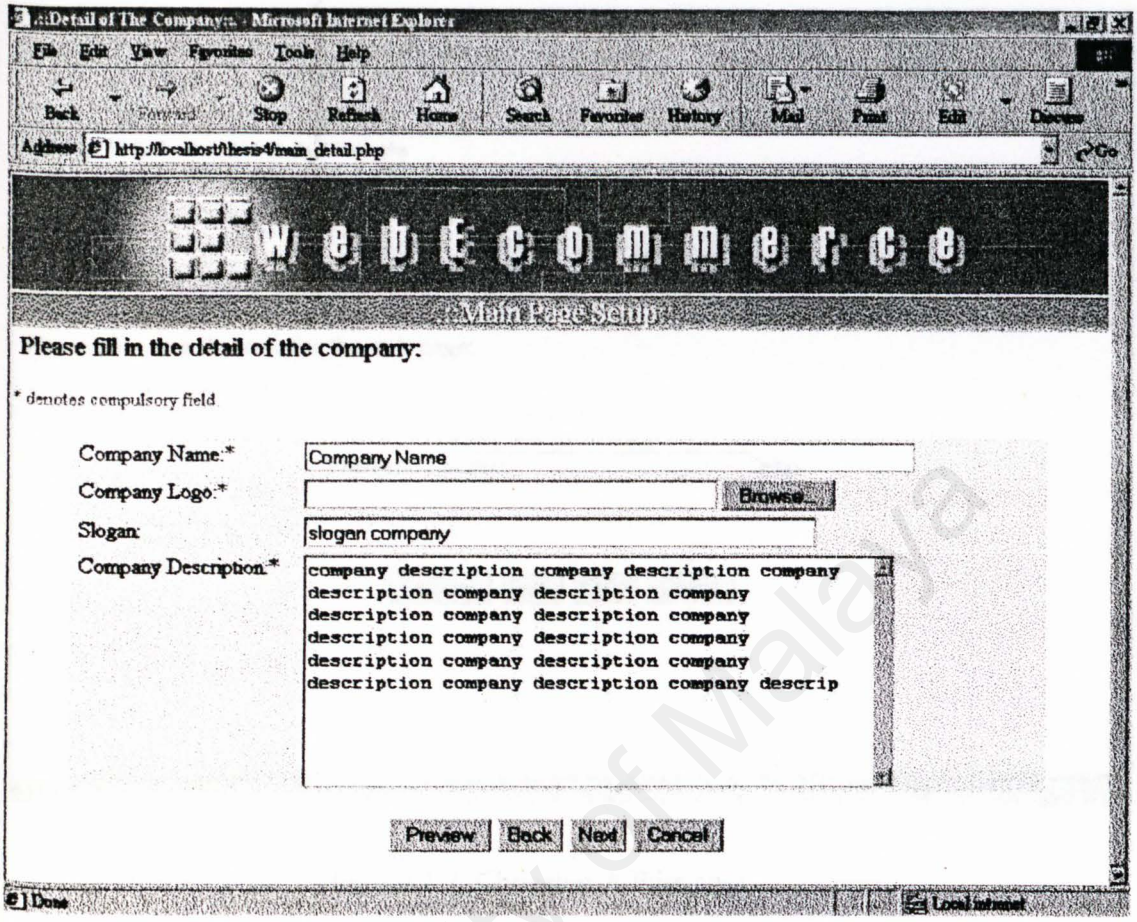


Figure 4.6: Entering Data for Company Profile

Figure 4.6 is purposely for entering data for *About Us* page. Data required is like company name, company logo, slogan and company description.

Functions provided in web page

Button	Functions
Preview	Link to the preview page.
Back	Link to the previous page.
Next	Link to the next page.
Cancel	Cancel the main page setup process and back to the main page.

4.7 Choosing A Filename

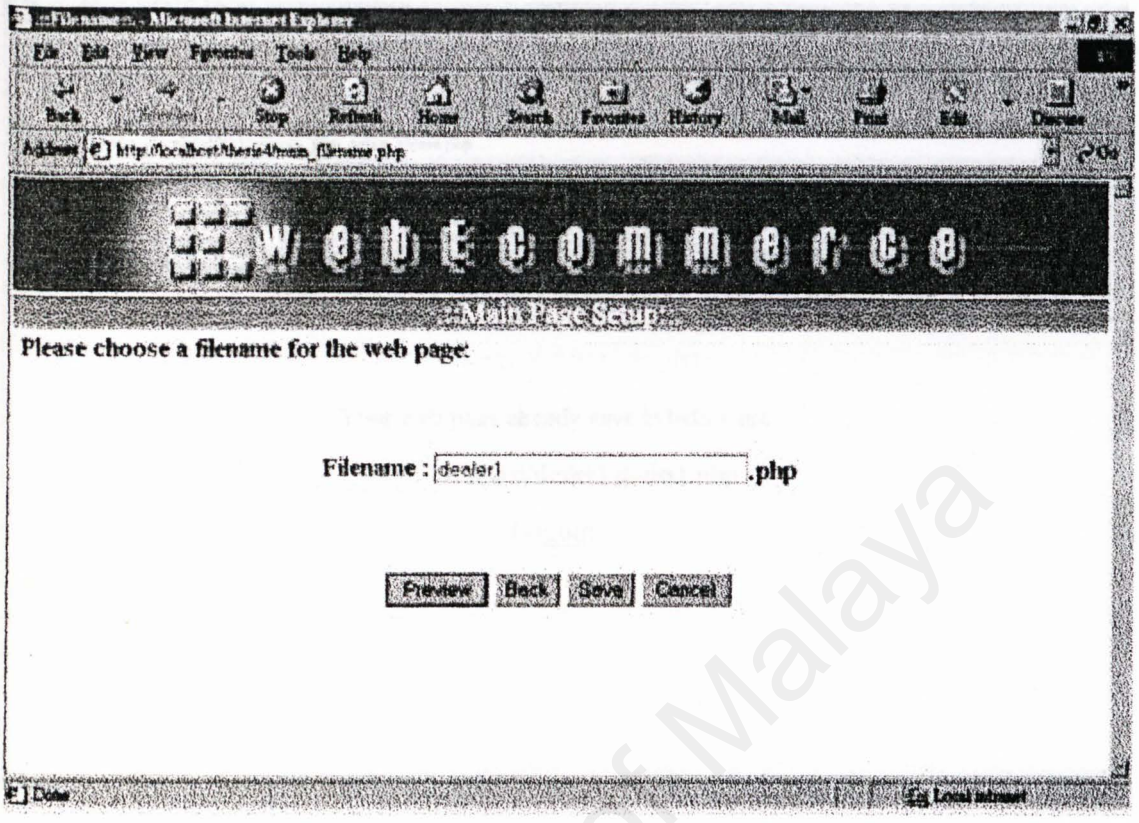


Figure 4.7: Choosing A Filename

Figure 4.7 let the dealer to choose a .php file and then click on "Save" button to save the web page that have been created.

Functions provided in web page

Button	Functions
Preview	Link to the preview page.
Back	Link to the previous page.
Save	Save the web page.
Cancel	Cancel the main page setup process and back to the main page.

4.8 webEcommerce Template Setup Complete

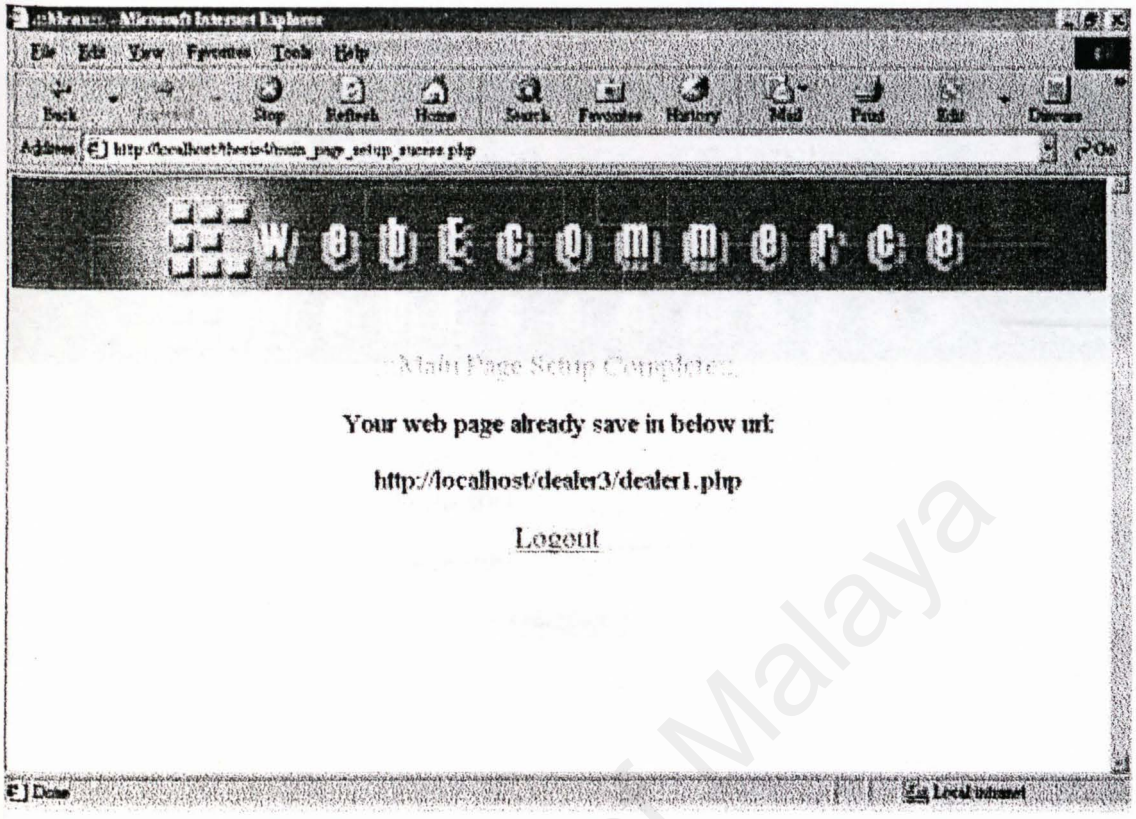


Figure 4.8: webEcommerce Template Setup Complete

Figure 4.8 is a page that purposely thank to dealer for using this WebEcommerce Template Setup and confirm that web site already setup and save in the specific URL.

Functions provided in web page

Button	Functions
Logout	Logout from the system.

5.0 User Manual for webEcommerce Template Maintenance

5.1 Main Page of WebEcommerce

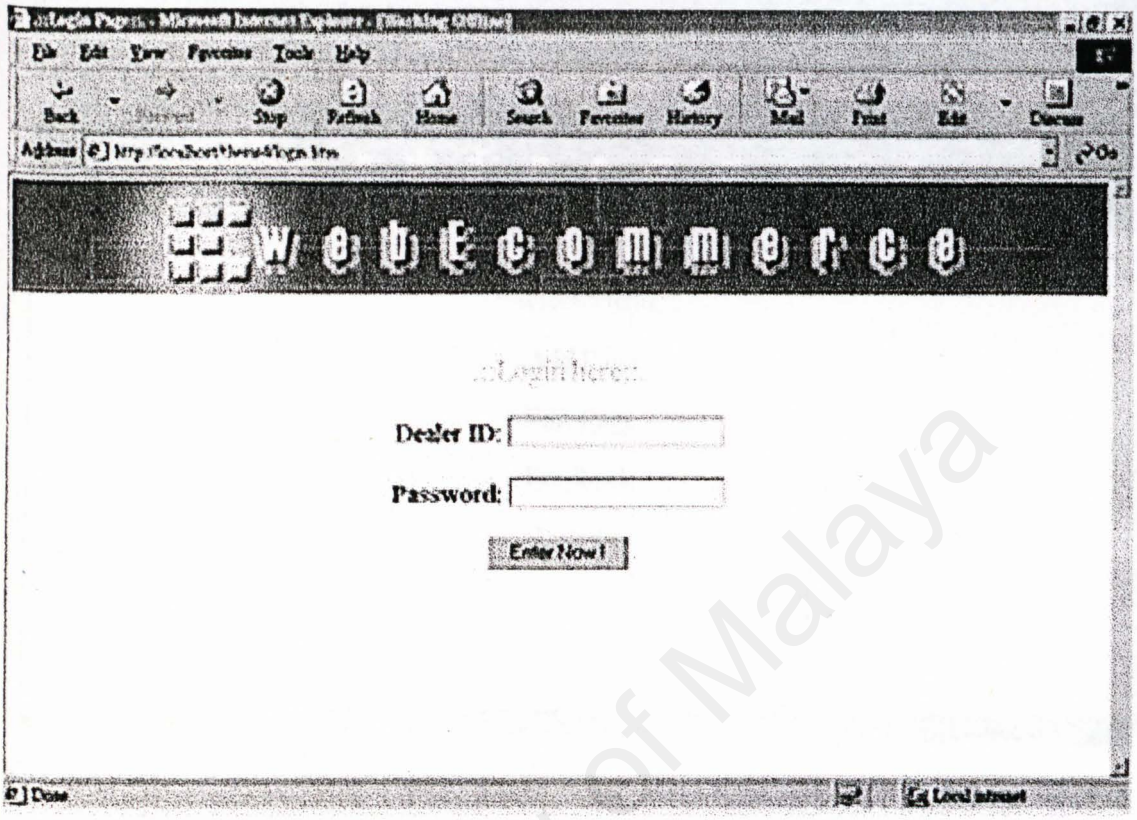


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Figure5.1 above is the main page of webEcommerce with URL http://localhost/webEcommerce/login.htm . It is also a dealer logon page that lets the dealers to logon their ID and password, which is case sensitive. When dealer presses the "Enter Now!" button, information entered by dealer will be verified. When the entry is found valid, then dealer may successfully navigate to next page; else an error page will prompt out to ask dealer to re-enter their ID and password again.

Functions provided in web page

Button	Functions
Enter Now!	Link to the login page.

5.2 Menu Page of webEcommerce Template Maintenance

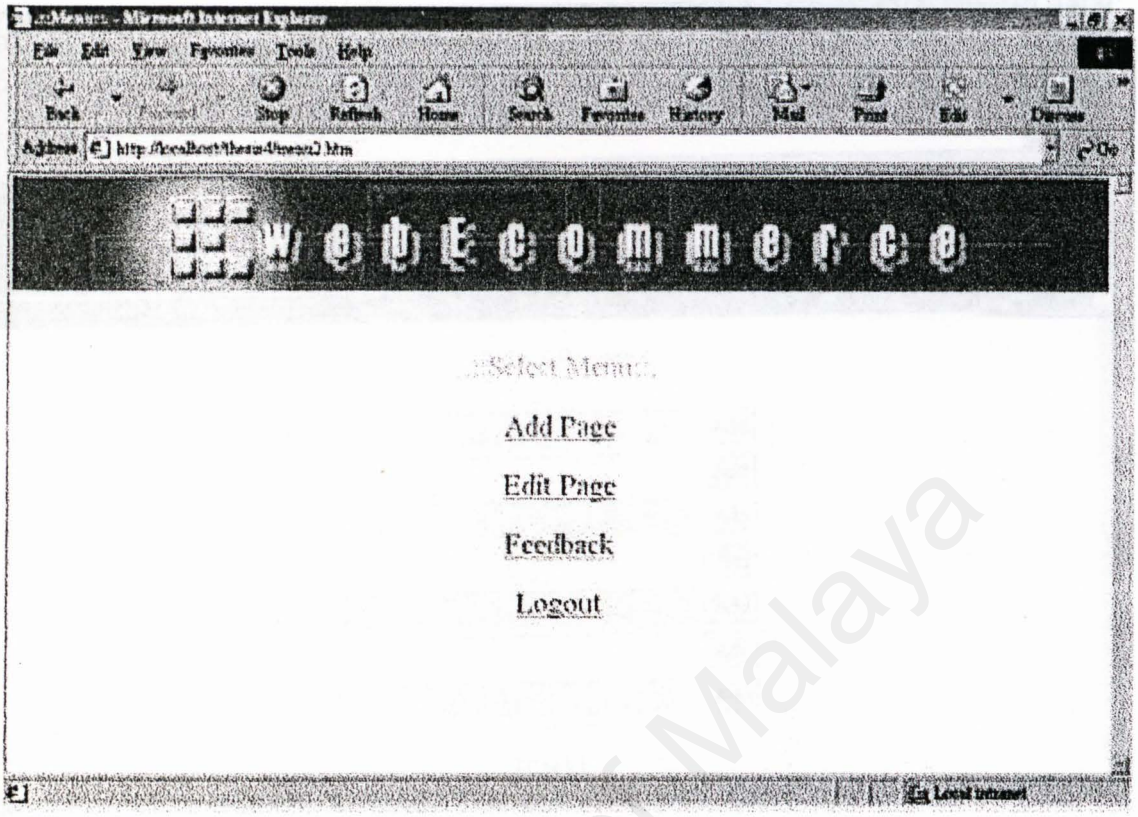

Figure 5.2: Menu Page of webEcommerce Template Maintenance

Figure5.2 above is the menu page of webEcommerce Template Maintenance. This page is for registered dealer to update and maintain their web site. Dealer can select menu "Add Page", "Edit Page" to start the process of web site maintenance or select menu "Logout" to cancel the process. Besides, the "Feedback" menu is for dealer to look for the feedback send by the user that has been visit the web site.

Functions provided in web page

Button	Functions
Add Page	Link to the add page menu.
Edit Page	Link to the edit page menu.
Feedback	Link to the feedback page.
Logout	Logout from the system.

5.3 Menu Page of Add Page Selection

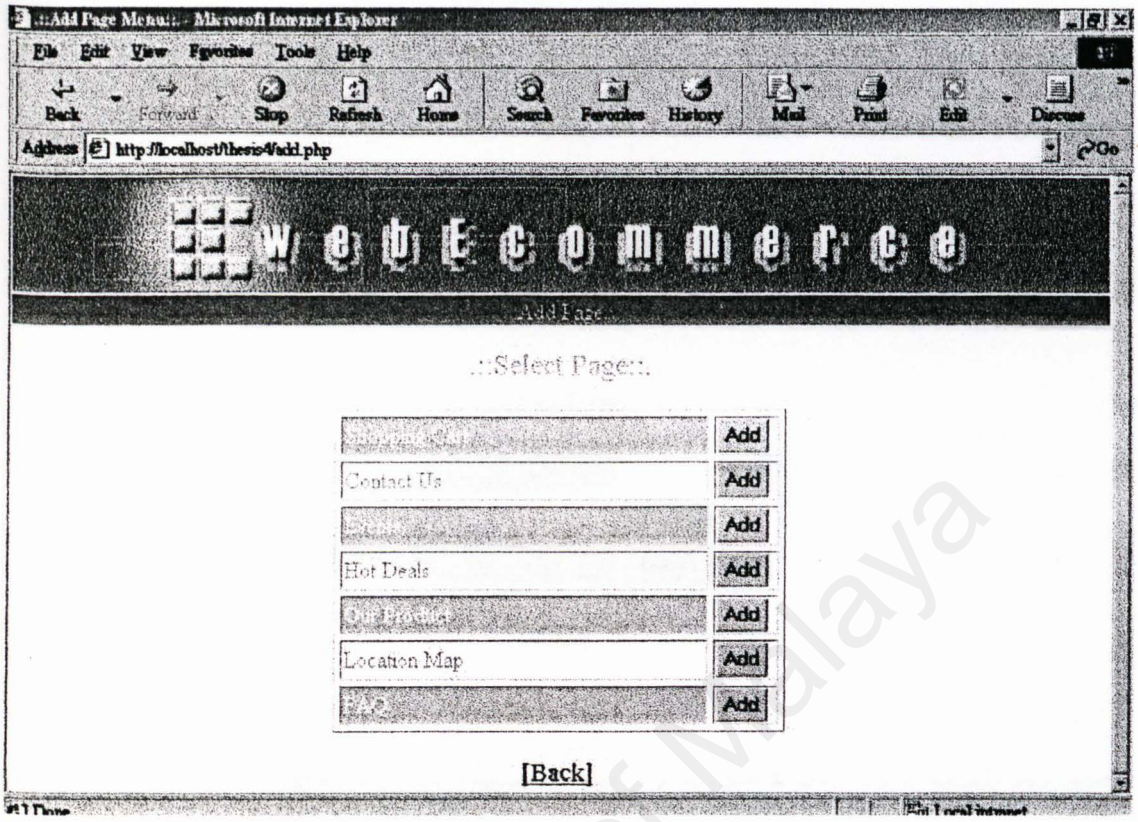

Figure 5.3: Menu Page of Add Page Selection

Figure5.3 above is the Add Page of webEcommerce Template Maintenance. This page is for registered dealer to add web page to their web site by clicking on "Add" button. Dealer can click on [Back] to back to the main menu.

Functions provided in web page

Button	Functions
Add	Link to the selected page to add the web page to the web site.
Back	Back to the main menu.

5.4 Menu Page of Edit Page Selection

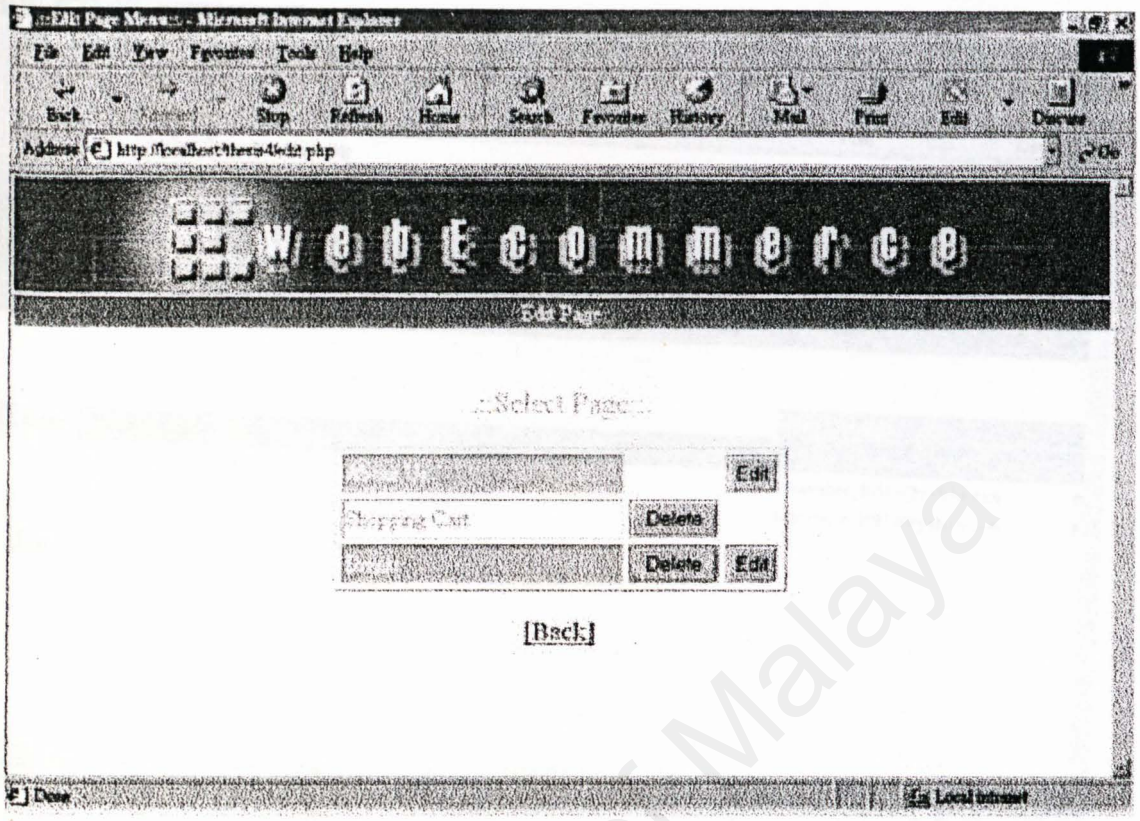

Figure 5.4: Menu Page of Edit Page Selection

Figure5.4 above is the Edit Page of webEcommerce Template Maintenance. This page is for registered dealer to edit and delete web page from their web site by clicking on "Edit" or "Delete" button. Dealer can click on [Back] to back to the main menu.

Button	Functions
Edit	Link to the selected page to edit the web page from the web site.
Delete	Link to the selected page and delete the web page from the web site.
Back	Back to the main menu.

5.5 Menu Page of Feedback Selection

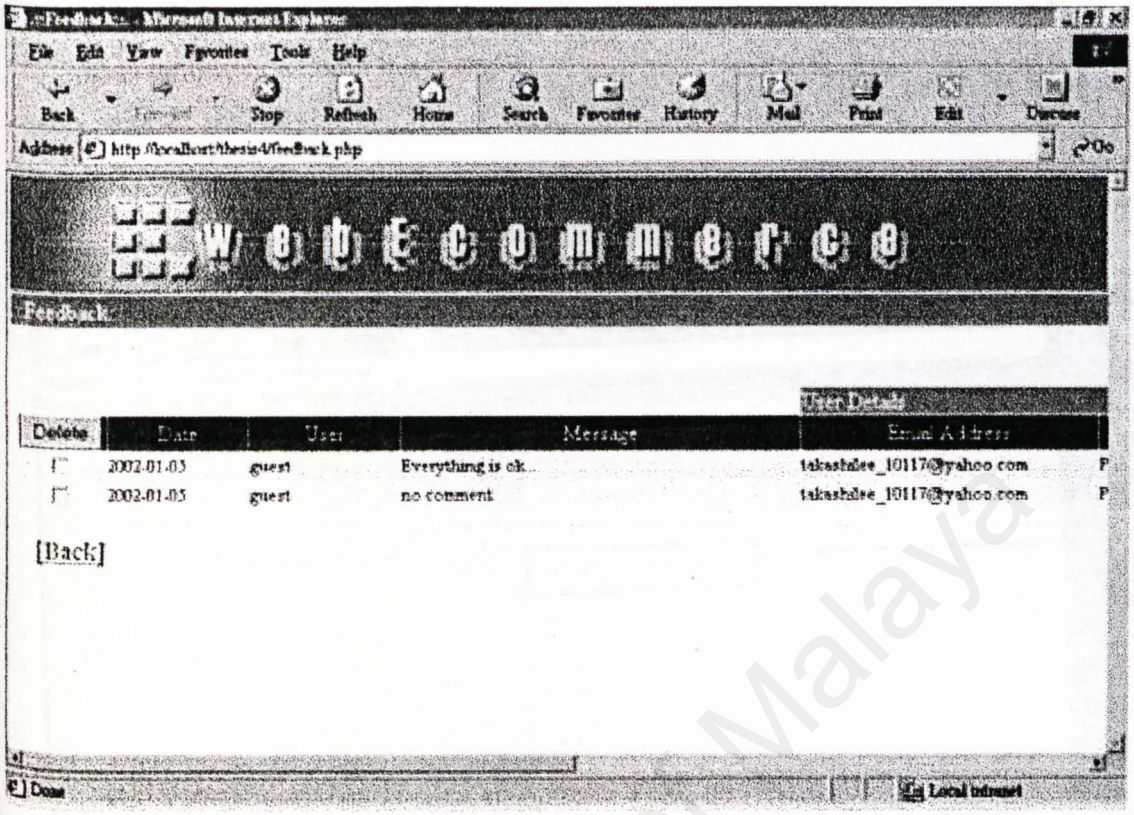

Figure 5.5: Menu Page of Feedback Selection

Figure5.5 above is the Feedback Page of webEcommerce Template Maintenance. This page is let dealer look for the feedback from user that has been visited their web site. Dealer can delete the record by click on "Delete" button or just leave it and click on [Back] to back to the main menu.

Button	Functions
Delete	Delete the selected record.
Back	Back to the main menu.

6.0 User Manual for webEcommerce Web Site

This is one of the web site that has been setup by dealer. Figure 6.1 illustrates the main page of web site that created under a dealer's company name, InfoTech Sdn. Bhd.

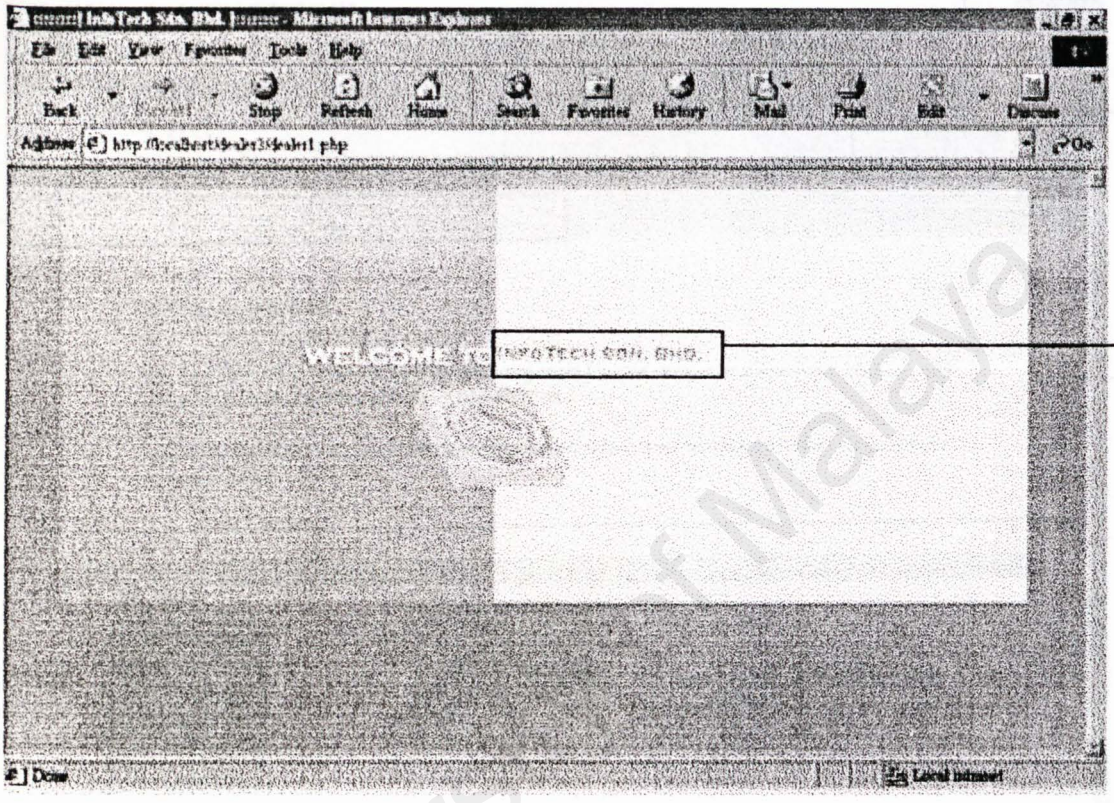

Figure 6.1: The Main Page of Web Site

When user enter into this site, a flash movie would be played automatically to welcome the user to the site, provided user's PC has Flash player Plug-in. Text in company name with the hyperlink lead user to visit the next web page, named About Us.

After that, user can browse to the page that they want by just click on the text with hyperlink at the top navigation bar. Figure 6.2 illustrates the About Us page that contains information about the company.

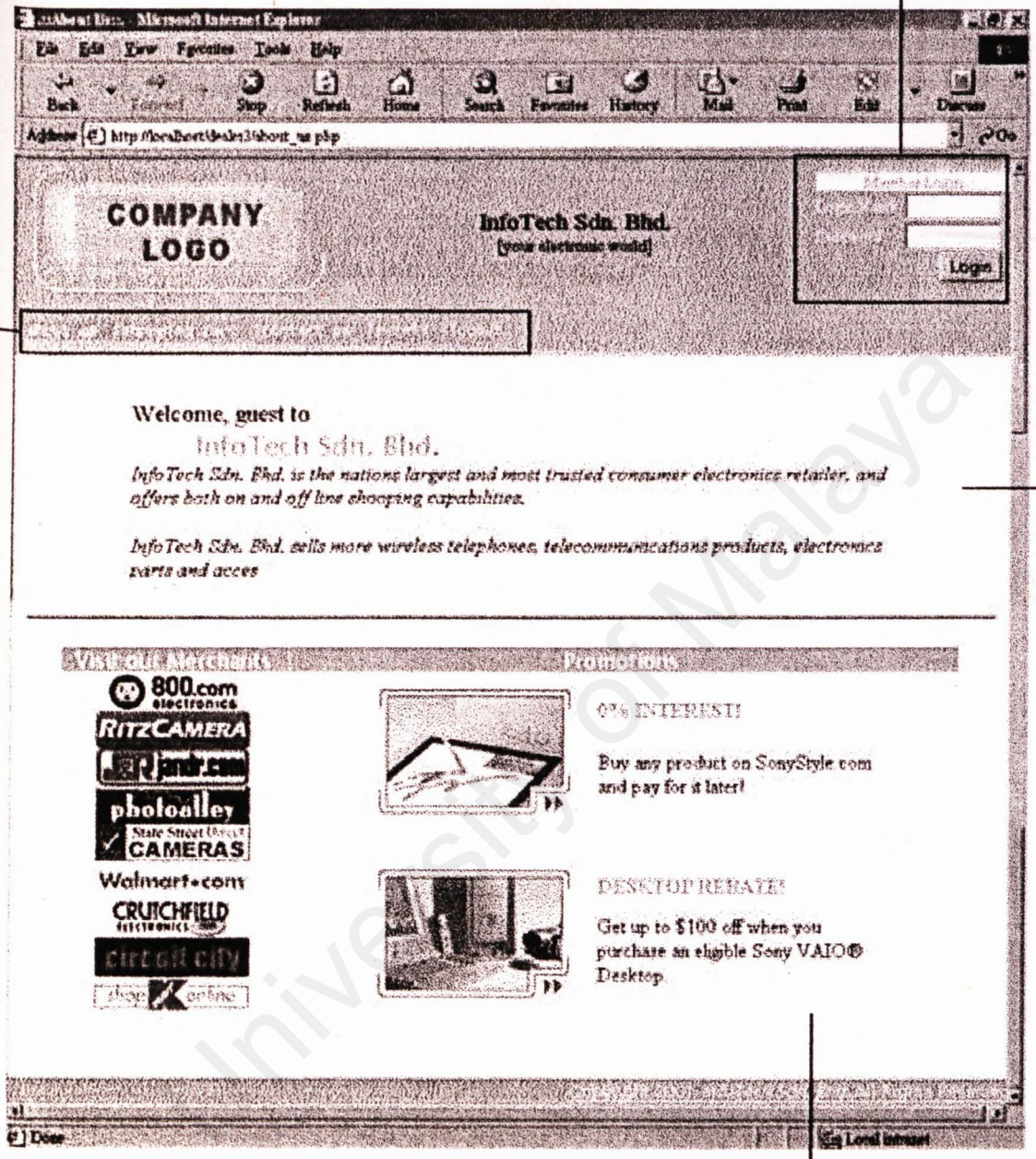

Figure 6.2 Page About Us

The navigation bar at the top of the frame is exist throughout the time user browsing the information or uses a function. It is easy to use by just a mouse click on

the text with link. The related links would appear in mainframe, users could view the information in the main frame.

The member login area is let registered user to login to the web site. Users can logout whenever they like by click on the logout button at the navigation bar.

The bottom frame contains promotions and merchants information.