Homepage Template for Academic

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ABSTRACT

With the tremendous growth of the Internet and the expansion of the World Wide Web, homepage has become the target of academics to explore in web design and development, sharing information, published articles, etc.

Homepage Template for Academic (HTFA) is a system developed for academics to configure and set up their homepage according to their own need by developing a web-based template. HTFA allows academics to build a homepage without any code writing, the layout and the format of homepage already set up in the template their choose according to their need. The template built will be convenient to academics because they do not have to spend much time to set up their homepage design and do coding. HTFA will lead academician to the era of homepage development and design.

The project objective is to provide convenience, accessibility, free and quality interactive service for homepage builder. Besides that, towards the paperless technology, academician are encouraged to publish up their lecture notes, tutorials, articles, assignment/projects on the web. HTFA allows academics login to the system with their user identity and password. Academics can download web templates, create homepage, edit existing pages, updated files and upload files in the system.

Prototyping model is the development model chosen for develops the HTFA system because it is a tool for helping developers lay out what they need to do and provide the potential for changing the system early in its development. Tools such as the Hypertext Markup Language (HTML), Active Server Pages (ASP), JavaScript, VBScript, Microsoft FrontPage, SQL Server 7.0 and etc were chosen for implementation capability and ease to use.

The successful of this Homepage design system development will widen the usage of the formal online system and produce an intelligent homepage building services application that will help and encourage academics in many aspects of electronic publishing.

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1.1 Project Overview

Internet is the worldwide collection of computers connected together by a network of communication channels. Internet provides services like E-mail, information sharing, E-learning, E-commerce and etc. Web development start from year 1990, everyday there is 33,000 new users using the Internet and every 3 months, the amount of web sites increase rapidly. Perhaps in the future, everyone should have a homepage for sharing information, advertising, publish some product, organize a meeting and etc. [Web history, http://www.innervisions.com.au/webhistory/index.html]

Creating a web site is not a hard task but for those who lack of experience and knowledge of Internet, hence it becomes a hard work for them. HTML (Hypertext Markup Language) is the backbone of Internet; most of the web site was create by using this language. In order to make a nice and interesting homepage, a basic understanding of HTML is a necessity. Nowadays, there is much software or web-editor can help the users build web site in the fast and easy way like Microsoft Front Page, Macromedia Dreamweaver, Netscape Composer and etc.

In order to develop a real nice, interesting, dynamic and interactive homepage, knowledge of ASP (Active Server Pages) or JSP (Java Server Pages) or CGI (Common Gateway Interface) is required. With this technology, administrator of web page can communicate with the users who come to visit for keeping record; cookies of the visitors in the database by prompt them to fill in the on-line form. Security of web site also can guarantee because only the register user can access to certain page of the web pages, this can avoid non-authorized users access the system to perform tasks illegally. Chat room also provide for visitor to sharing information, chatting about related topic and asking questions.

There are many web sites, which provide service of homepage building, for example the most famous - Yahoo Geocities. This commercial website provide some template for users to choose and then after the selection, users will prompt to answer some questions by filling the form. And then the information users fill in will be show in the template they choose, as they want. Finally the web page will be set up after the button UPLOAD been press. Enhancement also provided for users to add, delete, updated their HTML files.

Homepage Template For Academic is concerned with developing a web-based template to allow users to configure the set up of their homepage according to their needs. Client server computing will be considered to be implemented in developing this template driven homepage builder. It means that user at client side (browser) will ask a request and then a desired procedure will be called from server side to serve the request and finally implement it to set up HTML files. The user interface created at client side would be mostly dealing with forms format. Elements that could be included in the template are images, logo (optional), a list of links, a block of text and contact information. After entire actions have been taken up, a homepage will be set up according to individual needs.

After the homepage set up, users can do the pages maintenance like edit, delete and add pages according to their needs. Examples like users can changes the contents in exist pages, add new information, delete the file and add new page and links.

1.2 Project motivation

The fast rising use of the computers in various business application has affected human lifestyle today encourage people to using the Internet and on-line service. These enable user to access the Internet at anytime, anywhere and no longer bound by connectivity through modem and other computer devices.

The motivations of the project are to allow users (especially academician and those who lack of HTML knowledge) to configure the set up of their homepage according to their

own needs. The template built will be convenient to users, since they do not need to spend much time to set up their homepage by coding HTML themselves.

In addition, forwards the paperless technology, academician are encouraged to set up their lecture notes, tutorials, assignment/projects on the web. A homepage set up may be uploaded and it helps academician to publish articles to the web and share ideas with the others on their publications like papers and research projects.

1.3 Project Objective

The main objective of this project is to provide web template and service for user to build a homepage in a short time and an easy way. The project objectives are to:

i. Provide an interactive service for homepage builder, which are easy to understand and use.
ii. Allow download template for users to build homepage by themselves.
iii. Provide a useful application or services to widen the use of formal on-line system.
iv. Provide simple but intelligent on-line service's application
v. Provide a simple and easy to understand system that let user to involve in.
vi. Provide a convenience, accessibility, free and quality interaction for the system user.
vii. Provide an easy way to create homepage without worried about the template design.
viii. Allow information sharing which academician can upload lecture notes, tutorials, assignments and etc.

1.4 Project Scope

Considering that the scope of this project is indeed wide, the implementation of a complete Homepage Template for Academic would require a significant amount of time. Therefore, in the case of this project, this application would be restricted to a certain extent in term of both breadth and dept.

Thus, the scope of this project is to:

i. Develop an efficient and reliable system.
ii. Provide a user friendly and smooth Homepage template builder.
iii. Provide an effective and reliable system updating and maintaining for the administration.
iv. A simple database for keeping record about identity and password of users.

1.5 Project Significance

The project significance are listed as below:

i. Encourage academic to build a homepage for teaching and personal purpose.
ii. Allow academic to set up lecture notes, tutorials, assignments / projects through the Internet.
iii. Academic can use the Homepage created for on-line teaching such as a tutorial for learning HTML.
iv. Let academic to play a part in web design and development.

1.6 Hardware and Software Requirements

In order to build a good system, the hardware and software chosen will infect the process and the final result of system development. Table 1.1 shows the hardware and software that will be use for the Homepage Template for Academic system.

Hardware	**Use**
CD- R/W	Data storage
Floppy Disk	Data storage
Hard Disk	Data storage
Mouse and keyboard	Typing and pointing.
Monitor	Screen Output
Software	**Use**
Microsoft Window NT Server 4.0	Web server host
Internet Information Server 4.0	Web server for ASP coding testing
Microsoft SQL Server 7.0	Database design.
Microsoft FrontPage	HTML editor for interface and scripting
Microsoft Words	Documentation
Macromedia Flash	Create animation.
Adobe Photoshop	Image design and manipulation

Table 1.1Hardware and software requirements

1.7 Project Timeline

The activities involved in each month and listed in the table 1.1 below:

Dates	**Activities**
June (2001) - July	Research on possible software/ tools used. Research on other possible homepage layout.
August	Analysis user requirement and learn related software/tools. Prepare the documentation and viva. Start design user interface.
September	Start develops the system module by module.
October – January (2002)	Software development and testing.

Table 1.2 Expected Activities Involved

The timeline for the activities of the project are as follows:

Activity	Start Date	End Date	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Concept Definition	9 Jun 2001	13 Jun 2001								
Research and Literature Review	14 Jun 2001	4 July 2001								
Requirement Specification and Analysis	5 July 2001	1 Aug 2001								
System Design	2 Aug 2001	5 Sep 2001								
Incremental Prototyping	6 Sep 2001	26 Dec 2001								
Integration and Testing	27 Dec 2001	24 Jan 2002								
Documentation	9 Jun 2001	24 Jan 2002								

Duration

Figure 1.1 Project Timeline

1.8 Summary

1.8.1 Chapter 1

Chapter 1 presents the overview of the system that how the system will be develops. Motivation project is about the usage, how the system will be developed and who should

use the system. And then the objective, scope and significant is about what the system should have and the possible user needs. Hardware and software that will be used also list out and the timeline of activities show the activities from the start until the end of the project, which have to done.

1.8.2 Chapter 2

Chapter 2 presents the literature review of the system of Homepage Template for Academic (HTFA). This review gives description and services provided by the existing system on the Internet now and the analysis of features in the existing system. Tools and technologies consideration also available in this chapter.

1.8.3 Chapter 3

Chapter 3 presents the system methodology – Prototype model is used for system development. This section also covers the Information gathering. The functional and non-functional requirements included in this chapter for show how the system will work. Finally is the programming languages chosen, software and hardware requirement for develops this on-line system.

1.8.4 Chapter 4

Chapter 4 is the system design presents how the system will be developed. ASP, JavaScript and VBScript will be the technologies and computer language chosen for program design. Data flow diagram, system flow-chart, user interface and database design is show in this chapter for a quick view for the system that will be developed.

1.8.5 Chapter 5

Chapter 5 describes how the system is implemented starting from the login module to the end with logout module. All the modules fulfill the requirements of system specified in chapter 4. The coding of the system is build with Active Server Pages. Several software like Visual Interdev, Microsoft FrontPage, Photoshop is using to success this system implementation.

Overall, the primary goal of this phase is to produce a simple, clear source code with internal documentation that will ease the processes of a verification, debugging, testing, modification and further enhancement.

1.8.6 Chapter 6

Chapter 6 is about the system testing of the whole HTFA system from the unit testing, module testing to system testing. Generally, the main objectives of the project as describes earlier have been achieved. The system is able to provided a service for academic to build homepage and even upload their pictures and files into the system. Besides that, this system also provides safeguard to prevent the unauthorized users from accessing or modifying the system or database.

1.8.7 Chapter 7

Chapter 7 is the last phase in the system development. It presents the evaluation and review process for the end system. This chapter is related to the evaluation of the system that includes the system evaluation, system strength, system constraints and future enhancements. The evaluation will help the developer to understand more about the system strengths and limitations. Then, a more complete and comprehensive system can be developed in the future enhancement.

Chapter 2: Literature Review

2.1 The Web Design History

The World Wide Web developed from a scientist's interest to explore communication methods via the computer network. The web dates back to the early 1980's at a European high-energy physics research facility. Tim Berners-Lee who did the initial development stage was interested in the ability to link academic papers electronically and to utilities the internet to correspond to people in other laboratories around the world. Tim worked on the standard hypertext (html) language protocol and browser program, which interrupts the html and converts it into screen-based text. The first browser program was capable of viewing text documents only, but from a range of different computer platforms.

[A short history of the web, http://www.inria.fr/Actualites/Cailliau-fra.html]

The Internet has been in place since the late 1960's and utilized for data transfer between computers via the telephone network system. The data transfer was carried out by using TCP/IP (transmission control protocol/ internet protocol), which was developed by Advanced Research and Projects Agency. The TCP/IP was developed for US military reasons but was later utilized by academia in Universities.

Since the early 1980's, the web has developed at a very rapid rate and is now used by education, business, government and any other body interested in transferring electronic media around the world. . [Gribblel Chery, The HitMill, History of the web, http://www.hitmill.com/internet/web_history.html]

Many of these characteristics where driven by the development of html. The web sites created at this stage tended to be overdone with technology without respect or consideration of the web site purpose, use technology for technologies sake and with no treatment for clean layout for communication. Pages were over-crowded with flashing icons and rainbow colored graphics and backgrounds. However, there were a few designers such as David Seigal, who were able to utilize the html code in ways that it was not

intended to be used in order to acquire the page layout they desired. One example of this is when the html tags for table were introduced for statistical data layout, these designers used the table code for pouring in the columns of text and graphics like you see in magazine and books. Tables were used to acquire greater control of element positioning, it was a work around

These sites were still adapting to technology that was constantly changing such as the computer monitors used to view the web could be 640x480 pixel's, or 800x600 pixels or 1024x768 pixels, was the viewers monitor 8bit or 24 bit? This influenced the color depth of the images on the web. The other problems were that Microsoft had their rules and Netscape had their's even within the guidance of the 3WC.

While there is the reality of realizing the web medium's capability and limitations, the main drawback of the web is speed of downloading information. People may not be interested in waiting for content to appear on their computer screen, and even if the information does appear, will they be motivated to read off the screen. Web text is not easy to read because of the inherent browser characteristics. It is easier to read from books, magazines and papers, why? Because of the designers input to the amount of leading between the lines of text and the controlled length of text in a measure within a horizontal space. These controls do not exist on the web, unless the designer actually inserts the texts as a pixel graphic. The text and font size can be set on the browser, but how many people know how or even if they do, do they know what aspects are important for legibility, readability and clarity. [Siegel, David, 1997, Creating Killer Web Sites]

From the traditional designers point of view, the web has a long way to go yet with the many restrictions on the use of typography. David's Siegal philosophy in third generation web sites is to present information from a designers point of view and be compatible to common browsers as well as being independent of technology trends.

The web browsers mainly Netscape and Microsoft Explorer are becoming increasingly technology based in order to deliver the multi media content that is currently in demand. This multi media content includes sound and animation, database, e-commerce, and 3D worlds such vrml. Designers now have a greater power to deliver to dynamic content

within the default environment of the browsers. A classic example of this is that both Netscape and explorer come bundled with the plug in for macromedia flash. Flash can deliver dynamic media, such as interactive graphics, sound, animation, 3D, forms, and e-commerce. Other such media requires the user to download the plug in for their particular browser and platform, MAC or PC. While there is now a greater array of tools available to the web designer, it seems that the designer needs discipline themselves to know when to use or not use the multi media in preference to the keep it simple approach for clean communication.

[December John, Web Development, http://www.december.com/web/develop/plan.html]

Third generation sites aim to attract and communicate to an audience in accordance with the sites objective. The site objective could be to inform, inquire or sell in the shortest amount of time required. To do this, there is an emphasis on project design and management in order to create a site that will draw the viewer in where they will instantly be aware of who, what where and why the site exist at just a glance. The viewer will what is provided at the site and know how to get it using intuitively designed navigation system to find their way around the web site. The site structure is considered extremely important for the web site's design to meet the above requirements.

Web design has evolved with respect to the constantly changing technology environment of the web's capability and limitations. There was a period of time where interactive CD ROM's were used to deliver contents, which was technically too difficult over the web; this situation has now turned around where the design philosophies for CD ROM are now being applied of the web. The design goal is to create intuitive navigation systems in order to allow the user to find what they are looking for quickly. This is extremely important if the web site has huge amount of content information. The users recognize the function from the visual form of the button, i.e. form follows functionality. The visual form of the navigation system must support and /or suggest the function for immediate response to navigate to the information they are seeking. Maybe the button has only text, or symbol or both a symbol plus text. The web designers have responsibility to present content and navigation appropriate to the purpose. Similar to creating a corporate identity for print,

what color, what symbols are appropriate to visually communicate their mission statement or what ever their client is about.

The third generation conform to the advertising / marketing strategy, attract the audience in a mille second, hold the interest once you have their attention, create the desire for the attracted audience to want to know more, then call the action line, what will motivate the audience to take action to respond? On the web, what will attract the audience to the web site, what will be there when they get there? What is the purpose of the web site? The marketing specialists are now just getting on the band wagon as can be seen in the magazine rack at the newsagent, with plenty of marketing online mages available. The design of a web 3rd generation site could be structured to have a splash page to attract the attention, a tunnel page to guide the view through some unique offering to provide interest, and core page which will provide information about the total content at the site and a navigation system to show how to get what and where, (this section would provide the desire for the viewer to know more). Their would be an exit page that could promote the call to action such as an electronic form. This web design strategy is directly influenced by presenting the what, why and who rather than a technology based design.

Forth generation designed sites have been referred to as being the multi-media rich site with all the bells and whistles, but really is forth generation only extension of 3rd gen with some unique web driven selling proposition which can only be delivered on the web. Maybe remote education over the web, all the course notes, tutorials and exams etc, or maybe just overnight ordering of products and services 24 hours a day. There will come a time when 3rd gen sites will be accepted as the norm regardless of the site's purpose. Will user instantly recognize the web sites purpose at just a glance, has the site been specifically designed for education, commerce, information, government, or just for entertainment?

[History of Web, http://www.innervisions.com.au/webhistory/index.html#hist]

2.1.1 The Future of Web Design

The new versions of browsers and html have provided the control that the designers have been concerned about over the last 10 years. The designer can now position page elements

with far greater freedom from the original html. The introduction of version 4 html has style sheets, which can control any element on the web page even the whole web site.

For any technology that is introduced into the market place, there are usually the early adopters, the mainstream and the laggards. It may take a few more years for the web to really find its directions into the mainstream market place in the community. Although, at the moment, there seems to be a growing hype among small businesses to have a small web page setup in addition their yellow page ad with a business name. It is getting to the stage where the business also needs a domain name before setting a web page in order to be taken seriously on the web, i.e. yourname@domain_name.com.au or www.domain_name.com.au.

[Berners-Lee Tim, The World Wide Web: Past, Present and Future http://www.w3.org/People/Berners-Lee/1996/ppf.html]

Events related to web design and development are listed as below:

1994

i. World Wide What??
ii. Word began to get around about Mosaic, the first Web browser that had a graphical user interface
iii. Downloading a file from a server was complicated

1995

i. Netscape Navigator introduced by Marc Andreessen, who had created Mosaic at the University of Illinois' National Center for Supercomputing Applications
ii. Web users and developers were mostly university students and staff
iii. Gopher was still pretty popular
iv. Most pages were filled with text and ugly graphics
v. Most sites were difficult to navigate
vi. HTML was created with text editors -- no WYSIWYG editors

[http://www.csitech.net/stu.../design_final.htm - web site design history]

1996

i. Less text, less scrolling
ii. Lots of graphics (big image maps)
iii. Use of tables to place graphics
iv. Some use of frames & databases

1997

i. Business begins to take an interest in the Web
ii. Businesses begin using databases for online commerce
iii. More WYSIWYG editors, animations, streaming audio

1998

i. Web explodes -- influences culture, politics, economy, education
ii. More e-commerce sites -- some businesses making money
iii. Web users begin to look more like the average American
iv. More dynamically-generated pages, more Flash and Shockwave animation
v. Design trend is to pack information on the main page

1999

i. New companies, new ways of organizing and doing business (telecommuting, inventory, training, etc.)
ii. One-to-one marketing takes off
iii. MP3 makes waves in the music industry
iv. More and more emphasis is placed on creating sites that can be easily maintained; so

more developers integrate databases and use more sophisticated tools (ColdFusion, Visual InterDev, etc.)

2000

i. More services for home users (see www.ofoto.com and www.idrive.com)
ii. XML, XHTML
iii. Internet devices
iv. Home stock trading
v. Number of female users surpasses mail users

2001

i. Wireless technology (to handheld computers)
ii. More video

[Web site design history, http://www.csitech.net/stu.../design_final.htm]

2.2 Why Academicians publish on the Internet.

Internet was grow up rapidly, people found out Internet is a fast, easy, efficient way to publish their information, provided services, published news, advertising, shopping, earn money. From the dictionary of Oxford, the definition of academic is a scholar/teacher in university. What is the relationship between homepage and academician? Below are the reasons why academicians publish on the Internet or own a homepage:

1. **Upload announcements, notes, quiz , assignment, projects, tutorials and slides for students.**

   i. Academician can make announcements to inform the students the class on someday is cancel or relay.

ii. Academician also can upload the notes or slides as part of lesson to let students to download and refer.

iii. Giving on-line quiz to students for testing student's achievement.

iv. Publish some related information like results of examination, available time for meeting to students.

v. Giving assignments and projects to students by published the title, description, date for submit and the scope of assignments.

2. Sharing information with other academician.

i. Sharing new ideas or related data like information about students, meeting schedule, announcements from upper, time and venue of a seminar and etc.

ii. Publish individual news like get promotion, out for vacations and etc.

3. Publish new research results to public

i. Academician can publish new and old research results for public reference.

ii. Obtain opinions of the public according to the research results from guestbook for improvement.

2.3 The systems available on Internet

There are many web sites provided homepage templates for building web page on-line. Some are free of charge and some are need to pay month or year fee. Most of those sites are provided free web storage for user to build pages and uploading files. Below are a list of web sites which provided homepage building service, some description, the services provided and the strength/weakness of those web sites:

2.3.1 Yahoo! Geocities! (http://geocities.yahoo.com/)

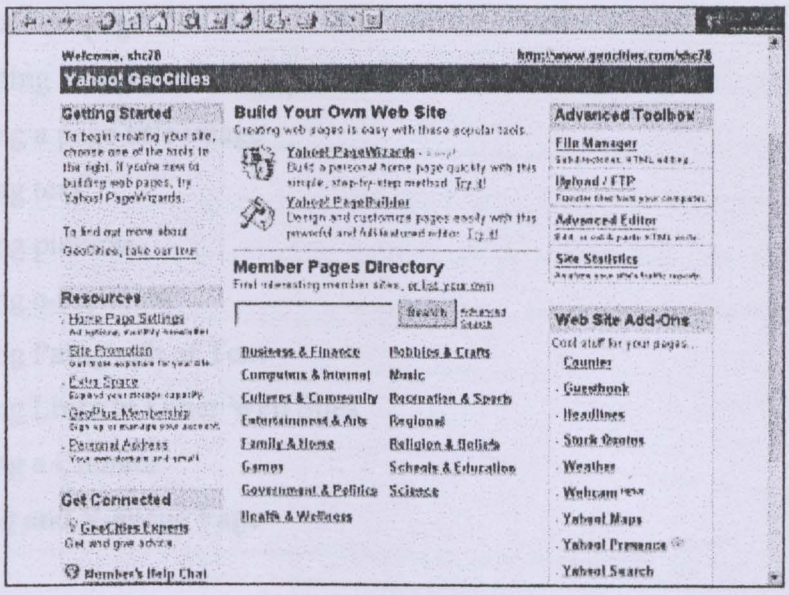

Figure 2.1 Main page of Yahoo! Geocities

Yahoo geocities! is a commercial site that provide service for users to build homepage and design web pages to fulfill users need with a choice of tools for beginner and expects. . This is the most famous site that provides homepage build up because it's easy to build and free.

2.3.1.1 Services Provided

a) **Yahoo Page wizard** – a simple, fast, step-by –step method for build a home page. Provided template for choose and can change the color of the background, users just need to answer a few of question to build a homepage. Users are required to follow about 4-5 steps to create web site. Those steps may include choosing the look of page, enter title and text, putting pictures and enter the favorite links.

b) **Yahoo Page Builder** – A powerful and full featured editor of design and customize pages easily. This tool is like a on-line HTML editor and this editor also have some functions and features same with Microsoft FrontPage or Macromedia

Dreamweaver. There are 10 steps have to followed to build a homepage and listed as below:

i. Start a new page.
ii. Selecting a background
iii. Adding a page title image
iv. Adding text
v. Adding pictures
vi. Adding e-mail link
vii. Adding Paragraph of Text
viii. Adding Links to Other Web Sites
ix. Adding a Counter
x. Saving and Viewing Page

b) **File Manager** – Tools used to maintain and modify files and subdirectories. This tools provided service like add, delete, edit, copy, rename and upload files that have been create before. File manager also have 2 HTML editor to do the maintenance of the files and there are basic HTML editor and advanced HTML editor.

c) **Upload/FTP** – Tools to transfer files from computer to the main directory of users. This tool provided up to 5MB web space for users to upload files and also show how many files had been upload by users.

d) **Advanced Editor** – a free form editor to cut, copy and paste users HTML code to the web. Users can use this editor to customized HTML coding. Advanced editor is like the notepad on the web for users to write HTML code and provides function to preview the pages.

e) **Site Statistics** – a report for user's homepage to show how many files in the homepage, total pages views to date, highest monthly page views, most popular browser visitors use, most common screen resolutions visitors have and the pages is linked to most often from this URL.

f) **Web site add-ons** – provided some features to enhance users homepage like guestbook, counter, headlines, Yahoo! Maps, Yahoo! Search and etc.

Dreamweaver. There are 10 steps have to followed to build a homepage and listed as below:

i. Start a new page.
ii. Selecting a background
iii. Adding a page title image
iv. Adding text
v. Adding pictures
vi. Adding e-mail link
vii. Adding Paragraph of Text
viii. Adding Links to Other Web Sites
ix. Adding a Counter
x. Saving and Viewing Page

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e) **Site Statistics** – a report for user's homepage to show how many files in the homepage, total pages views to date, highest monthly page views, most popular browser visitors use, most common screen resolutions visitors have and the pages is linked to most often from this URL.

f) **Web site add-ons** – provided some features to enhance users homepage like guestbook, counter, headlines, Yahoo! Maps, Yahoo! Search and etc.

2.3.1.2 The different between Yahoo! PageWizards PageBuilder

Yahoo! PageWizards are designed to help users to quickly choose and personalize templates to create a professional-looking web page. Yahoo! PageWizards will take users step by step through the process of adding text and/or images to create homepage.

PageBuilder is also designed to offer an easy-to-use, point-and-click, free Internet-based home page builder. However users won't be taken through a step-by-step process to create homepage. PageBuilder allows more flexibility over your page and which elements to edit, such as adding background music, adding a guestbook, or changing the layout.

2.3.1.3 The strengths and weakness

Strength

i. Easy and fast to build homepage.
ii. Can search the site easily from the power search provided.
iii. Maintenance service provided for users to keep track of existing pages.

Weakness

i. The time loading of Page Builder is too slow and sometimes takes up to more than 10 minutes or even did not show up.
ii. The quality and the quantity of the templates provided need to be improve.
iii. The web space provided is not enough compare to the others site that are provided same service.

2.3.2 Tripod.com (http://www.tripod.lycos.com/)

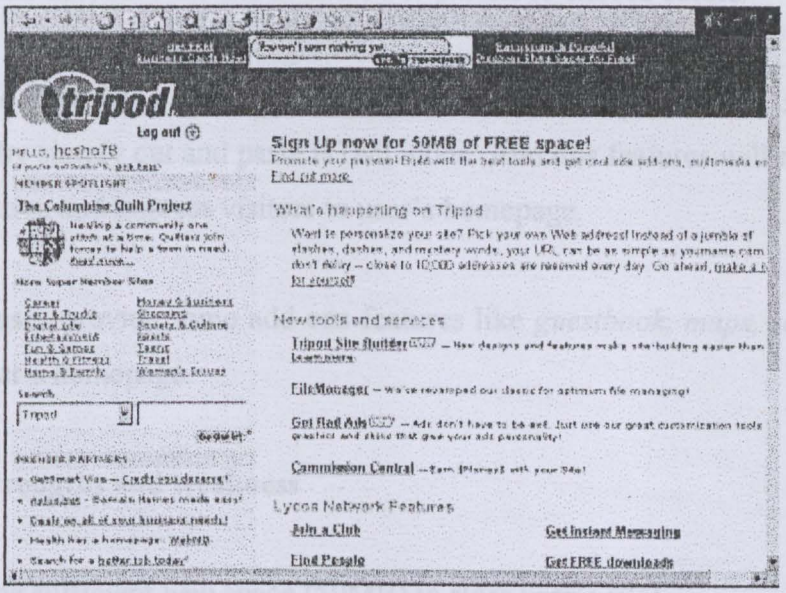

Figure 2.2 Main page of Tripod.com

Tripod.com is another commercial site powered by Lycos network that provided on-line build homepage and free web space to uploaded files. This site provided up to 50MB web space for build homepage and files uploading.

2.1 Services Provided

a) **Tool site builder** – tools with professional design templates provides to build a professional looking and multiple-pages site. There are fast, effortless editing , no HTML knowledge required and no software to download. This tolls also allow instantly add counters, guestbooks, maps and etc. Users need to follow few steps to build homepage like adding text, contact information, pictures, links and etc.

b) **FileManager** – File managing system to organize, edit, copy, move, and rename the files in member directory, as well to upload new images and files.

c) **FreeForm** - HTML Editor set up the basics functions for users to write HTML code and HTML knowledge required. Provided few basic function to edit the files like *New*

to start coding, *Open* to open a exist file from user's computer, *Preview* – preview the page, save the file, save the file as and color palette to choose colors.

d) **LycosVideo Center** - Tools for help upload video clip or slide show to user's homepage by simply cut and paste HTML code. And this features will make user's site more attractive and impress visitors to user's homepage.

e) **Site add-ons** – provide some add-ons features like *guestbook, maps, sent_to friend* to enhance user's homepage.

2.3.2.2 The strengths and weakness

Strength

i. Provide sufficient web space (50MB) to store user's files.
ii. Provide professional web templates for build pages.
iii. Easy and fast to build pages.
iv. New services that can help users to upload video clip and slide show.
v. Variety services for building pages like tools site builder (easy and no HTML knowledge required) and free form (more flexible and HTML knowledge required)

Weakness

i. Login problem – take long time to login to system.
ii. User's site required displaying advertising banners and graphics. This advertising prompt up automatically when page was load. Visitor will be disturbed and felt bored to view those advertising.

2.3.3 Fortunecity.com (http://www.fortunecity.com)

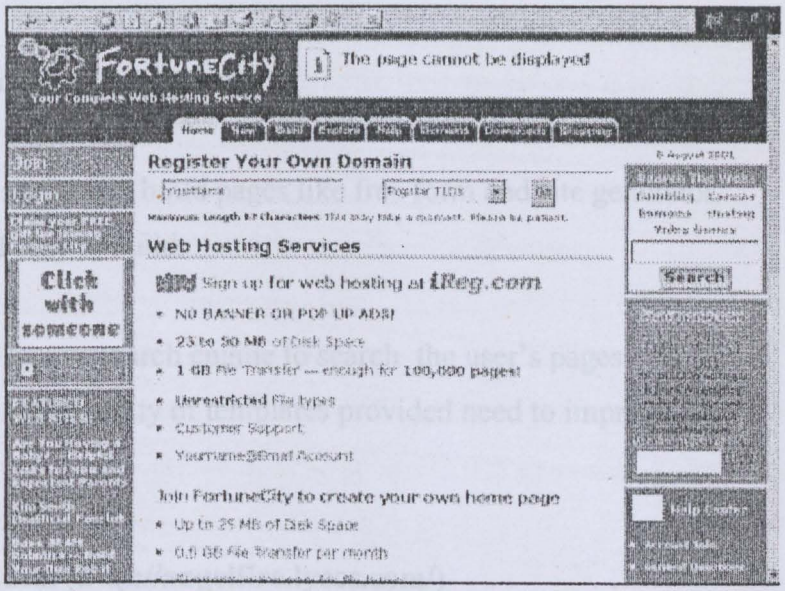

Figure 2.3 Main page of Fortunecity.com

Another commercial site provides web-hosting service. This site also provides free web space up to 25 MB to build homepage and upload files. Other services like software download and e-shopping also can found in this site.

2.3.3.1 Services provided

a) **Site Generator** – tools for building a great website with steps by steps and fast. Great looking templates provided, no technical skills needed and instantly add guestbooks, maps, site promotion and even user's own HTML coding.

b) **File Manager** – Allow users to add, upload, rename and delete web site's files or edit HTML. This is a tool for intermediate to advanced web developers. File manage also allow users to upload numerous files from user's computer using the browse feature.

c) **Web Trellix** -A downloadable software program fast and easy way to allows users to build real multi-page web site category like photos, family, business, hobby and etc. Users do not need any web building experience and HTML knowledge. Web Trellix

ease of use and flexibility are more like word-processing or presentation-graphics tools than typical complex web page-designing software.

2.3.3.2 The strength and weakness

Strength

i. Variety method to build pages like free form and site generator.

ii. Fast and easy to build.

Weakness

i. Need to have a search engine to search the user's pages.

ii. Quality and quantity of templates provided need to improve.

2.3.4 Angelfire.com (http://angelfire.lycos.com/)

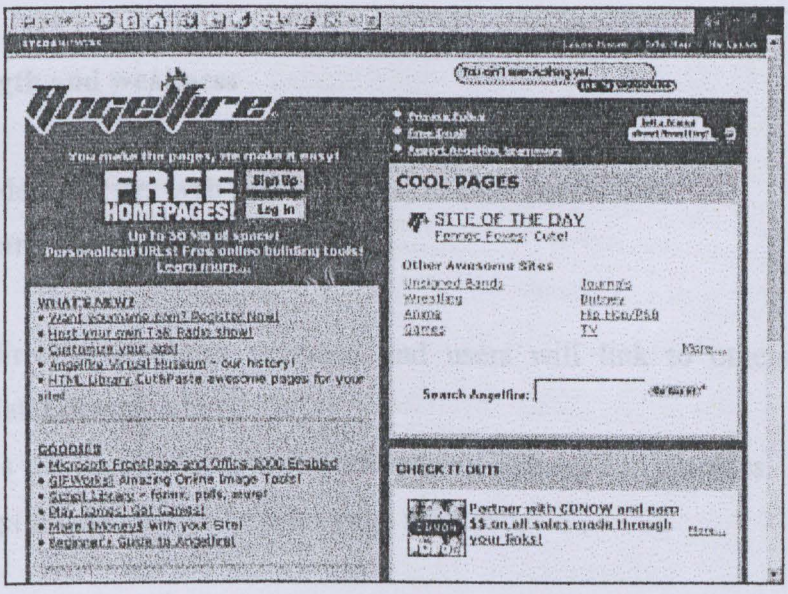

Figure2.4 Main page of Angelfire.com

Commercial site focus on providing web site development service. Provide up to 50MB to build homepage and upload files. Algelfire.com is powered by Lycos network and have many cool links to others web development sites.

2.3.4.1 Service provided

a) **Web shell** – more like a file manager that help users to organize, edit, copy, move, and rename the files in member directory, as well to upload new images and files. Web shell also provide some links to web page building development like htmlGEAR, script Library, building guides and etc.
b) **HTML Library** – provides HTML templates to download.
c) **Downloadable Tools** – software like HTML editors, FTP software, animation programs and a lots more cool stuff from LycosComputers.
d) **Promoting user's site** – site analyzer will optimize user's pages for the search engine, and search engine submitter will submit user's site to multiple search engines. It will give users the straight ways to get visitors.
e) **Webpage Building Resources** – tutorial and resources for web development like HTML, JavaScript, Asp and etc.

2.3.4.2 Strength and weakness

Strength

i. Provide sufficient web space (50MB) to store user's files.
ii. Easy and fast to build pages.

Weakness

i. No directly templates provided and users will link to others sites for web templates downloading.
ii. User's site required displaying advertising banners and graphics. This advertising prompt up automatically when page was load.

2.3.5 20fr.com (http://www.20fr.com/)

Figure 2.5 Main page of 20fr.com

20fr.com is a commercial web site that provides web hosting service. There are 4 kind of hosting option provided and listed as below:

i. 100% free Package– provided up to 20 MB web space, basic customer support , unlimited web email and banner ads.

ii. Banner- Be-Gone Package – provided up to 30MB web space, priority customer support, unlimited web email, no banner ads and costs $5.95 per month.

iii. Value Package – provide up to 60MB web space, value stats package, priority customer support, unlimited web email, no banner ads and costs $9.95 per month.

iv. Premium Package – provide up to 100MB web space, pro stats package, priority customer support, unlimited web email, no banner ads and costs $14.95 per month.]

2.3.5.1 Services provided

a) **Quick site builder** - The *Site Builder* is a utility, which makes developing user's web site incredibly easy even if users are, know absolutely nothing about creating web pages. *Site Builder* utility will walk you through building your site step by step. User

can simply select from the available layouts and enter the specific text. The *Site Builder* even provides suggestions for getting started in these areas in case users haven't developed idea to that stage yet. It's incredibly easy and the fastest way for anyone, no matter their level of understanding, to build a personalized web site.

b) **Site Copier** - The *Site Copier* is a way for users to transfer files from one web site to another. If users already have a site somewhere on the Web, users can copy and transfer all files in one easy step using the *Site Copier*. All of the files on the old site will be copied to the new site in a matter of seconds.

c) **File manager 2.0** - The *File Manager* is a highly versatile utility that gives user extensive control over the contents of your Internet site. Users can create new files or folders, edit existing HTML files, even copy files currently on your site to a new name or location. Users can also upload files from your own computer. Users can rename or delete files, navigate through directories, and even initiate a refresh on the list of files from the command line interface. For those familiar with the command line interface there is even a command line editor. The *File Manager* provides some additional tools to assist users with managing sites containing many files, by offering an edit interface which allows you to simply select all files meeting a criteria which users specify. Users can even modify the view of the file list to include only the files that users want to work with, sorted by a variety of criteria which users can customize. The *File Manager* interface even shows you the current status of user's web site, giving you the size of files and the amount of remaining space. These features combine to make the *File Manager* the most robust online web management tool available.

2.3.5.2 The Strengths and Weakness

Strength

i. Fast and easy to build web page. Only take about few minutes to finish a page building.

ii. Variety of tools to choose for creates homepage such as free form editor and page builder.

Weakness

i. Web storage and quality of templates provided need to improve.

ii. User's site required to display advertising banners and graphics.

3.3.6 moonfruit.com (http://www.moonfruit.com/)

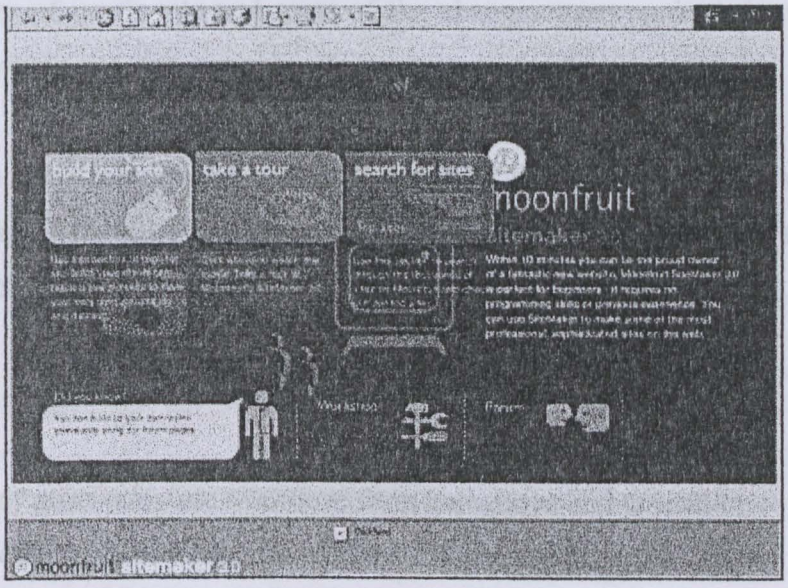

Figure2.6 Main page of moonfruit.com

Moonfruit site maker a personal web site provided free service for building web pages created by using flash. Provided up to 20MB web space for create web site. Site maker was established in summer 1999 and has developed a multimedia personal web site building toolkit that delivers the production values of a design agency along with the assembly ease of logo bricks. Users can build a really cool website easily.

With flash, sites can offer faster downloading, better design, more efficient use of memory, easy editing within the environment and the potential for all sorts of exciting features from animation to user's sound effects.

3.3.6.1 Services provided

a) **Edit this page** – add/edit individual items on each page. The page editor will appear. This is a very powerful tool for modifying user's site and the second page in this section covers the full use of the page editor.

b) **Manage your site** – takes users to site control – a kind of back room where users edit the structure of user's site and most of the changes users make here will take effect across the whole site, for example add pages, modify site properties.

c) **Search the site** - provides internal search engine for searching user's site. The search will bring up all the sites that match user's criteria and inform which is the last updated and other relevant information.

3.3.6.2 The strength and weakness

Strength

i. A lot of great template to choose from categories and animation to add-ons.
ii. Attractive and really easy to use to build homepage.
iii. The coding is hiding from user and make the user's site more security and prevent others to copy user's sites.

Weakness

i. Take much time to loading and sometimes even didn't success to load the pages.
ii. Response of the page is too slow, users have to wait so long when choose or click on a action button.

2.3.7 Web Spawner (http://www.webspawner.com/)

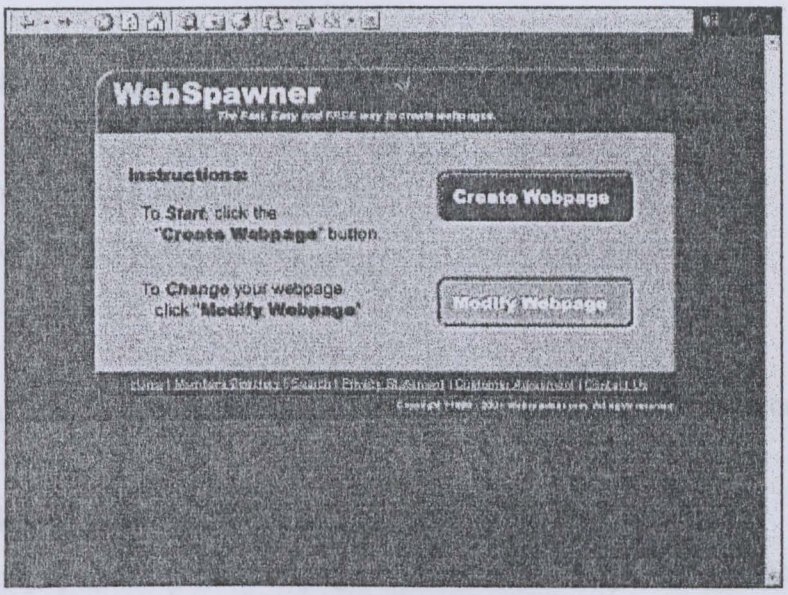

Figure 2.7 Main page of WebSpawner.com

A commercial site providing simple and fast homepage creating. Webspawner.com is a banner ad supported network. Users given the option of placing these banners in either a Pop-Up Window or at the Top of your Web Page. Users have to register with a minimal fee $4.99 to enhanced web page like mailbox image, guestbook, live access counter and etc.

2.3.7.1 Services provided

There are two type of web page can choose to build – the basic web page and the enhanced web page which the previous one is free of charge and the second one is need a minimal fee $4.99.

There are 7 steps to build the pages and are listed as below :

i. Insert the headline
ii. Select the background
iii. Enter the text or information to appear on web page
iv. Add a list of links to homepage
v. Input email address

vi. Insert image

vii. Choose account name and password for future access.

2.3.7.2 Strength and weakness

Strength

i. Fast and easy to build a homepage.

ii. No advertising banner ad-ons.

Weakness

i. No real templates provided because the site only provided background image and color.

ii. Page design not attractive and not flexible to use.

iii. Have to pay minimal fees for page enhancement like guestbook and counter.

2.3.8 00server.com (http://00server.com/)

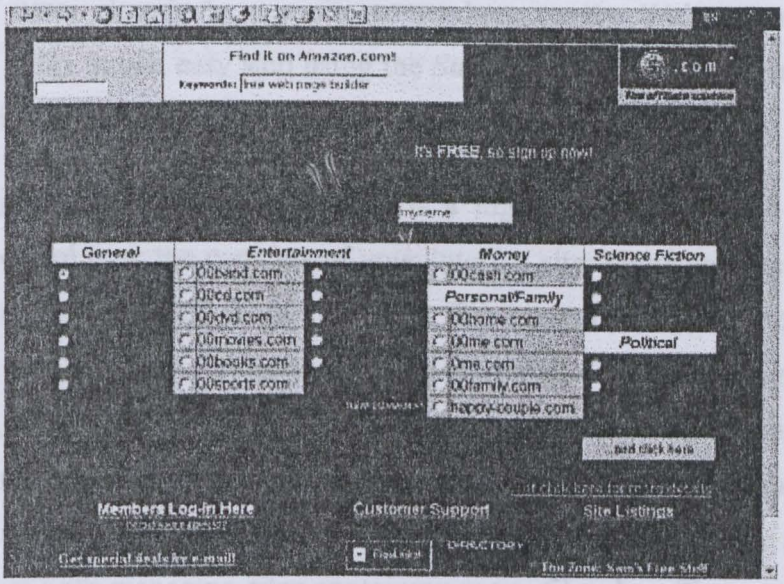

Figure 2.8 Main Page of 00server.com

00server.com is like the 20fr.com, is a commercial web site. This sites helps users to builds web site according to the domain like general, entertainment, money, personal/family,

science fiction, political and etc. Users have to register as a member to use the service provide. Provided up to 20MB web space and is a banner ad supported site meant that banner advertisements always show on user's homepage and if user's need to remove the banner, they need to buy another pages of web site building. This features is like the 20fr.com that have four package for user to choose and the detail can refer to the previous page at 2.5.

2.3.8.1 Services provided

a) **Quick site builder** - The *Site Builder* is a utility, which makes developing user's web site incredibly easy even if users are, know absolutely nothing about creating web pages. *Site Builder* utility will walk you through building your site step by step. User can simply select from the available layouts and enter the specific text. The *Site Builder* even provides suggestions for getting started in these areas in case users haven't developed idea to that stage yet. It's incredibly easy and the fastest way for anyone, no matter their level of understanding, to build a personalized web site.

b) **Site Copier** - The *Site Copier* is a way for users to transfer files from one web site to another. If users already have a site somewhere on the Web, users can copy and transfer all files in one easy step using the *Site Copier*. All of the files on the old site will be copied to the new site in a matter of seconds.

c) **File manager 2.0** - The *File Manager* is a highly versatile utility that gives user extensive control over the contents of your Internet site. Users can create new files or folders, edit existing HTML files, even copy files currently on your site to a new name or location. Users can also upload files from your own computer. Users can rename or delete files, navigate through directories, and even initiate a refresh on the list of files from the command line interface. For those familiar with the command line interface there is even a command line editor. The *File Manager* provides some additional tools to assist users with managing sites containing many files, by offering an edit interface which allows you to simply select all files meeting a criteria which users specify. Users can even modify the view of the file list to include only the files that users want to work with, sorted by a variety of criteria that users can customize. The *File Manager*

interface even shows you the current status of user's web site, giving you the size of files and the amount of remaining space. These features combine to make the *File Manager* the most robust online web management tool available.

2.3.8.2 The Strengths and Weakness

Strength

i. Fast and easy to build web page. Only take about few minutes to finish a page building.

ii. Variety of tools to choose for creates homepage such as free form editor and page builder.

Weakness

i. Web storage and quality of templates provided need to improve.

ii. User's site required displaying advertising banners and graphics.

2.3.9 zy.com (http://www.zy.com/)

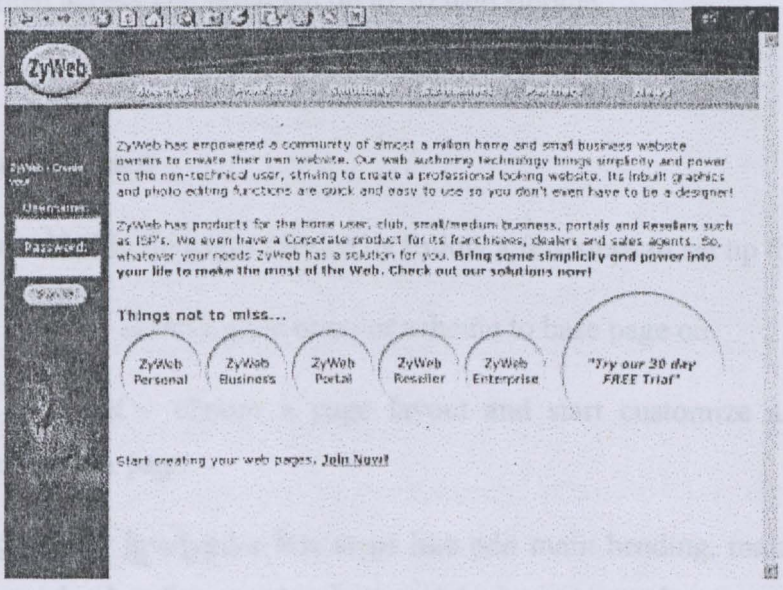

Figure 2.9 Main Page of zy.com

ZyWeb is a commercial has empowered a community of almost a million home and small business website owners to create their own website. ZyWeb web authoring technology brings simplicity and power to the non-technical user, striving to create a professional looking website. Its inbuilt graphics and photo editing functions are quick and easy ZyWeb has products for the home user, club, small/medium business, portals and Resellers such as ISP's.

There are 3 types of build web sites provided and are listed as below:

a) **ZyWeb Trial** - ZyWeb Trial is a demonstration of how quick and easy website creation can be - create and publish a simple 5 page website in minutes. ZyWeb Trial is a 30 day demonstration product and only provided up to 10MB web space.

b) **ZyWeb Personal** - ZyWeb Personal is for anyone wishing to publish a complete personal website or site for a community, club or association without the need for any technical skill. Need US$79 for a year's unlimited access and provided up to 20MB web space.

c) **ZyWeb Business** - ZyWeb Business is for businesses wishing to take advantage of the web as fast as possible. No need for any technical or graphic design skills - it is a quick and easy way to start communicating professionally over the web today. US$299*for a year's unlimited access and provided up to 30 web storage.

2.3.9.1 Services provided

Page editor – provided build pages service by follow a few steps to set up the pages.

i. Select a style – select a style or color scheme to base page on.

ii. Select a layout – choose a page layout and start customize and change the contents of that page.

iii. Editing page – involved a few steps like edit main heading, main text, buttons, background color, theme color, button style, main text color, insert/delete module and customize page.

2.3.9.2 Strength and weakness

Strength

i. Fast and easy to build homepage.

ii. Provided page maintenance for user to maintain pages created.

Weakness

i. No free service provided or only a free trial for 30 days

ii. Web storage provided is no enough.

iii. Lack of templates provided and not flexible to build web page.

2.3.10 Fanspace.com (http://www.fanspace.com)

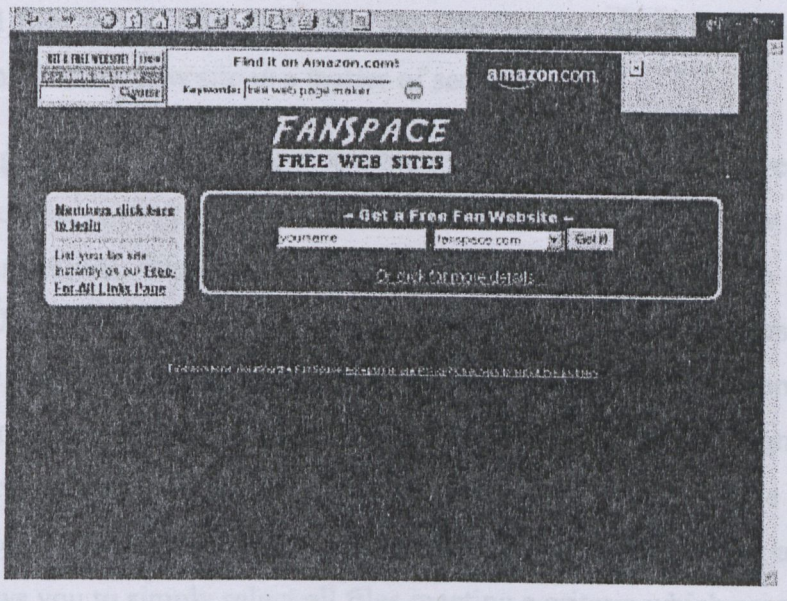

Figure 2.10 Main page of fanspace.com

fanspace.com is like the 00server.com, is a commercial web site. This sites helps users to builds web site. Users have to register as a member to use the service provide. Provided up to 20MB web space and is a banner ad supported site meant that banner advertisements always show on user's homepage and if user's need to remove the banner, they need to buy

another pages of web site building. This feature is like the 20fr.com that have four packages for user to choose.

2.3.10.1 Services provided

a) **Quick site builder** - The *Site Builder* is a utility, which makes developing user's web site incredibly easy even if users are, know absolutely nothing about creating web pages. *Site Builder* utility will walk you through building your site step by step. User can simply select from the available layouts and enter the specific text. The ***Site Builder*** even provides suggestions for getting started in these areas in case users haven't developed idea to that stage yet. It's incredibly easy and the fastest way for anyone, no matter their level of understanding, to build a personalized web site.

b) **Site Copier** - The *Site Copier* is a way for users to transfer files from one web site to another. If users already have a site somewhere on the Web, users can copy and transfer all files in one easy step using the *Site Copier*. All of the files on the old site will be copied to the new site in a matter of seconds.

c) **File manager** - The *File Manager* is a highly versatile utility that gives user extensive control over the contents of your Internet site. Users can create new files or folders; edit existing HTML files, even copy files currently on your site to a new name or location. Users can also upload files from your own computer. Users can rename or delete files, navigate through directories, and even initiate a refresh on the list of files from the command line interface. For those familiar with the command line interface there is even a command line editor. The *File Manager* provides some additional tools to assist users with managing sites containing many files, by offering an edit interface which allows you to simply select all files meeting a criteria which users specify. Users can even modify the view of the file list to include only the files that users want to work with, sorted by a variety of criteria that users can customize. The *File Manager* interface even shows you the current status of user's web site, giving you the size of files and the amount of remaining space. These features combine to make the *File Manager* the most robust online web management tool available.

2.3.10.2 The Strengths and Weakness

Strength

i. Fast and easy to build web page. Only take about few minutes to finish a page building.

ii. Variety of tools to choose for creates homepage such as free form editor and page builder.

Weakness

i. Web storage and quality of templates provided need to improve.

ii. User's site required to display advertising banners and graphics.

2.3.11 The analysis of the features provided of the available system on the Internet

Table 2.1 show that features provided by the web sites which offer service for building homepages. All of the web sites listed was provided free web space for users to build pages and uploaded files.

Features \ Web Sites	Yahoo! Geocities	Tripod.com	Fortunecity.com	Angelfire.com	20fr.com	Moonfruit.com	Webspawner.com	00server.com	Zy.com	Fanspace.com
Template Provided	☑	☑	☑		☑	☑		☑	☑	☑
Uploading service	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
File managing system	☑	☑	☑	☑	☑	☑		☑		
Disk space provided	15MB	20MB	25MB	50MB	20MB	50MB		20MB	10MB	20MB
Site statistics	☑				☑			☑		☑
Web site add-ons	☑	☑	☑	☑	☑	☑		☑	☑	☑
Help file	☑	☑	☑	☑	☑	☑		☑	☑	☑
Tutorial /Tips/Resources for web development	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
HTML editor	☑	☑	☑	☑	☑			☑	☑	☑
Page editor	☑	☑	☑		☑	☑	☑	☑	☑	☑
Advance search for user's page	☑	☑		☑		☑				
Free service	☑	☑				☑				
Banner ad-on	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑

Table 2.1 Analysis Features of Existing System

2.4 Tools and Technologies Consideration

In search for the most efficient development tools, this section will briefly consider the technology of the current wed design system and at the same time highlight the appropriate new technology.

2.4.1 Development Platform

As programmers and users, we hope for several things in the development platform:

a) A standard, technically up-to-date API that is well understood and supported. It should also be stable but capable of evolving with the technology.

b) Platforms supporting the API that range from the smallest systems (palmtops, embedded systems) to the desktop, and then on to departmental and enterprise systems .In other word, we need scalability. The platforms should always be the most cost-effective in the industry and available through numerous channels with a wide range of choice and tradeoffs regarding price, quality, delivery, support, performance, and so on.

c) A wide range of cost-effective applications and supporting software, such as programmer tools.

d) Assurance of long-term support and evolution of the API and its platforms so as to support evolving hardware and increasing software demands (support for 64-bit addressing is one example of this).

e) Enough competition at all levels so that no one becomes complacent or totally dominant.

2.4.1.1 Windows NT Server 4.0

Windows NT Server is the most complete and easiest server operating system available. It also is one of the powerful operating system that integrates a variety of network services. The services it provides are designed to address requirements in every category and they

are managed in a single way. There are some key features introduced with Windows NT Server 4.0:

a) It combines the ease-of-use of Windows 95 with the power and reliability of Windows NT. The Microsoft Windows 95 operating system operating system user interface has been integrated into Microsoft Windows NT Server 4.0, making the server interface easier to use and consistent. There is also a core set of services providing the platform not only for basic management features built into the operating system but also for value-added tools and solutions form Microsoft and third parties.

b) Windows NT Server 4.0 is a complete platform available for building and hosting web based applications. It is the best platform to publish and share information securely over Intranet and Internet. It is so reliable that when an application have problem it doesn't crush the whole program. The enterprises Edition of Windows NT Server 4.0 contains a Cluster Server and Web Load-Balancing Services to enable businesses to monitor, move and recover critical data swiftly without interruption to users.

c) Windows NT Server also supports a wide range of networks protocol and Remote Access Protocol. These services, which don't require changes in client software, provide an easy and inexpensive way for deploy the powerful Virtual Private Networks (VPN) and develop the distributed application.

d) There is an extensive security support in Windows NT Server. The comprehensive and usable security enables Windows NT Server to offer the most robust security model, which can control the access control of user in accessing certain file or application. The centralized Windows NT security subsystem uses advanced security design features that provide an exceptional level of system security. The SMB authentication protocol prevents a "man-in-the middle" attack and message authentication, which prevent active message attacks. It places a digital security signature into each SMB, which is then verified by both the client and server. A password filter allows system administrators to increase password strength and the encrypting password data using a 128-bit cryptographically random key also increase the protection of account password information stored in the registry by the Security Account Manager (SAM).

Windows NT Server also enables the capabilities of integrating application on a single computer or ever across multiple computers. [Windows NT and Unix, http://search.techtarget.com/sDefinition.html]

2.4.1.2 UNIX

UNIX is a multi-tasking multi-user operating system. It is an increasing popular operating system, which traditionally used only on minicomputers and workstation in the academic community. UNIX is now available on personal computers and the business community has started to choose UNIX for it openness. UNIX, like other operating systems, is a layer between the hardware and the application run on the computer. It has functions that manage the hardware and functions that manage the executing of application.

UNIX is an ideal platform for running mail server, network file systems and so on, often at very low cost. UNIX users normally share processing time on a central computer or cluster computer. Often they will be sitting at a low-cost terminal or a local PC, their program will be executed remotely. This is a very cheap solution for a large number of users. Besides the traditional operating system components, the standard UNIX also provides a set of libraries and a set of applications. It also includes the file system and process control. [Windows NT and Unix, http://search.techtarget.com/sDefinition.html]

2.4.1.3 Comparison between UNIX and Windows NT Server 4.0

a) Application availability

i. Windows NT server 4.0 supports the Microsoft BackOffice products, thus provides good integration of many server applications, include management and the database.

ii. Desktop productivity tools provide by Salaries such as presentation software tend to be a bit limited, but Sun's Windows Application Binary Interface (Wabi) technology lets many Windows productivity applications run on SPARC/UltraSPARC.

b) Scalability and Performance

i. UNIX systems can, in general, support more physical memory and processors that NT can. This, in turn, leads to higher performance even though both systems can be supported on the same microprocessors.

c) Application Development

i. Consistency is the catchphrase when developing for Windows NT. Applicators can be developed in a single environment that produced and controlled by a single vendor.

d) Management

i. There is a lot of supporting software for Windows NT especially the free downloadable option packs.

ii. The UNIX product comes with its own graphical tools for the administrator of nearly all its services. Many of these graphical tools are making their way to HTML, so developers will soon be able to administer from any web browser but that does not mean that UNIX command-line administration tools have gone away.

2.4.2 Database Management System

Database technology is used in a variety of applications, which some serve only a single user on a single computer and others are for multi-users. The Database Management System is the tool that enables us to manage and interact with the database. There are a variety types of database management system, such as Microsoft SQL Server 7.0, Oracle 8i, Sybase, Informix and also Microsoft Access. Most of the database management systems are able to perform these tasks:

i. Store data
ii. Create and maintain data structures
iii. Allow concurrent access to many users
iv. Enforce security and privacy
v. Allow extraction and manipulation of stored data
vi. Enable data entry and data loading
vii. Provide an efficient indexing mechanism for fast extraction of selected data
viii. Provide consistency among different records
ix. Protect stored data from loss by backup and recovery process

2.4.2.1 Microsoft SQL Server 7.0

Microsoft SQL Server 7.0 is a single process, multithreaded relational database server primarily intent for transactional processing. It is a key component in answering data management requirement, which require a large amount of information and serve many different simultaneous users. Microsoft SQL Server 7.0 is based on the client/server architecture, which divides processing into two components: a front-end, or client component, that run on a local workstation and a back-end, or server component, that runs on a remote computer.

The server can communicate with any ODBC compliant software program that resides on a computer connected to the network. Request to the server are made in the Structured Query Language (SQL), a non-procedural language that has become the standard for use with relational database. It is also tightly integrated with the Microsoft Back Office family product to enable organization to improve the decision's making process and the streamline of the business process.

[Coffman Gayle, 1999, SQL Server 7, The Complete Reference]

Microsoft SQL Server 7.0 provides innovations in performance, reliability and scalability as below:

a) **Scalability**

SQL server is designed to accommodate more data, transactions and users with ease. It is scalable from laptop to multiprocessor clusters to accommodate terabytes of data and thousands of users. It also provides dynamic row-level locking for high-end online transaction processing (OLTP) and data warehousing systems. The query processor in SQL Server also provides powerful support for large databases and complex queries.

b) **Internet, Intranet and Commerce**

The cutting-edge features and seamless integration with Microsoft Windows NT and Microsoft BackOffice make SQL Server an important factor in Internet, Intranet and electronic commerce strategy. The full-text search can support the linguistic search to

create special indexes of pertinent words and phrases in selected columns of selected table. Furthermore, the Web Assistant enhances the SQL Server Web Assistant to easily generate HTML and WML files from SQL Server data. The Internet replication is also easier than ever with anonymous subscriptions and built-in support for Internet distribution. It supports Internet database integration and allows the user to automate the publishing of database information in the HTML documents, built active web sites and conduct the processes on the Internet.

c) **Desktop, Mobile and Distributed System**

Microsoft SQL Server is designed so that organizations can give employees and customers to ability to work with data reliably from simply everywhere. The SQL Server Desktop provides a single code base for all platforms, which from a laptop running Windows 95 to clustered systems running Windows NT Server. The Enterprise Edition also provides 100 percent application compatibility.

d) **Ease of Use**

Microsoft SQL Server makes it easy for database administrators to build, manage and deploy business applications. It automates standard database administration operations. It automates standard database administration operations and adds some sophisticated new tools to simplify the managing complex operations. For example, the Dynamic Self-Management automates many routine tasks. The Multiple-site management by using the SQL Server Enterprise Manage also can designate a master server that communicates and distributes jobs, alerts and event messages to targeted servers. The profiling and tuning tools also help to simplify the process of finding the process of finding and fixing database problems by capturing and replaying server activity.

e) **Data Warehouse**

The SQL Server will ensure that information in all level of an organization can flow smoothly and inexpensively. The data transformation services make it easy to import, export and transform heterogeneous data using OLE Database, Open Database

Connectivity (ODBC) or text-only files. This means that it provides automatic distributed update capability across two or more SQL. Furthermore, the repository integration and the Open Information Model help integrate and share meta-data about SQL Server database, Online Analytical Processing (OLAP) and Data Transformation Services. It also maintains referential integrity and ensures that operation can be recovered in the event of numerous type s of failure.

[Coffman Gayle, 1999, SQL Server 7, The Complete Reference]

2.4.2.2 Oracle 8i

Oracle is the world's leading vendor of database software. It is able to have all data and documents stored in a small number of high performance databases benefits customers by centralizing all their data, making information management and access easier, move reliable and less expensive. There are some key features of Oracle 8i as below:

a) The ground-breaking capabilities of Oracle 8i's Internet File System (IFS) provides a single, easy to use data management interface for all data types, thus minimizing customers' reliance on a proprietary operating system. Oracle is an open solution and it supports all kind of platform.
b) Oracle's advanced security features allow for enforced granular privileges, advanced auditing, enhanced access control, secure distributed processing and replication and the ability to use additional external authentication mechanisms.
c) Oracle uses a Java-based utility that provides everything needed to get a pre-tuned and pre-configured Oracle 8i database up and running. Oracle Enterprise Manager provides a single integrated management console for central administration of multiple servers. It also contains some advance functionality for tuning and diagnosing the database and managing complete change in the database environment.

[Oracle technology, http://technet.oracle.com]

2.4.2.3 Comparison between Microsoft SQL Server 7.0 and Oracle 8i

a) SQL Server is more ease to use system compared to the Oracle database because it provides more user-friendly graphical tools for installation, configuration and administration.
b) SQL Server can run only on windows but for Oracle the operating system will essentially become irrelevant because it can support all kinds of platform.
c) SQL Server reduced the complexity for users, administrators and developers. This means it provides ease-of use processes solution at the lower cost for the distributed computing.
d) With integrated management of text, images, audio and video, Oracle 8i's inter media enables customers to take advantage of the multimedia nature of the web. For SQL server, it advocates a strategy of storing non-traditional data in flat files in separate server and linking them together using OLE-DB.
e) SQL Server 7.0 also tightly integrates with other Microsoft products. Its' seamless integration with Windows NT provides security, a web application environment and Microsoft Transaction server support.

2.4.3 Data Access Technology

Universal Data Access is Microsoft's strategy for providing high-performance access to all types of information across an organization from the desktop to the enterprise. Microsoft Data Access Components consists of new versions of ActiveX Data Objects (ADO), OLE-DB and Open Database Connectivity (ODBC).
[Coffman Gayle, 1999, SQL Server 7, The Complete Reference]

2.4.3.1 Open Database Connectivity (ODBC)

ODBC is a functional library designed to provide a common Application Programming Interface (API) to underlying client/server database systems. It is a component of Windows Open System Architecture (WOSA) and it communicates with the database through a

library driver that makes it easier to connect to a wide range of database formats. It also allows us to access a number of PC databases.

ODBC is based on the open call-level interface and uses SQL. During the run time, ODBC driver will communicate with other drivers and through a standard interface called service provider Interface (SPI). It is a network independent technology because it employs replaceable network libraries.
[Coffman Gayle, 1999, SQL Server 7, The Complete Reference]

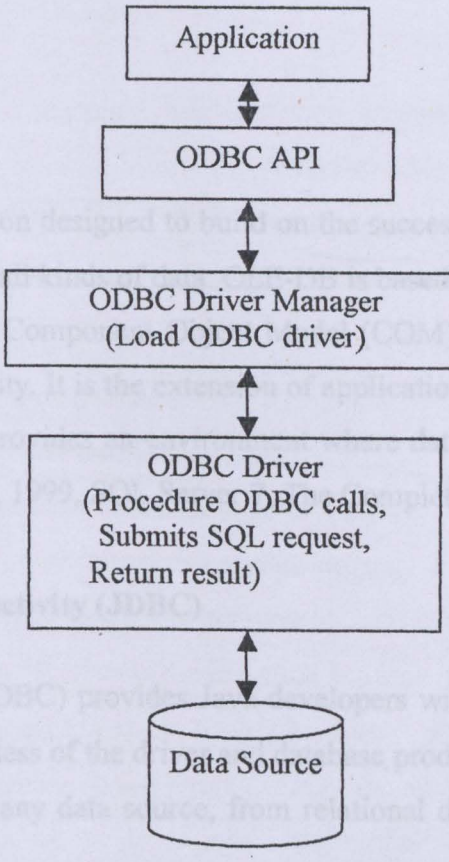

Figure 2.11 Open Database Connectivity Structure

2.4.3.2 Active Data Object (ADO)

ADO is a connection mechanism that provides access to data of all type. It is based on an object model that exposes the collections, methods and properties necessary to access and

work with the database. This object model is available from ASP code and works conjunction with OLE-DB layers. It is an evolution of both DAO and RDO into a single database library.

ADO focuses primarily on Internet deployment because it has the ability to maintain its current state in a connectionless environment. It includes implementation with full data manipulation capability and a downloadable, lightweight implementation available to Internet Clients at runtime. ADO based in ASP application, which works using ODBC driver to connect SQL Server. [Coffman Gayle, 1999, SQL Server 7, The Complete Reference]

2.4.3.3 OLE-DB

OLE-DB is an open specification designed to build on the success of ODBC by providing an open standard for accessing all kinds of data. OLE-DB is based on Microsoft's own component object technology, Component Object Model (COM) and unifies Microsoft's strategy for database connectivity. It is the extension of application capabilities beyond the limitations of ODBC. It also provides an environment where database component can be replacement. [Coffman Gayle, 1999, SQL Server 7, The Complete Reference]

2.4.3.4 Java Database Connectivity (JDBC)

Java Database Connectivity (JDBC) provides Java developers with a standard API that is used to access database, regardless of the driver and database product. Using the JDBC API, user can access virtually any data source, from relational databases to spreadsheets and flat files.

The JDBC API is comprised of two packages:

i) The java.sql package, which include in the Java 2 SDK, Standard Edition.

ii) The javax.sql package, which include in the Java 2 SDK, Enterprise Edition or available as a separate download.

To use the JDBC API with a particular database management system, a JDBC technology-based driver is needed to mediate between JDBC technology and the database. Besides that, JDBC also offers a wide range of functionality, such as prepared statements for greater performance, stored procedures, scrollable result sets, batch updates and new data types.

[JSP and Java Discussion Group, http://forum.java.sun.com]

2.4.4 Web Development Technology

2.4.2.1 Internet Information Server 4.0 (IIS)

Internet Information Server 4.0 supports multiple web server scenarios, ranging from simple web sites on an Intranet to large Internet Service Provider (ISP) web hosting farms. It provides a transactional-based web server that is tightly integrated with the NT operating system and also a number of components that make it easier to build dynamic web sites, manage content and analyze usage.

The advantages of IIS can be divided into two categories, which are the advances in HTTP-related service areas and the additional functionality in managing and developing application functionality. The advancements in the http services area enable IIS to manage multiple web sites, tailor site or application specific setting. The index Server 2.0 that served by IIS 4.0 enables web clients with any browser to search a web site by filling in the fields of an HTML query form. It also provides such advancements for the application development side such as transactional-based applications, process isolations, Secure Sockets layer (SSL) support, Active Data Object (ADO) and new development tools. For example, the certificate server which is a highly customizable server application for managing the issuance, revocation and renewal of digital certificates can help the organizations to perform authentication on a corporate Intranet or across the Internet. Furthermore, there is a Site Server Express that includes site analysis, usage analysis and publishing capabilities, enables the administrator to analyze log file data, crawl a web site to map content and check for broken links and easily publish content from browser to IIS server.

The benefits of IIS can be seen by the services it provided. IIS provides a high-speed, secure platform for publishing information on internal networks or Internet. The server is specifically designed to provide the kind of performance that is necessary for handling an increased number of web users. It is also designed to meet the requirement of the users who are connected with high-speed lines, such as ISDN and leased line.

The transaction ASP features of IIS also allows application with script add components to perform multiple actions. For example, a failure occurs during a particular transaction, IIS automatically backs up the server to the start of the transaction, allowing the user to recover from failure without any loss of data.

[Ullman Chris, Buser David, Duckett Jon, Francis Brain, Kauffman John, T.Llibre Juan, Sussman David, 1999, Beginning ASP 3.0, Wrox Press Ltd.]

2.4.2.2 Apache web Server

Apache is a general web server, which is designed to correct first and fast second. It is a powerful, flexible, HTTP/1.1 compliant web server. It implements the latest protocols, including HTTP/1.1. Besides that, it is also highly configurable and extensible with third-party modules. Apache web server can support many operating systems such as Windows NT/9x, Netware 5.x, OS/2, and most versions of Unix, as well as several other operating systems. The apache implements many frequently requested features, including:

a) **DBM databases for authentication**
   It allows user to easily set up password-protected pages with enormous numbers of authorized clients, without bogging down the server.

b) **Customized responses to errors and problems**
   Apache web server enables users to set up files, or even CGI scripts, which are returned by the server in response to errors and problems, e.g. setup a script to intercept 500 Server Errors and perform on-the-fly diagnostics for both clients and web administrator.

c) **Multiple DirectoryIndex directives**

It enable user to indicate DirectoryIndex index.html index.cgi, which instructs the server to either send back index.html or run index.cgi when a directory URL is requested, whichever it finds in the directory.

d) Unlimited flexible URL rewriting and aliasing

Apache has no fixed limit on the numbers of Aliases and Redirects, which may be declared in the config files. In addition, a powerful rewriting engine can be used to solve most URL manipulation problems.

e) Content negotiation

It is also provides the ability to automatically serve clients of varying sophistication and HTML level compliance, with documents which offer the best representation of information that the client is capable of accepting.

f) Virtual Hosts

A much requested feature, sometimes known as multi-homed servers. This allows the server to distinguish between requests made to different IP addresses or names (mapped to the same machine). Apache also offers dynamically configurable mass-virtual hosting.

g) Configurable Reliable Piped Logs

Users can configure Apache to generate logs in the format that they want. In addition, on most Unix architectures, Apache can send log files to a pipe, allowing for log rotation, hit filtering, real-time splitting of multiple vhosts into separate logs, and asynchronous DNS resolving on the fly. [Apache web server, http://jakarta.apache.org]

2.4.2.3 Active Server Page

Microsoft initially release ASP in January 1997. It is a great tool for creating the dynamic, interactive and high performance web page. It provides the ability to combine HTML, scripting and components to create powerful Internet applications that run on server. One

of the power for ASP is the HTML is not created until the user wants to see the web page. Besides that, any web browser can be use. There are some others key features of the ASP as below:

c) ASP code can be mixed within HTML on a page that it does not need to be compiles separately or deployed.

d) ASP can interact with almost others existing web page technology, such as Common Gateway Interface (CGI), Internet Server Application Programming Interface (ISAPI) and also scripts written in PERL, Python and AWK.

e) The ASP must be executes on a computer that supports it, then the ASP-driven web pages can be viewed from any computer and with any browser.

f) It works together with Windows NT and IIS to provide a comprehensive set of key software technology that enables secure exchange of information over public networks access control to server resources and confident identification of server and client.

g) ASP supports server components built with other language. The compiled code from Java, C++, Visual Basic and Delphi can be assembled easily into a component that HTML programmers can call within their ASP page.

h) It also has many third party components that can be required for free to reduce programming time.

[Ullman Chris, Buser David, Duckett Jon, Francis Brain, Kauffman John, T.Llibre Juan, Sussman David, 1999, Beginning ASP 3.0, Wrox Press Ltd.]

2.4.2.4 Java Server Page (JSP)

Java Server Pages (JSP) technology allows Web developers and designers to rapidly develop and easily maintain, information-rich, dynamic Web pages that leverage existing business systems. There are a few JSP features as below:

c) As part of the Java family, JSP technology enables rapid development of web-based applications that are platform independent. JavaServer Pages technology separates the user interface from content generation enabling designers to change the overall page layout without altering the underlying dynamic content.

d) JSP specification has been made freely available to the development community, with the goal that every web server and application server will support the JSP interface.

e) Java Server Pages technology uses XML-like tags and scriptlets written in the Java programming language to encapsulate the logic that generates the content for the page.

f) Additionally, the application logic can reside in server-based resources that the page accesses with these tags and scriptlets. Any and all formatting (HTML or XML) tags are passed directly back to the response page. By separating the page logic from its design and display and supporting a reusable component-based design, JSP technology makes it faster and easier than ever to build web-based applications.

g) Java Server Pages technology is an extension of the Java Servlet technology. Servlets are platform-independent, 100% pure Java server-side modules that fit

h) Seamlessly into a web server framework and can be used to extend the capabilities of a web server with minimal overhead, maintenance, and support.

i) Unlike other scripting languages, servlets involve no platform-specific consideration or modifications; they are Java application components that are downloaded, on demand, to the part of the system that needs them. Together, JSP technology and servlets provide an attractive alternative to other types of dynamic web scripting/programming that offers platform independence, enhanced performance, separation of logic from display, ease of administration, extensibility into the enterprise and most importantly, ease of use.

[Avedal Karl, Ayers Danny, 2000, Professional JSP, Wrox Press Ltd.]

2.4.2.5 Comparison between Active Sever Page and Java Server Page

c) ASP uses scripting languages (VBScript, Jscript) to handle much of its server-side programming. JSP uses pure Java, and takes full advantage of its object-oriented nature.

d) Cross-platform support is strength in JSP. ASP works on other platforms with add-ons, but such combinations can't touch JSP's broad support on Unix.

e) ASP uses the Session object to manage user state information, by allowing the server to keep track of the user and what they're doing on the site. JSP maintains session through the HttpSession object.

f) Sometimes the server needs to maintain site-wide application values while each client uses and manipulates the same copy of these values. ASP uses the Application object, which is similar to the Session object, and JSP uses the ServletContext object, which is equally similar to the way sessions are handled.

g) JSP has an edge in platform compatibility, but it forces users into an all-Java programming model because it can make native calls only to Java classes or JavaBeans, which are written only in Java. ASP, on the other hand, can call COM objects written in any language--provided they run on Windows.

h) For the database connectivity, ASP sets up and uses ODBC connections through ADO, Java uses a technology called JDBC (Java Database Connectivity) for database access.

2.5 Summary

Chapter 2 presents the literature review of the system of Homepage Template for Academic (HTFA). This review gives description and services provided by the existing system on the Internet now and the analysis of features in the existing system. Tools and technologies consideration available in this chapter such as development platform like Window NT, web development technologies like Active Server Page.

Chapter 3: Methodology / System Analysis

3.1 System Development Methodology

There are many type of development model in the software engineering such as Waterfall model, spiral model, V model, Transformational specification and etc. During the development Homepage Template For Academic (HTFA), the prototyping model is selected since the model allows all or parts of a system to be constructed quickly to understand or clarify systems needs. Prototyping is a process software that must be built. A prototype is developed rapidly so that the used many access result and recommend changes. A prototype is a partially developed product that enables customers and developers to examine since aspects of the purposed system and decide of it are suitable for the furnished product. [Pfleeger, S.H. 2001. Software engineering: theory and practice. New Jersey: Prentice Hall.]

A prototype is preferred for developing HTFA because it will allow well interactions during the development process as well as some errors that might occur due to lack if communications between the user and developer.

The prototype model consists of 6 steps as shown in figure 3.1. The prototype model begins with a requirement analysis whereby research and analysis is done to come up with requirements specification. After that, a guide design of the system is formulated with emphasis more on data issue. The construction of the prototype will be carried out after the guide design in which it will be tested and evaluated for the enhancement of the system. If the need of failed loses, the requirements will be refined and the process of iteration continues until all requirements and formalized or the prototype has evolved into a production system.

The benefits of using this model as the development methodology for web template provider are:

a) It is a tool for helping developers lay out what they need to do.
b) Provide the potential for changing the system early in its development.

c) Provides the possibility of developing a system that more closely addresses the users need and expectations and encourages and required active end-users participants.

d) Prototyping can increase creativity because it allows for faster feedback from user that led to better solutions.

e) It has been often said that end-users don't fully know their requirements until they see them implemented. Prototypes are active, hot passive models that end-users can see, touch, fell and experience a working model of a system is worth a thousand pictures. [http://primenet.com/~alh/protch04.html]

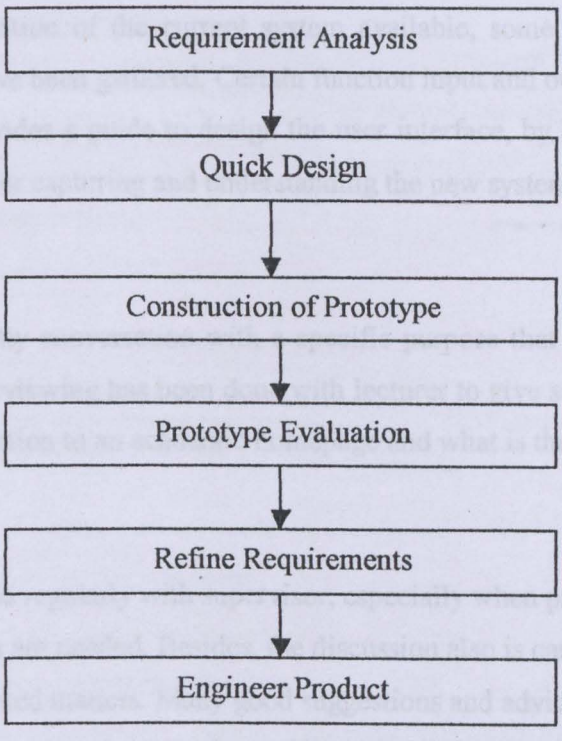

Figure 3.1 The Prototyping Model

3.2 Information Gathering

The system analysis process starts off with information gathering. The methods use for the information gathering in the analysis of Homepage Template For Academic includes:

a) Investigation
b) Interview
c) Discussion

3.2.1 Investigation

Analysis is done on current available system by investigating of the current system. During the investigation of the current system available, some homepage templates system attributes have been gathered. Certain function input and output could estimate. Current system provides a guide to design the user interface, by having a similar user interface; it helps user capturing and understanding the new system easily.

3.2.2 Interview

Interview is a directly conversation with a specific purpose that uses a question-and-answer format. Interviewing has been done with lecturer to give some guide on putting what type of information to an academic homepage and what is the requirement.

3.2.3 Discussion

Discussions are made regularly with supervisor, especially when problem arises and certain clarifications are needed. Besides, the discussion also is carried out between friends for some related matters. Many good suggestions and advices are obtained through the discussions to overcome the problems and improve the system design.

3.3 Requirement Analysis

Requirement analysis as an important process. The acceptability of the system offer has been delivered depends on how well it meets the users needs and supports the work to

be fulfill their needs. If the analyst does not discover system is real requirement the delivered system is in likely to meet the expectation.

In general, system requirement describes a system behavior. System requirement can be divide into 2 modules that are functional and nonfunctional requirements. Functional requirement describes an interaction or the service the system should provide, how the system should react to particular inputs and how system should behave in particular situations. Non-functional are the constraints on the services of functions offered by the system. They include timing constraints, constraints on development process and standards. [Books, 2]

3.3.1 Functional Requirements

A functional requirement describes an interaction between the system and its environment. It also describes how the system should behave when given certain stimuli. The functional requirements of HTFA System are listed as below:

a) Users Searching Module
b) Authentication and Authorization

3.3.1.1 Users Searching Module

i. The users with a login and password uses this module to search or view their web site and can edit, delete, updated the files.
ii. Listing out the search criteria such as Homepage Template.
iii. Download and choose template.

3.3.1.2 Authentication and Authorization

i. Enable user to login the system with their user identity and password. This function is used to protect the system from non-authorized users. When an authorized user login the system, this module will verify the user. If the user ID and Password valid then that user can access to system.

3.3.2 Non-Functional Requirements

A non-functional requirement of constraint describes the restriction on the system that limits choices for constructing a solution to the problem. Those constraints usually

narrow the selection of language, platform or implementation techniques or tools. However, the selection is made at the design stage, after the requirements have been specified. The non-functional requirements of the system are:

a) Graphical user Interfaces
b) Security
c) Modifiability
d) Availability

3.3.2.1 Graphical user Interfaces

Graphical user Interfaces (GUIs) are implemented to capture the attention of users and provide ease of use. GUIs eliminate the need for keying in of commands. Hence it enables users with no or little technical background to be able to operate it well.

3.3.2.2 Security

User ID and password will be provided to the authorized users to access the system; this can avoid non-authorized users access the system to perform tasks illegally.

3.3.2.3 Modifiability

The system design is decomposed into module structures, so that the system will be easily modified and maintained if there are changes to the system during system testing.

3.3.2.4 Availability

The system should be available 24 hours a day and 7 days a week. The system might only best view with Microsoft Internet 4.0 and above because source-programming codes might incompatibility with Netscape Navigator or lower versions of Microsoft Internet Explorer or other browser.

3.4 Programming Language

In order to develop this system, several programming language technologies were employed. These technologies were chosen for their implementation capability and ease to use. There are:

a) Hypertext Markup Language (HTML)

b) CSS (Cascading Style Sheets)
c) Active Server Page (ASP)
d) VBScript
e) JavaScript

3.4.1 Hypertext Markup Language (HTML)

HTML stands for Hypertext Markup Language, the back bones of the Internet. Web site consist of files written with HTML, and might also contain graphics, animation, sounds and video. HTML is a relatively simple language that utilizes elements, such as tags to create the desired features of the page. Tags are used to translate the text so that browsers can understand what to display.

HTML allows user to:

i. Publish documents to the Internet in a platform independent format
ii. Create links to related works from document
iii. Include graphics and multimedia data with document
iv. Link to non-World Wide Web information resources on the Internet

HTML was originally intended to be used for encoding document structures. While there are now many formatting and formatting-like tags, there are also numerous tags that apply to text structures like headings, paragraphs and tables. [HTML references, http://scholar.lib.vt.edu/reports/soasis-slides/HTML-Intro.html]

3.4.2 CSS (Cascading Style Sheets)

CSS is used to set customized preferences for HTML tags. Users can change colors, positioning, font, and many other options with CSS. However, users are limited to customization within the spectrum that normal HTML can handle. In other words, CSS is another way of writing HTML preferences or subsections.

User can make the color of the hyperlink into a default color so that user can recognize whether the site has or has not been visited.

[CSS references, http://books.prodok.net/css/history/]

3.4.3 Active Server Page

Microsoft initially released ASP in January 1997. It is a great tool for creating the dynamic, interactive and high performance web page. It provides the ability to combine HTML, scripting and components to create powerful Internet applications that run on server. One of the power for ASP is the HTML is not created until the user wants to see the web page. Besides that, any web browser can be use. There are some others key features of the ASP as below:

i. ASP code can be mixed within HTML on a page that it does not need to be compiles separately or deployed.
ii. ASP can interact with almost others existing web page technology, such as Common Gateway Interface (CGI), Internet Server Application Programming Interface (ISAPI) and also scripts written in PERL, Python and AWK.
iii. The ASP must be executed on a computer that supports it, then the ASP-driven web pages can be viewed from any computer and with any browser.
iv. It works together with Windows NT and IIS to provide a comprehensive set of key software technology that enables secure exchange of information over public networks access control to server resources and confident identification of server and client.
v. ASP supports server components built with other language. The compiled code from Java, C++, Visual Basic and Delphi can be assembled easily into a component that HTML programmers can call within their ASP page.
vi. It also has many third party components that can be required for free to reduce programming time.

[Ullman Chris, Buser David, Duckett Jon, Francis Brain, Kauffman John, T.Llibre Juan, Sussman David, 1999, Beginning ASP 3.0, Wrox Press Ltd.]

3.4.4 Visual Basic Script (VBScript)

The scripting edition of Visual Basic is a smaller subset of the Visual Basic for applications language. It is intended for use in Internet and Intranet application development and is currently supported in Microsoft Internet Explorer version 3.0 and above. It brings much of the power and flexibility of the Visual Basic language to the Internet and Intranet. On the client side, there is the opportunity to interact with ActiveX controls to provide active and interesting content. On the server-side, the scripting language is used and integrated within WML to provide a new level of functionality and ease of use in web site development. On the server side, the integration with ASP and other components enable to create dynamic pages.

The main features and limitations of VBScript are as below:

i. There are a number of conversion functions that are supported in VBScript. The most glaring omission is the Format command.
ii. There is no intrinsic data types are found in VBScript. The only data type available is the Variant, which makes complete sense considering that VBScript is an OLE-implemented language. All passing of values between OLE objects is performed through Variant variables.
iii. The array handling in VBScript is very useful to change the base of an array variable for a specific implementation. In VBScript, all arrays must have a lower bound of zero. The same is true of multi-dimensional arrays that all llower bounds begin at zero.
iv. The two most cherished features in the most recent release of Visual Basic are Collections and Classes. Object-oriented development is closer supported by the addition of classes to the Visual Basic language but a class and user-defined collection cannot be created within VBScript. To add functionality within a class, the class must be created in Visual Basic and then create an OLE component. An instance of the class can then be create from within an Active Server Pages script by using the CreateObject syntax.

[Mara, Jane Mary, 1997, VBScript sourcebook, Wiley Computer Pub.]

3.4.5 Java Script

JavaScript was developed by Netscape and soon modified and renames in order to tap into the Java craze that was sweeping the Internet. Netscape offered JavaScript as a much simpler way of bringing interactivity to a web page. The JavaScript features and limitations are include:

i. It is faster and more transparent to the user than Java. JavaScript is not compiled like Java code and does not have to be included right in the HTML and read on the fly by browsers. Thus, JavaScript saves a good deal of server access time for loading a web page.

ii. JavaScript is undeniably much simpler than Java, but that does not make it easy as JavaScript is a programming language and is not just a mark-up language like HTML.

iii. By looking at the code of a JavaScript enhanced page, nonprogrammers could easily plagiarize an entire JavaScript applet and enhance web pages with a simple cut and paste.

iv. The most important limitation of JavaScript is it cannot write a file to the web server's hard disk.

v. Another disadvantage of JavaScript is that there is not any compliant database. Data are stored in arrays as a replacement to database file.

[JavaScript references, http://www.javascript.com]

3.5 System Requirement

3.5.1 Hardware and Software Requirements

3.5.1.1 Hardware Requirements

The hardware configuration needed for Homepage Template For Academic is:

a) Personal computer (pc)
b) At least a Pentium 166 MHz processor.
c) A minimum of 32 MB of RAM (Random Access Memory)
d) Storage speed of a minimum of 2.1 GB of hard disk space.
e) VGA or higher resolution monitor
f) Other computer-compatible accessories (keyboard, mouse, etc.)

3.5.1.2 Software Requirements

The choice of development tools that are chosen plays an important role in determining the usability of the system. Besides, development tools must with development this in mind, the software requirements for developing these system areas follow:

a) Microsoft Window NT 4.0 – Operating system
b) Microsoft Internet Information Server 4.0 – web server for ASP coding testing
c) Microsoft FrontPage – HTML editor for interface and scripting
d) Microsoft Words – Documentation
e) Microsoft SQL Server 7.0 – database application.
f) Macromedia Flash – create animation
g) Adobe Photoshop – Pictures and graphic editor.

3.6 Summary

Chapter 3 presents the system methodology – Prototype model is used for system development. This section also covers the Information gathering – how the information get from investigation and interview. The functional and non-functional requirements included in this chapter for show how the system will work. Finally is the programming languages chosen, software and hardware requirement for develops this on-line system.

Chapter 4: System Design

4.1 Overview

Homepage template for Academic system is designed for academicians to develop or build a web page with web template provided according to their need. There are three distinct tiers of this system as below:

a) Choose and download web templates without any registration or login process.
b) Register as a new member.
c) Login to the system if they had registered as a member before.

Users have to provide information for the system can keep track of them and prevent the illegal users to access the system. The method chosen to present screen input to user is edits template or template input. The template input is like form displayed on the screen, a sample template will show in the screen and when the users click the button '*edit*', users are required to input data, pictures, graphics, links into particular fields in that template.

There are 6 criteria that need to be considered in this phase and they are effectiveness, ease of use, accuracy, attractiveness, consistency and simplicity.

4.2 Program Design

HTFA (Homepage Template For Academic) is a web base system, only the HTML (Hypertext Markup Language) is not enough to develop a really interactive, dynamic and users involved web page. ASP (Active Server Pages), VBscript and JavaScript is the technologies tools, which have been chosen to develop HTFA. A lot of coding and function have to create to support this on-line system.

User Section is the main section of the system. User Section is the users interact with and use the system, they need to register as members to access to the system and have to login by provide user name and password every time to access to the system.

At the first stage of the design, User Section flow charts have been build for a quick view to the system that will be develop. Below are the flow chart of the system, show that how the system will be run in this sections.

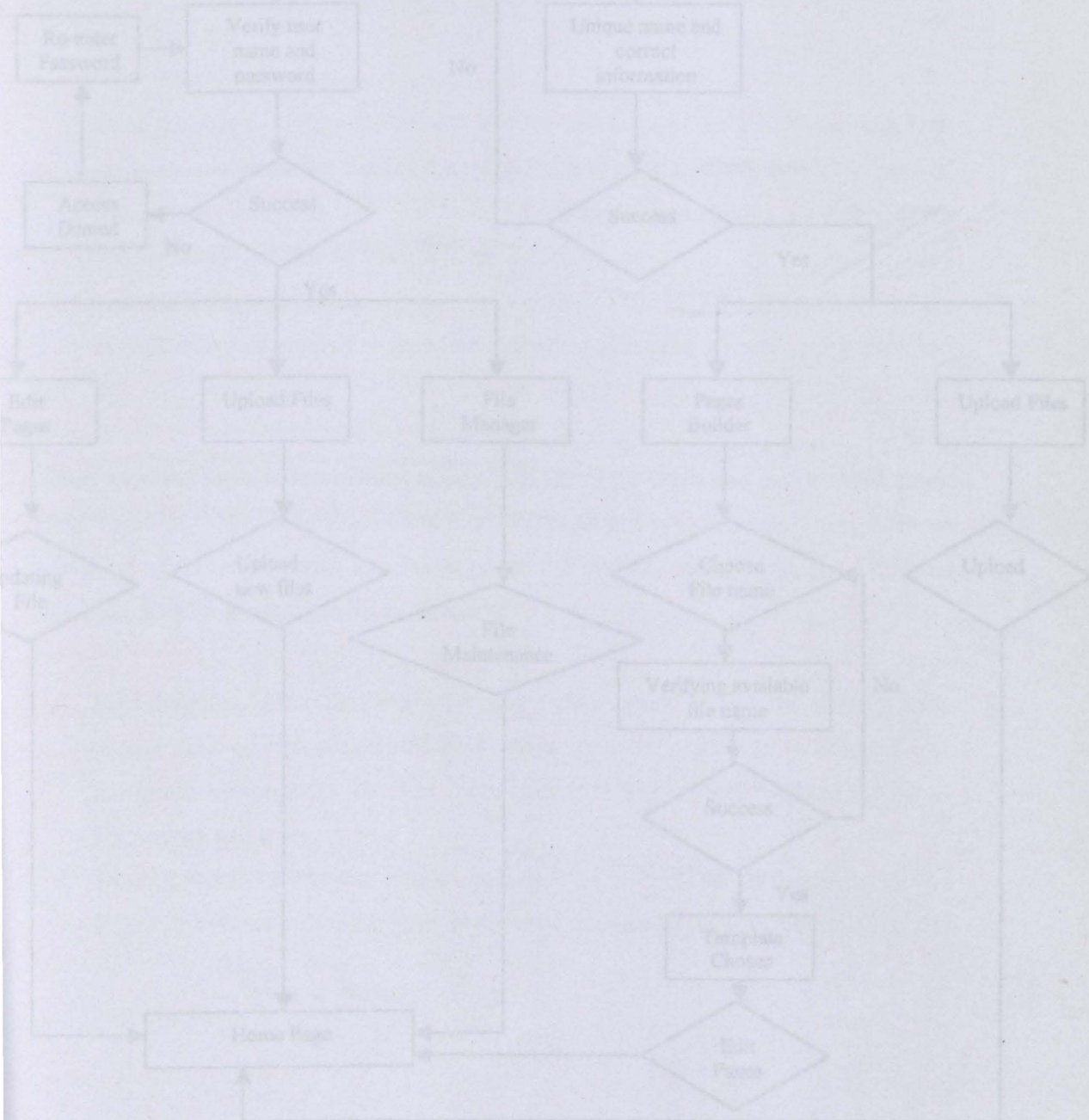

Figure 4.1 Flow Chart of User Section

4.2.1 User Section Flow Chart

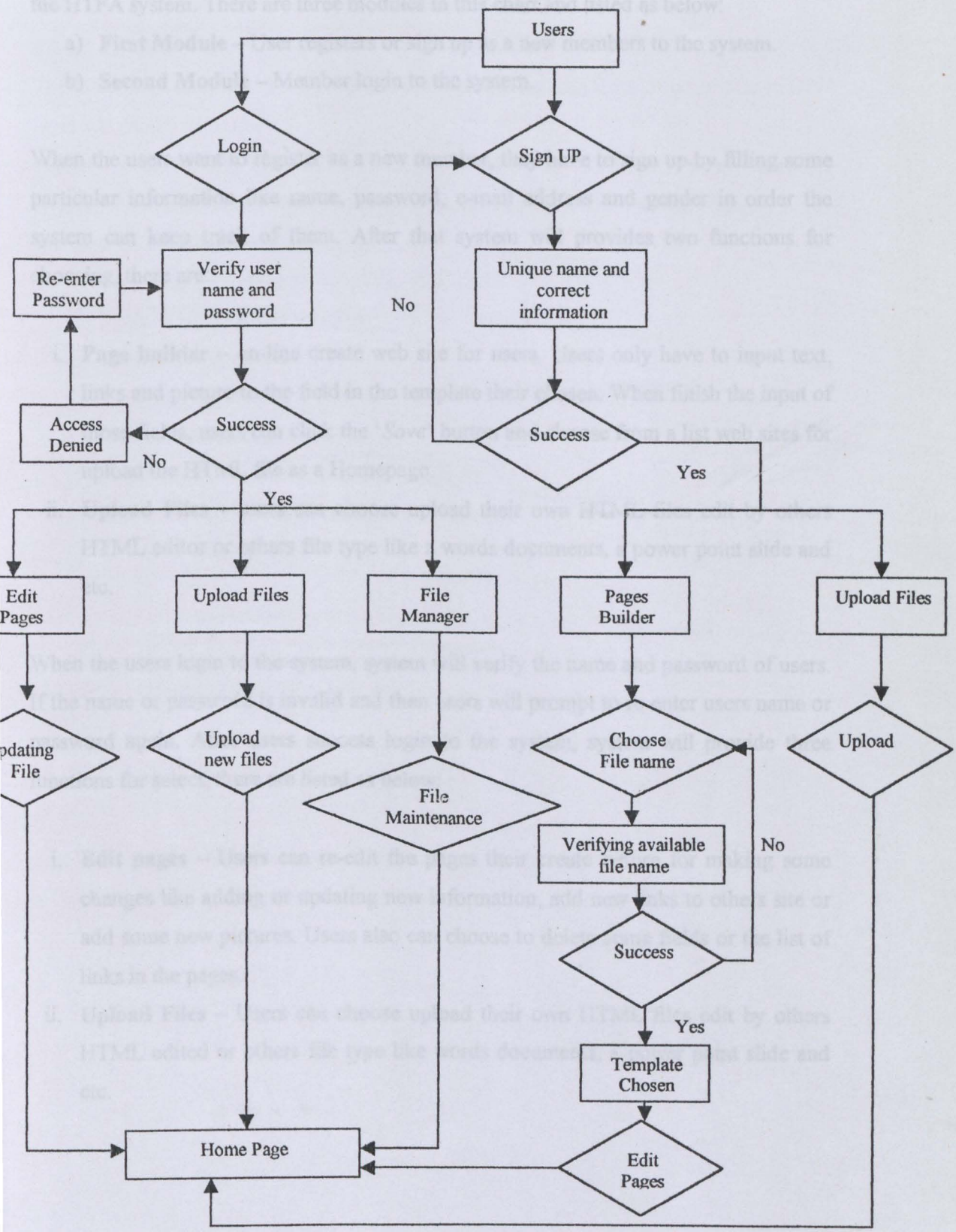

Figure 4.1 Flow Chart of User Section

Figure 4.1 is the User Section flow chart presents how the users or academicians use the HTFA system. There are three modules in this chart and listed as below:

a) **First Module** – User registers or sign up as a new members to the system.
b) **Second Module** – Member login to the system.

When the users want to register as a new member, they have to sign up by filling some particular information like name, password, e-mail address and gender in order the system can keep track of them. After that system will provides two functions for choosing, there are:

i. **Page builder** – on-line create web site for users. Users only have to input text, links and picture to the field in the template their chosen. When finish the input of those fields, users can click the '*Save*' button and choose from a list web sites for upload the HTML file as a Homepage.
ii. **Upload Files** – users can choose upload their own HTML files edit by others HTML editor or others file type like a words documents, a power point slide and etc.

When the users login to the system, system will verify the name and password of users. If the name or password is invalid and then users will prompt to re-enter users name or password again. After users success login to the system, system will provide three functions for select, there are listed as below:

i. **Edit pages** – Users can re-edit the pages their create before for making some changes like adding or updating new information, add new links to others site or add some new pictures. Users also can choose to delete some fields or the list of links in the pages.
ii. **Upload Files** – Users can choose upload their own HTML files edit by others HTML edited or others file type like words documents, a power point slide and etc.

4.2.2 Data Flow Diagram (DFD)

4.2.2.1 Level 0

The homepage template for academic system is divided into a few subroutines. A DFD level 0 is shown in figure 4.2.

Figure 4.2 shows that there are 8 main processes involved in the system. There are numbered 1.0 until 9.0 in those rounded rectangle shown in the figure 4.4 below.

The process are listed as below :

a) Checking for valid user when the user login.
b) Registering as a new member.
c) Download templates
d) Choose a file name and pages to add.
e) Choosing template for homepage.
f) Editing title, text block, pictures and links.
g) Add new, delete, upload and rename files.
h) Generate homepage

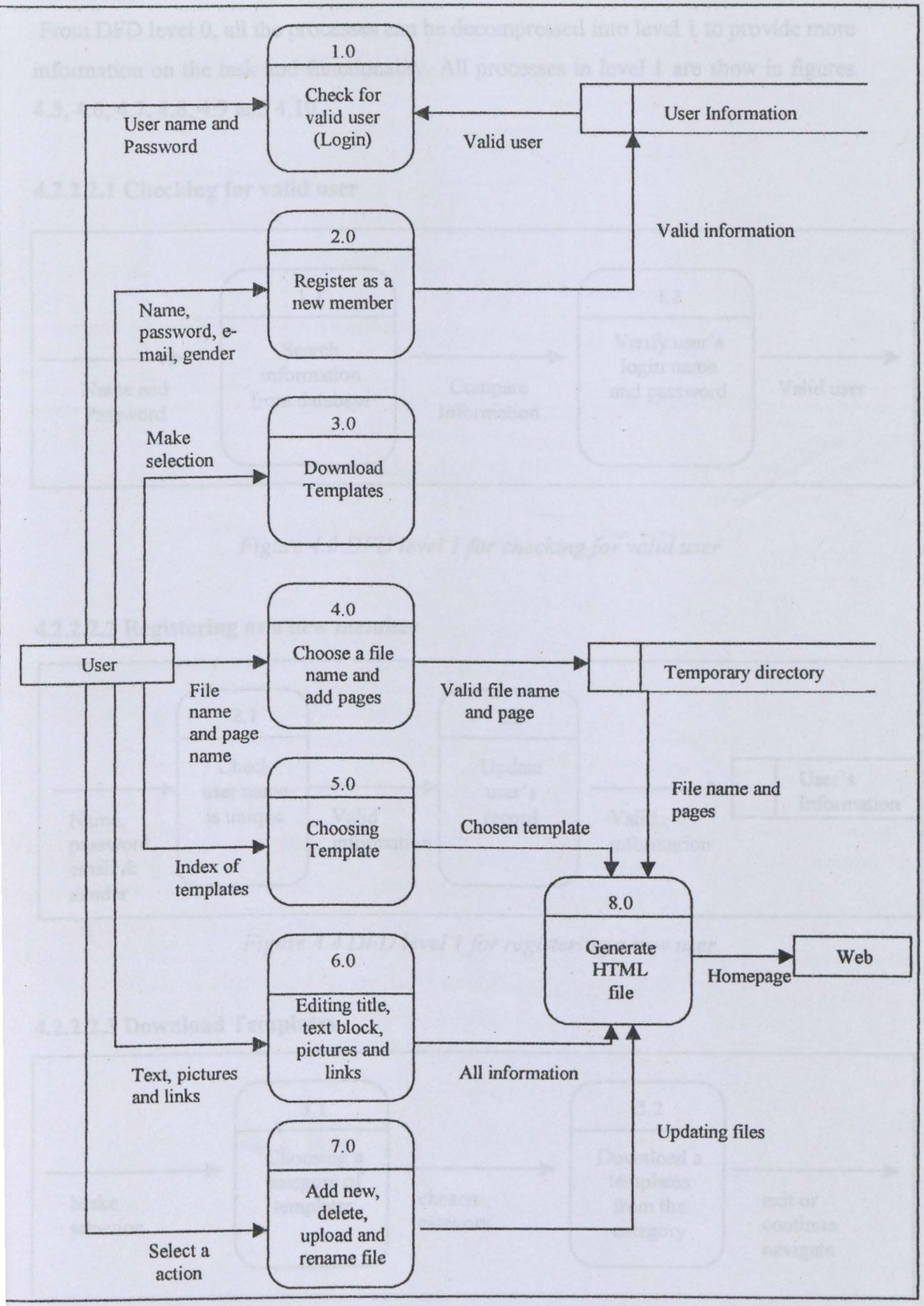

Figure 4.2 Data Flow Diagram Level 0

4.2.2.2 Level 1

From DFD level 0, all the processes can be decompressed into level 1 to provide more information on the task and functionality. All processes in level 1 are show in figures 4.5, 4.6, 4.7, 4.8, 4.9 and 4.10.

4.2.2.2.1 Checking for valid user

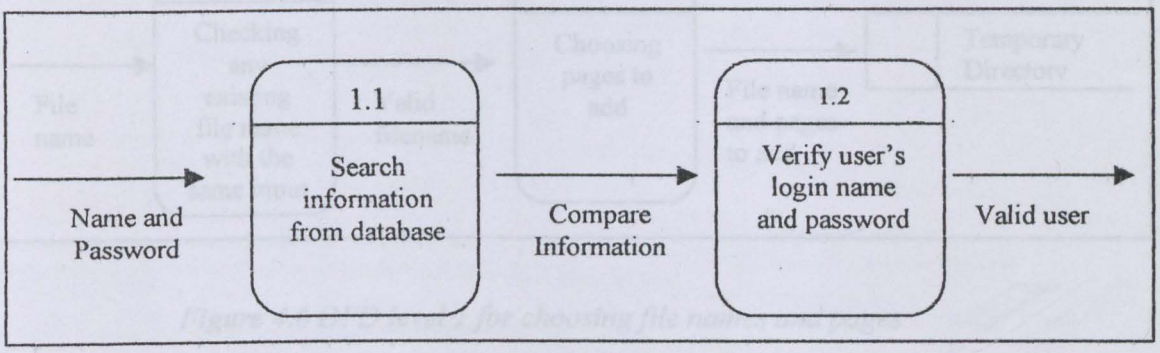

Figure 4.3 DFD level 1 for checking for valid user

4.2.2.2.2 Registering as a new member

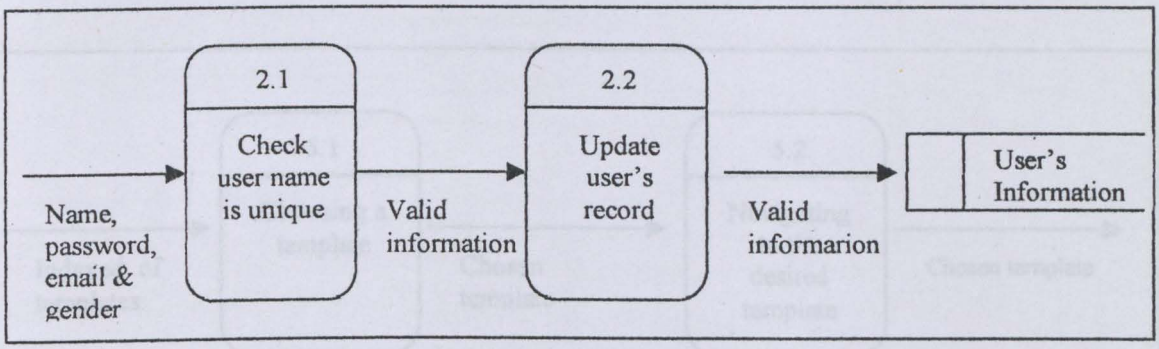

Figure 4.4 DFD level 1 for registering a new user

4.2.2.2.3 Download Templates

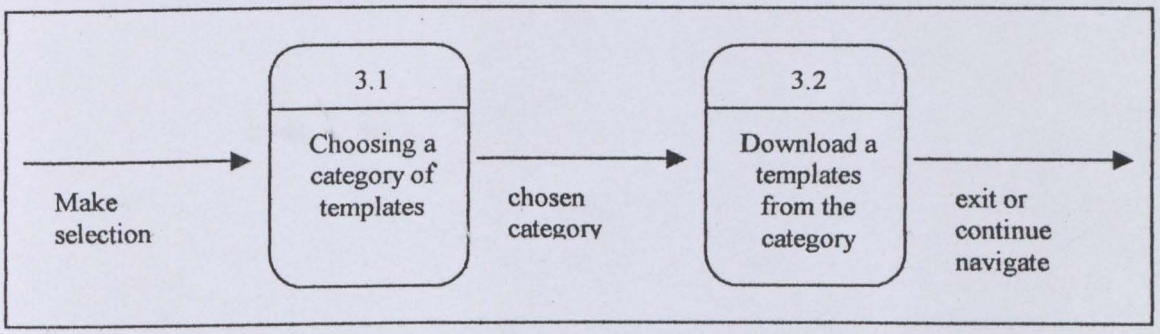

Figure 4.5 DFD level 1 for Download Templates

4.2.2.2.4 Choosing a file name and pages

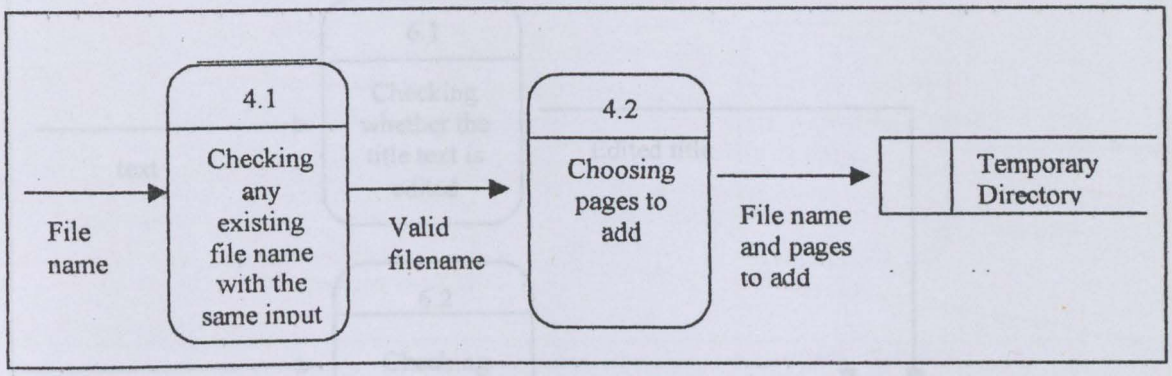

Figure 4.6 DFD level 1 for choosing file names and pages

4.2.2.2.5 Choosing a template

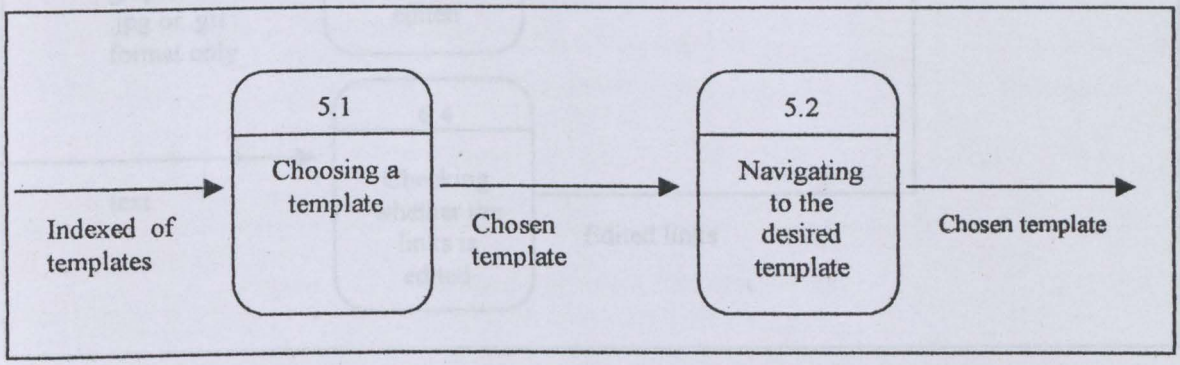

Figure 4.7 DFD level 1 for Choosing a template

4.2.2.2.6 Editing title, text block, pictures and links

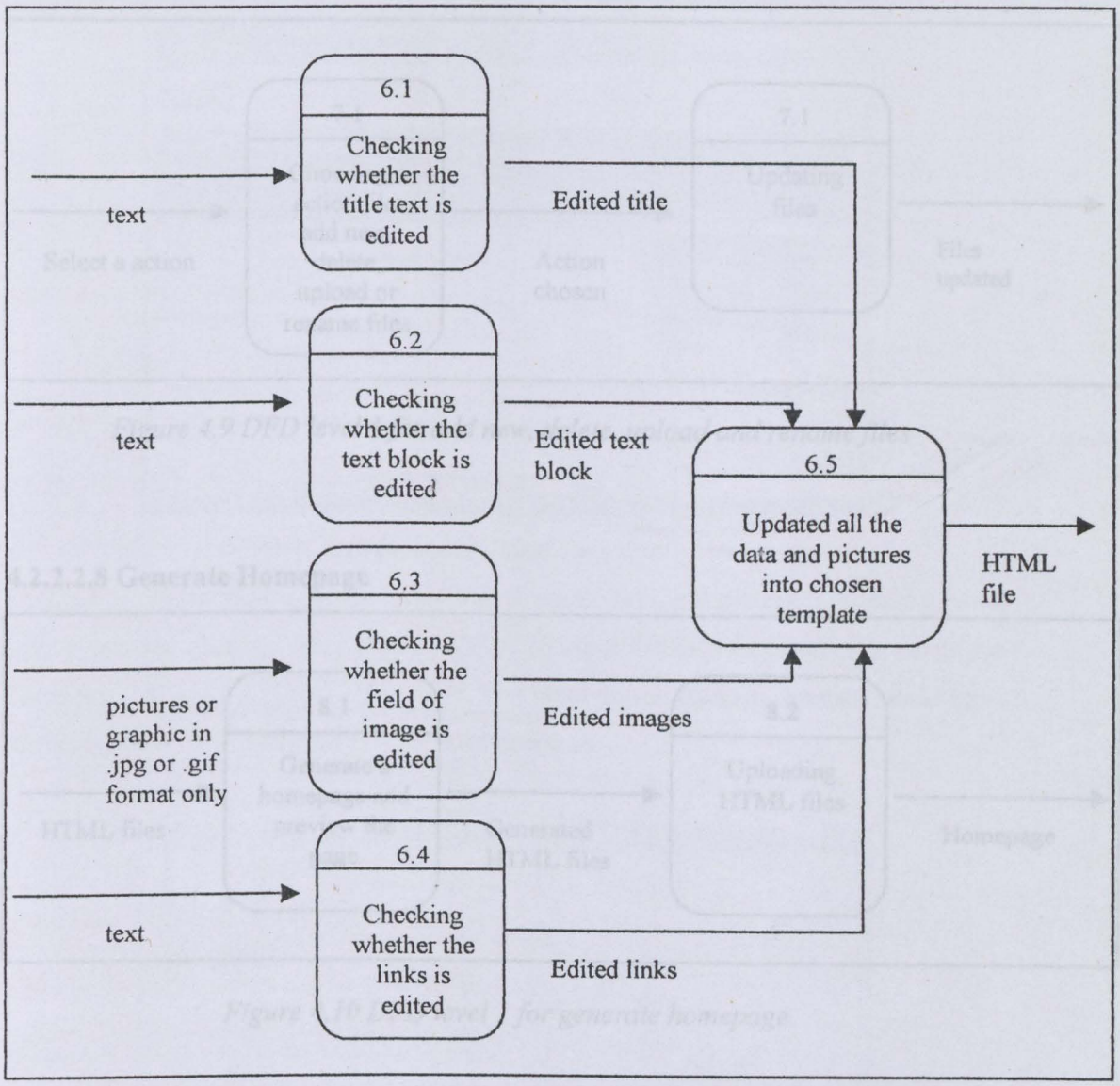

Figure 4.8 DFD level 1 for editing title, text block, pictures and links

4.2.2.2.7 Add new, delete, upload and rename files

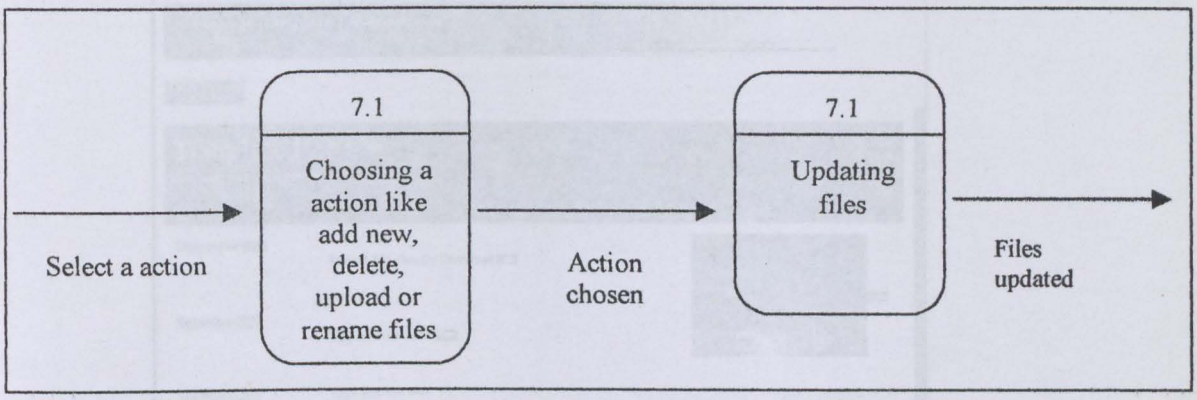

Figure 4.9 DFD level 1 for add new, delete, upload and rename files

4.2.2.2.8 Generate Homepage

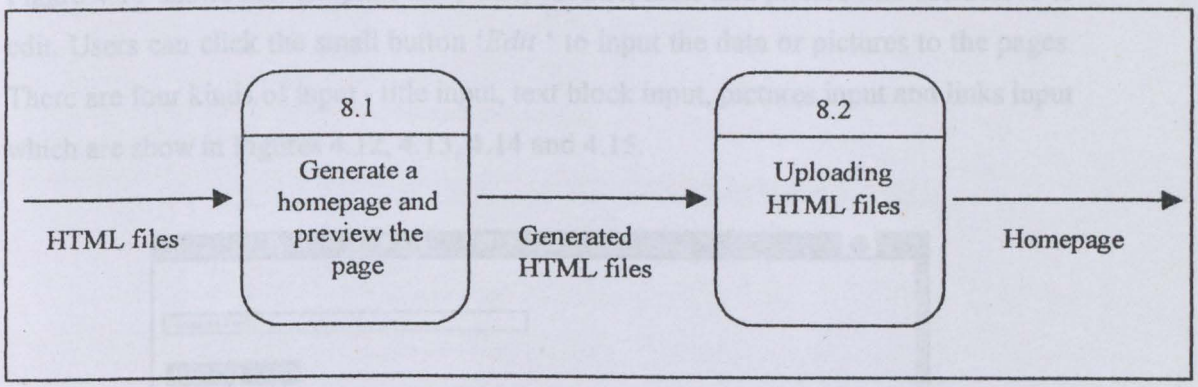

Figure 4.10 DFD level 1 for generate homepage

4.3 Form input design

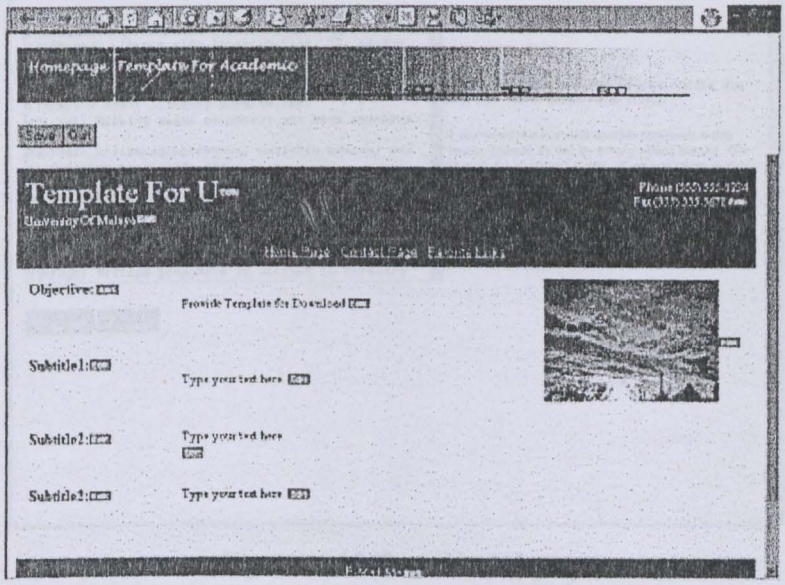

Figure 4.11 Input Template

Figure 4.11 shows that template have title, subtitle, links and picture that users have to edit. Users can click the small button '*Edit* ' to input the data or pictures to the pages. There are four kinds of input - title input, text block input, pictures input and links input which are show in Figures 4.12, 4.13, 4.14 and 4.15.

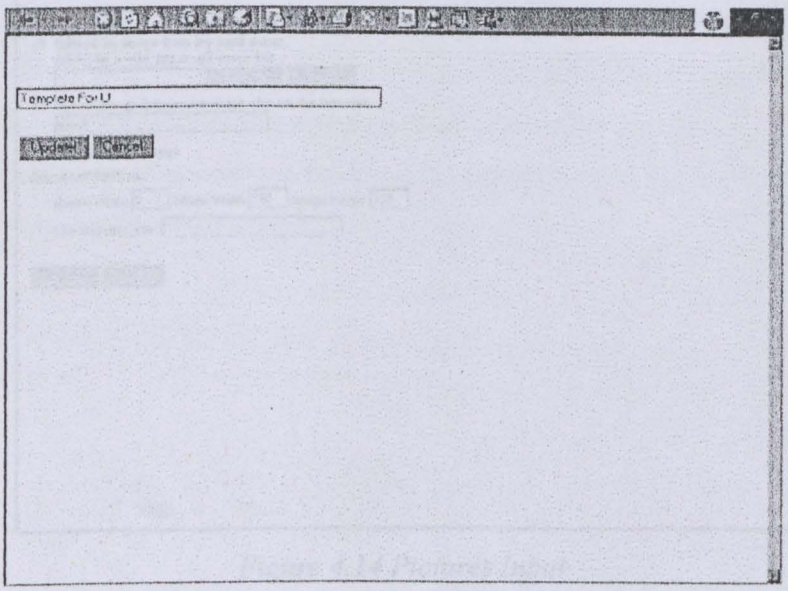

Figure 4.12 Title Input

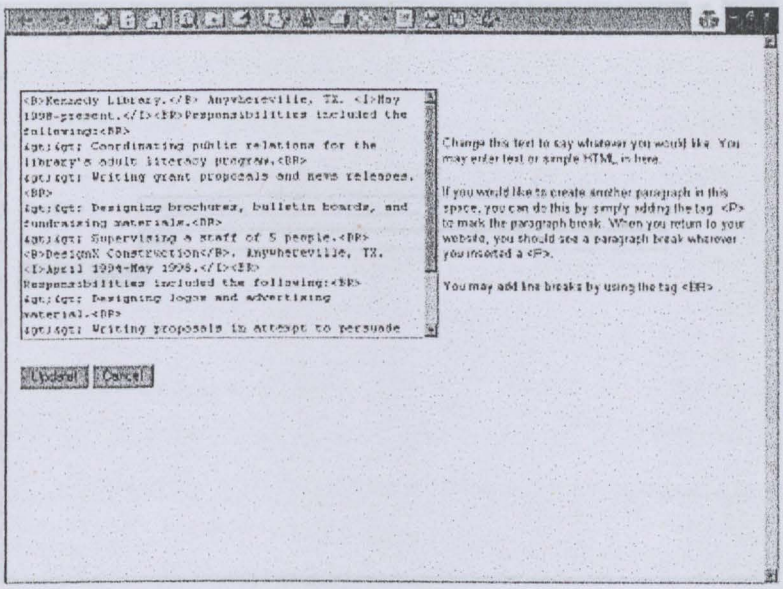

Figure 4.13 Text Block Input

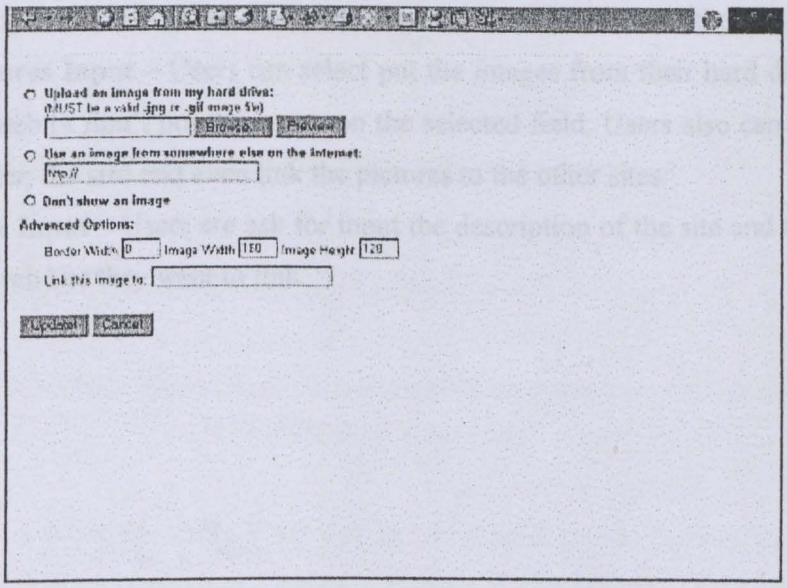

Figure 4.14 Pictures Input

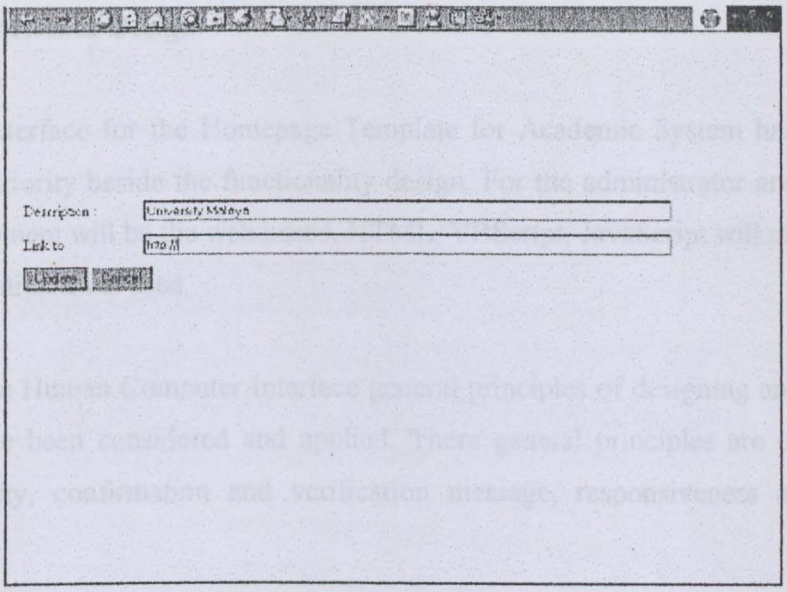

Figure 4.15 Links Input

a) **Title Input** – Users can put the title into the text box and then click the button 'Updated' to update title. The font and size of the title will follow the style as shown in the template.

b) **Text Block Input** – Users will type the information they want to show at here. The font and size of the title will follow the style as shown in the template.

c) **Pictures Input** – Users can select put the images from their hard disk or from the web or don't put the image on the selected field. Users also can choose the border, the size and even link the pictures to the other sites.

d) **Link Input** – Users are ask for input the description of the site and the URL of the web site they want to link.

4.4 User Interface Design

The user interface for the Homepage Template for Academic System has also been given top priority beside the functionality design. For the administrator and user side, the development will be the web based, HTML, VBScript, JavaScript will ultimately be the presentation tools used.

Some of the Human Computer Interface general principles of designing an interactive system have been considered and applied. There general principles are consistency, recoverability, confirmation and verification message, responsiveness and reverse action.

4.4.1 The main page of HTFA

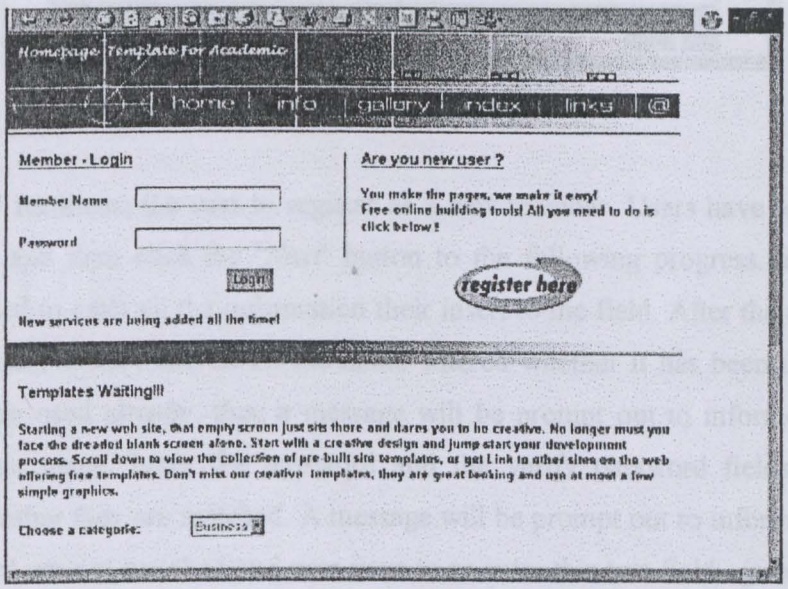

Figure 4.16 Main Page

Figure 4.16 is the user interface for user to navigate to either login to the system or register as a new member or download homepage templates page. Users can login to the page here if they have been a valid user before; else they would like to link to the register page to submit their particular information in order to be a registered user.

Users also can download homepage template here and no need to register as new member.

4.4.2 Register New Member

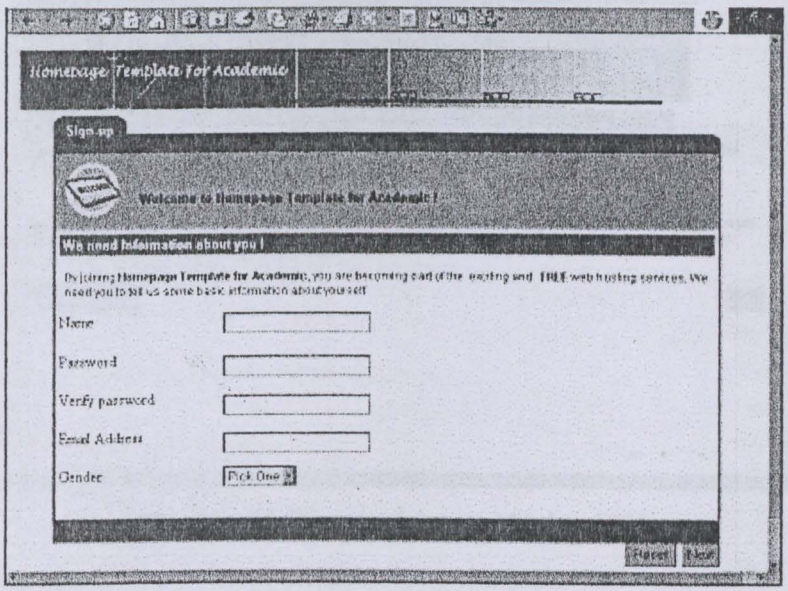

Figure 4.17 Registers for New Member Page

Figure 4.17 facilitates the user to register as a new member. Users have to fill in the entire field and then click the '*Next*' button to the following progress. The 'Reset' button is used to reset all the information their insert to the field. After the users finish input all fields, system will check the name entered whether it has been used. If the name is been used already, then a message will be prompt out to informed users to input another name. Later the password and the verify password fields would be checked whether they are matched. A message will be prompt out to inform the user if the password are not matched and user have to re-enter this two field again. After this particular data have been checked, the new member's information will be inserted to the database.

4.4.3 Page Builder and Files Upload

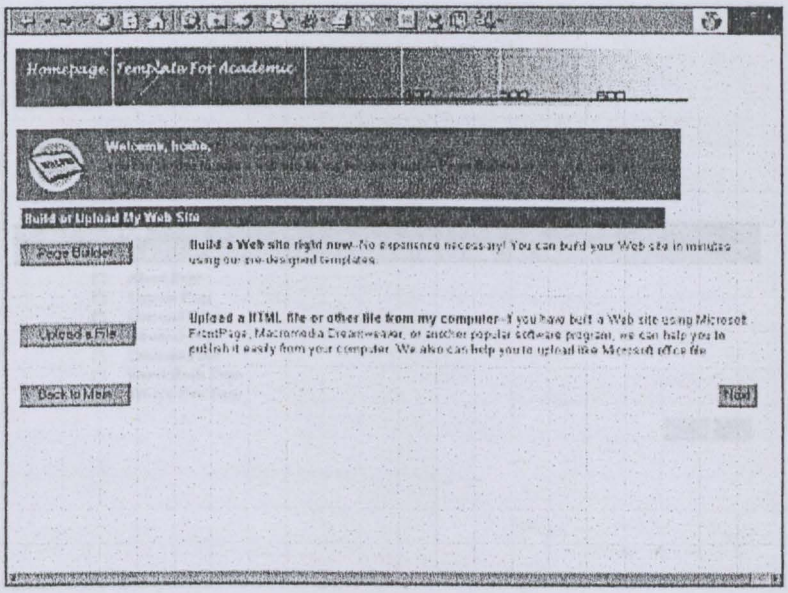

Figure 4.18 Page builder and Upload Files

In figure 4.18 is the page after the user success login to the system, there are two functions provided by system for user to choose. The first one is the 'Page Builder' which the user can build their homepage in a few minutes by using this on-line service. User are provided a variety of templates for choose, and then input some data and information into certain fields, it will come out a homepage as a result. Users also can choose to upload file like HTML file or other type of file like Microsoft office file type by clicking the 'Upload' button.

4.4.4 Add Pages

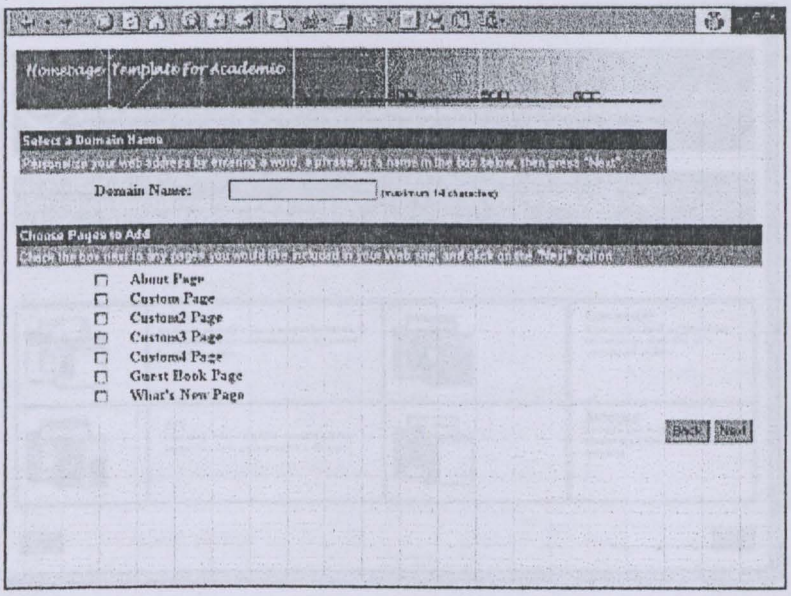

Figure 4.19 Add Pages

Figure 4.19 is the user interface after the user clicks the 'Page Builder' button. Users are required to input a domain or a file name for the URL of the homepage. System will be checked whether the domain name had been used. If the domain name had been used then a message will prompt out to informed and asked user to input another name. After that, users are required to choose what pages they want to include in their homepage, users can check the check box to choose those page they want to include. The name or title of the pages can be change in the file manager page. The 'Next' button is link to the next page which template choosing and the 'Back' button is link to the previous page.

4.4.5 Templates selection

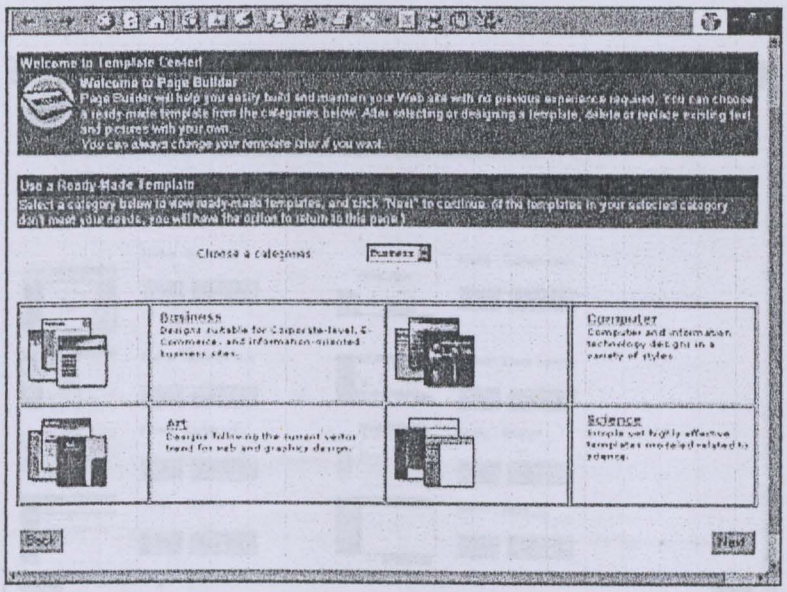

Figure 4.20 Choices of Templates

Figure 4.20 presents the few categories of template users can choose to build homepage. Users need to click on the categories first to view all the templates in that categories to look for the actual templates their want. When the user click on the pictures or the list of the scroll down menu, it will link to the other page which all the templates in that categories will be listed and can choose or preview those template.

4.4.6 Templates View

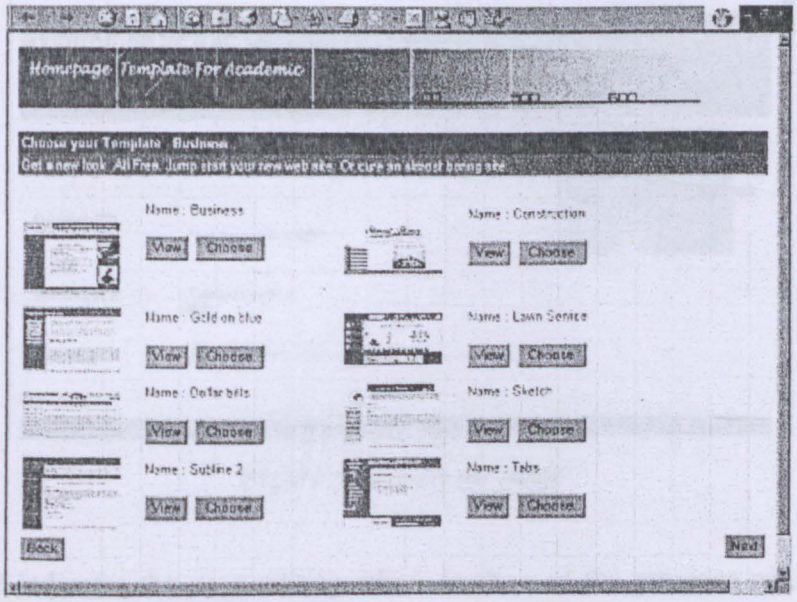

Figure 4.21 Templates List

Figure 4.21 show the interface of templates list in a certain categories. There are many templates in a category, users can choose particular template by clicking the 'Choose' button or they need to preview the template before making decision, thus they need to click on the pictures or the "View' button. The 'Next' button is link to the editing pages and the 'Back' button is link to the previous page.

4.4.7 Page Edit

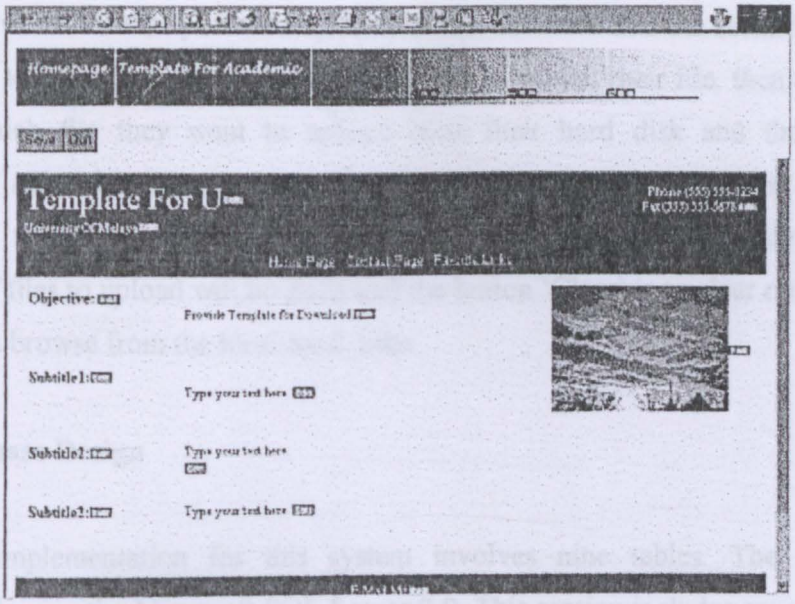

Figure 4.22 Edit the page

Figure 4.22 indicates the page editing which is show at the previous of this chapter. There are 4 kind of fields we can input - title input, text block input, pictures input and the link input. When users click the 'Updated' button, it will link to the upload page and the 'Quit' button is for back to the previous page.

4.4.8 Files Uploading

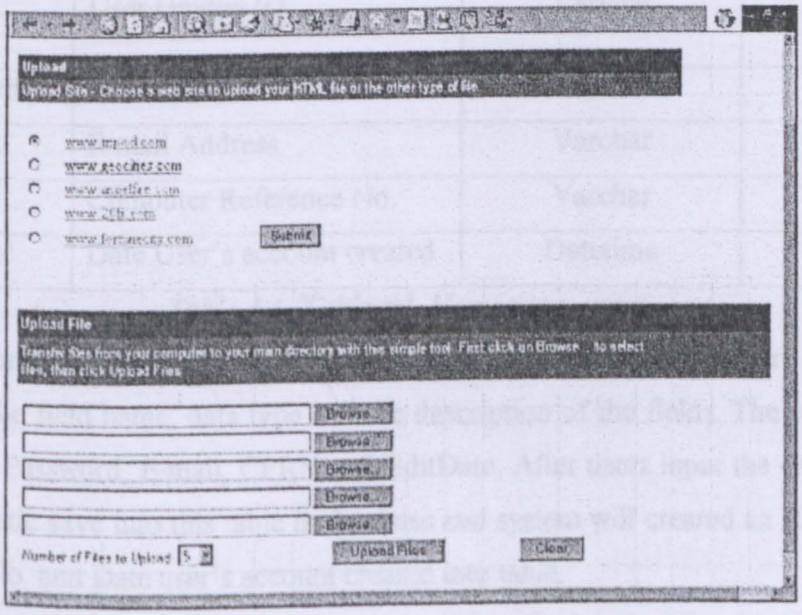

Figure 4.23 Upload files

Figure 4.23 is the interface of uploading files. There are two parts of this section, first part is the web sites that provided uploading files facilities and the second part is files users want to upload. After users choose the site to upload their file, then they have to choose which file they want to upload from their hard disk and then click the '*Uploaded Files*' button to upload files. If they are using Page Builder to build the homepage, they only need to click the 'submit' button to publish their homepage. Number of files to upload will be show and the button 'Clear' is to clear out all the files which been browse from the local hard disks.

4.5 Database Design

Database implementation for this system involves nine tables. The database is constructed using the Microsoft SQL Server 7.0. This section includes seven tables and listed as below. The database structure is shown in the following table.

4.5.1 Table tbl_Homepage_users

Field Name	Particular	Data Type	Length
ID	Auto Number	Int	4
Login	User Unique ID	Varchar	50
Password	Password	Varchar	8
E-mail	E-mail Address	Varchar	50
CPRN	Computer Reference No.	Varchar	50
EditDate	Date User's account created	Datetime	8

Table 4.1 Table tbl_Homepage_users

Table 4.1 presents the table Table tbl_Homepage_users indicates there are six fields in the table, the field name, data type and the description of the fields. The six fields are ID, Login, Password, E-mail, CPRN and EditDate. After users input the data, the data will automatic save into this table in database and system will created an ID, computer reference No. and Date user's account created into table.

4.5.2 Table tblHF

Field Name	Particular	Data Type	Length
Login	User Unique ID	Varchar	50
CPRN	Computer Reference No.	Varchar	50
Template	The type of template user choose	Varchar	50

Table 4.2 Table tblHF

Table 4.2 presents the table tblHF indicates there are there fields in the table, the field name, data type and the description of the fields. The there fields are Login, CPRN, and Template. After users choose the template, the data will automatic save into the "Template" field in database and system will add the ID and computer reference number to the table also for system to keep track.

4.5.3 Table tblPages

Field Name	Particular	Data Type	Length
Login	User Unique ID	Varchar	50
addContact	Contact page	Varchar	50
addCourses	Courses page	Varchar	50
addAssignments	Assignments page	Varchar	50
addNotes	Notes page	Varchar	50
addLinks	Links page	Varchar	50
addResults	Results page	Varchar	50
addResearches	Research page	Varchar	50

Table 4.3 tblPages

Table 4.3 presents the table tblPages indicates there are eight fields in the table, the field name, data type and the description of the fields. The eight fields are Login, addContact, addCourses, addAssignments, addNotes, addLinks, addResults,

addResearches. After users choose the pages they want to add to their homepage, the data will automatic save into those fields in database and system will add the ID to the table for system to keep track.

4.5.4 Table tblHome

Field Name	Particular	Data Type	Length
Login,	User Unique ID	Varchar	50
homeTitle	The title of the user's homepage.	Varchar	150
homeText	The information that related to the title.	Text	16

Table 4.4 Table tblHome

Table 4.4 presents the table tblHome indicates there are there fields in the table, the field name, data type and the description of the fields. The there fields are Login, homeTitle and homeText. After users input the data, the data will automatic save into this table in database according to their user Unique ID.

4.5.5 Table tblContact

Field Name	Particular	Data Type	Length
Login	User Unique ID	Varchar	50
contName	Name of User	Varchar	150
contFact	School of Faculty user belong to.	Varchar	100
contAddress	User's address	Text	16
contTel	User's telephone no.	Varchar	50
contFax	User's fax no.	Varchar	50
contEmail	User's email	Varchar	100
contPic	User's pictures	image	16
contAdd1	Additional information	Varchar	150

contAdd2	Additional information	Varchar	150
contAdd3	Additional information	Varchar	150

Table 4.5 Table tblContact

Table 4.5 presents the table tblContact indicates there are eleven fields in the table, the field name, data type and the description of the fields. The there fields are Login, contName, contFact, contAddress, contTel, contFax, contEmail, contPic, contAdd1, contAdd2 and contAdd3. After users input the data, the data will automatic save into this table in database according to their user Unique ID.

4.5.6 Table tblCourses

Field Name	Particular	Data Type	Length
Login	User Unique ID	Varchar	50
courseTitle	Title of course	Varchar	150
courseText	Information about the course.	Text	16

Table 4.6 Table tblCourses

Table 4.6 presents the table tblCourses indicates there are there fields in the table, the field name, data type and the description of the fields. The there fields are Login, courseTitle and courseText . After users input the data, the data will automatic save into this table in database according to their user Unique ID.

4.5.7 Table tblAsignments

Field Name	Particular	Data Type	Length
Login	User Unique ID	Varchar	50
assiTitle	Title of Page	Varchar	150
assiName	The name or code of the course.	Varchar	100
assiDesc	Description of the	Text	16

	assignment or tutorial.		
assiLink	Path of the file user uploaded.	Varchar	100
assiDate	Date of the assignments or tutorial been assign.	Datetime	8
assiDDate	Due date of the assignment of tutorial.	Datetime	8

Table 4.7 Table tblAsignments

Table 4.7 presents the table tblAsignments indicates there are seven fields in the table, the field name, data type and the description of the fields. The seven fields are Login, assiTitle, assiName, assiDesc, assiLink, assiDate and assiDDate. After users input the data and upload the files, the data will automatic save into this table in database according to their user Unique ID.

4.5.8 Table tblNotes

Field Name	Particular	Data Type	Length
Login	User Unique ID	Varchar	50
notTitle	Title of Page	Varchar	150
notName	The name or code of the course.	Varchar	100
notDesc	Description of the note.	Text	16
notLink	Path of the file user uploaded.	Varchar	100
notDate	Date of the note been published.	Datetime	8

Table 4.8 Table tblNotes

Table 4.8 presents the table tblNotes indicates there are six fields in the table, the field name, data type and the description of the fields. The six fields are Login, notTitle, notName, notDesc, notLink and notDate. After users input the data and upload the files,

the data will automatic save into this table in database according to their user Unique ID.

4.5.9 Table tblLinks

Field Name	Particular	Data Type	Length
Login	User Unique ID	Varchar	50
linkTitle	Title of Page	Varchar	150
linkName	The name the website	Varchar	100
linkDesc	Description of the website.	Text	16
linkURL	URL of the website.	Varchar	100

Table 4.9 Table tblLinks

Table 4.9 presents the table tblLinks indicates there are fix fields in the table, the field name, data type and the description of the fields. The five fields are Login, linkTitle, linkName, linkDesc and linkURL. After users input the data, the data will automatic save into this table in database according to their user Unique ID.

4.5.10 Table tblResult

Field Name	Particular	Data Type	Length
Login	User Unique ID	Varchar	50
resTitle	Title of Page	Varchar	150
resName	The name or code of the course.	Varchar	100
resDesc	Description of the result.	Text	16
resLink	Path of the file user uploaded.	Varchar	100
resDate	Date of the result been published.	Datetime	8

Table 4.10 Table tblResult

Table 4.10 presents the table tblResult indicates there are six fields in the table, the field name, data type and the description of the fields. The six fields are Login, reseTitle, reseName, reseDesc, reseLink and reseDate. After users input the data and upload the files, the data will automatic save into this table in database according to their user Unique ID.

4.5.11 Table tblResearch

Field Name	Particular	Data Type	Length
Login	User Unique ID	Varchar	50
reseTitle	Title of Page	Varchar	150
reseName	The name of the research.	Varchar	100
reseDesc	Description of the research.	Text	16
reseLink	Path of the file user uploaded.	Varchar	100
reseDate	Date of the research been published.	Datetime	8

Table 4.11 Table tblResearch

Table 4.11 presents the table tblResearch indicates there are six fields in the table, the field name, data type and the description of the fields. The seven fields are Login, resTitle, resName, resDesc, resLink and resDate. After users input the data and upload the files, the data will automatic save into this table in database according to their user Unique ID.

4.6 Expected Outcome

The expected outcome of this system HTFA is a system that can provide template for configure homepage for academician. A template – driven page builder which is going to develop includes optional formats of setting up academician information on their homepage. The final output is listed as below:

i. Allow download template for users to build homepage by themselves.

ii. Provide a useful application or services to widen the use of formal on-line system.
iii. Provide simple but intelligent on-line service's application
iv. Provide a simple and easy to understand system that let user to involve in.
v. Provide a convenience, accessibility, free and quality interaction for the system user.
vi. Provide an easy way to create homepage without worried about the template design.
vii. Allow information sharing which academician can upload lecture notes, tutorials, assignments and etc.

4.7 Summary

This chapter - system design presents how the system will be develop. ASP, JavaScript and VBScript will be the technologies and computer language chosen for program design. Then, the flow chart of users and administrator section has been shown that how user and administrator involved in this system and how does user interact with administrator through this system. Next a few simple interface show that how the system will look like and work. It will be a quick view for the system that will be developed. Later the system also needs a simple database design which only involved a table in the database for store some particular data about new members. Finally the expected outcome of this system is a configurable homepage design for academic.

Chapter 5: System Implementation

5.1 Introduction

This chapter describes how the system is implemented by choosing the tools and right techniques. 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.

There are seven main modules in the user section. The program development for the coding phase was completed based on the module functionality. The seven modules in the client section are register module, login module, choose template and pages module, edit pages module, search module and logout module.

5.2 Register Module

A user or academic has to register as a member of system in order to build a homepage with system HTFA. User has to provide user name, password, re-entry password and email address for system to keep track and avoid the unauthorized user from accessing this system. First the system will compare the user name which is user input with the other user names in the database, if the user name already been chosen by someone, then the user have to choose another user name.

Secondly, the characters of password user input will be checked, system only allows at least 4 characters and maximum 8 characters type of password. Then the system will check the e-mail address of user, if the e-mail address is not end with edu.my, system will indicate that user are not a academic and will not allow that user to register. Below are sample coding for this registration validation. It is needed to add a specific header in the every file before start with the ASP tag <% %>.

```
<%
if request.querystring("Error") = "Login" then
  response.write("<center><font color = red face = arial size = 2><b>The Login Name you choose has already been taken. <br> Please Choose another login name!</b><br><br></font></center>")
end if
```

```
if request.querystring("Error") = "Password" then
response.write("<center><font color = red face = arial size = 2><b>The two passwords you typed in did not match or you left the field(s) blank!<br><br></b></font></center>")
end if

if request.querystring("Error") = "Length" then
response.write("<center><font color = red face = arial size = 2><b>Minimum for the password is 4 character and Maksimum 8 character<br><br></b></font></center>")
end if

if request.querystring("Error") = "Email" then
response.write("<center><font color = red face = arial size = 2><b>You are not allow to sign up because this homepage builder is reserve only for academics.<br><br></b></font></center>")
end if

if request.querystring("Error") = "Account" then
response.write("<center><font color = red face = arial size = 2><b>You are already a member!<br><br></b></font></center>")
end if
%>
```

After user success register as a user of system, a personal directory will be created for that user, the directory name is same with the user name of that user. In addition, the images folder and upload folder will also created in this directory.

5.3 Login Module

This login module is used to avoid unauthorized customer from accessing this system. At first, the user login name and password will be checked with the database whether is a valid user. The system only allows the user with valid user name and password to access.

The coding process in this module was integration of the HTML and ASP together in one file and the file is save as .asp file type.

5.4 Choose Template and Pages Module

After the first time users login to system, what they have to do is choose the template from a list of templates. Those templates are according to variety education field like computer science, information technology, medical, sport science, engineering and etc. User can choose the templates depend on which teaching field they involve or as their own like.

Users have to check the button beside the thumbnail and click the choose button to select the template for building homepage. User also can preview the template samples by clicking the preview hyperlink beside the thumbnail. Templates been chosen is changeable by clicking the link at the main page of their homepage. Currently there are only 12 templates provided for user.

After the user choose the homepage template, they have to choose the pages they need from a list of pages like "Home" page, "Contact page", "Assignments and tutorials" page, "Notes" page, "Web Links" page, "GradeBook" page and "Researches" page. After those pages have been choose by user, all the related file on the "BuildPage" directory will be copy to the user's personal directory. User also can add pages every time they log in to system.

5.5 Edit Pages Module

After the step of choosing template, the following step academic have to do is edit the pages in their homepage. There are 9 pages with different functions provided for academic and there are listed as below:

i. Home/Default Page
ii. Contact Page
iii. Courses Page
iv. Assignments and tutorials Page
v. Notes Page
vi. Web Links Page
vii. GradeBook Page

viii. Researches Page

ix. Help Page

5.5.1 Home/Default Page

Home/default page is the main page of the user's homepage. This page is designed for academics to put their welcome node to all the visitors whose came to visit their homepage. In addition, academic can put the latest news, announcements or other information their want to inform the visitors and students.

There are total 4 labels and 3 text areas in this page. The 4 labels are for the purposed of list the title of the page and the subtitle of the new paragraph. And the 3 text areas are created for academic to put the information related to the title. The maximum character of label is 150 characters and the size of text area is 20 rows X 56 columns.

5.5.2 Contact Page

This page is designed for academic to publish their personal information. There are 10 fields provided for user to publish personal information and all the fields and listed as below:

i. Name - name of academic

ii. Faculty - faculty or school attached to

iii. Address - address of academic

iv. Phone - phone number.

v. Fax - fax number.

vi. e-Mail - e-Mail address

vii. Picture – photo of academic

viii. 3 additional fields to publish additional information like room number, the free time for discussion with students and etc.

All data an academic input will save into the database.

5.5.3 Courses Page

This page is for an academic to publish the introduction and all information related to the courses they are teaching currently. There are 3 labels for courses title and 3 text areas for academic to publish information related to the courses. All data academic input will save into the database. Those fields provided for academic to publish information are:

i. Title - title of courses

ii. Description - description of courses teach like scope, objective or syllabus.

5.5.4 Assignments and tutorials Page

This page is designed for academic to published the assignments and tutorials for students to view or download. Academic have to provide the subject code, description of the assignments or tutorials, created date and the due date of the assignments or tutorials.

Academic can also upload their own Microsoft Office files or the others type of file for students to download or view which are related to the assignments or tutorials. Those fields provided for academic insert information are:

i. Subject Code - the code of the subject

ii. Description - the description of the assignments or tutorials

iii. Create Date - system will add the current date for academic when they add information or upload files.

iv. Due Date - the date which students have to submit their assignments or tutorials

v. File - file which are related to the assignment or tutorial, it can be Microsoft Office type files or other type of files, it is useful for students to view or download.

The coding of this page is using one of the ASP object called FileSystemObject. First academic will browse the file they want to upload from their own computer, then the

system will copy the file from the source and store in the 'upload' folder in the academic own directory. After this, a link will be created in the page to link to this file.

5.5.5 Notes Page

This is the page an academic can upload course notes for students to download and view. Academic can insert the notes title or subject code and the note description. The system will link to the files that are already been uploaded by academic when the notes title is clicked. Those fields provided for this pages is listed as below:

i. Subject Code - the code of the subject

ii. Description - the description of notes.

iii. Create Date - system will add the current date for academic when they add information or upload files.

iv. File – files, which are related to the assignment or tutorial, it can be Microsoft Office type file or other type of file, it is useful for students to view or download.

The concept of upload files is same with the assignments and tutorials page.

5.5.6 Web Links

This is the page academic add in the favorite and cool links or URL here. When the visitors click the link name, the page will link to the URL that specified by academic. Those fields provided for academic add in information are:

i. Link Name - short description of the link

ii. Description - long description of the link.

iii. URL - academic have to input the full path for the web site they want to link to. For example like http://www.yahoo.com.

5.5.7 GradeBook Page

Academic can use this page to publish the result of test or exam or project or assignments for students to check. The system provided academic with the title of the test or exam and the description of result. What academic has to do is upload his result that are create by using Microsoft Office Words or Excel, the system will handle the links to the pages academic uploaded. Students can click the subject code to check the result. Those fields provided for academic add in information are:

i. Subject Code - the code of the subject

ii. Description - the description of results

iii. Create Date - system will add the current date for academic when their add information or upload files.

iv. File - the result file, it can be Microsoft Office type file or other type of file, it is useful for students to view and check.

5.5.8 Researches Page

This is the page an academic can publish his current researches result or paper to share with the others. Academic can insert the researches title and description here. Academic also can upload some related document for visitors to download and view. Those fields provided for academic add in information are:

i. Title - the title of the research

ii. Description - the description of research

iii. Create Date - system will add the current date for academic when they add information or upload files.

iv. File - files which are related to the research

5.5.9 Help Page

The system provides help service for user in order to make the user easier in the process of building their homepage. This help file provided all the information like how to change templates, how to insert data into pages, how to upload files and pictures to users.

5.6 Search Module

The system provides the search function for visitor to search the notes and assignments or tutorials that were published by academic. When the visitor insert the keyword, system will list out all the related notes, assignments and tutorials which ordered by subject code.

5.7 Log Out Module

This module is for user log out from the system. User will return to the main page of the system.

5.8 Summary

This chapter describes how the system is implemented starting from the login module to the end with logout module. All the modules fulfill the requirements of system specified in chapter 4. The coding of the system is build with Active Server Pages. Several software like Visual Interdev, Microsoft FrontPage, Photoshop is using to success this system implementation.

Overall, the primary goal of this phase is to produce a simple, clear source code with internal documentation that will ease the processes of a verification, debugging, testing, modification and further enhancement. The next chapter presents the system testing.

Chapter 6 System Testing

6.1 Introduction

Testing is performed to ensure that the programs are executed correctly and conforms to the requirements specified. It provides a method to uncover logic error and for testing system reliability. The strategies used for testing are unit testing, integration testing and system testing.

6.2 Approach used to test HTFA

The sequence of testing activities is unit testing, module testing and the system testing. As defects are discovered at any stage, program modifications are required to convert them and this may require other stages in the testing process to be repeated. The process is therefore an iterative one with information being fed back from later stage to earlier parts of two processes. Bottom-up testing has been implemented to test HTFA because this is appropriate for object-oriented system.

6.3 Unit Testing

Unit testing is done to uncover errors in each module. In this system, each module is coded and tested separately. Functions and procedures in each module are examined carefully for errors after coding. If they are found to be error free after manual examination, they are computed and run with test date to search for other errors. For this system, unit testing is done concurrently with the development phase. For example, the login module has the capability to validate the password and user name of user to avoid the unauthorized user to access to system.

6.4 Module Testing

A module is a collection of dependent components. A module encapsulates these related components. Module testing enables each module to be tested independently without other system modules. There are five modules to test in this system and they are listed as below:

i. User Registration Testing
ii. Login Module Testing
iii. Choosing Template Module Testing
iv. Choosing Page Module Testing
v. Edit Pages Module Testing

6.4.1 User Registration Testing

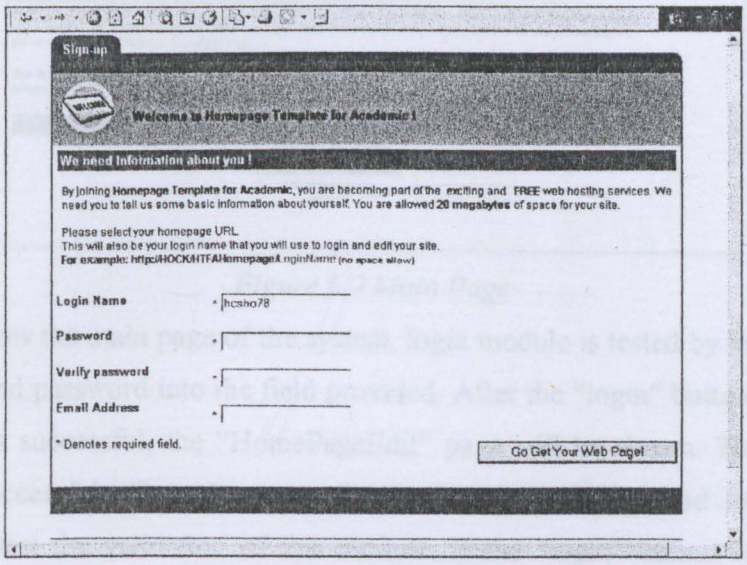

Figure 6.1 Register Page

To implement the module testing, the following steps were conducted carefully. Below is one of the examples of the module testing. Figure 6.1 presents the register page, to test the user registration module, the register form was fill in with all the required information like login name, password, password confirmation and e-mail address.

After click on the "Go Get Your Web Page!" button, if the next page for "Choosing Template" is shown, that means that the register process work fine and success.

If the user insert the invalid information for example the confirmation password does not match, system will prompt out error messages to inform the user to make changes in order to succeed in this process.

To make sure that the user record is added into the database, the next step is to go through the database table. The record in the HomePageUser table shows that the data has been inserted into database successfully.

6.4.2 Login Module Testing

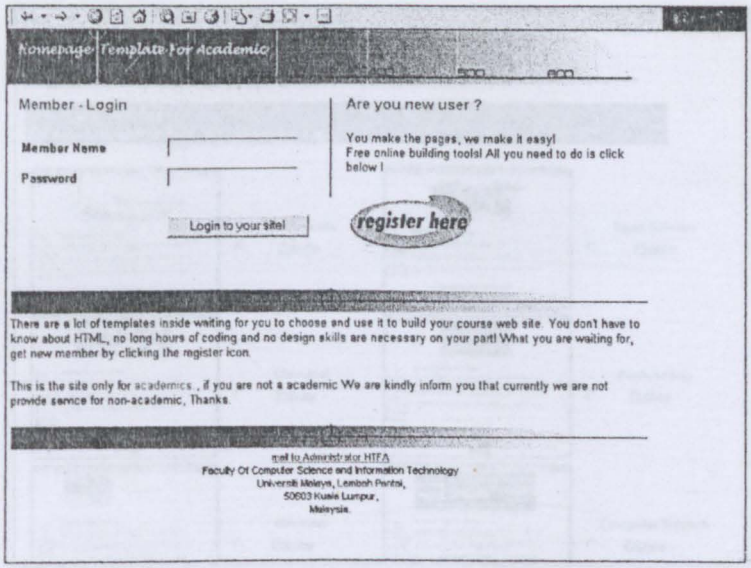

Figure 6.2 Main Page

Figure 6.2 show the main page of the system, login module is tested by insert the valid login name and password into the field provided. After the "login" button is clicked, if the process is successful, the "HomePageEdit" page will be shown. This means the process is successful. Then the same field will input some invalid login name or password to test the validation of this module. If the "login" button is clicked, the "HomePageEdit" is shown, this means the process fails, otherwise if the page prompts the error messages to the user to retype the login name or password or register as a new user, this means this testing process is successful.

6.4.3 Choosing Template Module Testing

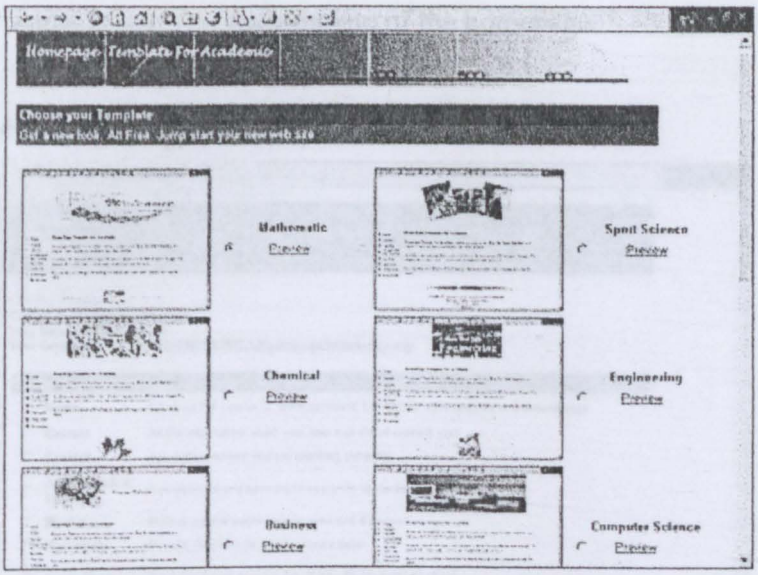

Figure 6.3 Choose Template Page

The next testing module is the choosing homepage template module. Figure 6.3 shows that there are 2 testing steps in this module. First the hyperlink of preview the sample page is clicked, if the process is successful, the selected sample page will be shown.

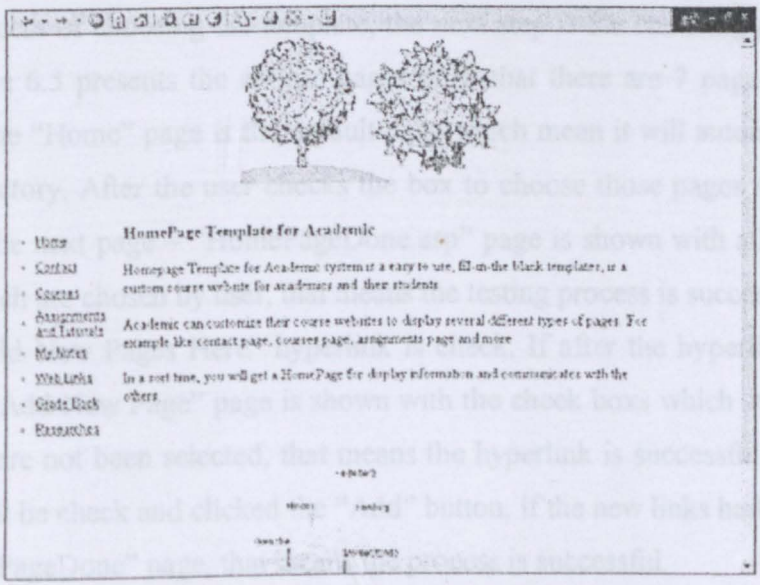

Figure 6.4 The Preview of Homepage Template

After that the check box besides the selected template will be check, and then the "Submit" button will be click. If the "HomePageDone" Page is shown, this means the process is successful. Then, one of the links of the edit pages will be click to check whether the template selected is valid or not. If the page with the template selected is

shown, this means the testing process successfully. Figure 6.4 presents the sample page when the user wants to preview the template of the homepage.

6.4.4 Choosing Page Module Testing

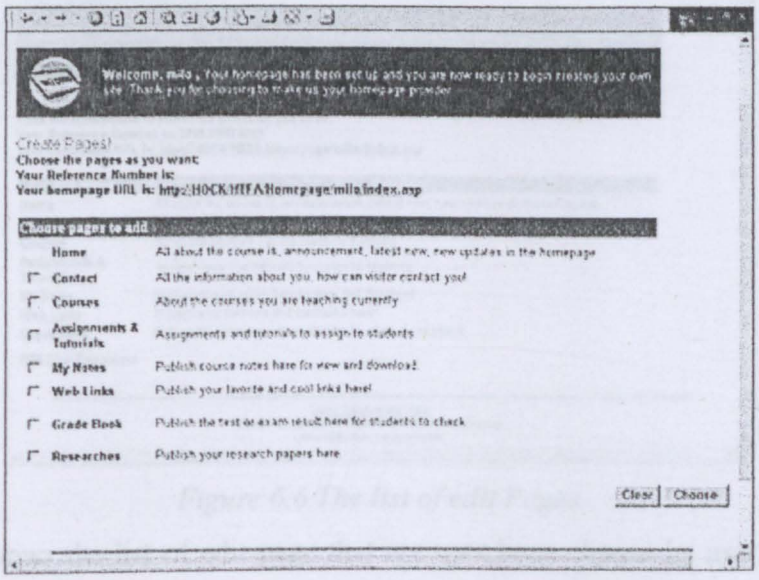

Figure 6.5 ChoosePages Page

After the process of choosing the template, the next step is the choosing page module testing. Figure 6.5 presents the choose pages page that there are 7 pages for user to choose and the "Home" page is the default page which mean it will automatically add to user's directory. After the user checks the box to choose those pages and click the "button", if the next page – "HomePageDone.asp" page is shown with all the links to the pages which are chosen by user, that means the testing process is successful.

Then the "Add New Pages Here" hyperlink is check. If after the hyperlink has been clicked, the "Add New Page" page is shown with the check boxs which are beside the pages which are not been selected, that means the hyperlink is successful. Then those check box will be check and clicked the "Add" button, if the new links had been shown in the "HomePageDone" page, that means the process is successful.

6.4.5 Edit Pages Module Testing

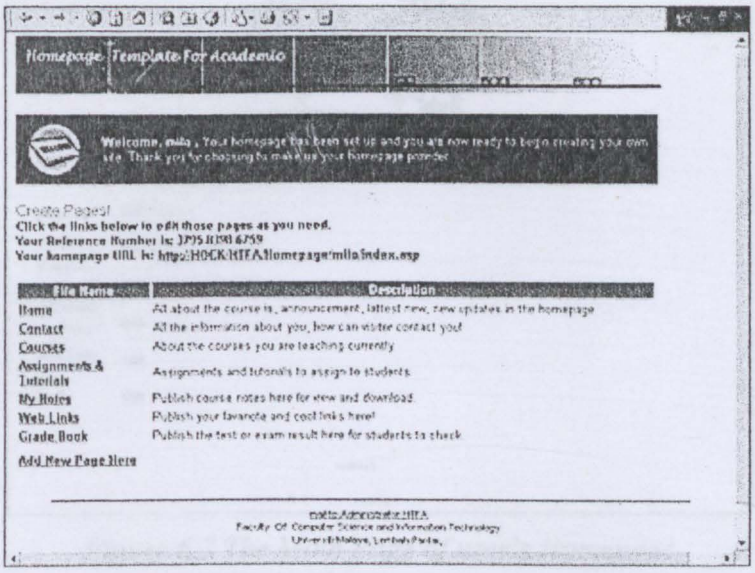

Figure 6.6 The list of edit Pages

Figure 6.6 shows the list of edit page that are user been chosen by user. There are a total 9 of pages with different functions has to test in this module. The pages are listed as below:

i. Home/Default Page
ii. Contact Page
iii. Courses Page
iv. Assignments and tutorials Page
v. Notes Page
vi. Web Links Page
vii. GradeBook Page
viii. Researches Page
ix. Search Function
x. Help Page

Every link in this page is testing to check whether it link to the right pages.

6.4.5.1 Home/Default Page Testing

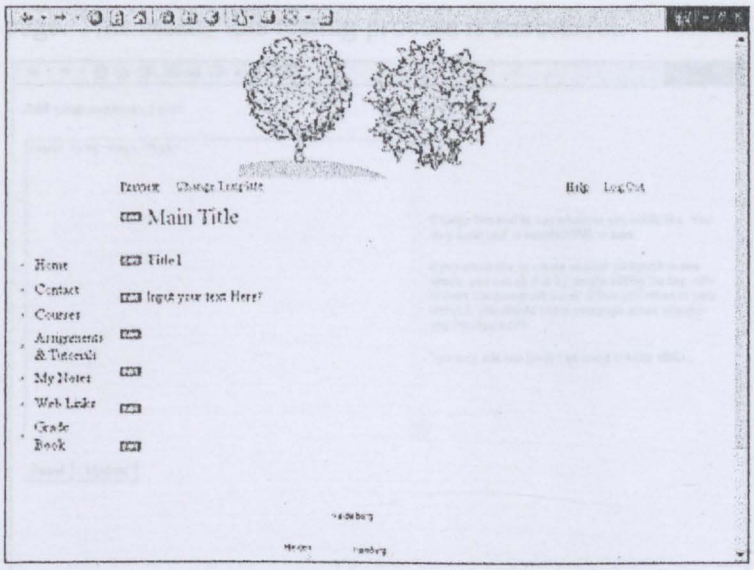

Figure 6.7 The Main Page of user's Homepage

Figure 6.7 presents the main page of user's homepage. Fields such as the label field and the text area field are test by inserting data into it by clicking the small "edit" button beside each field.

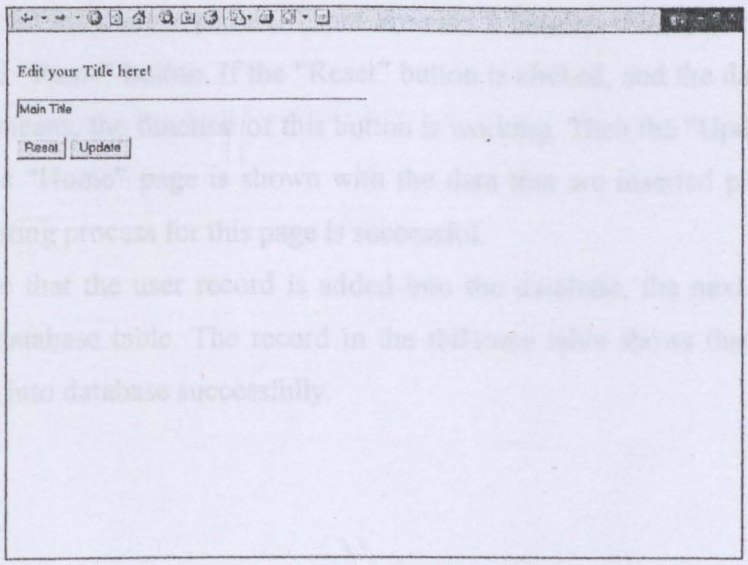

Figure 6.8 The field for user to input title.

Figure 6.8 shows the label field for insert title, after the button is clicked, the page shows that user can input data into the provided fields. There are 2 button to test here, the 'Update' and 'Reset' button. If the "Reset" button is clicked, the data in the field is clear, this means, the function of this button is working. Then the submit button is

clicked, if the "Home" page is shown with the data which are inserted previously is shown at the page. This means this testing process is successful.

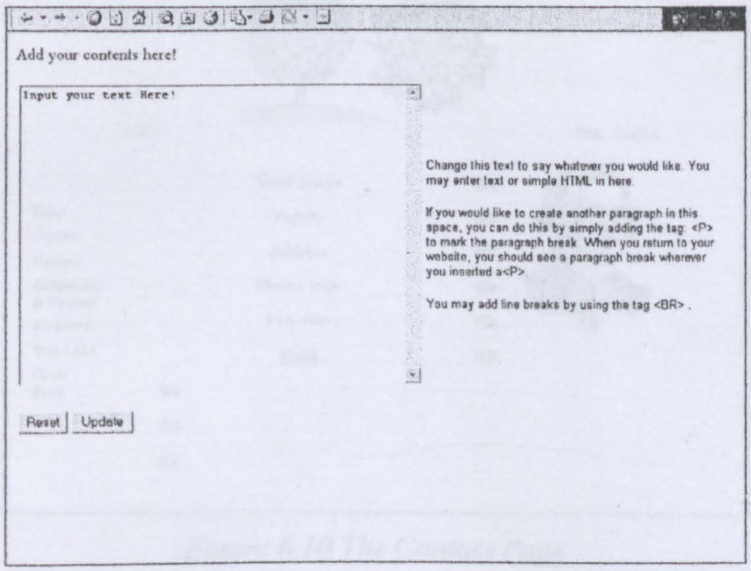

Figure 6.9 User can add text here

Figure 6.9 shows the text area for input text. After the title editing, the "edit" button of the text area will be click, the page with a text area fields and some direction to help user to input information is shown. There are also 2 buttons tested, and there are the "Update" and "Reset" button. If the "Reset" button is clicked, and the data in the field is clear, this means, the function of this button is working. Then the "Update" button is clicked, if the "Home" page is shown with the data that are inserted previously, this means this testing process for this page is successful.

To make sure that the user record is added into the database, the next step is to go through the database table. The record in the tblHome table shows that the data has been inserted into database successfully.

6.4.5.2 Contact Page Testing

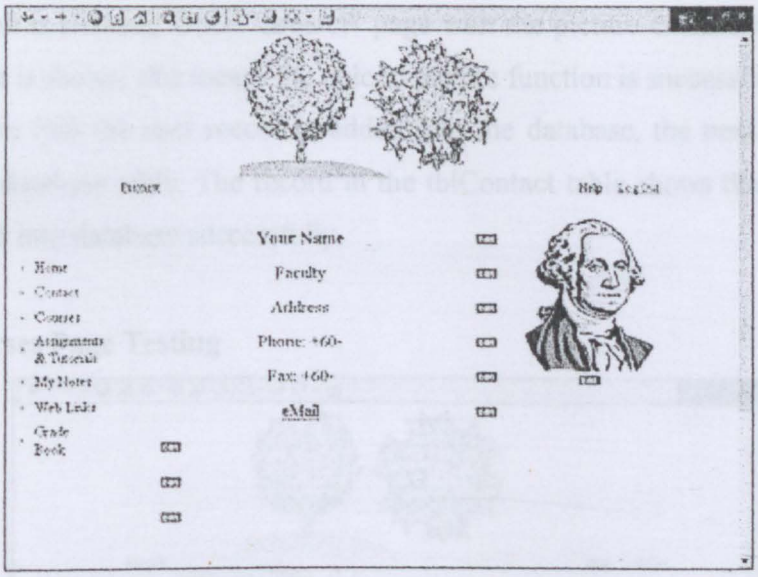

Figure 6.10 The Contact Page

Figure 6.10 shows the page for user to input their personal information. All the fields are inserted with data to testing the functionality of the page by clicking the small "edit" button beside those fields. Those testing processes are similar to the "Home" page, except for the edit picture testing process.

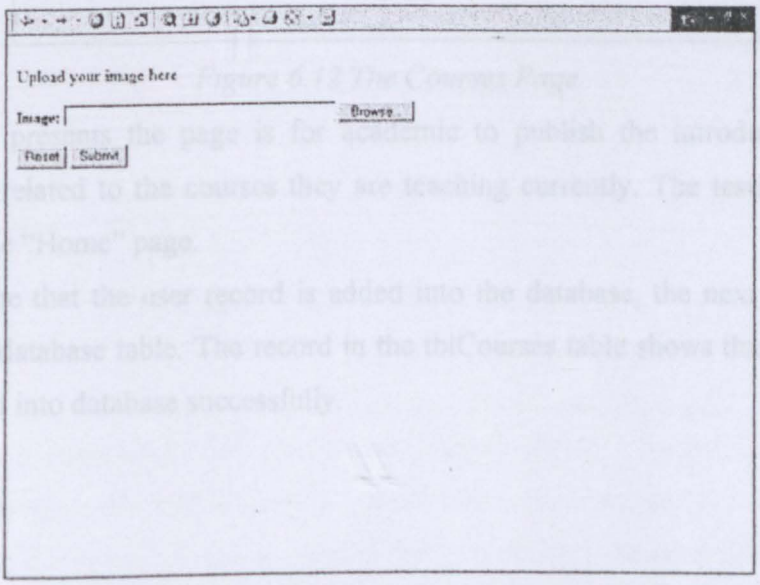

Figure 6.11 The field for upload picture

Figure 6.11 presents the field for user to upload their file to system. The button beside the default picture is clicked, if the page with the title "edit your pictures here" and a browse files field is shown, that means the process is successful. After that the next step

is searches the picture file from the computer that want to upload to system. Then the submit button is clicked, if the "contact" page with the picture currently browse from the computer is shown, this means the upload picture function is successful.

To make sure that the user record is added into the database, the next step is to go through the database table. The record in the tblContact table shows that the data has been inserted into database successfully.

6.4.5.3 Courses Page Testing

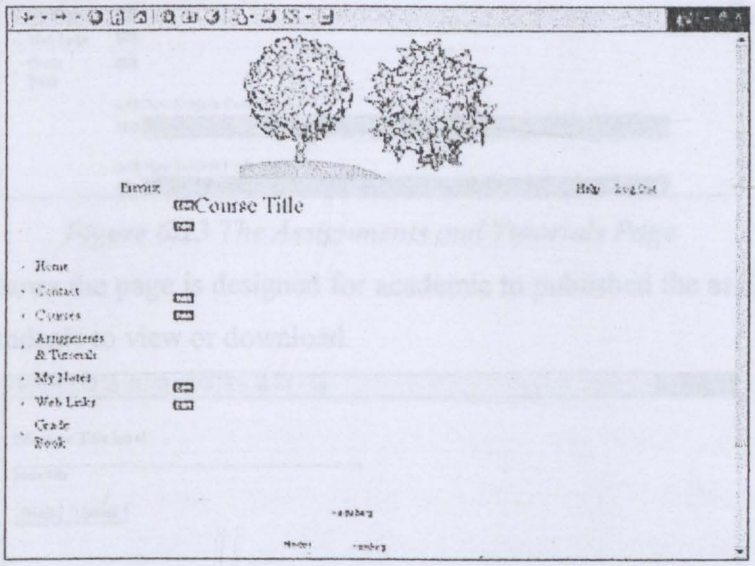

Figure 6.12 The Courses Page

Figure 6.12 presents the page is for academic to publish the introduction and all information related to the courses they are teaching currently. The testing process is same with the "Home" page.

To make sure that the user record is added into the database, the next step is to go through the database table. The record in the tblCourses table shows that the data has been inserted into database successfully.

6.4.5.4 Assignments and tutorials Page

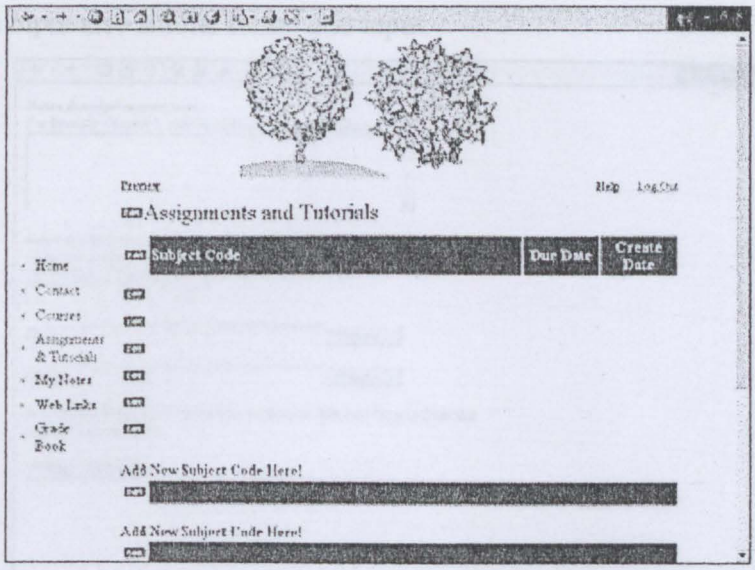

Figure 6.13 The Assignments and Tutorials Page

Figure 6.13 shows the page is designed for academic to published the assignments and tutorials for students to view or download.

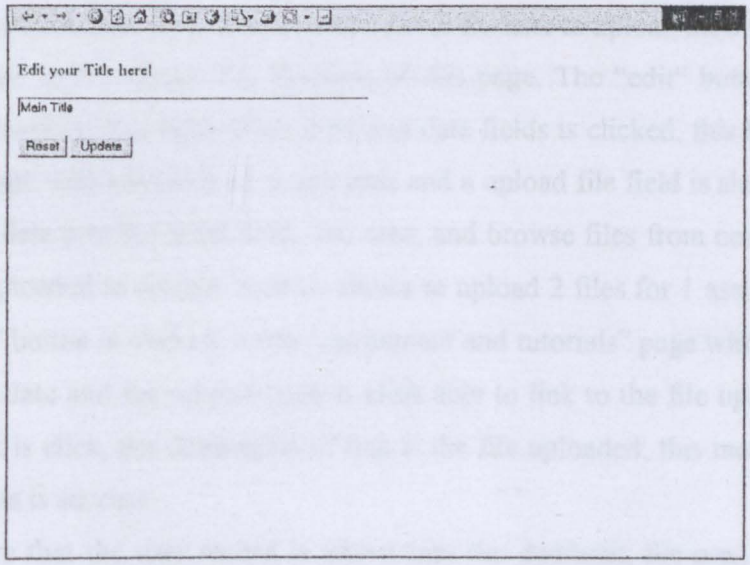

Figure 6.14 Edit the title and subject code of Courses

Figure 6.14 presents the field for user to edit the title and subject code of courses. There is a title fields in this page, when the button "edit" is clicked, the label fields will shown in a new window, data is inserted to the field. The "Reset" button is clicked, if the data in the fields had been clear, it means the functionality of this button is working. After this, the "Update" button is clicked, if the "assignments and tutorials" page with the

new title is shown, this means the functionality of this button is working also. The subject code input also similar to the title input.

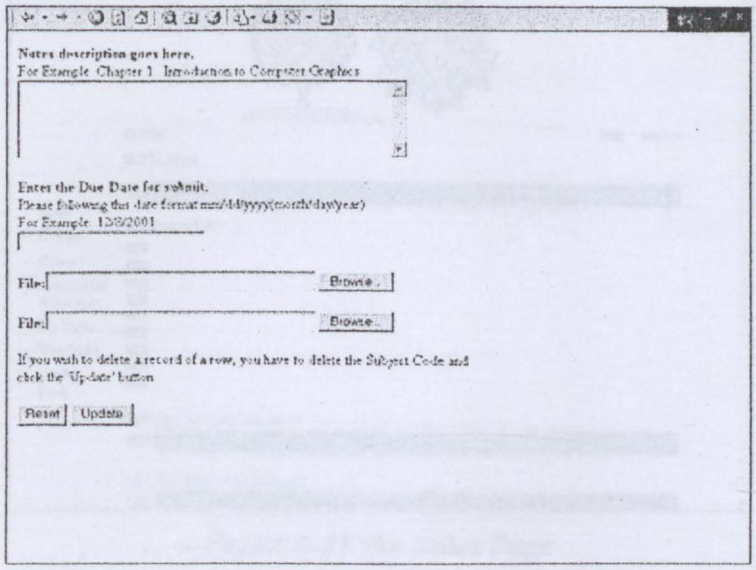

Figure 6.15 The page for upload file

Figure 6.15 presents the page that provided fields for user to upload their files. The next testing process is the upload file function of this page. The "edit" button in side the table which involved the description field and date fields is clicked, this button is work if the next page with a label field, a text area and a upload file field is shown. The next step is input data into the label field, text area, and browse files from computer, which want to be uploaded to system. System allows to upload 2 files for 1 assignment. Then the "Submit" button is clicked, if the "assignment and tutorials" page with the new data input, create date and the subject code is click able to link to the file uploaded, and if the hyperlink is click, the destination of link is the file uploaded, this means the whole testing process is success.

To make sure that the user record is added into the database, the next step is to go through the database table. The record in the tblAssignments table shows that the data has been inserted into database successfully.

6.3.4.5 Notes Page Testing

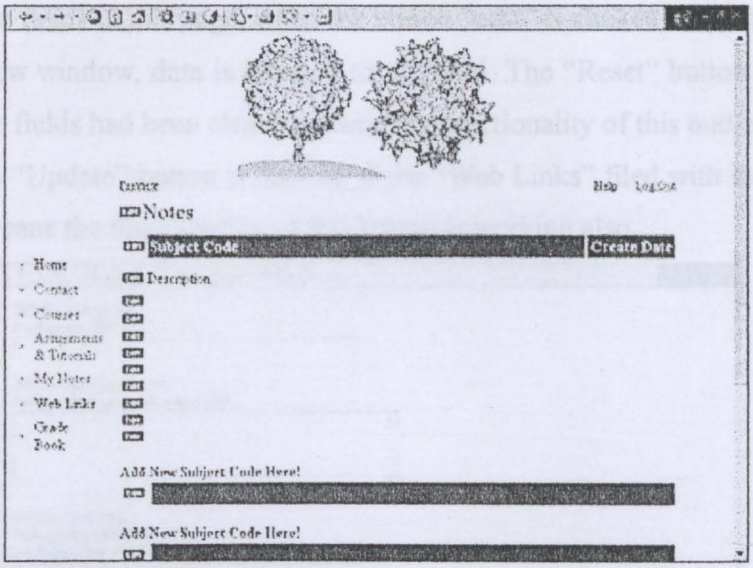

Figure 6.16 The Notes Page

Figure 6.16 presents the page academic can upload course notes for students to download and view. The testing process is same with the "Assignments and tutorials" page that involves the title field, subject code fields, description fields, date fields and upload fields. To make sure that the user record is added into the database, the next step is to go through the database table. The record in the tblNotes table shows that the data has been inserted into database successfully.

6.3.4.6 Web Links Testing

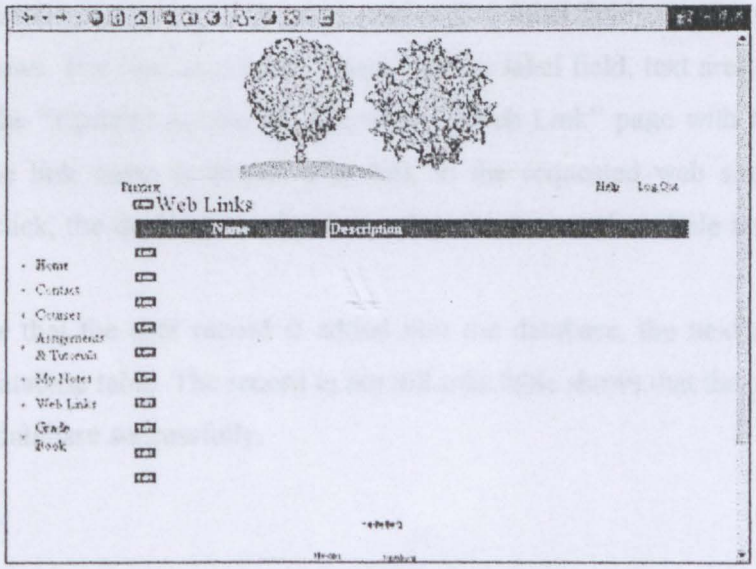

Figure 6.17 The web links page

Figure 6.17 shows the page academic can add in the favorite and cool links or URL. There is a title fields in this page, when the button "edit" is clicked, the label fields will shown in a new window, data is inserted to the field. The "Reset" button is clicked, if the data in the fields had been clear, it means the functionality of this button is working. After this, the "Update" button is clicked, if the "Web Links" filed with the new title is shown, this means the functionality of this button is working also.

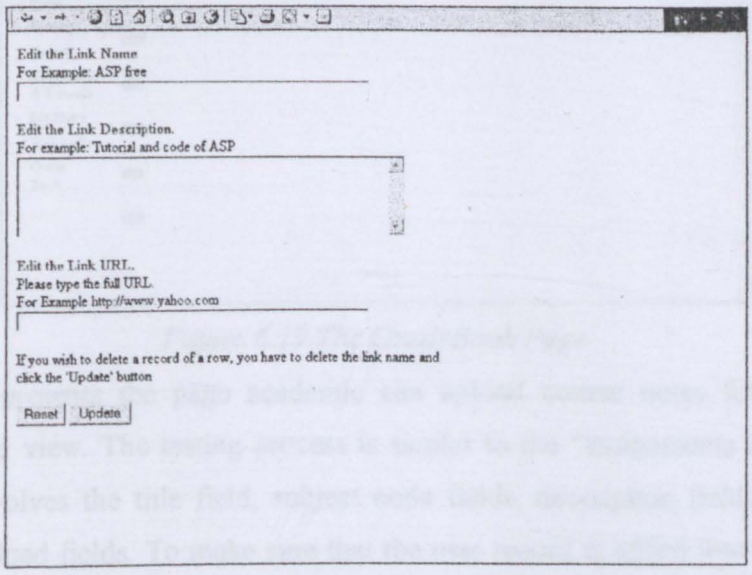

Figure 6.18 Add the title, description and URL of web link

Figure 6.18 shows the page for user to add the title, description and URL of web link. The next testing process is the add links function of this page. The "edit" button in side the table that involved the link name field, link description field and link URL fields is clicked, this button is working if the next page with a label field, a text area and a link URL field shows. The next step is input data into the label field, text area, and the link URL. Then the "Update" button is click, if the "Web Link" page with the new data input, and the link name is clickable to link to the requested web site, and if the hyperlink is click, the destination of link is valid, this means the whole testing process is successful.

To make sure that the user record is added into the database, the next step is to go through the database table. The record in the tblLinks table shows that the data has been inserted into database successfully.

6.3.4.7 GradeBook Page Testing

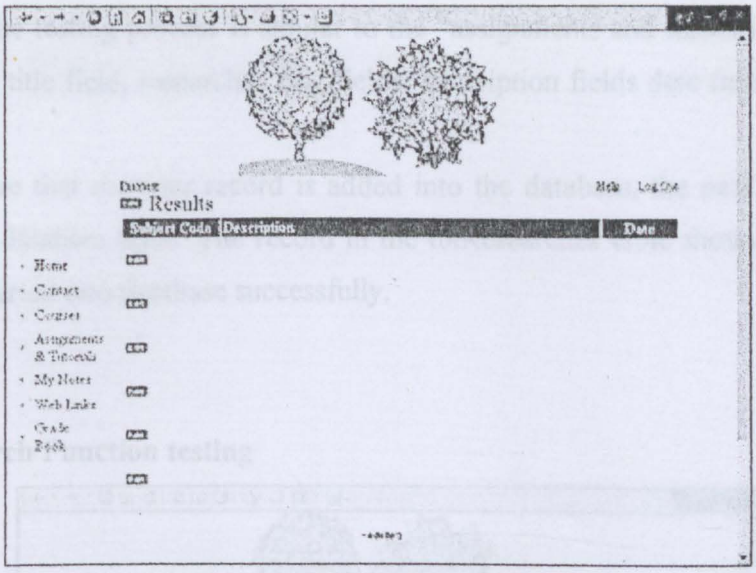

Figure 6.19 The GradeBook Page

Figure 6.19 presents the page academic can upload course notes for students to download and view. The testing process is similar to the "assignments and tutorials" page that involves the title field, subject code fields, description fields, create date fields and upload fields. To make sure that the user record is added into the database, the next step is to go through the database table. The record in the tblResults table shows that the data has been inserted into database successfully.

6.3.4.8 Researches Testing

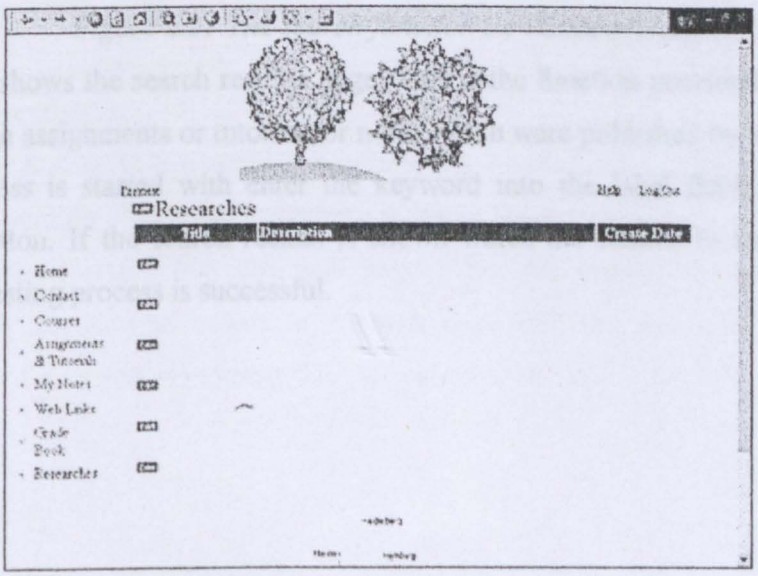

Figure 6.20 The Researches Page

Figure 6.20 shows the page academic can upload course notes for students to download and view. The testing process is similar to the "assignments and tutorials s" page that involves the title field, researches title fields; description fields date fields and upload fields.

To make sure that the user record is added into the database, the next step is to go through the database table. The record in the tblResearches table shows that the data has been inserted into database successfully.

6.3.4.9 Search Function testing

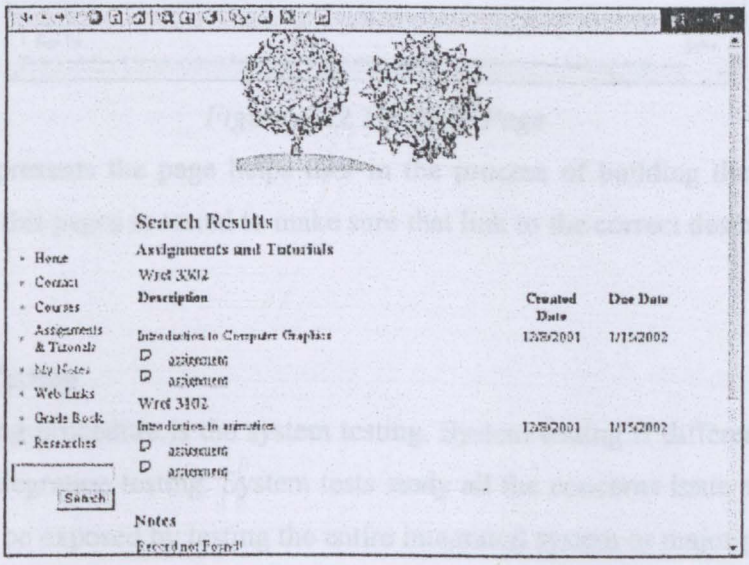

Figure 6.21 The search function on visitor section

Figure 6.21 shows the search result s page. This is the function provided for visitor to search for the assignments or tutorials or notes which were published by academic. The testing process is started with enter the keyword into the label field and click the "Search" button. If the search results is shown which are related to the keyword, it means this testing process is successful.

6.3.4.10 Help File Testing

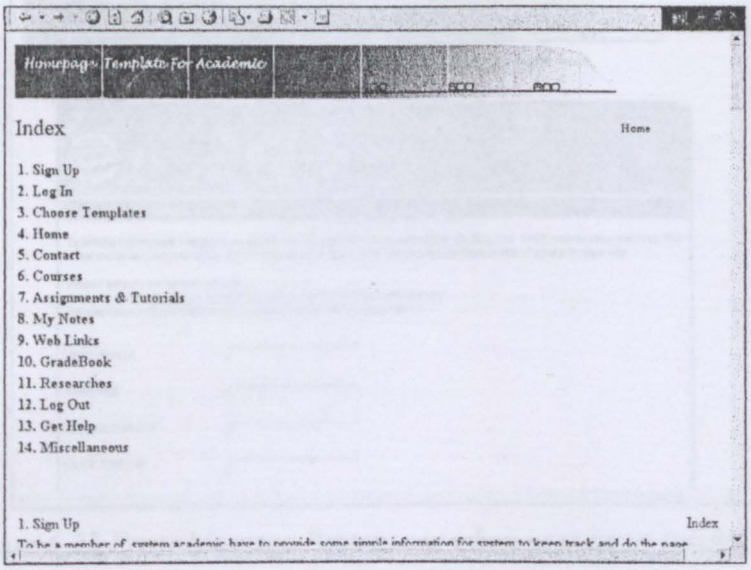

Figure 6.22 The Help Page

Figure 6.22 presents the page helps user in the process of building their homepage. Every link in this pages in tested to make sure that link to the correct destination.

6.5 System Testing

The last testing procedure is the system testing. System testing is difference from unit testing and integration testing. System tests study all the concerns issue and behaviors that can only be exposed by testing the entire integrated system or major part of it. The system testing that have been conducted are as stated below:

6.5.1 Security Testing

The security testing is to verify the protection mechanism in the system against improper penetration. The system security is tested by every users have to login to the system before accessing into this web page. After the testing, it found that if an unauthorized user tries to access to the web page with the wrong login name and password, the below page is shown:

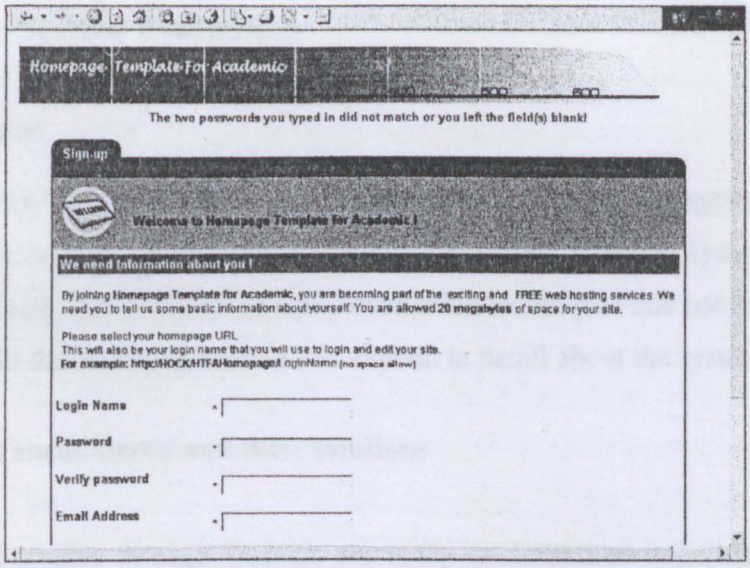

Figure 6.23 Error Message Prompt out when user input invalid data

Figure 6.23 shows that if a valid user key in with the wrong information, this system will also prompt with the error message.

6.6 Summary

This chapter is about the system testing of the whole HTFA system from the unit-testing, module testing to system testing. Generally, the main objectives of the project as describes earlier have been achieved. The system is able to provided a service for academic to build homepage and even upload their pictures and files into the system. Besides that, this system also provides safeguard to prevent the unauthorized users from accessing or modifying the system or database. Chapter 7 presents the system evaluation.

Chapter 7: System Evaluation

7.1 Introduction

After the system has been fully tested for any errors, it is time for system evaluation. The evaluation process will be able to identify the system strength, system constraints and future enhancement. There are many evaluation techniques that use to evaluate the final system. In the following section will explain in detail about the system evaluation.

7.2 Problems encountered and their solutions

Research and studies through Internet are really an important experience for me in developing this application. The following are some of the major problems encountered from the beginning through the end of the system development process.

7.2.1 Difficulties in choosing a Programming Language and tools

There are some software tools available in the market that can be used to develop a web application. Choosing a suitable tool was a critical process as all tools have their own strengths and weakness. In addition, the functionality and the usability of the required tools for the development were the major consideration.

In order to solve this problem, trying to install and set up the available tools has been carried up to compare their strength and weakness. By this way, the suitable tools that can support all of the requirements of this application can be choosing. The information in the Internet also helps me a lot in making up the decision.

7.2.2 Lack of experience in using Programming Language

Since there was no prior knowledge in Active Server Pages(ASP), there was an uncertainty on how to organize the structure and codes during the coding process. These new programming language was never learned before and to implement such application requires a fair grasp of the language.

Although it took some time for me to learn the new language, choosing to program in ASP proved to be a wise move. Most of the problems faced were manageable through

surfing the Internet for the related materials and referring to the reference books. Discussion with friends and coursemates especially those who have used the same programming language was a great help. A more efficient method was through trial and error during the coding phase.

7.3 System Evaluation

Evaluation was implemented more than simply comparing obtained data with expected information. It was related to user environment, attitudes, information priorities and several other concerns that are to be considered carefully before effectiveness can be concluded. At all phases of the system approaches, evaluation is a process that occurs continuously, drawing on a variety of sources and information.

The role of evaluation phase in the development of this software was determine

i. The extent to which the expected outcome have to be realized
ii. The perspective value of the process where extraneous factors were taken to consideration.

7.3.1 Evaluation Technique

This section explains techniques used to conduct the evaluation at varying levels throughout lesson design and development. These techniques are:

1) One to one evaluation

It was conducted extensively during the initial information design and development. The procedures were informal and were mainly used to identify potential major problems associated with the planned information design.

2) Small group evaluation

It was implemented when the system was nearly completed. The reasons was to determine

i. Information effectiveness
ii. Acceptability of the information

iii. The appropriateness of the materials and strategies employed

iv. The extend to which the organization complied with the constraints identified during need assessment

3) Field test Evaluation

This evaluation was carried out when the information system was believed to be of the final draft quality. If problems were identified, additional changes may be made. However, The informal evaluations conducted at this point should ensure that the information system is completed or minimal changes will be required.

7.4 System Strengths

The strengths of the HTFA system is listed as below:

i. Provide a Homepage Builder service for Academics

ii. Simple and easy used system

iii. System security

iv. Friendly User Interface

v. Previewing Homepage

7.4.1 Provide a Homepage Builder service for Academics

This HomePage Template for Academic system(HTFA) provides academics ability to build homepage. It also allow to upload their files and pictures to system and communicate with students through their homepage.

7.4.2 Simple and easy used system

A simple and easy used system was created to save the users learning time. The user will get use to the system in a very short time and build the homepage easily. All directions and user guides for the system are clear and easy to understand.

7.4.3 System security

A custom password-authentication system is created to prevent unauthorized users from accessing the page that they don't have permission to view. More importantly, the authorized users are prohibited from accessing the functionality, which is out of their privilege.

7.4.4 Friendly User Interface

This system has a friendly user interface. Graphic User Interface (GUI) components are used to minimize the user actions when performing certain task. The learning curve is foreseen to be short and a user should be able to use the system within minutes.

7.4.5 Previewing Homepage

User may preview their currently created page by clicking the "preview" hyperlink without complete editing the required section, say user may preview the page after they have edited the page's title. They might continue editing another section and preview the page again until they have finished their page. Users are allowed to edit a few pages with just logon once.

7.5 System constraints

Nothing is perfect. No doubt this system contains some omissions and inaccuracies. The system constraints are listed as below.

i. Academic cannot manage their upload file
ii. The format and style of the text
iii. A real administrator section

7.5.1 Academic cannot manage their upload file

Once the file had been uploaded to system, academic can't manage the file like rename, delete or copy those file. System should provide file manager to manage the user's file.

7.5.2 The format and style of the text

Users are not flexible in change the default setting of format and style of the text or information they input to their homepage especially for them who did not have any knowledge of Hyper Text Markup Language (HTML). For example, user cannot changes the color of the text, bold or italic the text without the html tag input between the texts their inserted into homepage.

7.5.3 A real administration section

Currently the system do not have the real administrator section for manage the user accounts, add or delete templates, add new features and etc. All this tasks have to manually done in the server where the system stored.

7.6 Future Enhancements

Despite its futures, the system can be further improved and enhanced to include more features and functions to fully realize the advantage of this homepage builder system. The future enhancements are listed as below:

i. File Manager
ii. Text editor
iii. Administrator section

7.6.1 File Manager

Features that allow user to manage their file like add, delete, updated and rename file their upload to system. It will also display the statistic of the homepage like the size of files, last updated, guestbook and etc.

7.6.2 Text editor

Allow academic to changes their text or information in homepage easily and without the knowledge of HTML. Academic can easily changes the color, size, style and font of text and etc.

7.6.3 Administration section

With this feature, administrator can manage the user accounts, add or delete templates, add new features and etc.

7.7 Summary

This is the last phase in the system development. It presents the evaluation and review process for the end system. This chapter is related to the evaluation of the system that includes the system evaluation, system strength, system constraints and future enhancements. The evaluation will help the developer to understand more about the system strengths and limitations. Then, a more complete and comprehensive system can be developed in the future enhancement.

7.8 Conclusion

Homepage Template for Academic (HTFA) is a system developed for academics to configure and set up their homepage according to their own need by developing a web-based template. Although development of the whole system is not an easy task because various objectives has been targeted and many new technologies have been involved, but it still can be considered as a contemporary effort to achieve the goals. Overall, this project has achieved and fulfilled the objectives and requirements as determined during analysis phase.

In the process of developing the system, invaluable insight was gained into complexities and intricacies of the programming language and system tools. The development schedule is very important in order to get a job done on time. Besides that, the application of software engineering principles throughout development has served

to further enhance the required skills for developing a sound system. This valuable experience will be very useful in future system development.

Although it is not a really complex system, the successful development of the homepage template for academic system is the first step towards more comprehensive and innovative system development in future. The problems and experiences gained during the system development definitely provide the useful foundation in my future endeavors.

Appendix

CONTENTS of User Manual

List Of Figures

User Manual

1.0 Introduction

Homepage Template for Academic (HTFA) is an online system developed for academics to configure and set up their homepage according to their own need by using a web-based template Homepage. HTFA allows academics to build a homepage without any code writing, the layout and the format of homepage already set up in the template their choose according to their need. The template built is convenient to academics because they do not have to spend much time to design their homepage design and do coding. HTFA will lead academicians to the era of homepage development and design.

1.1System Requirements

The following table describes the minimum requirements for using HTFA system.

Item	Requirements
Operating System	Windows 98/NT/2000
Applications	Internet Explorer 4.0 or above.
Hardware	At least a Pentium 166 MHz processor. A minimum of 32 MB of RAM VGA monitor (Resolution 800 x 600) Other computer-compatible accessories (keyboard, mouse, etc.)

1.2 System Setup

Upload all the file in the folder "HTFA" to server, and change a sentence in the file in the sub-folder "includes" where the sentence is like:

URLBasePath = http://localhost/HTFA

To

URLBasePath = http://yourservername/HTFA

2.0 Homepage of HTFA

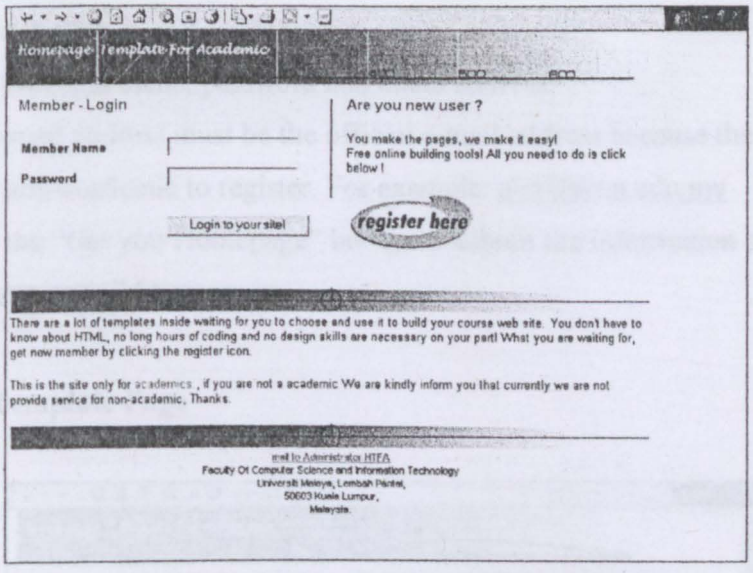

Figure 1 The main page of system HTFA

Figure 1 present the main page of the system where the left hand section is for user to login and the right hand section is for user to register as a new user.

1. Go to the URL: http://yourservername/htfa/
2. If you are a new user, please click the icon register to register.
3. If you are already a member, login to the system by input the login name and password.

2.1 Register Page

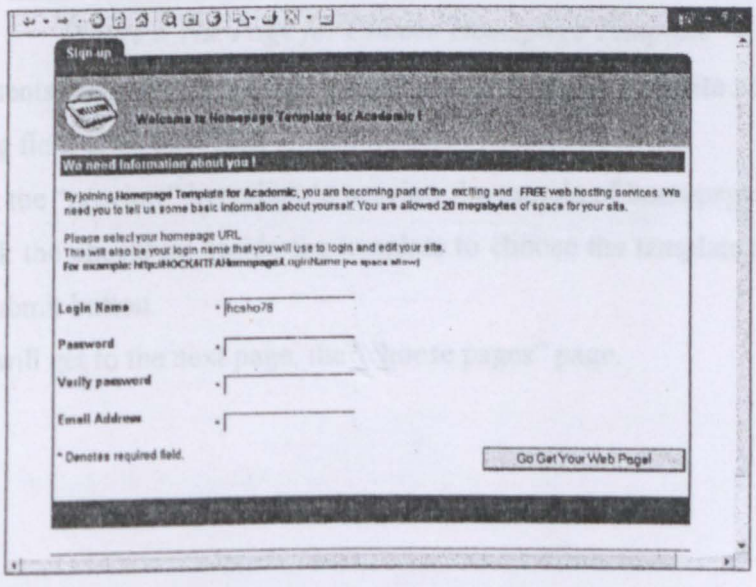

Figure 2 The Register Page

Figure 2 presents the register page for user to input some basic information for be a member of the system.

1. Input the login name, password and email address.
2. The e-mail address must be the official e-mail address because the system won't allow non-academic to register. For example: ali@fsktm.edu.my
3. Click the "Get you Homepage" button to submit the information and follow the next step to build homepage.

2.2 Choose Template Page

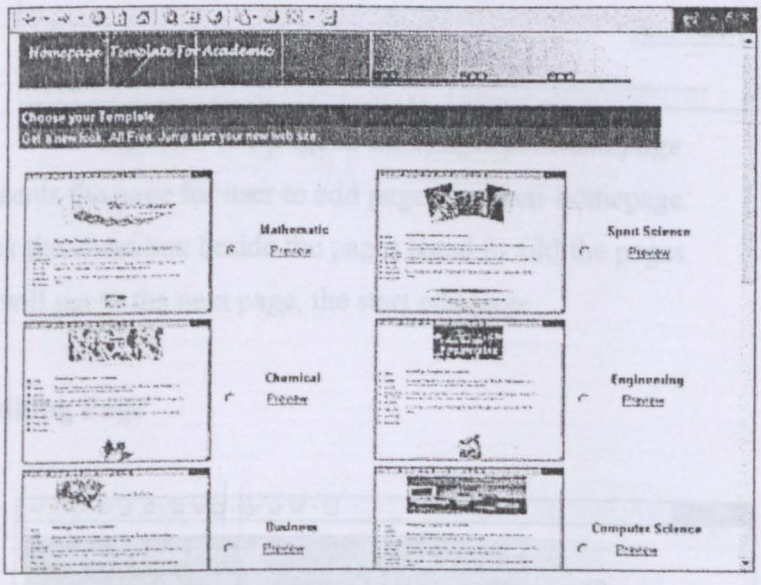

Figure 3 The Page for Choose Homepage Template

Figure 3 presents the page for users to choose their homepage template according to their teaching field or as their like.

1. Click the "preview" hyperlink to preview the sample of homepage template.
2. Check the checkbox beside the template to choose the template and then click the submit button.
3. You will get to the next page, the "choose pages" page.

2.3 Choose Pages to add

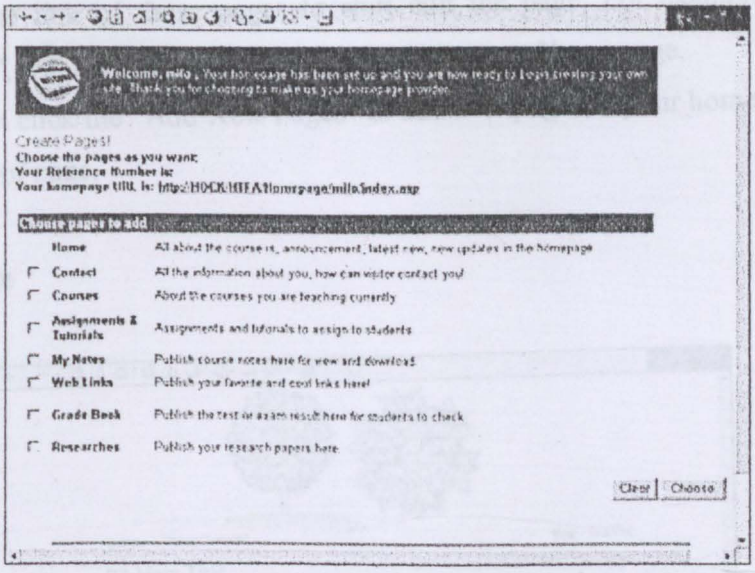

Figure 4 The page to add pages for homepage

Figure 4 presents the page for user to add pages for their homepage.

1. Check the checkbox beside the pages listed to add the pages.
2. You will get to the next page, the start edit page.

2.4 Start Editing Page

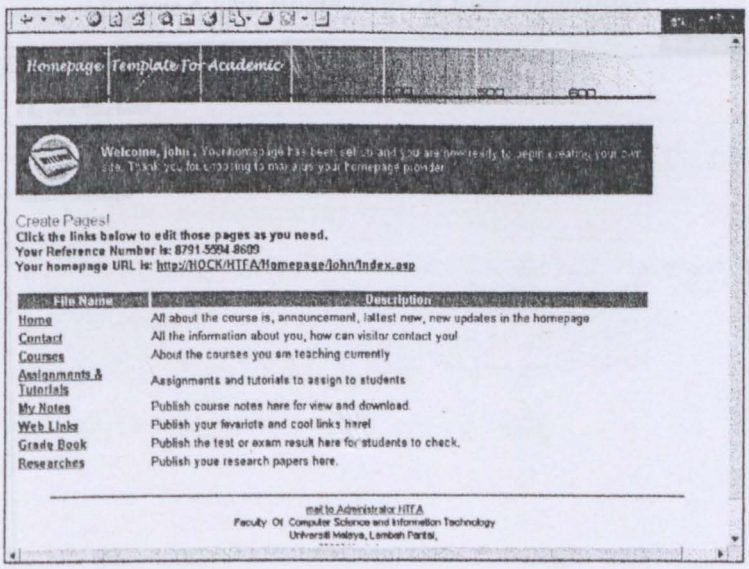

Figure 5 The start editing page

Figure 5 presents the start-editing page that provides the link for user to start editing his homepage.

1. There are 8 pages you can edit here.
2. Click the link of those pages to start edit the page. For example click the "Home", will take you to the edit your main page of homepage.
3. You can click the "Add New Pages" to add new pages to your homepage at the bottom of page.

2.5 Home Page

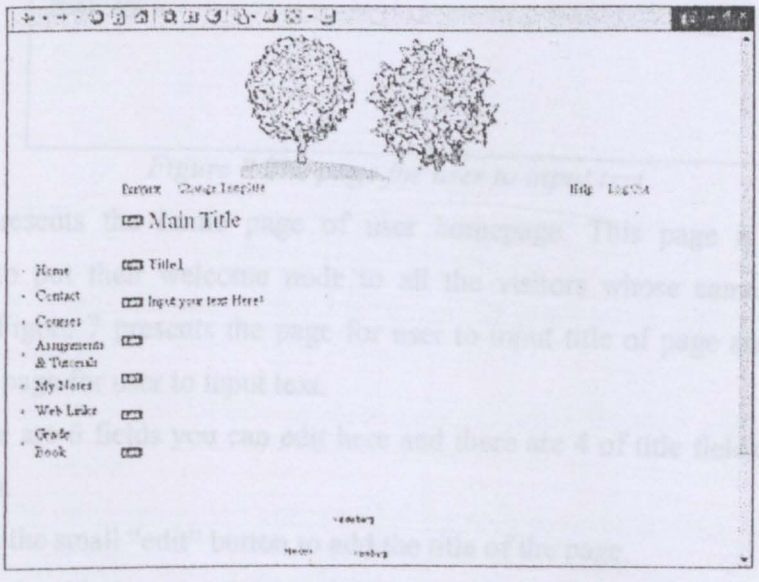

Figure 6 The Home page of user Homepage

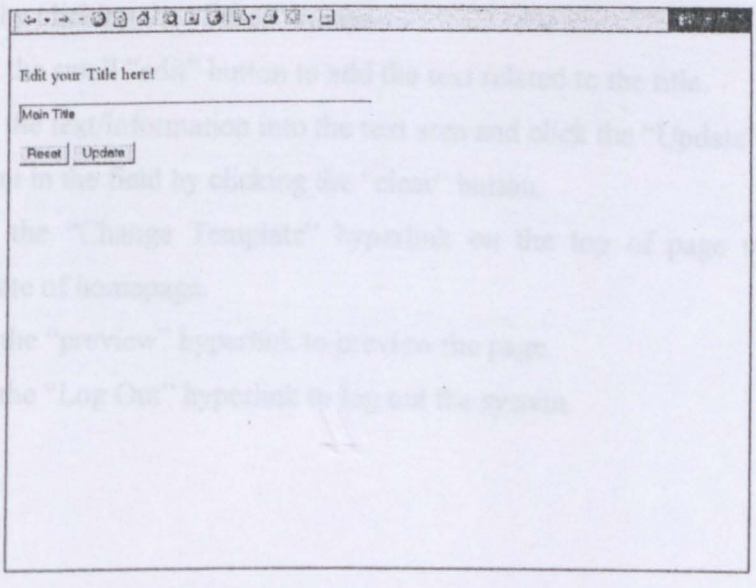

Figure 7 The field for user to add title

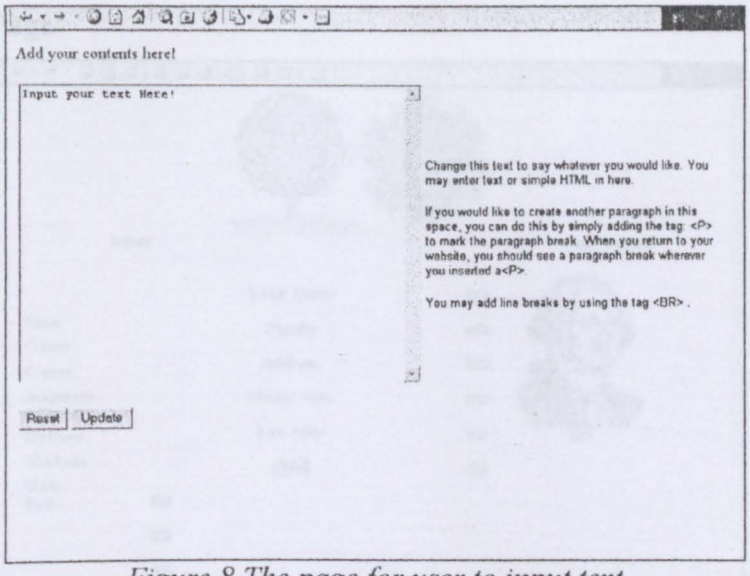

Figure 8 The page for user to input text

Figure 6 presents the home page of user homepage. This page is designed for academics to put their welcome node to all the visitors whose came to visit their homepage. Figure 7 presents the page for user to input title of page and the figure 8 presents the page for user to input text.

1. There are 6 fields you can edit here and there are 4 of title fields and 3 of text fields.
2. Click the small "edit" button to add the title of the page.
3. Input the title into the field and click the "Update" or cancel the content in the field by clicking the "Reset" button.
4. Click the small "edit" button to add the text related to the title.
5. Input the text/information into the text area and click the "Update" or cancel the content in the field by clicking the "clear" button.
6. Click the "Change Template" hyperlink on the top of page to change the template of homepage.
7. Click the "preview" hyperlink to preview the page.
8. Click the "Log Out" hyperlink to log out the system.

2.6 Contact Page

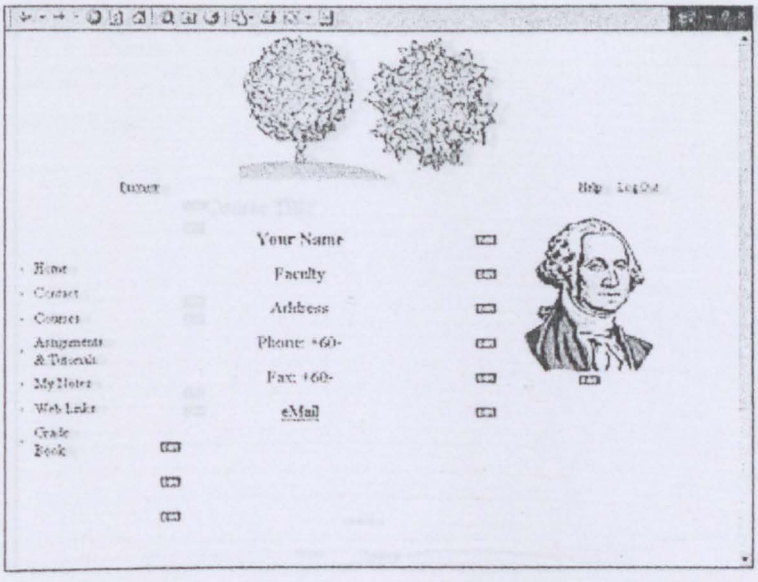

Figure 9 The Contact page

Figure 9 presents the contact page that is designed for academic to publish their personal information.

1. There are 10 fields for you to insert your personal data and a frame to upload your picture here.
2. Insert the information according to the instruction on each field, for example in the "Name" field, insert your name.
3. There are 3 addition fields here for you to add in additional information like room number and etc.
4. Click the small "edit" button to insert the related information into those fields.
5. The process is same with the previous page.
6. Upload your pictures by click the "edit" button, then browses your picture from your computer.
7. Click Update button to upload your picture to system.
8. Click the next page to edit.

2.7 Courses Page

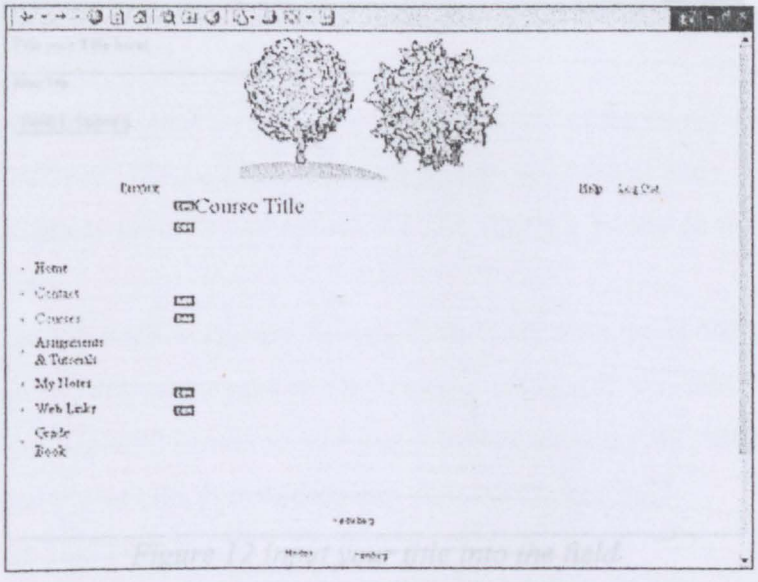

Figure 10 The courses page

Figure 10 presents the courses page that is for an academic to publish the introduction and all information related to the courses they are teaching currently.

1. There are 6 fields here for you to publish the title and information courses you are teaching.
2. Click the "edit" button to insert the related information into those fields.
3. The process is same with the previous page.

2.8 Assignments and tutorials Page

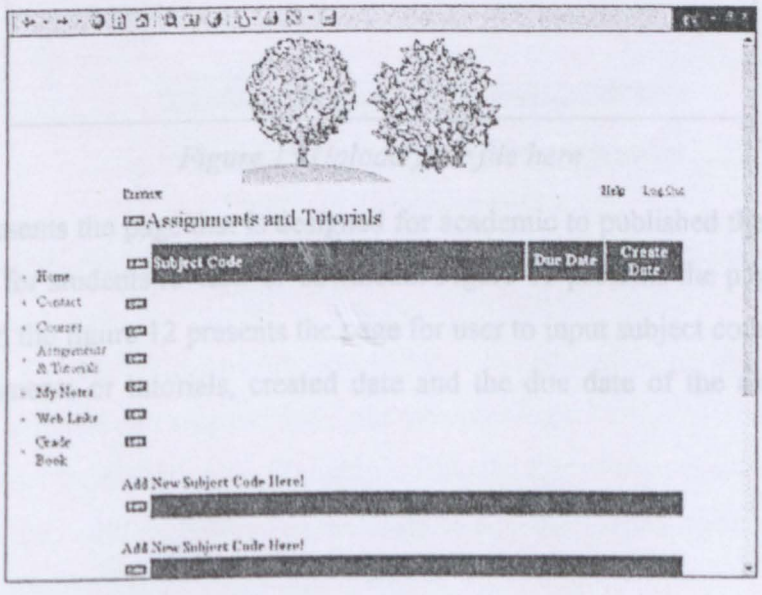

Figure 11 The assignments and tutorials page

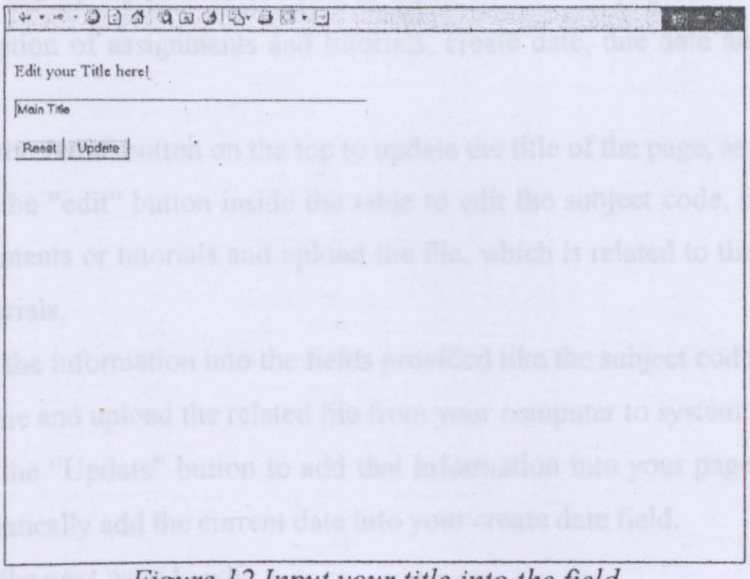

Figure 12 Input your title into the field

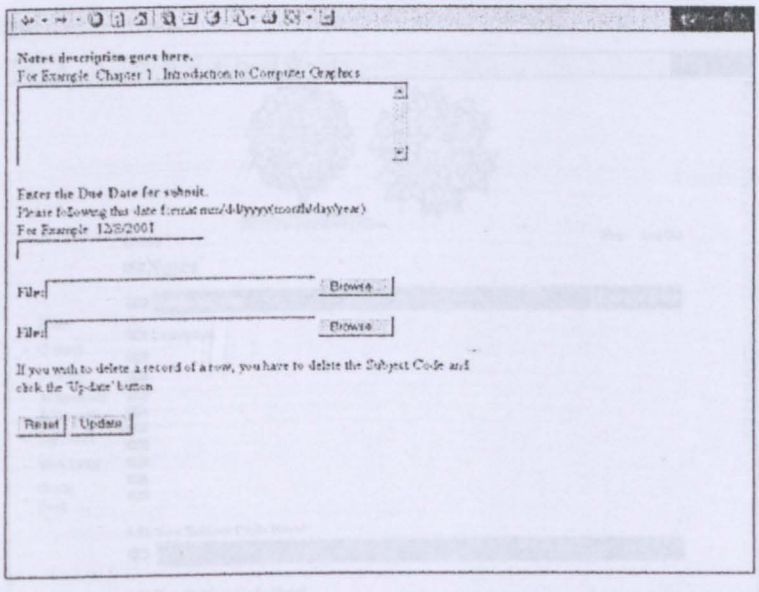

Figure 13 Upload your file here

Figure 11 presents the page that is designed for academic to published the assignments and tutorials for students to view or download. Figure 11 presents the page for user to input title and the figure 12 presents the page for user to input subject code, description of the assignments or tutorials, created date and the due date of the assignments or tutorials.

1. There are 21 fields here for you to input the title of page, the subject code, description of assignments and tutorials, create date, due date and the upload file.
2. Click the "edit" button on the top to update the title of the page, as you like.
3. Click the "edit" button inside the table to edit the subject code, description of assignments or tutorials and upload the file, which is related to the assignments or tutorials.
4. Input the information into the fields provided like the subject code, description, due date and upload the related file from your computer to system.
5. Click the "Update" button to add that information into your page. System will automatically add the current date into your create date field.
6. Click the next page to edit.

2.9 Notes Page

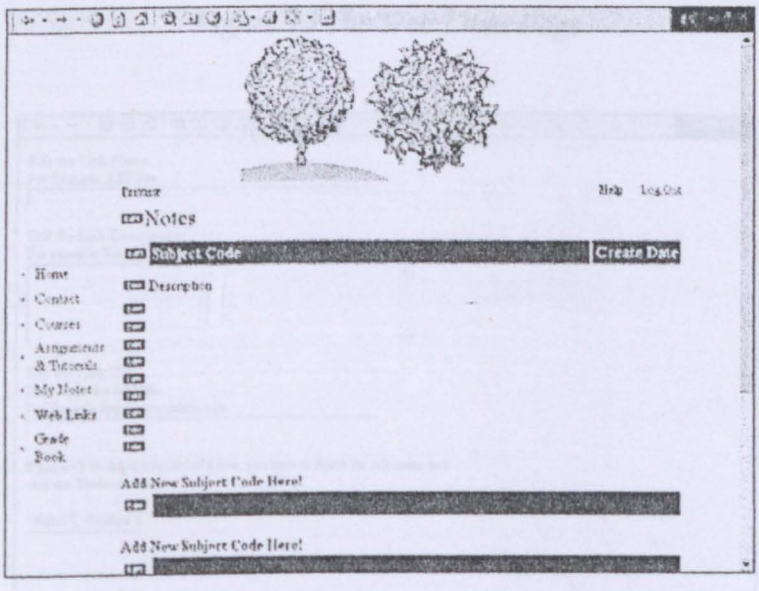

Figure 14 The Notes page

Figure 14 presents the notes page that an academic can upload course notes for students to download and view.

1. There are 34 fields here for you to input the title of page, the subject code, description of notes, create date, and the upload file.
2. Click the "edit" button on the top to update the title of the page, as you like.
3. Click the "edit" button inside the table to edit the subject code, description of notes and upload the file, which is related to the notes.

4. The process is same with the assignments and tutorials page.

2.10 Web Links Page

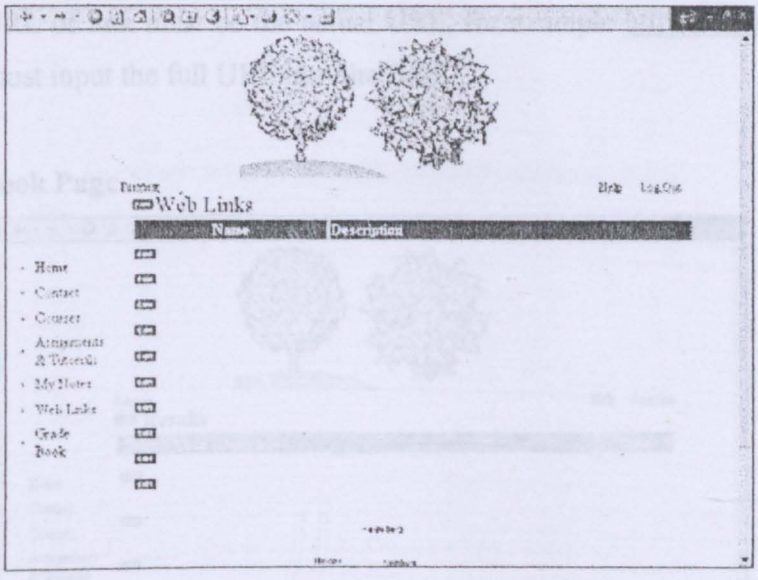

Figure 15 The Web Links Page

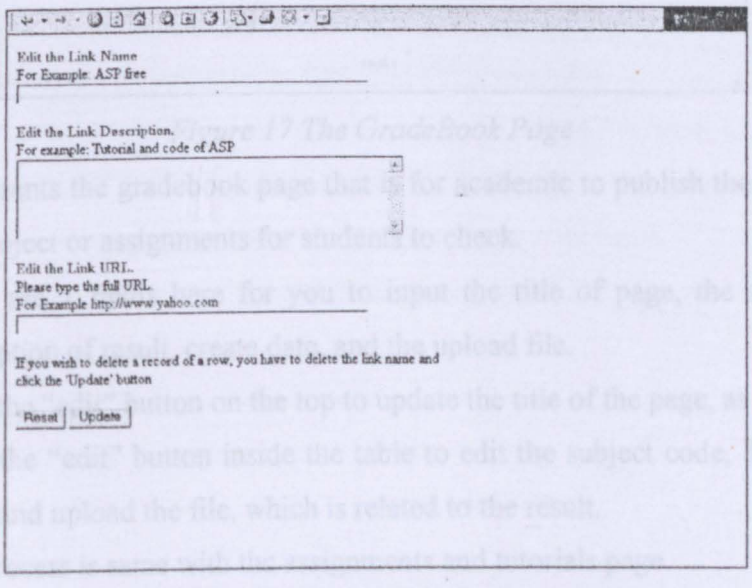

Figure 16 *Add the title, description and URL of web link*

Figure 15 presents the web links page that academic add in the favorite and cool links or URL. Figure 16 presents the page for user to input title, description and URL of web link.

1. There are 7 fields here for you to input the title of page, the name of link, description of link, and the URL of link.

2. Click the "edit" button on the top to update the title of the page, as you like.
3. Click the "edit" button inside the table to edit the name of link, description of link and the URL of link.
4. The URL of link must be the actual URL, for example http://www.yahoo.com. You must input the full URL into the field.

2.11 GradeBook Page

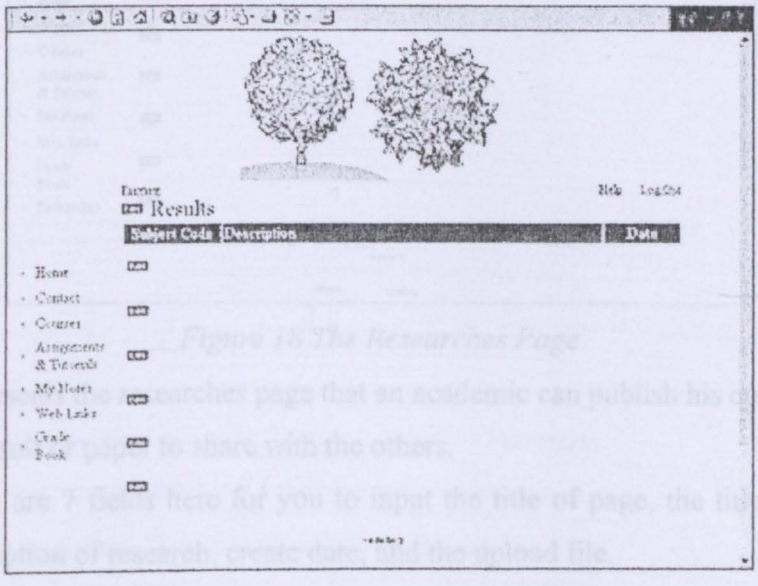

Figure 17 The GradeBook Page

Figure 17 presents the gradebook page that is for academic to publish the result of test or exam or project or assignments for students to check.

1. There are 7 fields here for you to input the title of page, the subject code, description of result, create date, and the upload file.
2. Click the "edit" button on the top to update the title of the page, as you like.
3. Click the "edit" button inside the table to edit the subject code, description of result and upload the file, which is related to the result.
4. The process is same with the assignments and tutorials page.

2.12 Researches Page

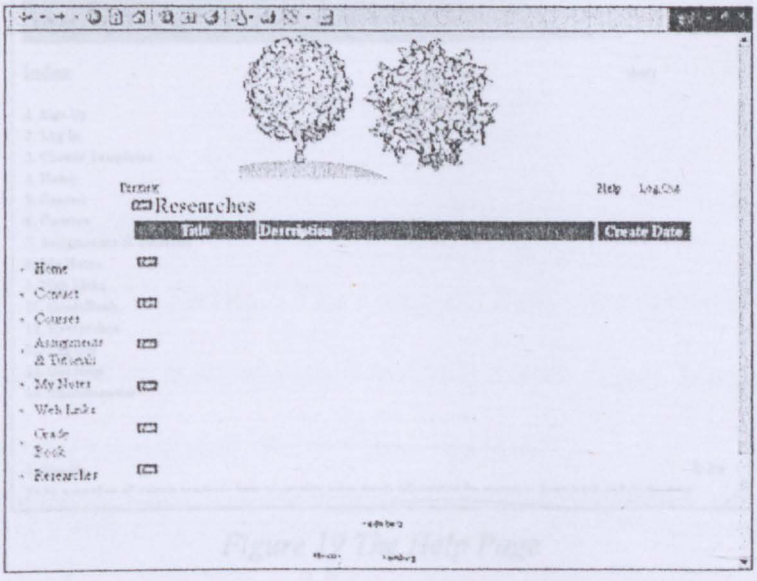

Figure 18 The Researches Page

Figure 18 presents the researches page that an academic can publish his current researches result or paper to share with the others.

1. There are 7 fields here for you to input the title of page, the title of research, description of research, create date, and the upload file.
2. Click the "edit" button on the top to update the title of the page, as you like.
3. Click the "edit" button inside the table to edit the title of research, description of research and upload the file, which is related to the research.
4. The process is same with the assignments and tutorials page.

2.13 Help Page

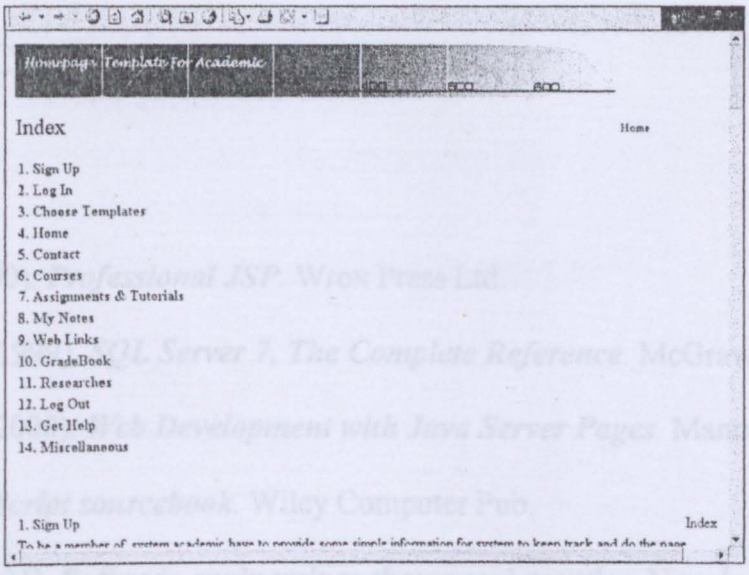

Figure 19 The Help Page

Figure 19 presents the help page that help user in the process of building their homepage.

1. You can find the help title from the index in this page.
2. Click the title to go to the help content.
3. Click the "Index" hyperlink to back to the Index.
4. Click the "Home" hyperlink to go back to the home page.

2.14 Log Out

1. Click the "Log Out" which is place at top right of every page to log out the system.
2. It will link to the main page of system.

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URL : http://search.techtarget.com/sDefinition.html