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5th Residential College Web Site Development

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Abstract

This report was based on the final year project, as a partial requirement for the degree of Computer Science. This report includes topics on introduction to the project, review of literature and the methodology used in developing of this project. A view of the developing activities and schedules are also included. A list of references used in this project is also provided.

Computer information system and computer applications are very important to all the organizations. Thus, the government launched the Electronic Government, which is one of the flagship applications of Multimedia Super Corridor (MSC) to lead the country into Information Age. The Electronic Government will improve both how government operates internally as well as how it delivers services to public. It seeks to improve the convenience, accessibility and quality of interactions with citizens and business; simultaneously, it will improve information flows and process within government to improve the speed and quality of policy development, co-ordination and enforcement. In addition, Electronic Government will play an essential role in catalyzing the development of the MSC, as well as furthering the political and economic developments goals in Vision 2020. (*Concept request for proposal, Electronic Government Flagship Application, Prime Minister's Office – Generic Office Environment,* Malaysian Administrative Modernization and Management Planning Unit (MAMPU), Prime Minister's Department Malaysia, CRFP NO: MAMPU/EG/3/97.)

This project will focus on **5th Residential College web site**. The web site provides an easier way for the visitors to search for information about the college and also the residents staying there. As a result, this web site will give a lot of effort and benefit to the visitors, especially the outsiders. The functionality of the web site will grow as time goes to suit the environment.

This report was intended to give an understanding to the reader about the activities done during the developing of this project and the way used in the development.

Acknowledgement

Report was written as friends and family provide technical and emotional supports. Throughout the progress of this project, I had relied heavily on the help and assistance of several important people who contributed in its success.

Here I would like to express my heartfelt to my project supervisor, Puan Nor Edzan, for her constant guidance, suggestion, encouragement and precious advice. Her trust in me motivated me to strive harder. Also, I would like to thank my moderator, ~~Dr.~~ En. Ali Fauzi Ahmad Khan ~~Zaitun Abu Baker~~, for giving me an unvalued idea and suggestion in the development of this project.

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Besides that, I would to take this opportunity to thank the residents of the 5th Residential College for their suggestion and opinion about the information and interface of this project. Also, I would like to thank the office staff of the college for their cooperation in developing this project. All your kindness and help will be appreciated.

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Chapter 1

Introduction

1.1 Introduction To The Project

This final report is a compulsory subject for all the Computer Science students to go through it as part of the requirement of the course. This project commences at the beginning of the final year for the undergraduate students in the Faculty of Computer Science and Information Technology at the University of Malaya.

The purpose of this project is to develop a web page for the 5th Residential College (5th RC) of the University of Malaya. As we enter the era of information technology (IT), the Internet has proved to be a medium of disseminating information more effectively.

The Internet is becoming a major influence in information finding. More and more people spend their time in isolation "surfing the net". In the future, many information will be computer-mediated. Work will be generated from the home computer because every computer in the world are connected and more unified.

The Multimedia Super Corridor (MSC) project launched by Malaysia forces almost every organization in the country having its own homepage, so that information about the organizations spread throughout the world, not in Malaysia only. Information system is very important. It is an arrangement of people, data, processes, interfaces, networks and technologies that interact to support and improve both daily operations in a business as well as support the problem solving and decision making for the needs of management [1]. When talking about "world", it means that the language used is certainly the international language, English. Thus, mastering English is essential and the initial thing to do before surfing the net.

The 5th RC homepage development project in this proposed report is a project to create an interactive and attractive homepage using a web development tool call Active Server Pages (ASP) with a back end database to manage the access to this site. The aim of this project is to provide basic information about the 5th RC to the public.

1.2 Project Objectives

The objectives of developing this homepage are as follow:

1. To design and develop an Internet site to be up on the Internet for fast reference for the residents of 5th RC
2. To design and develop an attractive and interactive interface in the user module to make this information site more user friendly to the visitors.
3. To help the outsiders of the 5th RC to obtain information about the residents of this college and profile of this college.

1.3 Project Scope

The 5th RC homepage will cover all the information about the college. The information includes :

- ***Map to the college***

  The map of the college will give the visitors a clear and convenient route to 5th RC and also it will list down the location of all the buildings and parking lots there.

- ***Facilities***

  The facility information will show all the infrastructures and facilities available there.

- ***Profile***

  Besides that, profile will give us a clear view of the organization structure of the college. College life will show how the residents there spend their time there.

- ***College life***

  College life will show how the residents there spend their time there.

- ***Current residents***

  The current residents will give information about all the details of the residents there, like name, room number, courses taking so on.

- ***News and publications***

  The news and publication will show what currently happens in the college. It will provide a bulletin board to tell news and get reply from the readers.

- ***Links to other related sites***

  Besides that, this homepage will provide links to other related sites, like University of Malaya's homepage and other colleges' homepage.

All of this information will be shown on the homepage specifically.

1.4 Project Module

This project will be divided into 2 modules, they are **user module** and **administrator module**.

- **User module**

  The user module contains accessible pages by any users. It provides the following things:

  - An interactive homepage to provide information about the college.
  - Enables visitors to search related information .
  - Enables visitors to give feedback to the site .

- **Administrator module**

  Administrator module will allow authorized administrator to access and maintain the database. The main functions are:

- Enables the administrator to maintain the login information in the database.
- Enables the administrator to provide other relevant links to the information on this site.

1.5 Project Development Methodology

Process model is very important during the development of software. It can form a common understanding, of the activities, resources and constraints involved in software development. When a process model is created, it can help us to find the inconsistencies, redundancies and omissions in the process. There are many types of process models like Waterfall model, V model, Prototyping model, Transformational model, spiral model and others.

Before a process model is chosen, it should reflect the goals of the development. Thus, the process model for this project is Waterfall.

The Waterfall model presents a very high-level view of what happening during development and it suggests to us the sequence of events, which will encounter. It helps us to plan what we need to do [2]. The overall stage of the process model will be discussed one by one as below:

➢ **Concept Definition**

The concept, purpose and functionality of the 5th Residential College web site are identified and defined.

- **Requirement Specification**

  This stage will involve the collection of information from a feature of the system or a description of something that the system is capable to do in order to fulfill the system purpose. In this case, I get most of the requirements from some of the staff and residents in the 5th college and also some ideas from our supervisor and moderator. After collecting the information, it has to be rewritten so that it can be transformed into a good system design.

- **System Analysis**

  During this stage, I have to study the examples that are available in the Internet and do the planning for the new site. After finish this stage it comes to system design.

- **System Design**

  Under this stage, an alternative solution will be set. All the application or modules design at the next stage will strictly follow this solution.

- **Application or Modules Design**

  Under this stage, the prototype will be created based on each module that is specified in the project. Then, it is followed by the coding stage.

- **Coding**

  Under this stage, a variety of tools and techniques will be used to write the program base on the prototype. If there is any problem, it will refer back to the application and modules design.

- **Testing**

  After coding the program components, testing is needed to examine the code to spot faults and eliminate it. It is necessary to ensure that the application program written in isolation work properly when they are integrated into the total system. Any problem faced on this stage will refer to the coding stage or the application or modules design.

- **Training and Maintenance**

  This will be the last stage. The purpose of this stage is to help the administrator to understand and feel comfortable of the new system. This stage will give guidance to the user about the usage of the new system and how they can use it effectively.

1.6 Project Limitations

Every project has its limitation in certain part, so as this project. This project is merely an information site for reference of the visitors, which means it will provide only basic information about 5th RC and all the relevant sites about it. Whereas the search engine provided is only for the use inside of this homepage's information.

This project doesn't provide any detail information about the college, such as personal detail. This kind of information can only be obtained through the office of the 5th RC. Also, the search engine provided can only search for information inside the database and not search throughout the Internet, like service provided by AltaVista and Yahoo.

This statement has to be made clear so that visitors won't have any misunderstanding about the function and purpose of this homepage.

Chapter 2

Review of Literature

2.1 Purpose

Review of literature is a background study about the knowledge and information gained to develop this project. This chapter indicates findings, summarization, analysis and synthesis of what have been read. The purpose of this review of literature is to get a better understanding on the development tools that can be used to develop a project and also get a better knowledge on the development methodologies used while developing a project.

It also enables the developer to do comparison on the past-developed projects and study the strength and weakness of it. It will also give an overview of hoe to improve the weakness and fulfill the requirement needed.

2.2 Approach

Data consists of facts devoid of meaning or intent (where the meaning and intent are supplied by a particular usage). Information is data in context, which means that the data has an explicit meaning within a specific context. Whereas knowledge is information with direction, or intent, where intent is derived from strategies or objectives and is manifested in business rules (McNurlin & Sprague, Prentice-Hall).

System can be defined as a collection of things: a set of entities, a set of activities, a description of the relationships among entities and activities, and a definition of the boundary of the system (Pfleeger, Prentice-Hall).

Design is the creative process of transforming the problem into a solution. Design is really a two part, iterative process. First, we produce conceptual design that tells the customer exactly what the system will do. Once the customer approves the conceptual design, we translate the conceptual design into a much more detailed document, the technical design, that allows system builders to understand the actual hardware and software needed to solve the customers' problems [2].

For the project of 5th RC's homepage, many books and previously done projects were taken into reference to yield a better idea in doing this project. Besides that, interviews with the master of the 5th RC and the residents there had been done to gain valuable information in doing this project.

Besides all these, lots of Internet sites had been search to get idea in designing and develop this homepage. Much of the sites visited were related to this project, like the homepages of other universities and colleges in overseas.

2.3 Development Method

In the development of project, lots of data and information need to be gathered in the process of developing, just like this project, the homepage of the 5th RC. Now the question arises. How are we going to gather all the information needed for this project? There are 3 ways that we can do in gathering information, they are interview, questionnaire and observing the user activities and behaviors [3].

In this context, the target is the user of the homepage, that is the residents of the 5th RC. Of course, not all of the residents will be met, but only few of them, depends on the sampling.

After all the information needed for this project has been gathered, it's the time now to start developing this project. In developing a system, a systematic approach has to be taken. This approach is embodied in what is called the systems development life circle (SDLC). The SDLC is a phased approach to analysis and design which holds that systems are best developed through the use of a specific cycle of analyst and user activities [3]. There are 7 steps in SDLC and they are (1) identifying problems, opportunities and objectives, (2) determining information requirements, (3) analyzing system needs, (4) designing the recommended system, (5) developing and documenting software, (6) testing and maintaining the system and (7) implementing and evaluating the system.

2.4 Tools and Technologies Consideration

The following are the tools and technologies will be considered before the implementation:

- Development Platform
- Relational Database
- Microsoft Data Access Technology
- Web Development Technology
- Electronic Resources

2.4.1 Development Platform

Different kinds of application will run in different platform. However, most of the application available in the market is only support one kind of platform. Following are the platform that takes into consideration:

2.4.1.1 Windows NT Server

- Microsoft Windows NT is one of the powerful operating systems for business computing. It combines the ease-of-use of Windows 95 with the power and reliability of Windows NT. NT is also a powerful OS that reliable, secured, multithreaded, symmetric processing, support client/server system [4].
- There is an extensive security support in NT. NT can control the access control of user in accessing certain file or application. Besides, NT supports a wide range of networks protocol and Remote Access Protocol. This makes it easy for us to develop the distributed application.
- Windows NT Server is a complete platform available for building and hosting web-based application. It is the best platform to publish and share information securely over corporate Intranet and Internet. It is so reliable that when an application have problem it doesn't crash the whole program.
- Windows NT allows Object Linking and Embedding (OLE). It can combine the information from several applications into one compound document using the special OLE capabilities of window-based application.
- Windows NT also enables the capabilities of integrating applications on a single computer or even across multiple computers.

2.4.1.2 UNIX

- UNIX is an increasingly popular operating system. Traditionally used on minicomputers and workstations in the academic community, UNIX is now available on personal computers and the business community has started to choose UNIX for its openness.
- UNIX, like other operating systems, is a layer between the hardware and the applications that run on the computer. It has functions that manage the hardware and functions that manage the executing of applications
- UNIX includes the traditional operating system components. In addition, a standard UNIX system includes a set of libraries and a set of applications. It includes the file system and process control and a set of libraries.
- One of the greatest strength of UNIX is the consistent way in which it treats files. It is very easy for the users to work with files because users don't need to learn special commands for every new task.
- Besides UNIX is not known only for its longevity and versatility as an operating system, but also for the variety and number of utility programs that called tool.

2.4.1.3 Comparison between Windows NT Server 4.0 and UNIX

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

- UNIX is hard to install compared to Windows NT 4.0. Sometimes it take two weeks to configure a UNIX machine but only one day to set up a NT box [4].
- NT 4.0 supports the Microsoft Back Office Product but UNIX doesn't.
- To use a UNIX OS, a lot of command needs to be entered. Compared to NT, it provide user-friendly interface that ease the job of the user.

2.4.2 Relational Database

Database technology is used in a variety of applications. Some serve only a single user on a single computer while others are for multi user. There are a variety types of database like Microsoft SQL Server 7.0, Oracle 8i, Sybase, Informix and also Microsoft Access.

In order to choose a reliable database, the database must be able to ensure the safety and security of the data. The database is at the core of all mission-critical business applications. Choosing the wrong database can have drastic downstream results. The investment in software, implementation, and development of a database system is substantial; it needs to be able to evolve with the changing requirements of a growing company.

2.4.2.1 Microsoft SQL Server 7.0

- Microsoft SQL Server is a significant tool in many regards. From data warehousing to applications that require not only a large amount of information, but also many different simultaneous users, SQL server is a key component in answering data management requirement. It is a powerful and comprehensive database [5].

- Microsoft SQL Server is a perfect example of an n-tier system. The user can manipulate the data directly from the client side. Most of the time, the data is validated first before it is updated into the database in server side. It is tightly integrated with the Microsoft BackOffice family product to enable organization to improve decision-making and streamline the business process. It is the best database for Windows NT Server.
- Microsoft SQL Server maintains referential integrity and security and ensures that operation can be recovered in the event of numerous types of failure. SQL server can control the access for the type of information that can be retrieved by the user.
- SQL Server supports Internet database integration. It allows the user to automate the publishing of database information in HTML documents. It allows us to build active web sites and let us conduct processes on the Internet. When combining with Internet Information Server and the SQL server Internet Connector, it gives user the complete Internet database publishing capabilities.
- It provides the function for transparent distributed transactions. This means that it provides automatic distributed update capability across two or more SQL Server transparent to the desktop application, making it a simple to use. It guarantees the integrity of transaction of updating spanning multiple servers.

2.4.2.2 Oracle 8I

- Oracle is the world's leading vendor of database software. Oracle's ability 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, more reliable, and less expensive [6].

- The ground-breaking capabilities of Oracle8*i*'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.
- 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.
- Oracle uses a Java-based utility that provides everything needed to get a pre-tuned and pre-configured Oracle8*i* 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 complex change in the database environment.

2.4.2.3 Comparison between Microsoft SQL Server 7.0 and Oracle 8I

- SQL Server is more ease-to-use system compared to the oracle database. It provides more user-friendly graphical tools for installation, configuration and administration.
- SQL Server can run only on windows but for oracle the operating system will essentially become irrelevant. Oracle supports all kind of platform [6].

- With integrated management of text, images, audio and video, Oracle8*i*'s inter-media enables customers to take advantage of the multimedia nature of the Web. For SQL, it advocates a strategy of storing non-traditional data in flat files in separate servers and linking them together using OLE-DB.
- Microsoft SQL Server 7.0 tightly integrated with other Microsoft Products
  - Seamless integration with Windows NT provides security, a web application environment and Microsoft Transaction Server support
  - Integration with Microsoft Exchange Server provides reliable and scalable Internet and Intranet collaboration and messaging - supporting SQL server initiated trigger and store procedure-based messaging and replication of Exchange public folders.

2.4.3 Microsoft Data Access Technology

Data assessment is very important for each application. In order to access, retrieve and share information efficiently, we have chosen Microsoft Data Access Technology that provides us with a lot of functionality. It provides us with ease-to-use, programmatic access to all types of data throughout the enterprise. It is easy to integrate information from a variety of sources, which is relational (SQL) and non-relational. These components can be used by the data driven client/server applications deployed over the Web or LAN.

There are many types of Microsoft's Data Access Technologies, which are VB SQL, Open Database Connectivity (ODBC), Data Access Object (DAO), Remote Data Object (RDO), ActiveX Data Object (ADO) and OLE-DB.

2.4.3.1 Open Database Connectivity (ODBC)

Open Database Connectivity is one method that used by Visual Basic to communicate with client/server databases. It is a component of Microsoft's Windows Open System Architecture (WOSA). It provides a set of application program interface (API) functions, which makes it easier for us to connect to a wide range of database formats, that is it supports SQL. We can also access a number of PC databases using ODBC functions.

ODBC is based on the X/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 [7].

However, the biggest downside to ODBC is that it must be able to support the capability to translate calls. This means that additional processing overhead can slow the data access a bit.

2.4.3.2 ActiveX Data Objects (ADO)

The ADO 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 the OLE DB layers. It is a new technology for data access based on existing technologies and endowed with increased flexibility. It is an evolution of both DAO and RDO into a single, simplified and extensible interface that will supersede all DB-Library, DAO & RDO functionality [8].

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 base in ASP application, works using the ODBC driver to connect SQL Server [5].

2.4.3.3 OLE-DB

OLE-DB is Microsoft's new low-level database interface that provides access to much different kind of data. It is the extension of application capabilities beyond the limitations of ODBC. It is a COM-based API with features that provide access to both relational (SQL) and non-relational data sources. It provides an environment where database components can be replaceable [8].

2.4.4 Web Development Technology

Developing web-based applications relies on many network and application components working together to deliver information to the requesting client. In the once, only web browser extracted information from the web server. However, after some standardization of HTML languages, image specification and protocol stacks, the world become a global network of computer.

To transform the global network into a reliable application, the original architecture of the web must be enhanced to meet the needs that we take for granted when developing traditional applications.

2.4.4.1 Internet Information Server 4.0

Microsoft Internet Information Server (IIS) provides a transactional-based Web server that is tightly integrated with the NT operating system. The advantages of IIS can be separated into two camps, which are the improvement 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 settings. It enables HTTP 1.1 support. The advancement for the application development side includes transactional-based applications, process isolations, SSL support, ActiveX Data Object (ADO) and new development tools [7]. 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 and users who are connected with high-speed links, such as ISDN and leased lines.

The Transactional Active Server Page feature of IIS allows application with scripts and components to perform multiple actions. If 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 a failure without any loss of data.

After we choose Windows NT 4.0 as the platform, IIS will serve as a platform for web tools and applications for the Attendance Management System. IIS provides configuration and management of properties such as access permissions and logon requirement for clients, home and virtual directories, virtual servers. This option will be needed in the implementation of this project.

2.4.4.2 Active Server Pages (ASP)

Microsoft® Active Server Pages (ASP) is a *server-side scripting* environment that we can use to create and run dynamic, interactive Web server applications. With ASP, we can combine HTML pages, script commands, and ActiveX components to create interactive Web pages or powerful Web-based applications. ASP applications are easy to develop and modify.

Following are some of the benefit of Active Server Page:

- It works with Window NT and IIS to provide a comprehensive set of technologies that enable secure exchange of information over public networks, access control to server resources and confident identification of server and client.
- It supports client/server programming. Thus, it can be used to build client/server applications.
- It is suitable for building multi-tier Internet and intranet applications.

For the HTML Author

If we are HTML authors, we will find that ASP scripts are an easy way to begin creating interactive pages. If we have ever wanted to collect information from an HTML form, personalize an HTML document with a customer's name, or use different HTML features based on the browser, we will find that ASP provides a compelling solution. Previously, to collect information from an HTML form, we would have had to learn a programming language to build a Common Gateway Interface (CGI) application. Now you can collect and analyze data from a form by using simple instructions that you embed directly into our HTML documents. You do not need to learn a full programming language or compile programs separately to create interactive pages.

As our skill with ASP and scripting languages grows, we can create increasingly complex scripts. With ASP, we can easily use ActiveX components to perform complex tasks, such as connecting to a database to store and retrieve information.

For the Experienced Script Author

If we already know a scripting language, such as VBScript, JavaScript, or PERL, you already know how to use Active Server Pages. In our ASP pages we can use any scripting language for which we have installed a scripting engine that follows the ActiveX Scripting standard. ASP comes with scripting engines for Microsoft® Visual Basic® Scripting Edition (VBScript) and Microsoft® JScript™ so that we can immediately begin writing scripts. ActiveX Scripting engines for PERL, REXX, and Python are available through third-party developers.

For the Web Developer

If we already know a programming language, such as Visual Basic, we will find ASP a flexible way to quickly create Web applications. By adding script commands to HTML pages, we create an HTML interface for our application. By creating our own ActiveX components, we can encapsulate our application's business logic into reusable modules that we can call from a script, from another component, or from another program. Web computing with ASP translates into tangible benefits, enabling Web providers to provide interactive business applications rather than merely publishing content. For example, a travel agency can do more than just publish flight schedules; it can use ASP scripting to enable customers to check available flights, compare fares, and reserve a seat on a flight.

Microsoft Transaction Server (MTS), which is included in the Windows NT Option pack, reduces the complexity and cost of building applications on the server. MTS handles the complexities of developing secure, scalable, and reliable Web applications.

The Active Server Pages Model

An ASP script begins to run when a browser requests an .asp file from your Web server. Your Web server then calls ASP, which reads through the requested file from top to bottom, executes any script commands, and sends a Web page to the browser.

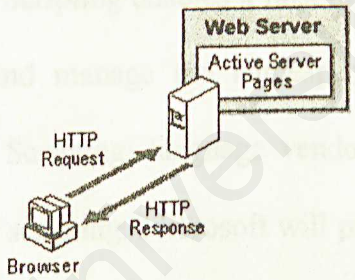

Figure 2.1 The application of ASP

Because your scripts run on the server rather than on the client, your Web server does all the work involved in generating the Web pages that you send to browsers. You need not worry whether a browser can process your scripts: your Web server does all the script processing, transmitting standard HTML to the browser. Server-side scripts cannot be readily copied because only the result of the script is returned to the browser. Your users cannot view the script commands that created the page they are viewing.

2.4.4.3 Microsoft Visual Basic Scripting Edition [9]

Microsoft Visual Basic Scripting Edition, the newest member of the Visual Basic family of programming languages, brings active scripting to a wide variety of environments, including Web client scripting in Microsoft Internet Explorer and Web server scripting in Microsoft Internet Information Server. VBScript talks to host applications using ActiveX™ Scripting. With ActiveX Scripting, browsers and other host applications don't require special integration code for each scripting component. ActiveX Scripting enables a host to compile scripts, obtain and call entry points, and manage the namespace available to the developer. With ActiveX Scripting, language vendors can create standard language run times for scripting. Microsoft will provide run-time support for VBScript. Microsoft is working with various Internet groups to define the ActiveX Scripting standard so that scripting engines can be interchangeable. ActiveX Scripting is used in Microsoft® Internet Explorer and in Microsoft® Internet Information Server.

2.4.4.4 Microsoft Java Script [10]

JScript is the Microsoft implementation of the ECMA 262 language specification. It is a full implementation, plus some enhancements that take advantage of capabilities of Microsoft Internet Explorer. JScript is an interpreted, object-based scripting language. Although it has fewer capabilities than full-fledged object-oriented languages like C++ and Java, JScript is more than sufficiently powerful for its intended purposes.

JScript is not a cut-down version of any other language (it is only distantly and indirectly related to Java, for example), and it is not a simplification of anything. It is, however, limited. You cannot write standalone applications in it, for example, and it has little capability for reading or writing files. Moreover, JScript scripts can run only in the presence of an interpreter, either in a Web server or a Web browser. JScript is a loosely typed language. That means we do not have to declare the data types of variables explicitly. Moreover, in many cases JScript performs conversions automatically when they are needed. For instance, if we try to add a number to an item that consists of text (a string), the number is converted to text.

2.4.4.5 ActiveX

ActiveX is the set of technology developer uses to write software components that inter-operate, regardless of the language used to create them. For example, these ActiveX applications can be written using C++, Java, Visual Basic, and Delphi. [11].

The real power of ActiveX comes from its consistent, comprehensive implementation. This means that with the same component-based approach a developer can:

- Script objects inside an HTML page.
- Assemble interfaces for Windows applications.
- Communicate between client and server components.
- Script business rules or Web server applications.
- Following are some main reasons why ActiveX is being considered in this project:
- ActiveX is reusable in other applications.
- ActiveX is created specifically for Internet development, which is very important for developing the web-based applications in GOE project.
- ActiveX provides different types of ActiveX components that could be used in different project types.
    - Classes, which enables reusable, systematic and organized coding
    - ActiveX DLLs (in process), which offers sharing capability amongst the applications.

- ActiveX EXE (out process), which can be created and used both by client and server applications
- ActiveX Controls, which are compatible with many containers, including Microsoft Office Applications and Internet Explorer
- ActiveX Document (Doc Objects), which associates data in a document file with a user interface object. Therefore, this allows distribution of arbitrarily complex data across the Internet and Intranet.

2.4.4.6 ActiveX DLL

ActiveX DLL is use to add functionality to an HTML page on either the client or server. Code components on the client can offer an increase in speed, since users' commands do not need to be routed back to the server. Server components also have the benefit of being able to show user interface elements. ActiveX DLL files can be made to become an ASP component that can be run in the web server. The ActiveX DLL is used when the functionality of the Visual Basic is not available for the visual basic scripting in ASP [11].

2.4.4.7 CorelDRAW 9 [12]

CorelDRAW® 9 Graphics Suite is a professional illustration and image-editing package that contains two main applications:

- CorelDRAW 9 and
- Corel PHOTO-PAINT® 9

- CorelDRAW 9 is a vector illustration and page layout program, offering exceptional creation tools and outstanding output capabilities that integrate into existing workflows. With a full combination of design tools and productivity features, CorelDRAW 9 delivers incredible flexibility.
- Corel PHOTO-PAINT 9 effectively combines exceptional image composition, masking and image enhancement features with artistic media brush tools. With its professional image-editing and painting capabilities, Corel PHOTO-PAINT 9 is ideal for editing and creating images for print or the Web.

Combined with many other suite components, CorelDRAW 9 Graphics Suite lets you enjoy a free range of creative expression with dynamic interactive tools, sophisticated effects and high-end output capabilities. Maximize your productivity with professional pre-press features, numerous import/export filters and valuable media asset management tools.

2.4.5 Electronic Resources

Electronic resources consist of sites on designing web site and sites for reference of designing the web site.

- http://www.aspforums.com/

  It's a web site that has all the materials that we need in developing a web site, using the ASP. It has all the articles, free components, free scripts, FAQs, HTML, VBScript and guides to design and develop a good web site.

- http://www.aspcode.com/

  This site has collected the best ASP code in the world, put it online, and made it accessible to everyone, FREE. This site has all the free code that I need in doing this project, like bulletin board.

- http://www.asp101.com/

  This is a web site about all the information of ASP that we want to know about. It has news, samples, forum, articles and resources. Once we've read this site, we will get ourselves up-to-date to the ASP development.

- http://www.freeasp.com/

  This site contains all the resources of ASP. These resources include components used in ASP scripts, freelance ASP programs and companies to solve the problems, web site resources about ASP and pre-made ASP scripts written in Microsoft VB Script.

- http://www.internet.com/

  This is a site about all the information of Internet. It contains Internet news, Internet technology, web developer, ISP resources, ASP resources, wireless Internet and Internet resources.

- http://www.webdeveloper .com/

  This site explains all the tools that we need in developing a web site. It contains ActiveX or VB Script, animated gif archive, database connectivity, advanced HTML, design/graphics, JavaScript, security and etc.

- http://www.learnasp.com

  This site contains all the lessons in learning an ASP. It has new lessons for more on introduction on ASP. Besides that, it also has lessons of developing web site using ASP and free ASP reference.

- http://asp.papiez.com/tutorials/vbscript101/

  It's a site for those who are new to programming. New programmer should start here before diving into ASP. It has all the information of how to write VB script.

- http://asp.papiez.com/tutorial/asp101/

  This site was designed for new ASP developers. This tutorial will help the reader to build a strong foundation using the core ASP technologies.

- http://asp.papiez.com/tutorial/asp201/

  This site was put together for the advanced user. This tutorial covers topics for building scalable web applications.

2.5 Study of Related Web Sites

- http://www.mcauley.acu.edu.au/campus/residenc.html

  a. this web site provides mainly text base information. This will bore the visitors.

  b. the link to other related sites are limited.

c. it displays photos with big size, this will longer the loading time.

d. information provided is limited, not much descriptions available.

e. the interface is not attractive, this won't attract visitor to go to the site.

- http://www.mckenna.edu/studlife/

  a. this web site provides only the introduction of the residential hall.

  b. it does not have related photos about the residential hall, thus people can't picture the situation there.

  c. the interface is attractive enough to get people visit the site.

  d. it provides only text information, people normally won't read this kind of web site because it's too exhausted to the eyes. But one thing is good about it, is that the loading time is short.

  e. it does provide some related links for fast reference.

- http://www.barnard.edu/reslife/reshalls/600.html

  a. this web sit has an attractive interface because of the color used and also the design of the icons there.

  b. it does provide map of the hall, that will ease the visitors in looking for ways.

  c. it provides some related links for fast reference.

  d. it also provides detail information about the hall, like location, population, lay-out, accessibility and others.

  e. the information is too text oriented, that's not what the visitors like.

Chapter 3

System Requirement and Analysis

3.1 Project Description

5th Residential College web site is going to be an information site about the college. It will contain all the information that you want to know about the college, such as college life, facilities, news and publication, profile of the college and map to the college. Besides that, it also has some related sites for the user to link to these sites.

3.1.1 Modules in 5th Residential College

This web site is divided into 2 modules, they are user module and another one is the administrator module. Each of them consists of a few sections and each section has its own feature as describe below.

- **User Module**

The user module has the following sections:

(i) ***Main page***

This is the first page that the user will see when they first open the 5th Residential College web site. It has information about the introduction of the college and all the related links to let user to get more information.

(ii) ***Search field***

User can search a residence by typing in the name or any related detail about that person into a little search box. User can do this by choosing whether they want to search by name, academic year, I/C number or matrix number.

(iii) ***Bulletin board***

This bulletin board will let the user to read all the news on the site.

➢ **Administrator Module**

The administrator has the following sections:

(i) ***Authentication section***

Only the administrator will be allowed to access to this section by providing the user name and password.

(ii) ***Database maintenance section***

This section will allow the administrator to maintain the information of the database.

(iii) ***User module maintenance section***

This section will only allow the administrator to update the links when necessary.

(iv) ***Feedback maintenance section***

This section will allow the administrator to receive the feedback about the web site and let the administrator to do modification of that site according to feedback..

(v) ***Bulletin board***

This section will let the administrator to publish the news and bulletin to the web site. It's to let the visitors to read those news and bulletin.

3.2 System Requirement

Under the system requirement, we define the needs of the proposed users of the system. We plan for a broad outline of the system, the technology to be used and the expected cost of the system. After the definition and planning, I defined that 5th Residential College Web Site is a project that used to provide information about the college. It provides a secure, fastest and easier way for the user to obtain their information.

3.2.1 Requirement Elicitation

Before the requirement is captured, a few techniques have been used to find out what the users really want. The requirement elicitation takes quite a long time. This is due to several techniques need to be applied in order to get a complete requirement. Following are some the techniques that have been used for this purpose:

- Interview
- Questionnaire
- Internet Research
- Brainstorming

3.2.1.1 Interview

Interview activities have been carried out in order to understand the loopholes and weakness of the current system. A few interviews had been carried out with the office workers.

3.2.1.2 Questionnaire

Questionnaire had been done to some of the college residence to get some opinion about what they want to have in that system.

3.2.1.3 Internet Research

Internet is used as the main resource for referring any ambiguities that arise during the entire development period. Through the Internet, I did not only collect some ideas from the similar sites, I also found out some interesting web design and feedback from the other remote users.

3.2.1.4 Brainstorming

During the requirement elicitation, I met daily with my supervisors and my friends (who are also doing the similar system) to discuss about the new system. During this stage, we generated as many ideas as possible without any analysis until all the ideas have been exhausted. Besides, we studied the feasibility of the requirement identified in this stage.

3.2.2 Requirements for the 5th Residential College Web Site

After going through all the information gathered and analyzing them, the requirement for this system was outlined. Basically, they are divided into functional requirements and non-functional requirements.

3.2.2.1 Functional Requirement

A functional requirement describes an interaction between the system and its environment. Further, functional requirements describe how the system should behave given the certain stimuli [2]. Following are some of the functional requirement of the system. The functional requirement can be divided into two: One is for the user and another one is for the administrator: Description about the two modules had been described at the beginning of this chapter.

3.2.2.2 Non-Functional Requirement

A non-functional requirement describes a restriction on the system that limits one choice for constructing a solution to the problem [2].

Following are some of the non-functional requirement of the system:

- ***Reliability***
  - Reliability is the extents to which a system can be expected to perform its intended function with required precision and accuracy. Thus, the system should be reliable in performing its daily functions and operations. For example, whenever a button is clicked, the system should be able to perform some functionality or generate some message to inform the user what is happening.
- ***Scalability***
  - The scalability is to promise the capability of the system to migrate as a client or server to machines of greater or lesser power, depending upon requirements, with little or no change to underlying components. Database scalability issues can be resolved using distributed database architecture

whereas web application scaling can be addressed by increasing bandwidth or by additional web servers.

- ***Usability***
  - The system should be developed in such a way that it is easy to use. It will enhance and support rather than limit or restrict the user processes.
- ***Security***
  - The system should be equipped with sufficient security. Each access by the administrator should be authenticated and validated by the system. The system should not show any potential of leakage of information. The password should be encrypted.
- ***Data and Services Backup***
  - The system should be able to restore to its normal operation from any potential disaster. There should be a second backup for data and services to ensure the continuous of operation.
- ***Inter-Operability***
  - The system has the capability to work with different types of applications to share data and process.
- ***On-Time***
  - The system should be developed within the given time frame. In this period of time, all the requirement and also testing should be completed.
- ***Manageability***
  - The modules within the system should be easy to manage. This will make the maintenance and enhancement works simpler and not time consuming.
- ***Flexibility***

- The system should have the capability to take advantage of new technologies and resources. The system should be able to be implemented in the changing environment.

3.3 System Analysis

During this stage, I had to work on some analysis process like gathering and interpreting facts and diagnosing problems. The result of this process will be used to recommend improvement to the system. [1].

Through system analysis, I may add, delete and modify system components toward the goal of improving the overall system. The information gathered during this phase has provided alternative strategies to develop this system.

3.3.1 Objectives

Following are some of the objectives of the analysis

- To study the problem faced by the user
- To study the problem and find out the best solution to reduced it.
- To study how the new system will give information to the user.
- To acquire knowledge on how this system will be developed with the new emerging technology
- Tools to develop the new system will be chosen among different types of new tools that have been studied and stated in chapter 2.
- To identify the major modules to be included in the system
- To identify what are the modules that are feasible to develop and the knowledge and tools need to have in order to develop them.

3.3.2 Development Analysis

An analysis was carried out on the development tools to find out the most suitable tools for the system. These tools include the entire platform, servers, development software and programming language. Besides considering the suitability of the tools to the requirement, the tools used must be able to support each other. The following are the tools used in the system:

3.3.2.1 Servers and the Platform

In the analysis for the entire platform, the Microsoft products are used as the main technology producer. Following are some of the Microsoft products that used for the system:

- ➢ ***Windows NT 4.0 Server***
  - ▪ It is used as main server operating system. The main reason is its user friendliness, stability feature and it provides the NT authentication and files system that can be used in the system's data repository components.
- ➢ ***Internet Information Server 4.0 (IIS 4.0)***
  - ▪ IIS 4.0 is chosen as the web server mainly because it can be well supported by Windows NT 4.0 operating system. IIS 4.0 can provide the basic web authentication for the web application.
- ➢ ***Microsoft Access 2000***
  - ▪ It was chosen as systems database platform because it is stable and work well with other Microsoft components. It's also easy to develop.

- The database can easily be mapped to the other processing server through Open Database Connectivity (ODBC 32bit)

➢ ***Internet Explorer 5.0***

- Internet Explorer version 5.0 is the most suitable browser for this system if compared to others. IE 5.0 is needed for this web-application system. It supports most of the HTML scripts and also the Active X DLL that are used in the project.

3.3.2.2 Development Software

By choosing the suitable software to develop the system, it will simplify the work done by the programmer as well as reduced the time needed to build the project. The following are the software that used to develop the system:

➢ ***Visual Interdev 6.0***

- Visual Interdev 6.0 becomes the editor for the ASP coding. It provides more features that are helpful for ASP coding. The graphical design can be drawn easily by using Visual Interdev 6.0.
- It also provides the script outline as well as the toolbox and server object that minimizes the burden to build a web-application.

➢ ***Visual Basic Scripting***

- Visual Basic Scripting is used to build a scripting command for the server or browser to run. Commands can be built in the short time by using it. It is widely used in developing different types of commands.

➢ ***Windows 98 Personal Web Server***

- Besides using the IIS as the web server, the application could also be developed on a window 98 Personal Web Server (PWS). We could develop the ASP web pages offline by using the PWS. It saves cost and time of development.

➢ ***Microsoft Front Page 2000***

- Microsoft Front Page 2000 is used to design and develop the interface of the web site. It saves lots of time compares to using the text based HTML.

➢ ***CorelDraw 9***

- The CorelDraw 9 has been used to design the graphical picture that is needed for the system. Using the CorelDraw 9, we can easily draw up the colorful graphical picture in a short period of time.

3.4 Conclusion

As a conclusion, following are the tools and technologies that used for this project:

➢ ***Microsoft Products***

- Microsoft Windows NT Server 4.0 as the platform
- Internet Information Server 4.0 as the web server
- Microsoft Access 2000 as the database server
- Internet Explorer 5.0 as the browser

➢ ***Development Software***

- Visual Interdev 6.0
- Visual Basic Scripting
- Windows 98 Personal Web Server (PWS)
- CorelDraw 9

➢ ***Programming Language***

- Active Server Pages (ASP)
- Active X DLL and Components
- Hypertext Markup Language (HTML)
- VB Script

Chapter 4

System Design

4.1 Introduction

Under this stage, we described the detail of how the system will meet the requirements identified during requirement phase. After that, we transform the user requirement into a working model that can be used as guidance before developing the complete system [1].

My stem design will be separated into a few components that is:

- System Functionality Design
- Database Design
- Graphical User Interface Design

4.2 System Functionality Design

Under the system functionality design, we will look at the system architecture, data flow diagram and system structure chart for the 5th Residential College.

- **System Architecture**

  Before I discuss the architecture use in the 5th Residential College web site, let us look at what is N-Tier client/server architecture.

N-Tier Client/Server

The N-Tier client/server model expands on the traditional client/server model by introducing a middle tier. This middle tier houses the business rules of the application. The shift of the business rules into this middle tier enables the application logic to be separated into smaller components. These components can then be managed by transaction server to increase reliability, programmability and scalability of the application. In addition, centralized updates to the application can be made at the middle tier to reduce deployment costs to remote clients. Example, the Win32 client application would call a component that is managed by the transaction server. This component would then complete its intended purpose. In this situation, the component retrieves information from the database and returns the result back to the calling win32 application [13]

In this type of application, the client would never access the data storage system directly. Besides, it allows for any part of the system to be modified without having to change the others two parts. The system can operate at its highest efficiency, no matter what the load on the system.

Three-Tier Client/Server Architecture

In the 5th Residential College web site, the frontier that is the application tier consists of all the necessary applications. In this layer, the main application component that appears to the user is the Internet Explorer 5.0 browser. This layer will provide the user interface. HTML, VB Script and Active X control are used to activate the application layer All of them provide the most flexible and dynamic interface for the users. The application is always reside within the web server, which is the Internet Information Server 4.0.

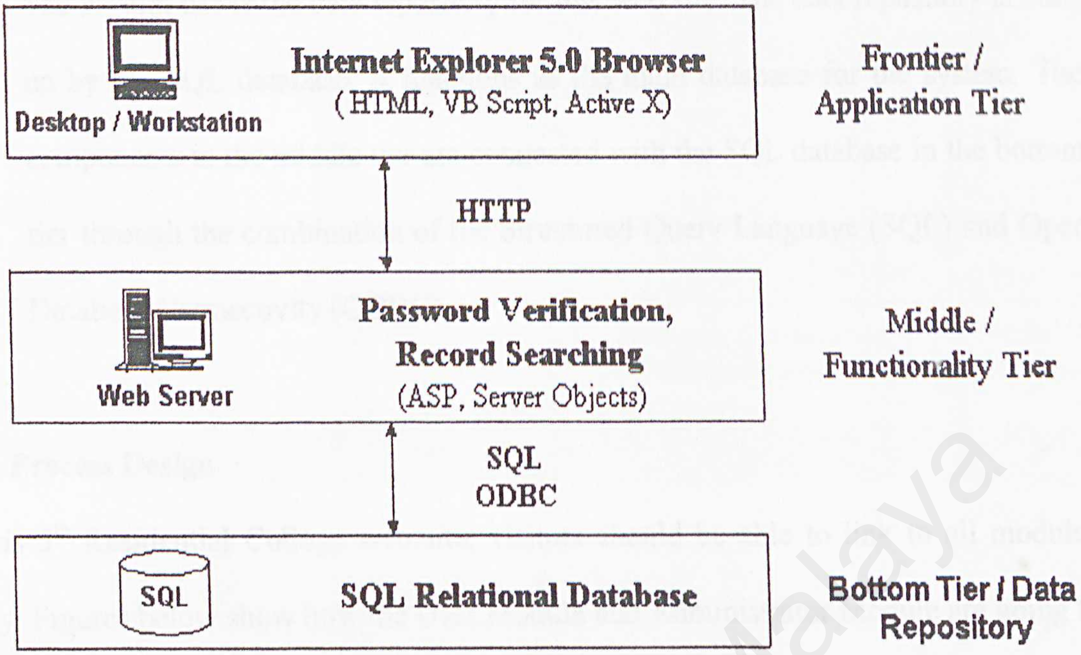
Desktop / Workstation
Internet Explorer 5.0 Browser
(HTML, VB Script, Active X)
Frontier /
Application Tier
HTTP
Web Server
Password Verification,
Record Searching
(ASP, Server Objects)
Middle /
Functionality Tier
SQL
ODBC
SQL
SQL Relational Database
Bottom Tier / Data
Repository

Figure4.1 AMS Three-Tier Client/Server Architecture

The middle tier is known as the functionality or service tier. The communications between this tier and the frontier depends on the Hypertext Transfer Protocol (HTTP) for the web pages transfer. The functionality tier consists of the components that are created to support the 5th Residential College web site such as password verification, searching for record and other configuration. All these components require Active Server Pages and the ASP server objects to perform the functions in the web servers. The IIS in this tier will processes the request from the client and produces the result in web pages format. The IIS will also processes any data request of the user by linking to the database server, which contain in the bottom tier. The IIS will do other extra additional activity during the data processing

The bottom tier is the data repository for this web site. The data repository is built up by the SQL database. It functions as the main database for the system. The components in the middle tier are connected with the SQL database in the bottom tier through the combination of the Structured Query Language (SQL) and Open Database Connectivity (ODBC).

4.2.1 Process Design

In this 5th Residential College web site, visitors should be able to link to all modules easily. Figures below show how the User Module and Administrator Module are going to be at the end their features would be.

4.2.1.1 Structure chart

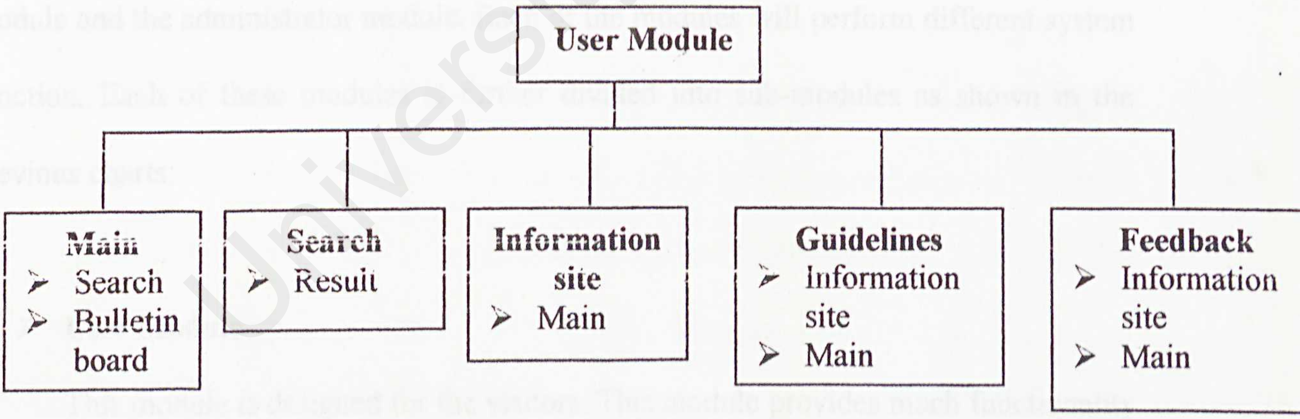
User Module
Main
➢ Search
➢ Bulletin board
Search
➢ Result
Information site
➢ Main
Guidelines
➢ Information site
➢ Main
Feedback
➢ Information site
➢ Main

Figure 4.2 Structure chart of the User Module of 5th Residential College web site

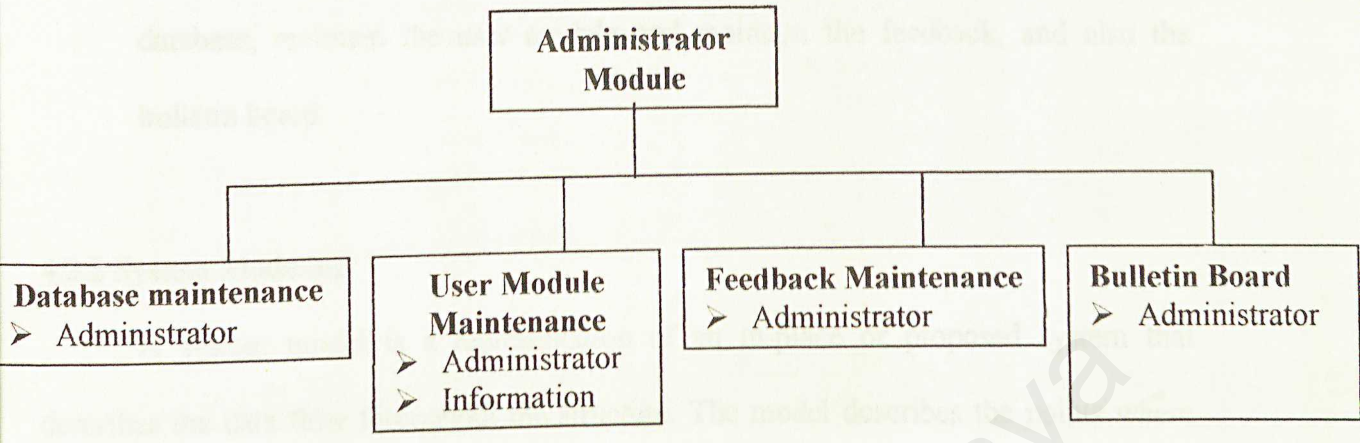
Administrator Module
Database maintenance
Administrator
User Module Maintenance
Administrator
Information
Feedback Maintenance
Administrator
Bulletin Board
Administrator

Figure 4.3 Structure chart of the Administrator Module of 5th Residential College web site

The 5th Residential College web site is divided into two main modules, which are the user module and the administrator module. Each of the modules will perform different system function. Each of these modules is further divided into sub-modules as shown in the previous charts:

- **User Module**

  This module is designed for the visitors. This module provides much functionality to the user. The users can give feedback, search for information and read the bulletin board.

- **Administrator Module**

  This module is designed for the administrator. The administrator can maintain the database, maintain the user module and maintain the feedback, and also the bulletin board.

4.2.2 System Modeling

A system model is a representation of an in-place or proposed system that describes the data flow throughout the structure. The model describes the points where data or information enters a system and the places where the data will be output.

A system model is documented through a variety of design diagrams. A design is a graphics or visual representation of a structure. Design diagrams include data flow diagrams (DFD), structured charts, decision trees, and other items [14]. For this project, DFD was chosen to represent the system.

The DFD is used as a system-modeling tool because of its great utility. A DFD is a graphic illustration that shows the flow of data and logic within a system. DFD is composed of four basic symbols. One widely used convention adheres to symbols developed by Edward Yourdan; a similar notation has been developed by Chris Gane and Trish Sarson [14]. This project will use the symbol developed by Gane and Sarson to represent the system.

4.2.2.1 Data Flow Diagram (DFD)

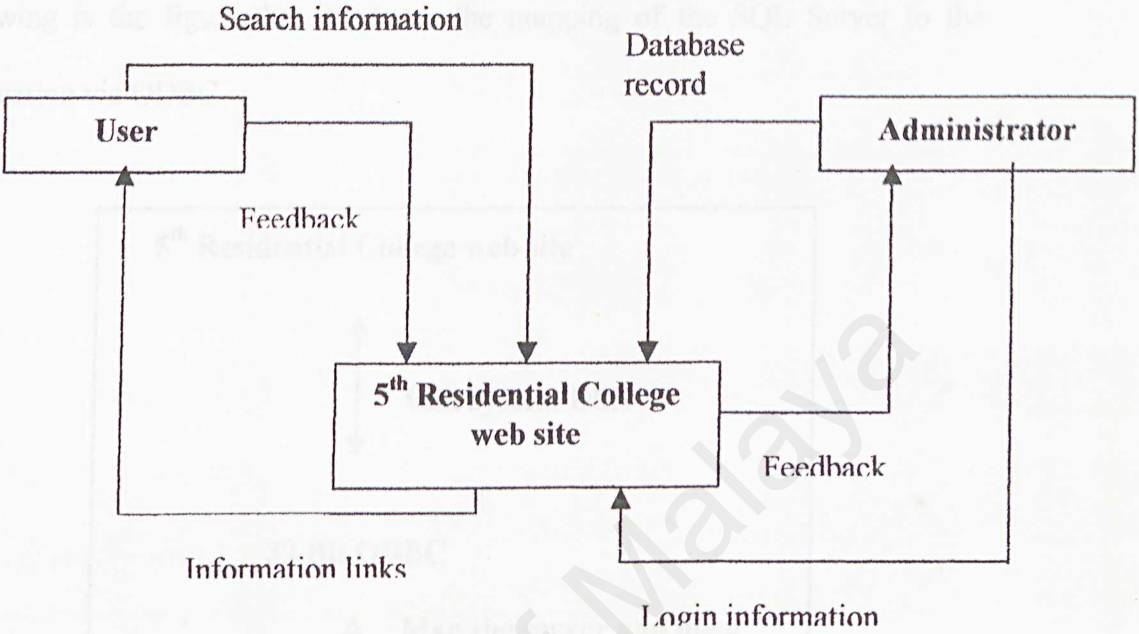
Search information
Database record
User
Administrator
Feedback
5th Residential College web site
Feedback
Information links
Login information

Figure 4.4 Data Flow Diagram of 5th Residential College web site

4.3 Database Design

I use the advantage of database technology to store data in flexible format. However, the data can't be simply stored. Thus, under this stage, I translate the data models that were developed for the system users during the definition phase into data structure. The following will discuss about the database structure that I had built for this project. Besides, the data dictionary will be discussed in the following session.

4.3.1 Database Structure

The system is using Microsoft SQL Server 7.0 as the database platform. The following is the figure that illustrates the mapping of the SQL Server to the application via ODBC.

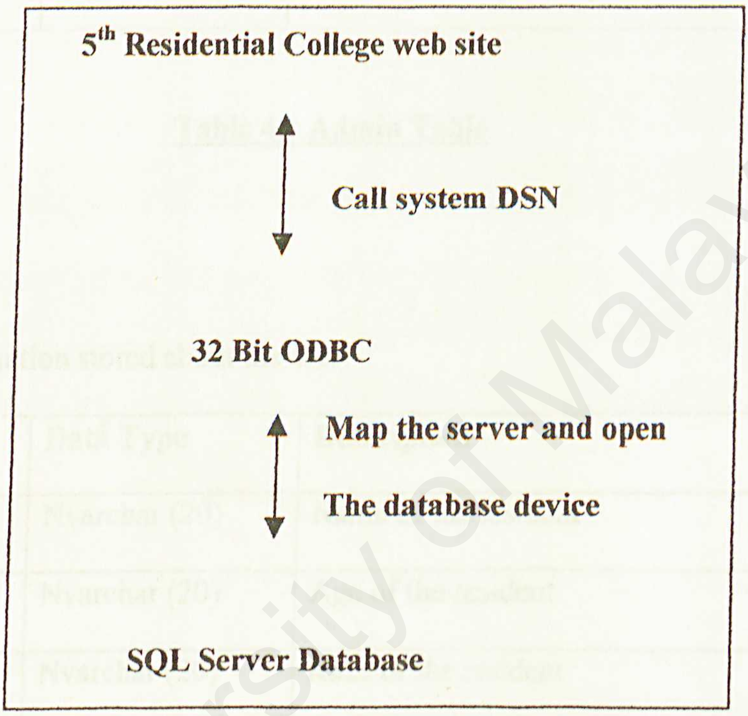
5th Residential College web site
Call system DSN
32 Bit ODBC
Map the server and open
The database device
SQL Server Database

Figure 4.5 The Mapping of Database to Application

4.3.2 Data Dictionary

The following are the data dictionary that explains the items and fields of the database that used in this project. The database name is **5rcDb**.

* represents the **primary key**

Name: Admin

Description: Login name for the administrator.

Field Name	**Data Type**	**Description**
*Admin_Name	Nvarchar (20)	The administrator Login ID
Admin_Password	Nvarchar (20)	The administrator Login password

Table 4.1 Admin Table

Name: User

Description: Information stored about the user.

Field Name	**Data Type**	**Description**
UserName	Nvarchar (20)	Name of the resident
UserPassword	Nvarchar (20)	Age of the resident
Name	Nvarchar (20)	Race of the resident
Matrix	Nvarchar (20)	The I/C number of the resident
IC	Nvarchar (20)	The gender of the resident
DOB	Nvarchar (20)	The permanent address of the resident
Room	Nvarchar (20)	The room number of the resident
Fac	Nvarchar (20)	The course that the resident takes
Address	Nvarchar (20)	The home town address
Home	Nvarchar (20)	The house phone number
HP	Nvarchar (20)	The hand-phone number

Hobby	Nvarchar (20)	The user's hobbies
Motto	Nvarchar (20)	The user's motto

Table 4.2 User Table

4.4 Graphical User Interface Design

I design the interface to improve the efficiency and effectiveness for the visitors when visiting the site. Thus, the interface design for this project is easy to understand and easy to use. The visitors need some mouse click to get the information that is needed. I have created the interface design for this project as friendly as possible. The design is able to prevent failures and improper procedures.

4.4.1 Design of Screen

The design of the graphical user interface for this project is divided into the administrator screen and the user screen. To use the function of the system, the visitors just need one click on the selected task. The graphical interface design for the system is normally divided into two frames. The left frame contains the menu control while the right frame contains the task or the function display for the selected control. Following are some of the graphical interface design for the 5th Residential College web site.

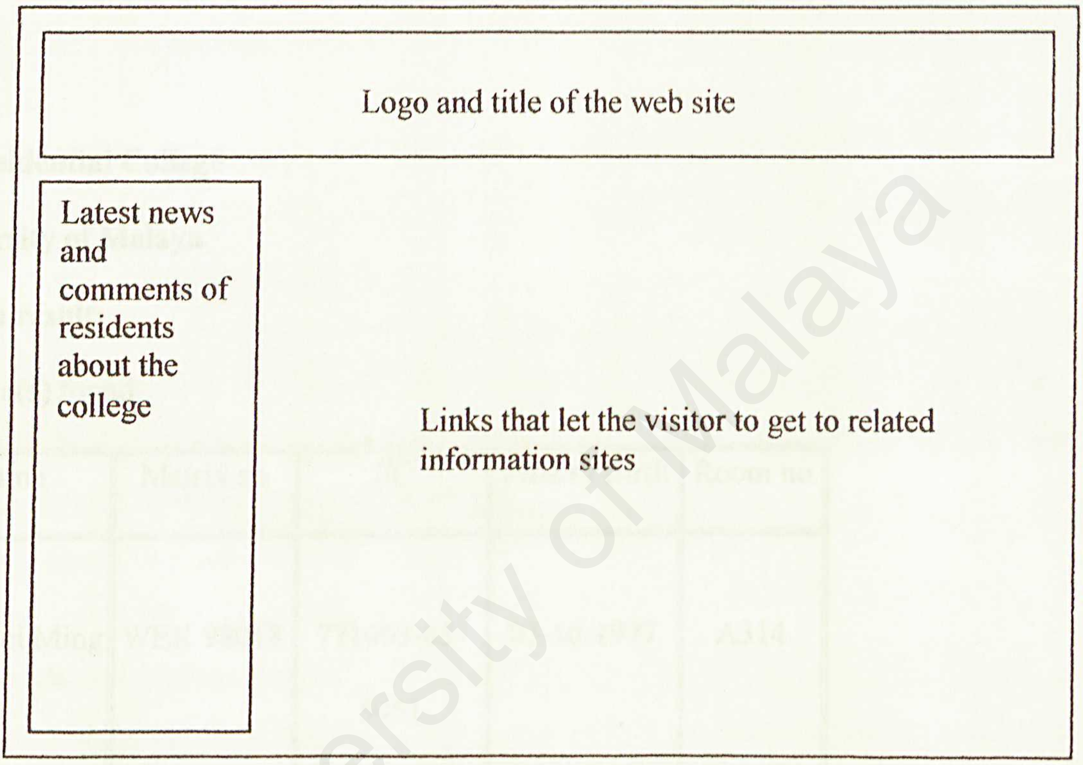
Logo and title of the web site
Latest news and comments of residents about the college
Links that let the visitor to get to related information sites

Figure 4.6 The interface of the 5th RC web site

4.4.2 Design of Output

The design of output serves the purpose of providing the information that the visitor needs, based on the criteria selected by the users. The 5th Residential College web site provides the information selected by the visitors. Below is one of the designs of the output of the search result.

5th Residential College

University of Malaya

Search result:

1 record(s) found.

Name	Matrix no	I/C	Date of Birth	Room no
Goh Wei Ming	WEK 98018	771003-05-5951	03-10-1977	A314

Table 4.3 Search result output design

Chapter 5

System Implementation

Under this stage, I transformed the design model of the 5th Residential College (5th RC) web site into a workable product. The system implementation of the 5th RC will be divided into two components, which are the platform development and the modules implementation.

5.1 Platform Development

The platform development will include setting up the Windows NT server, SQL server and configure the IIS server.

5.1.1 Setting Windows NT Server

Before the system was being developed, it needs to run under Windows NT server. During the installation of Windows NT 4.0, the hard disk was formatted using NT File system format to ensure a more stable and secured NT transaction across the platform. Several step are involved during the installation.

- First, install Windows NT 4.0.
- Then, install NT Service Pack 3.
- Then, install Internet Explorer 5.00
- After that, install the NT Option Pack 4 that include the Internet Information Server 4.0 and Microsoft Transaction Server.
- Finally, install NT Service Pack 4 followed by NT Service Pack 5.

5.1.2 Setting SQL Server

The SQL server was installed in that server later. After the Microsoft SQL server had been installed successfully, database named **MainDB** was created. Then, I created the tables according to the database design. This database will become the database storage for the system. The tables were created for keeping the data used in all modules of the 5th RC web site.

I allocated the hard disk space for the database to maximize the performance of the SQL server and to ensure there is enough of space to store the record. The file growth of the database is set to 10% of the original database size.

In order to map the database to the web server, a system Data Source Name (DSN) was created. The file DSN named **MainDSN** was registered through the ODBC in the web server machine. Likewise, the web server could open the database storage by just calling the file DSN.

5.1.3 Configure Internet Information Server

After installing the IIS, the virtual directory was created so that the user can access the application. The users can access the application through the following address:

http://localhost/5thrc

5.2 Modules Implementation

The 5th RC web site was divided into 2 main modules, which were the user's module and the administrator's module. Each module was developed using the ASP. The following sections explain the details about the implementation of each module throughout the project. The system DSN named **MainDSN** was registered through the ODBC in this PC in order to map the database server through ODBC 32-bit.

- **User's Module**

The user's module had the following sections:

(i) ***Main page***

This is the first page that the user will see when they first log in to the user's module. It has all the related links to let user to get more information.

(ii) ***Search field***

User can search details about a resident by typing in the name or any related detail about that person into a little search box. User can do this by choosing whether they want to search by name, matrix number, I/C number, date of birth and room number.

(iii) *Update data*

Once the user has given his/her particulars, he/she can change the given information.

(iv) ***Bulletin board***

This bulletin board will let the user to read all the news on the site.

➢ **Administrator's Module**

The administrator had the following sections:

(i) ***Authentication section***

Only the administrator will be allowed to access to this section by providing the user name and password.

(ii) ***Database maintenance section***

This section will allow the administrator to maintain the information of the database.

(iii) ***User module maintenance section***

This section will only allow the administrator to update the links when necessary.

(iv) ***Feedback maintenance section***

This section will allow the administrator to receive the feedback about the web site and let the administrator to do modification of that site according to feedback..

(v) ***Bulletin board***

This section will let the administrator to publish the news and bulletin to the web site. It's to let the visitors to read those news and bulletin.

5.3 System Coding

The main language used in the development of this system was VBScript. Normally the coding of one page was stored in other page to let the administrator modify the coding easily in the future. There were lots of comments that had been written to let the administrator understand the coding easily.

Chapter 6

System Testing

Under this stage, I performed many types of testing to ensure that the final system performs as what it should be. Many types of testing had been done before the system was released to the customer to ensure that the system was developed according to its specification and every function implemented in a program works correctly.

Three types of testing were being used for the 5th RC web site. They were unit testing, module testing and system testing. The following are the testing under this stage.

6.1 Unit Testing

I used the unit testing technique to ensure that the program fixes the bug without side effects. After one new module was developed, I usually tested it independently in order to assure its accuracy and to find faults in the modules. There were three kinds of testing strategy carried out for the unit testing. The following sessions explain the testing strategies that were carried out throughout the project.

6.1.1 Code Reviewing

Under this strategy, I reviewed the codes. The codes were examined line by line in order to make sure that many uncovered semantic errors during implementation could be revealed. In reviewing the code, the correctness of coding was identified by comparing it to the original design of the program flow. When the logic and flow of the program were identified, the code was commented so that it can be traced in the future.

The code was also examined and debugged in order to identify any fault coding. Debugging ASP codes were difficult, as there were no proper ASP debugger and tester used in the project. The "Response.Write" command was inserted into the code to exam the value of the variable. For example

```
<%
        count = Request.form("txttime")
        If count > 10 then
                Updatedata()
        End if
%>
```

The code can be debugged as below:

```
<%
        count = Request.form("txttime")
        Response.write count & "value"          ' this will print out the value of variable count
        If count > 10 then
                Response.write "Run"            ' this will print out if the statement is run
                Updatedata()
        End if
%>
```

By using the "Response.write" command, a value can be printed on the browser. Thus, it was used as the 'watch' value of the variable. However, if the code is simpler and written with full of confidence, using this technique to test the code is just a redundant work .

6.1.2 Test Cases

Besides reviewing the codes, I used some test cases to test the system. This approach was used as some set of structural input was given and output was observed. This strategy was needed to identify the variance between the prototype and the requirement. In this testing, I input different set of data into the program. For example to test the authenticate logon module, I input different login IDs and passwords to test the program. With this, the reaction of the program to the input data could be tested. This could identify the program's faults, which probably happen in normal condition.

6.1.3 Other Users

After the two testing had been used, I launched the beta version of the system to other users for testing purpose. This was to identify the fault that may incur in any other unexpected condition. The testing involved with random data in random situation. From the testing, I got some feedback from the users. This feedback provided some important information about the usability and reliability of the application.

6.2 Module Testing

After the unit testing, I performed the module testing which included the user's module testing and the administrator's module testing. I created one administrator and some user data in performing the testing. The testing was carried out to ensure that the codes under the module function accordingly when all units of code were integrated. If the error was present from a particular module, the part of the module that goes wrong will be identified and unit testing was used to identify the errors.

6.3 System Testing

Finally, I performed the system testing to ensure that the entire application still worked. It was used to test the integrated system and verify whether it met the specified requirements. All the related pages had to be tested so that there were no faults on the pages.

Chapter 7

System Evaluation

After the system testing of the 5th RC web site, the end product of the project was brought up for evaluation. They were many evaluation techniques that used to evaluate the final system. The following section will explain in detail about the system strength and its limitation.

7.1 Problem Encountered

During the entire development of the 5th RC web site, many and various problems were encountered. Some of them could be overcome through certain solution while some of them were not. The problems that encountered can be divided into different types. The following are some of the problems that arose during the development process.

7.1.1 Set Up and Configuration

The set up of the server was critical for the operation of the application development. However, the setup process toke a long time because lacked of experience. Besides, the repeated failure of the server required re-installation as a remedy and this consumed time and effort.

I also encountered problems during the exportation of database from Access to SQL server. After the exportation, some of the data structure of the database was changed and I needed to design the database again.

The installation of the Windows NT Server 4.0 was troublesome. This was because I needed to restart the server each time I upgrade the Service Pack and configured the network setting.

7.1.2 Requirement Changes from the User

It is very difficult to develop and implement the system when the requirement changes very frequently. Sometimes it is easy to change the requirement, however, the coding need to be changed a lot in order to follow the new requirement.

7.2 Evaluation by End-Users

After the system had been completed for the first, it had been sent to several end-users to test it out. In the mean time they were testing the system, I told them to write down the problems that they face and suggest some ideas to enhance the system. This was very important so that the system can be tested more thoroughly.

7.3 System Strength

Web Enabled

The system was based on the web technology. It was using the client server approach that allowed processing load to be shared between the client and the server, thus reducing the burden on the server and allow it to provide better service.

Simplicity of User Interface

The graphic interface design of the system was designed to let the users feel comfortable and easy-to-use. The GUI ensured user friendliness. Thus, the users should find it easy to use.

Scalability

Hardware and applications could be easily added to the existing system without influence the existing applications. This was because the system was not hardware-dependent.

7.4 System Limitation

Browser Limitation

The system only supports Internet Explorer 4.0 and above. This is due to most of the scripts were written in VB Script, which was not supported by other browser such as Netscape Communicator.

7.5 Future Enhancement

Some functionality of the system can be enhanced in order to improve the quality of the system. The following are the functionality that can be enhanced on this system.

Maintenance of User Interface

The system should provide some useful links and news for the user, like the latest news in the college, the site related to the computer field and also the stock market price. The page should be updated for a certain period to give the user a fresh and a greater look.

Support Multiple Language

The current system is only limited to one language. It needs to be enhanced so that it can support more than one language. This is due to different organization is using different type of language.

Usage of Smart Card (Touch and GO)

The usage of smart card can be implemented in this system to provide more secure transaction. Besides, the user does not need to enter any login ID, he or she just need to show the smart card or Touch and Go for verification. The concept of One Card or Touch and Go can apply to other type of application that available in the University. It can replace the Matrix Card that currently using by all the students in the university.

7.6 Knowledge Gained

During the entire development of the 5th RC web site, I gained a lot of knowledge. The following are some of the knowledge that I gained from the project.

Setting Up Different Kind of Servers

During the process of development, I had the opportunities to set up the Window NT Server. Besides NT Server, I had better understanding on how to manipulate the SQL Server and Exchange Server. Several discussion and presentation were held to share my knowledge with friends and solving the difficulties.

Additional Software Tools

From this project, I gained knowledge on writing a new languages, which was the ASP. I knew how to write an ActiveX DLL and how to use Win32 API to carry out some of the windows' task.

7.7 Reviews on Goal

At the final stage of the project, there were certain expectations on what would be achieved. The following are the expectation that achieved.

7.7.1 Expectation Achieved

In overall, the system had fulfilled the expectation stated by the project. The basic foundation of the system was designed and implemented. It was eligible for future growth and implementation. The 5th RC web site met the criteria like reliability, user friendliness, open-system and wide accessible.

7.7.2 Objectives Achieved

The project had successfully created a system that supported the information need for the college. Finally, it could be concluded that the objectives to establish the web site had been achieved.

7.8 Overall Conclusion

The 5th RC web site was an Internet-based system, designed as an informative site for the outsiders. The system generates timely, accurate and relevant information. It is very important for almost all the organization. The feasibility of the system depends on how much the organization will benefit from its implementation.

However, there are also some limitations that the system can't be done. It needs to be enhanced in order to transform it to a more advance system. Despite the limitation, the project had reasonably achieved all its objectives.

User Manual

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1 A Brief Overview

The Fifth Residential College web site is an informative web site to let the outsiders to know better about the college. It is a client/server application. The web site is easy to use and user friendly with simple user interface.

1.1 About the user manual

This manual is divided into five main headings, which are:

- A brief overview
- Getting started
- Home page
- Administrator module
- User module

2 Hardware and Software Requirements

2.1 Hard Requirements

Server

- Minimum Pentium II 133 Mhz (Pentium II 350 Mhz or above is recommended)
- High storage capacity (256 MB to 4 GB of main storage)
- Network adapter or modem

Client

- Minimum 486 Mhz processor
- Minimum 8 RAM
- A SVGA graphic card
- Keyboard and mouse as input devices
- Network card
- 800 x 600 pixels screen monitor

2.2 Software Requirements

Server

- Window NT Server 4.0 or Window 2000 Server
- Internet Information Server
- MS Office 2000
- MS SQL Server 7.0

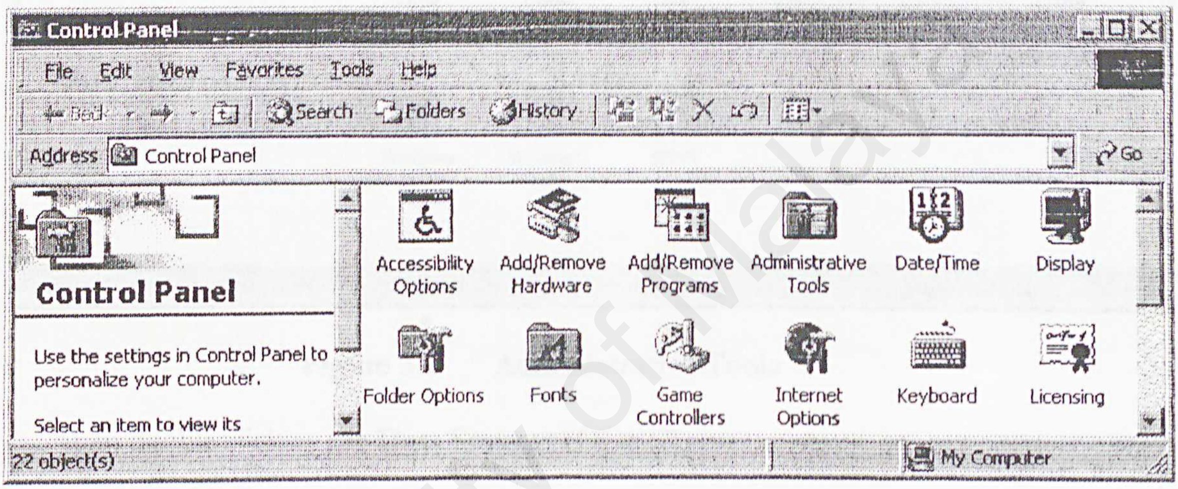
Client

- Window 95 or 98
- A web-browser (Internet Explorer 5.0 recommended)

3 Getting Started

Before we do anything to put the web site into the server and work properly, we need to configure the server so that it can perform as what we need. There are several things that take us into consideration in configuring the server. They are Internet Information Server (IIS) and ODBC Data Sources (32 bit). But before that, we have to upload the pages into a directory so that it can be referred. There must be enough space to upload the pages so that the performance of the server is not violated.

3.1 Setting Up the Data Source Name (DSN)

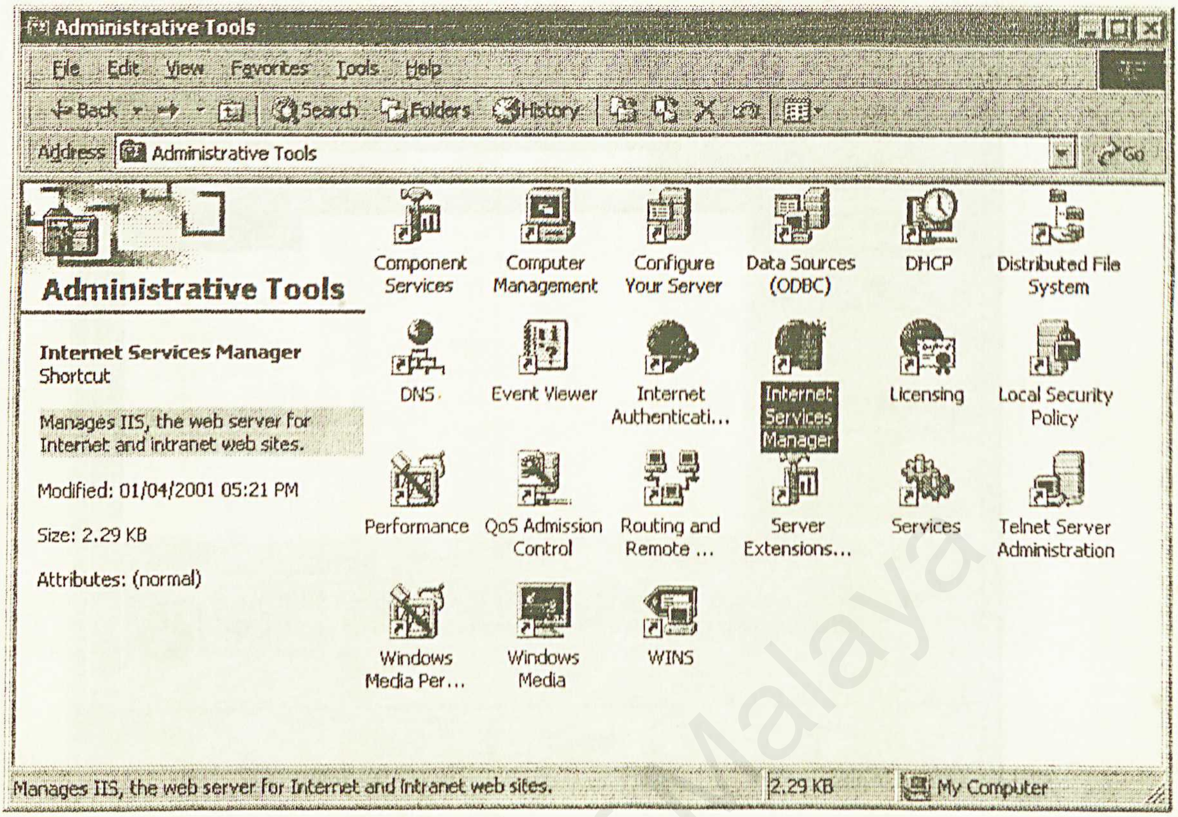

Control Panel
File
Edit
View
Favorites
Tools
Help
Back
Search
Folders
History
Address
Control Panel
Go
Control Panel
Accessibility Options
Add/Remove Hardware
Add/Remove Programs
Administrative Tools
Date/Time
Display
Folder Options
Fonts
Game Controllers
Internet Options
Keyboard
Licensing
22 object(s)
My Computer

Use the settings in Control Panel to personalize your computer.

Select an item to view its

Figure 3.1 Control Panel

- The administrator should upload the pages to the web server.
- After that, the virtual directory for that site has to be set.
- This can be done by clicking on the **Start** button on the bottom left of the screen.
- Then go to **Setting** and click on **Control Panel**.
- After that, double click the **Administrative Tools**.


Administrative Tools
File
Edit
View
Favorites
Tools
Help
Back
Search
Folders
History
Address
Administrative Tools
Go
Administrative Tools
Component Services
Computer Management
Configure Your Server
Data Sources (ODBC)
DHCP
Distributed File System
DNS
Event Viewer
Internet Authenticati...
Internet Services Manager
Licensing
Local Security Policy
Performance
QoS Admission Control
Routing and Remote ...
Server Extensions...
Services
Telnet Server Administration
Windows Media Per...
Windows Media
WINS
My Computer

Internet Services Manager
Shortcut

Manages IIS, the web server for Internet and intranet web sites.

Modified: 01/04/2001 05:21 PM

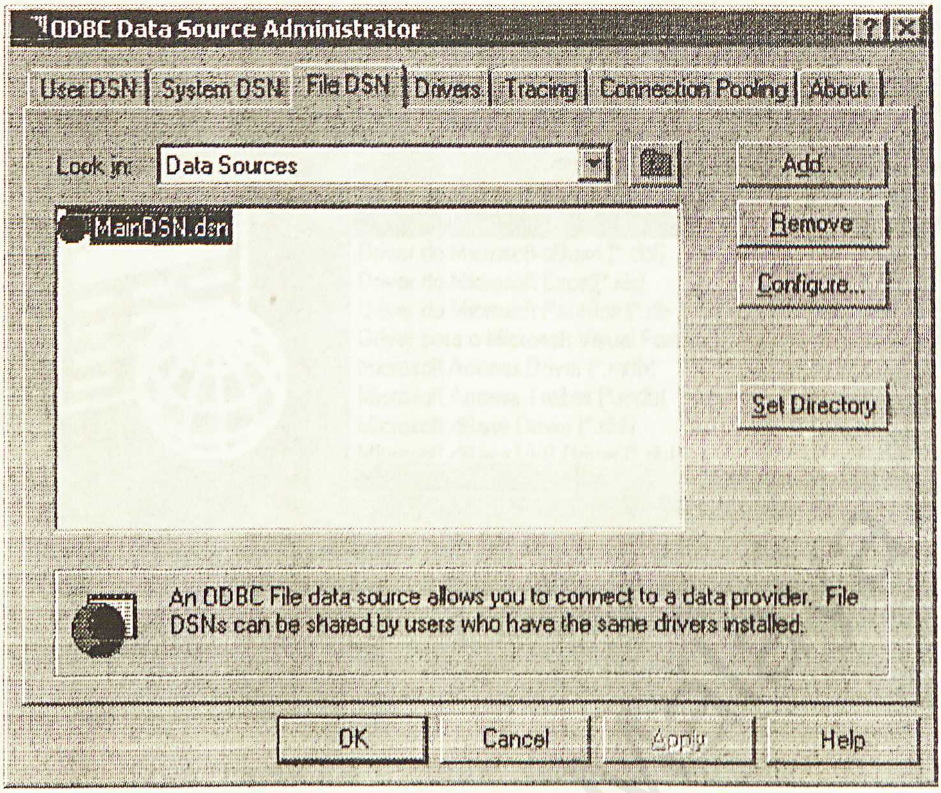
Size: 2.29 KB

Attributes: (normal)

Manages IIS, the web server for Internet and intranet web sites.
2.29 KB

Figure 3.2 Administrative Tools

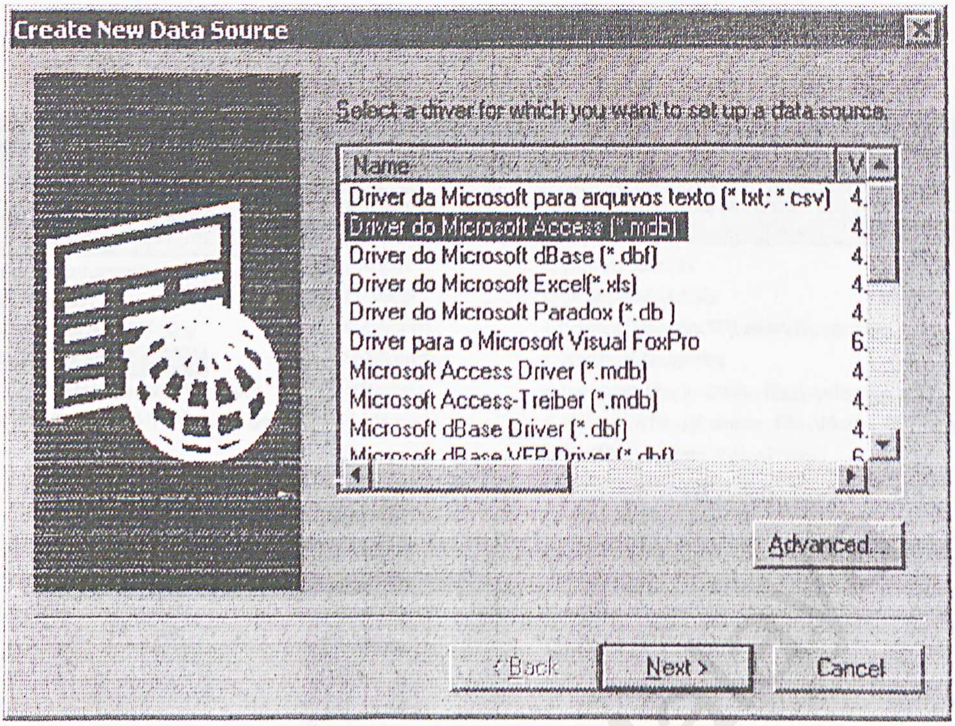
- Then double clicking the **Data Sources (ODBC)**


ODBC Data Source Administrator
User DSN
System DSN
File DSN
Drivers
Tracing
Connection Pooling
About
Look in:
Data Sources
MainDSN.dsn
Add...
Remove
Configure...
Set Directory
OK
Cancel
Apply
Help

An ODBC File data source allows you to connect to a data provider. File DSNs can be shared by users who have the same drivers installed.

Figure 3.3 ODBC Data Source Administrator

- Then this window will prompt out.
- Select the **File DSN** to add data source name to the database.
- Then click on the **Add** button on right.



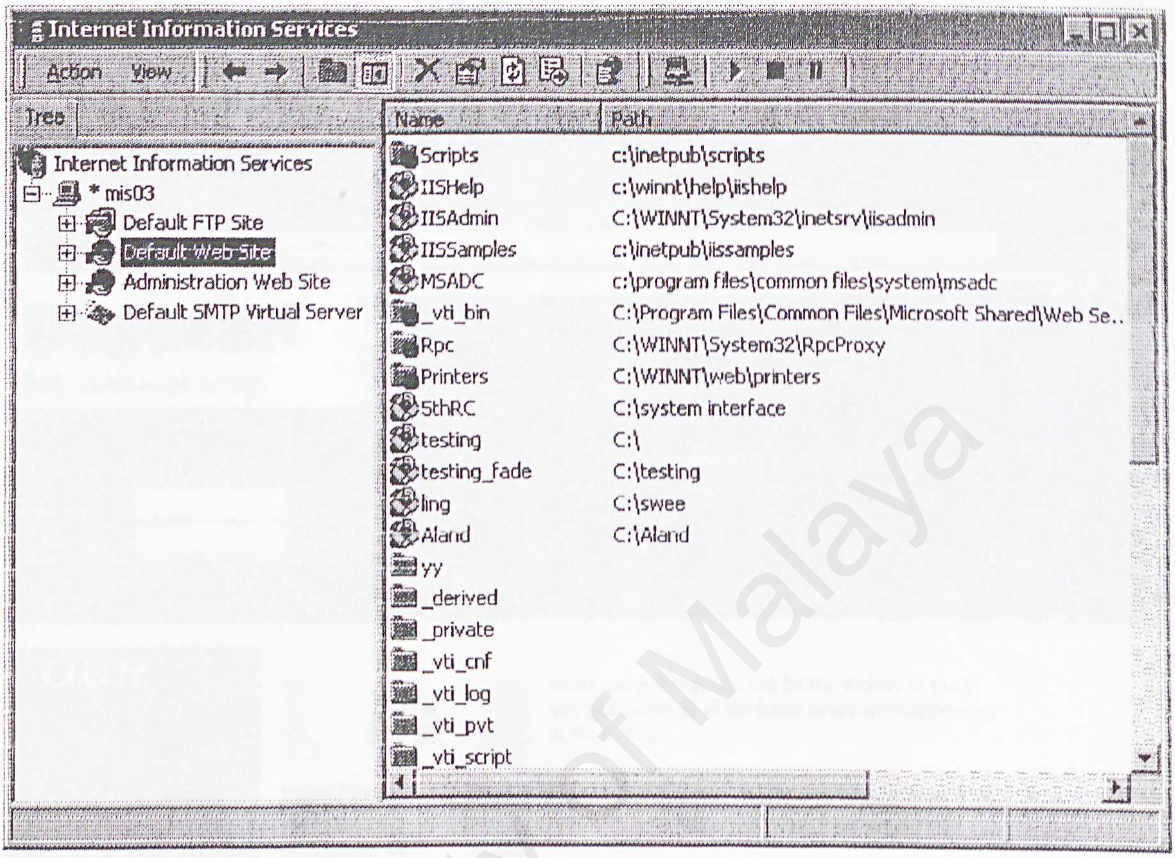
Select a driver for which you want to set up a data source.

Name	V
Driver da Microsoft para arquivos texto (*.txt; *.csv)	4.
Driver do Microsoft Access (*.mdb)	4.
Driver do Microsoft dBase (*.dbf)	4.
Driver do Microsoft Excel(*.xls)	4.
Driver do Microsoft Paradox (*.db)	4.
Driver para o Microsoft Visual FoxPro	6.
Microsoft Access Driver (*.mdb)	4.
Microsoft Access-Treiber (*.mdb)	4.
Microsoft dBase Driver (*.dbf)	4.
Microsoft dBase VFP Driver (*.dbf)	6.

Figure 3.4   Create New Data Source

- The window above will prompt out after the **Add** button. Then just choose the type of database that your site is using.
- Then click the **Next** button.
- After that, type in the name of the data source name (DSN) then click the **Next** button.
- After that, click the **Finish** button in the next window.
- Then you select the database by browsing the location of the database. After that, click on the **Ok** button.

3.2 Setting Up the Virtual Directory


Internet Information Services
Action
View
Tree
Internet Information Services
* mis03
Default FTP Site
Default Web Site
Administration Web Site
Default SMTP Virtual Server

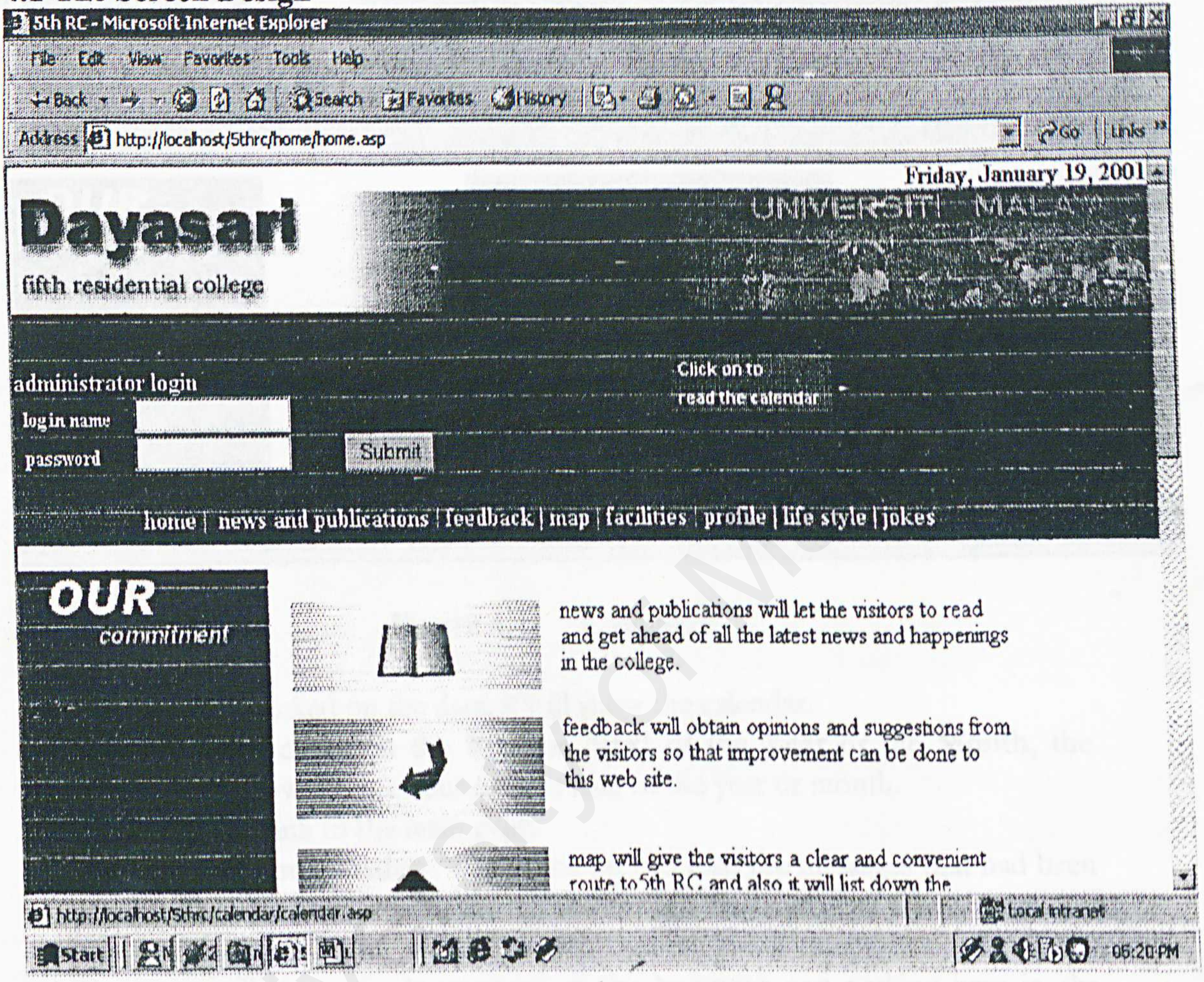
Name	Path
Scripts	c:\inetpub\scripts
IISHelp	c:\winnt\help\iishelp
IISAdmin	C:\WINNT\System32\inetsrv\iisadmin
IISSamples	c:\inetpub\iissamples
MSADC	c:\program files\common files\system\msadc
_vti_bin	C:\Program Files\Common Files\Microsoft Shared\Web Se..
Rpc	C:\WINNT\System32\RpcProxy
Printers	C:\WINNT\web\printers
5thRC	C:\system interface
testing	C:\
testing_fade	C:\testing
ling	C:\swee
Aland	C:\Aland
yy	
_derived	
_private	
_vti_cnf	
_vti_log	
_vti_pvt	
_vti_script	

Figure 3.5 Internet Information Server (IIS)

- After that, just right click the **Default Web Site** and then go to **New**. After that just click on the **Virtual Directory**.
- Just follow the instruction and click the **Finish** button.
- Then a window will prompt out to let you type in the name of the virtual directory.
- After that, you click on the **Next** button to go to other window.
- Here, the computer will ask you to type in the directory where you store all the pages. After that, you just click the **Next** button.
- After that, there will be a window that asks you about the access permission of this site.
- After you select all the permissions that you desire, you just click on the **Next** button.
- Then just click on the **Finish** button.

4 Home page

4.1 The Screen Design



5th RC - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address
Go
Links
Friday, January 19, 2001
Dayasari
fifth residential college
UNIVERSITI MALAYA
administrator login
login name
password
Submit
Click on to
read the calendar
home | news and publications | feedback | map | facilities | profile | life style | jokes
OUR
commitment
local intranet
Start
05:20 PM

http://localhost/5thrc/home/home.asp

news and publications will let the visitors to read and get ahead of all the latest news and happenings in the college.

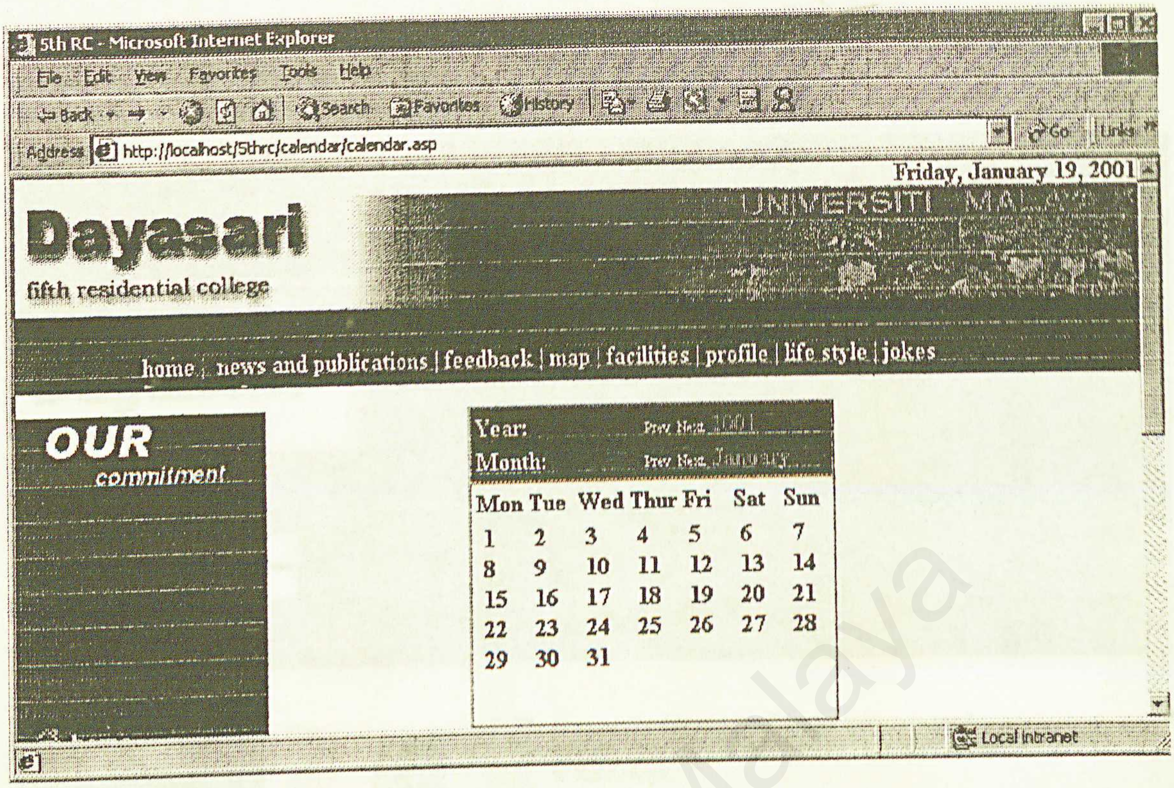
feedback will obtain opinions and suggestions from the visitors so that improvement can be done to this web site.

map will give the visitors a clear and convenient route to 5th RC and also it will list down the

http://localhost/5thrc/calendar/calendar.asp

Figure 4.1 Home Page

- This is the main page of the site. It has all the links to all the other pages.
- When the user moves the mouse over the date on the top right, it will ask the user to click on it to read the calendar.


5th RC - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address
Go Links
Dayasari
fifth residential college
UNIVERSITI MALAYA
home | news and publications | feedback | map | facilities | profile | life style | jokes
OUR commitment
Local intranet

Address: http://localhost/5thrc/calendar/calendar.asp

Friday, January 19, 2001

Year: Prev Next 2001

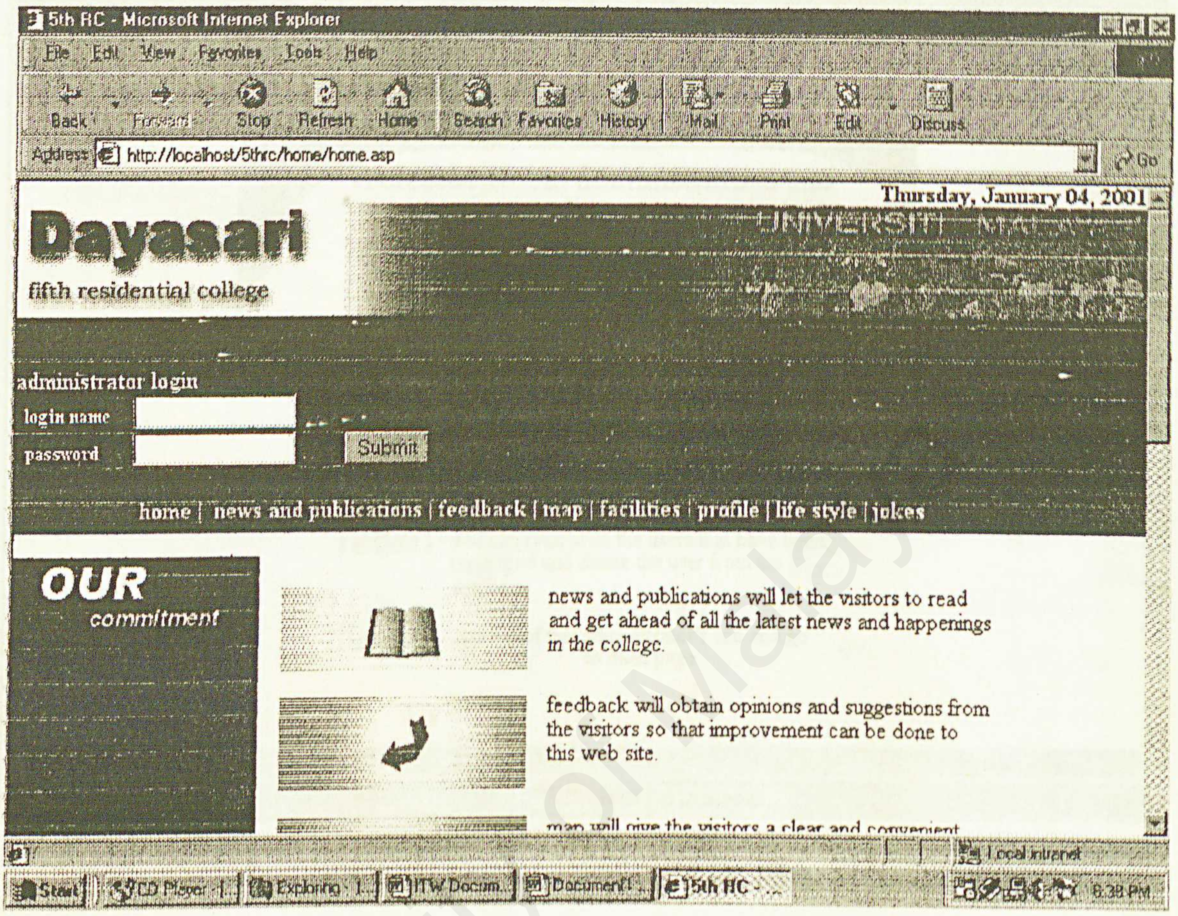
Month: Prev Next January

Mon	Tue	Wed	Thur	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Figure 4.2 Calendar

- After the user clicked on the date, it will show the calendar.
- When the user clicks on the **Prev** or **Next** of the **Year** or the **Month**, the calendar will show the previous or next date of the year or month.
- The **home** will link to the main page.
- The **news and publications** will let the user to read the messages that had been posted. The user doesn't have the right to change the content of the message.
- The **feedback** will let the user to give any opinion about any pages on the site.
- The **map** will show the location of all the buildings and parking bays in the college.
- The **facilities** will show all infrastructures that are available in the college.
- The **profile** will show the organization chart and history of the college.
- The **life style** will show the activities that the residents of the college do. It has all the projects that had been carried on.
- The **jokes** will show the world's funniest jokes. The purpose of this page is to attract more users to this site.

5 Administrator module


5th RC - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss
Address
Go
Dayasari
fifth residential college
Thursday, January 04, 2001
administrator login
login name
password
Submit
home | news and publications | feedback | map | facilities | profile | life style | jokes
OUR
commitment
Local intranet
Start
6:38 PM

http://localhost/5thrc/home/home.asp

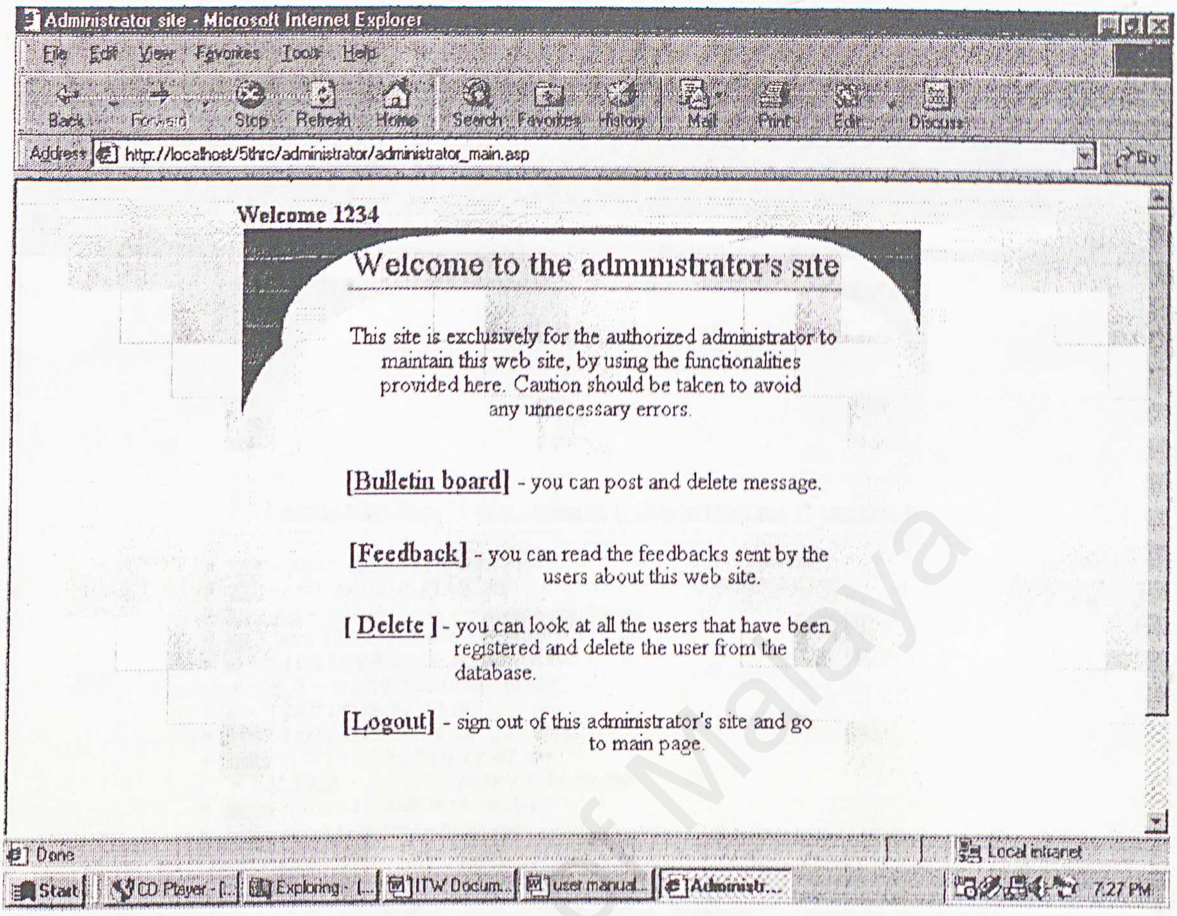
news and publications will let the visitors to read and get ahead of all the latest news and happenings in the college.

feedback will obtain opinions and suggestions from the visitors so that improvement can be done to this web site.

map will give the visitors a clear and convenient

Figure 5.1 Administrator Login

- To begin using the administrator module, the administrator needs to log in using the administrator login form before he/she can start using all the functions available.
- After a valid administrator login name and password are entered, the administrator's main page is pop out.
- After successful login to the system, the administrator will be associated with all the actions that he/she undertakes. In short, it will be the administrator's responsibility to take care of the data until he/she logs out of the system.
- Before the administrator ends the administrator module, he/she has to log out by pressing **Logout** to avoid their login name of being used by others.


Administrator site - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss
Address http://localhost/5thrc/administrator/administrator_main.asp
Go
Done
Local intranet
Start
CD Player - [...
Exploring - [...
ITW Docum...
user manual...
Administr...
7:27 PM

Welcome 1234

Welcome to the administrator's site

This site is exclusively for the authorized administrator to maintain this web site, by using the functionalities provided here. Caution should be taken to avoid any unnecessary errors.

[Bulletin board] - you can post and delete message.

[Feedback] - you can read the feedbacks sent by the users about this web site.

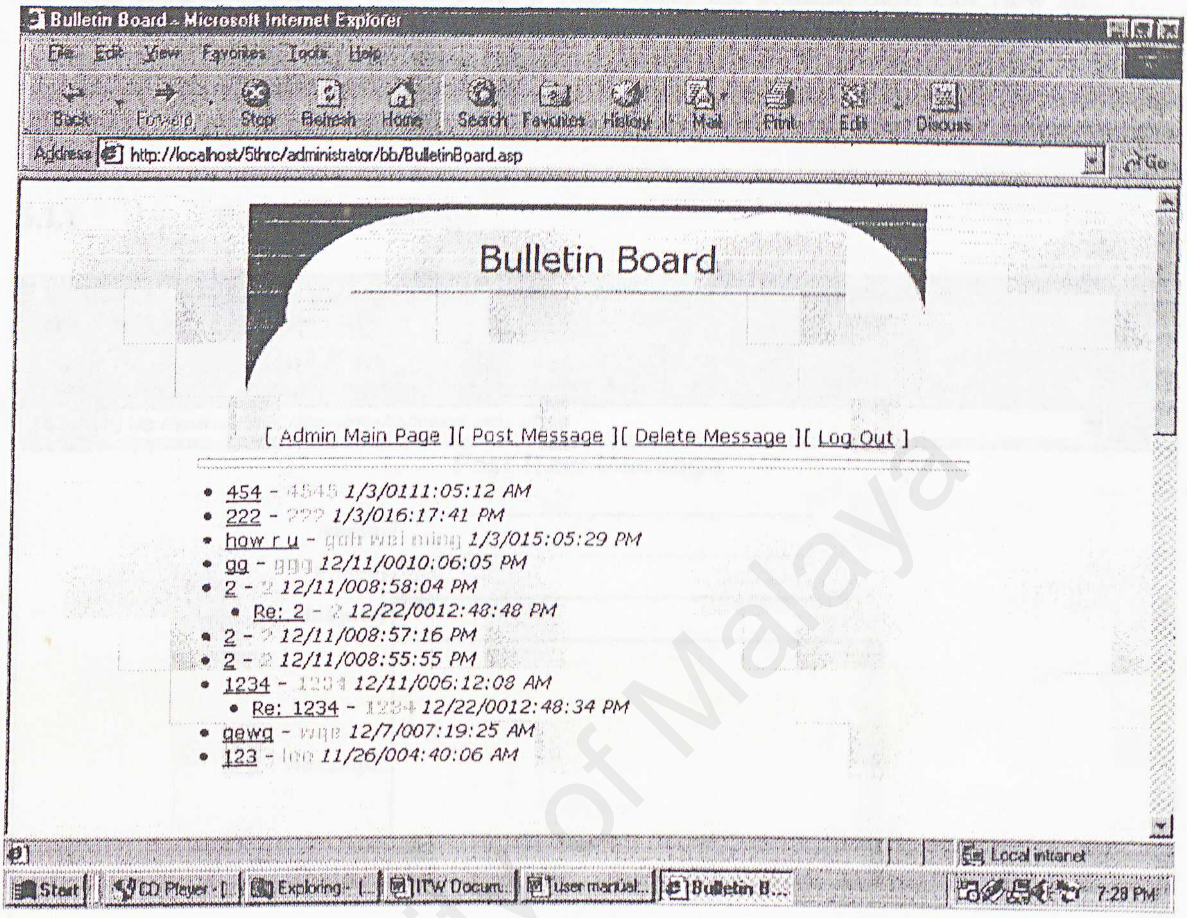
[Delete] - you can look at all the users that have been registered and delete the user from the database.

[Logout] - sign out of this administrator's site and go to main page.

Figure 5.2 Administrator's Main Page

- After log on to the administrator module, a page will pop out shows that all the functions that the administrator can perform. The administrator only has to click on the links there to utilize the functions available.
- The first function is the **Bulletin board.** Here the administrator can post and delete message inside the bulletin board.
- The second function is the **Feedback.** The administrator can read and delete the feedback sent by the user of this web site.
- The last one is the **Delete** function. Here the administrator can view all the authorized users (normally the residents of the college) that have been registered. Also the administrator can delete the user from registration.

5.1 Bulletin Board



Bulletin Board - Microsoft Internet Explorer

Address http://localhost/5thrc/administrator/bb/BulletinBoard.asp

Bulletin Board

[Admin Main Page][Post Message][Delete Message][Log Out]

- 454 - 4545 *1/3/0111:05:12 AM*
- 222 - 222 *1/3/016:17:41 PM*
- how r u - goh wei ming *1/3/015:05:29 PM*
- gg - ggg *12/11/0010:06:05 PM*
- 2 - 2 *12/11/008:58:04 PM*
    - Re: 2 - 2 *12/22/0012:48:48 PM*
- 2 - 2 *12/11/008:57:16 PM*
- 2 - 2 *12/11/008:55:55 PM*
- 1234 - 1234 *12/11/006:12:08 AM*
    - Re: 1234 - 1234 *12/22/0012:48:34 PM*
- qewq - wqe *12/7/007:19:25 AM*
- 123 - lee *11/26/004:40:06 AM*

File Edit View Favorites Tools Help
Back
Forward
Stop
Refresh
Home
Search
Favorites
History
Mail
Print
Edit
Discuss
Go
Local intranet
Start
CD Player
Exploring
ITW Docum...
user manual...
Bulletin B...
7:28 PM

Figure 5.3 Bulletin Board

- The **Bulletin Board** main page will show automatically all the messages that had been posted. Example:
    - 2 - 2 *12/11/008:58:04 PM*
        - Re: 2 - 2 *12/22/0012:48:48 PM*

2 – This is the subject of the message. When the administrator clicks on this subject, it will show the associated message.

2 – This is the name of the sender and when the administrator clicks on it, it will let the administrator to send email to the sender of the message.

12/11/008:58:04 PM – This is the date and time when the message was posted.

• Re: 2 - 2 *12/22/0012:48:48 PM* – This is the reply of the original message. The functions of the click-able links are like above.

- The **Admin Main Page** is the link to go back to the administrator's main page.

- The **Post Message** will scroll down the page to the form where administrator can post message.
- The **Delete Message** will pop out a page where the administrator can view all the messages and he/she has the authority to delete the available messages.
- The **Log out** will clear the administrator's session and go back to home page.

5.1.1 Post New Message

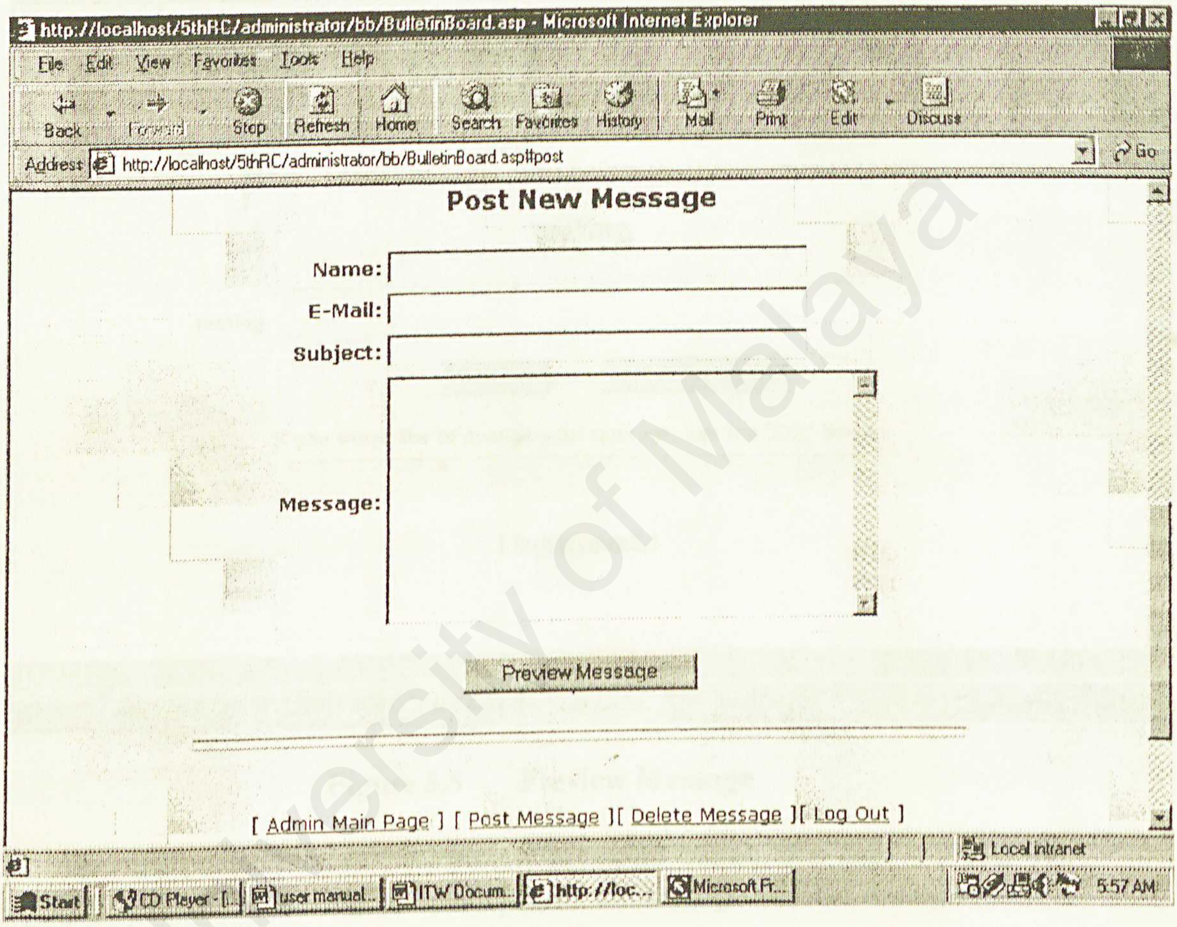
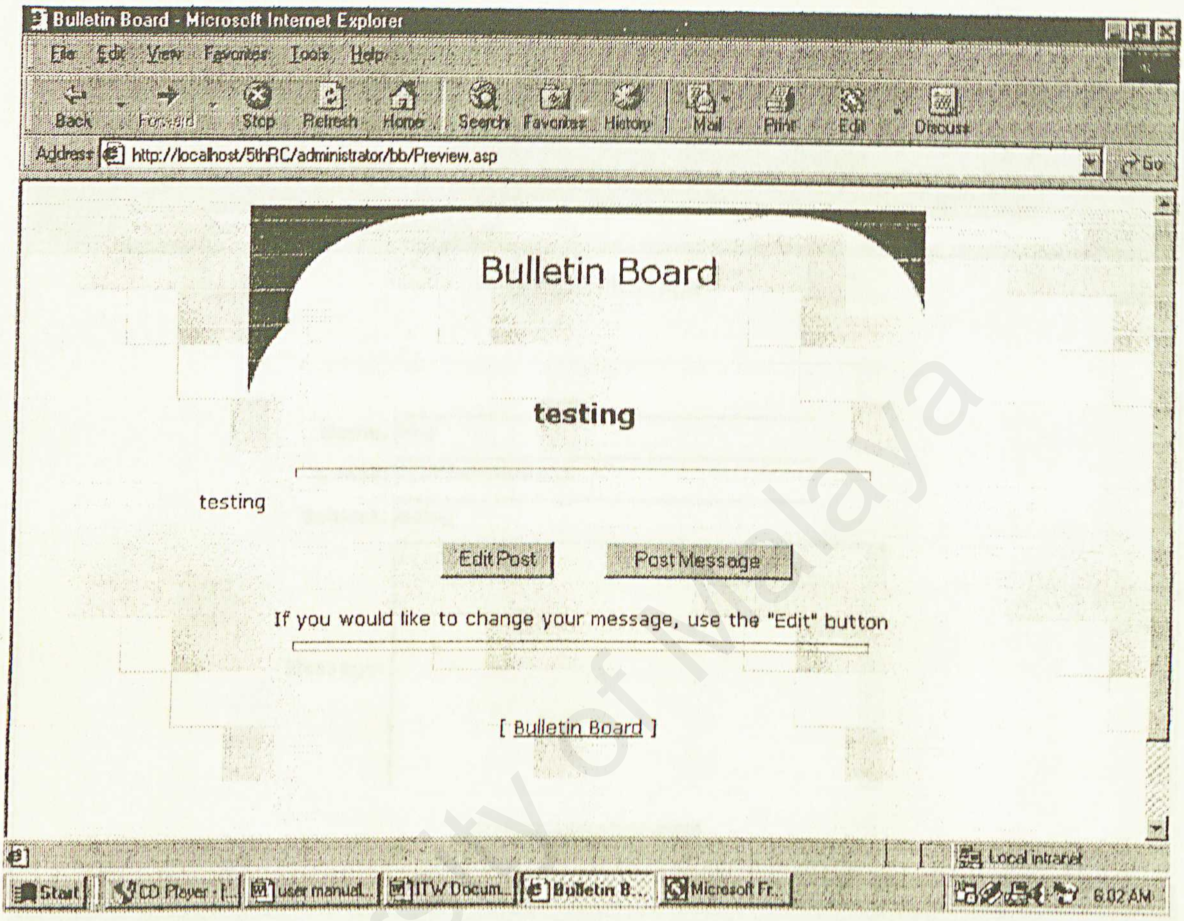

http://localhost/5thRC/administrator/bb/BulletinBoard.asp - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss
Address http://localhost/5thRC/administrator/bb/BulletinBoard.asp#post
Go
Post New Message
Name:
E-Mail:
Subject:
Message:
Preview Message
[Admin Main Page] [Post Message][Delete Message][Log Out]
Local intranet
Start
CD Player - [...
user manual...
ITW Docum...
http://loc...
Microsoft Fr...
5:57 AM

Figure 5.4 Post New Massage

- This is the **Post Message** part of the **Bulletin Board**. The administrator can post a message here. The **Name** is the name of the poster. The **E-Mail** is the e-mail address of the poster and the **Subject** is the title of the message. The administrator can type his/her message inside the **Message** box.
- The **Preview Message** button is for the poster to view the message before posting it.

5.1.2 Preview Message


Bulletin Board - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss
Address http://localhost/5thRC/administrator/bb/Preview.asp
Go
Edit Post
Post Message
Local intranet
Start CD Player - [... user manual... ITW Docum... Bulletin B... Microsoft Fr...
6:02 AM

Bulletin Board

testing

testing

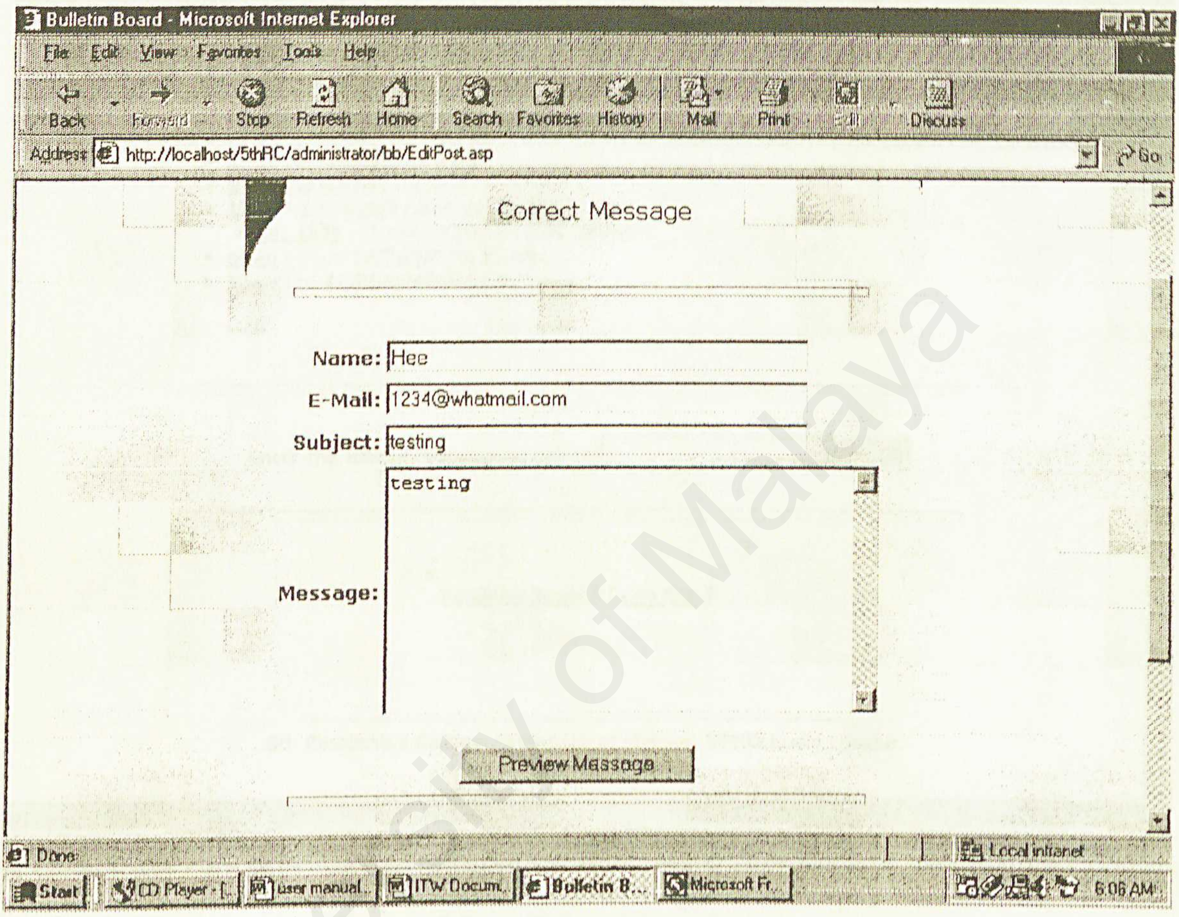
If you would like to change your message, use the "Edit" button

[Bulletin Board]

Figure 5.5 Preview Message

- After the poster presses the **Preview Message** button, this page will pop out. The upper most **testing** is the subject of the message and the testing after it is the message.
- To post the message, simply click the **Post Message** button.
- To edit the message, just click the **Edit Post** button.
- The **Bulletin Board** will lead the poster back to the bulletin board main page.

5.1.3 Edit Message


Bulletin Board - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss
Address http://localhost/5thRC/administrator/bb/EditPost.asp
Go
Preview Message
Done
Local intranet
Start CD Player - [user manual ITW Docum Bulletin B... Microsoft Fr...
6:06 AM

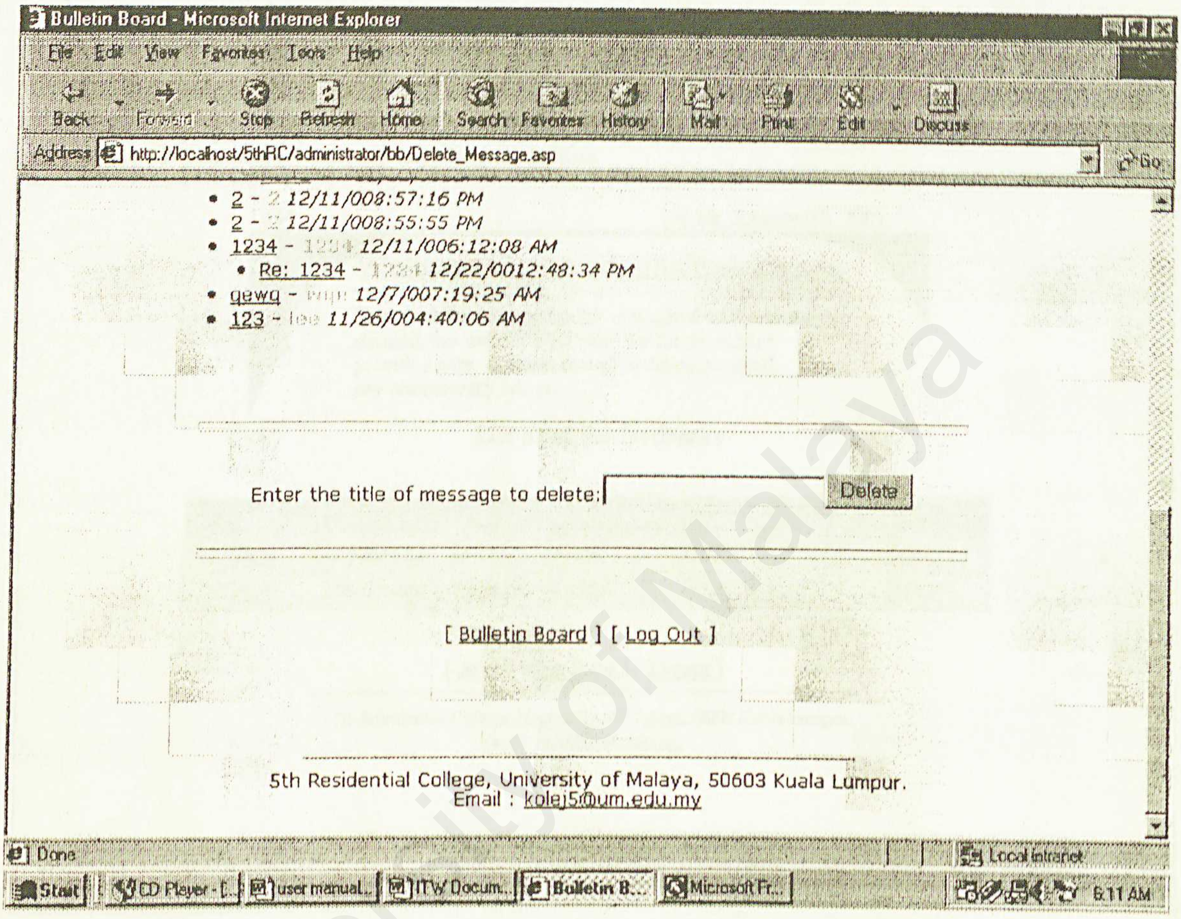
Correct Message

Name: Hee
E-Mail: 1234@whatmail.com
Subject: testing
Message: testing

Figure 5.6 Edit Message

- After the poster presses the **Edit Message**. The poster can edit the name, e-mail address, subject and message that he/she has posted.
- After that when the poster presses the **Preview Message**, he/she will go back to the preview message page.

5.1.4 Delete Message



Bulletin Board - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss
Address
Go
Done
Local intranet
Start
CD Player - [...
user manual...
ITW Docum...
Bulletin B...
Microsoft Fr...
6:11 AM

http://localhost/5thRC/administrator/bb/Delete_Message.asp

- 2 - 2 12/11/008:57:16 PM
- 2 - 2 12/11/008:55:55 PM
- 1234 - 1234 12/11/006:12:08 AM
  - Re: 1234 - 1234 12/22/0012:48:34 PM
- qewq - wqe 12/7/007:19:25 AM
- 123 - lee 11/26/004:40:06 AM

Enter the title of message to delete: Delete

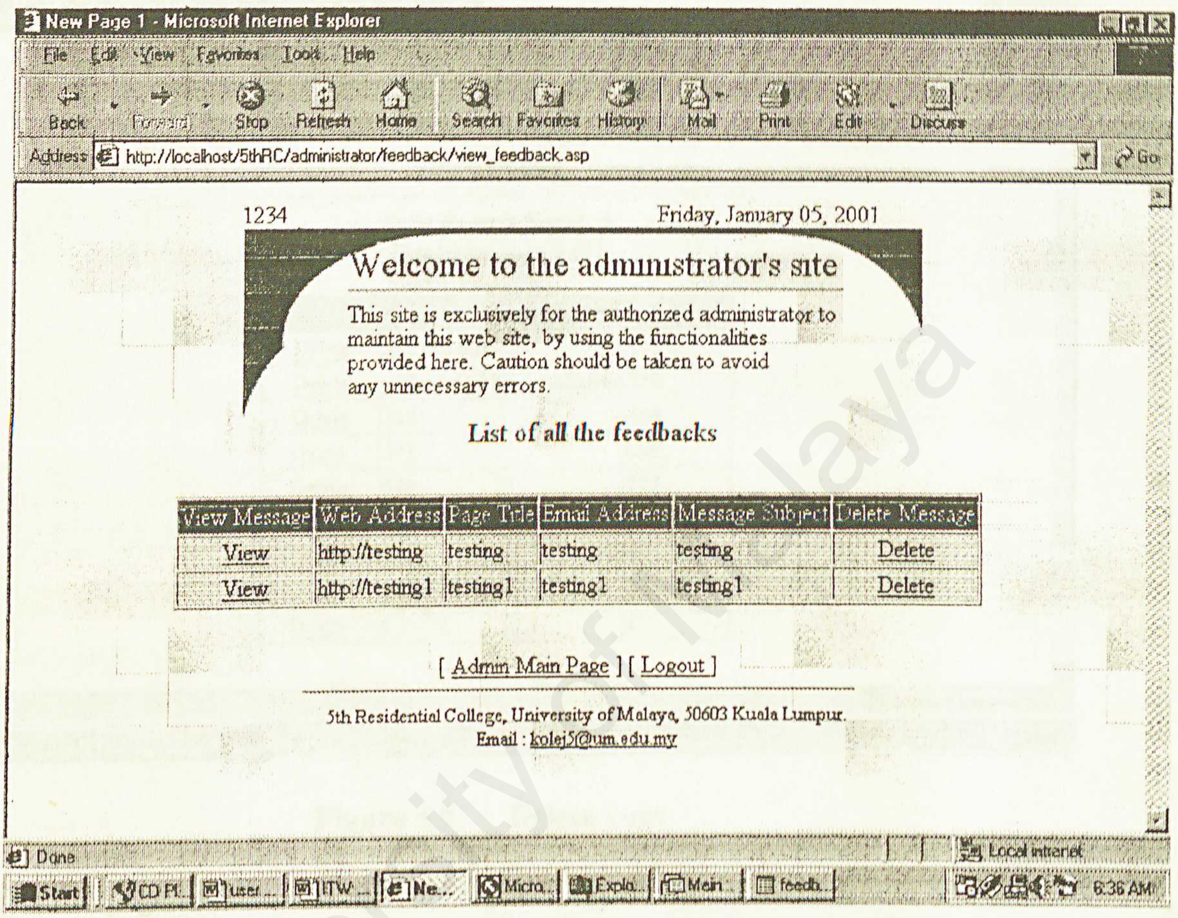
[Bulletin Board] [Log Out]

5th Residential College, University of Malaya, 50603 Kuala Lumpur.
Email : kolej5@um.edu.my

Figure 5.7 Delete Message

- This is the page for deleting message. The procedure for doing this is simple. The administrator has to insert the subject of the message to be deleted inside the text box provided and press **Delete** button to delete the message.

5.2 Feedback



New Page 1 - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss
Address
Go
Done
Local intranet
Start
6:36 AM

http://localhost/5thRC/administrator/feedback/view_feedback.asp

1234 Friday, January 05, 2001

Welcome to the administrator's site

This site is exclusively for the authorized administrator to maintain this web site, by using the functionalities provided here. Caution should be taken to avoid any unnecessary errors.

List of all the feedbacks

View Message	Web Address	Page Title	Email Address	Message Subject	Delete Message
View	http://testing	testing	testing	testing	Delete
View	http://testing1	testing1	testing1	testing1	Delete

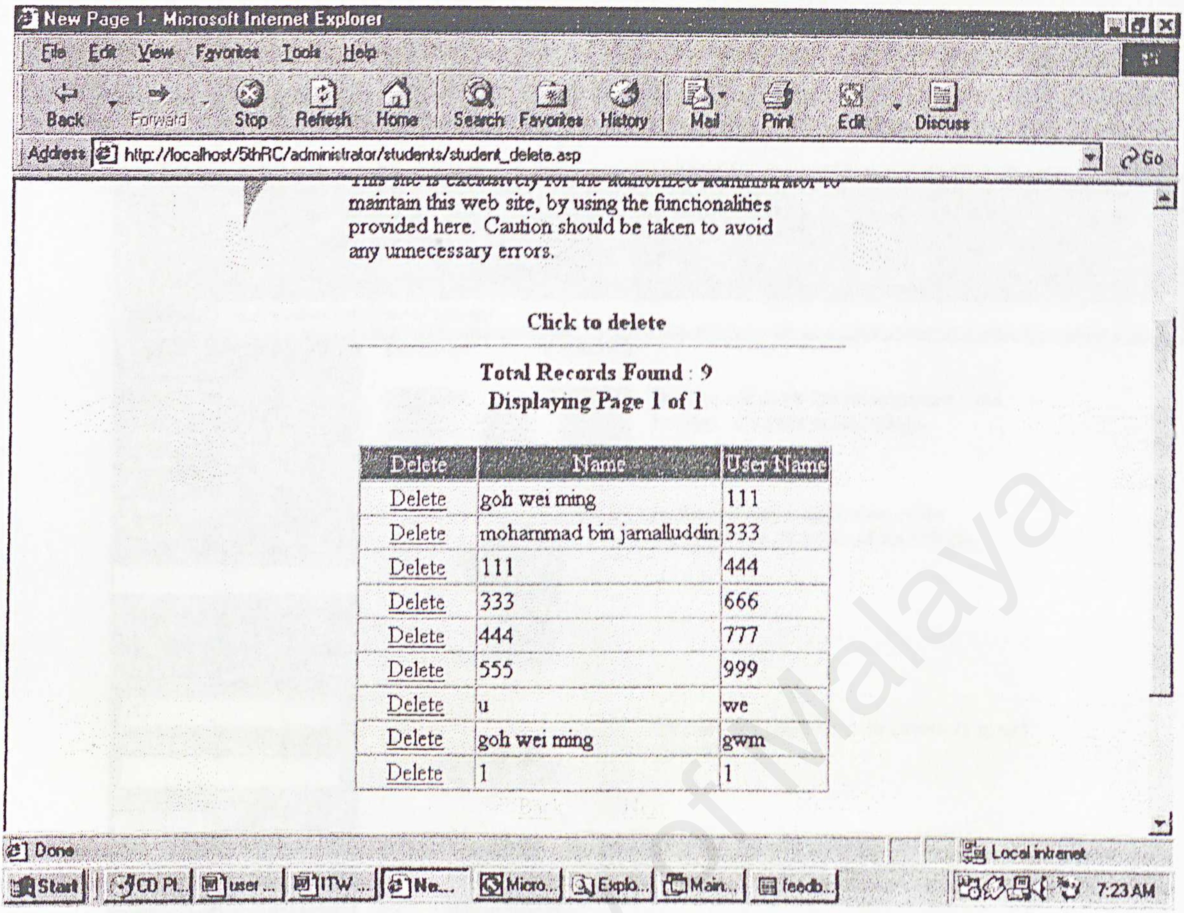
[Admin Main Page] [Logout]

5th Residential College, University of Malaya, 50603 Kuala Lumpur.
Email : kolej5@um.edu.my

Figure 5.8 Feedback

- This is the feedback page of the administrator's site. It will list all the feedback automatically once it's opened.
- The administrator can view the message simply by clicking the **View** inside the **View Message** column.
- If the administrator wants to delete the feedback, he/she only has to do is by clicking the **Delete** inside the **Delete Message** column.

5.3 Delete User



New Page 1 - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss
Address http://localhost/5thRC/administrator/students/student_delete.asp
Go

This site is exclusively for the authorized administrator to maintain this web site, by using the functionalities provided here. Caution should be taken to avoid any unnecessary errors.

Click to delete

Total Records Found : 9

Displaying Page 1 of 1

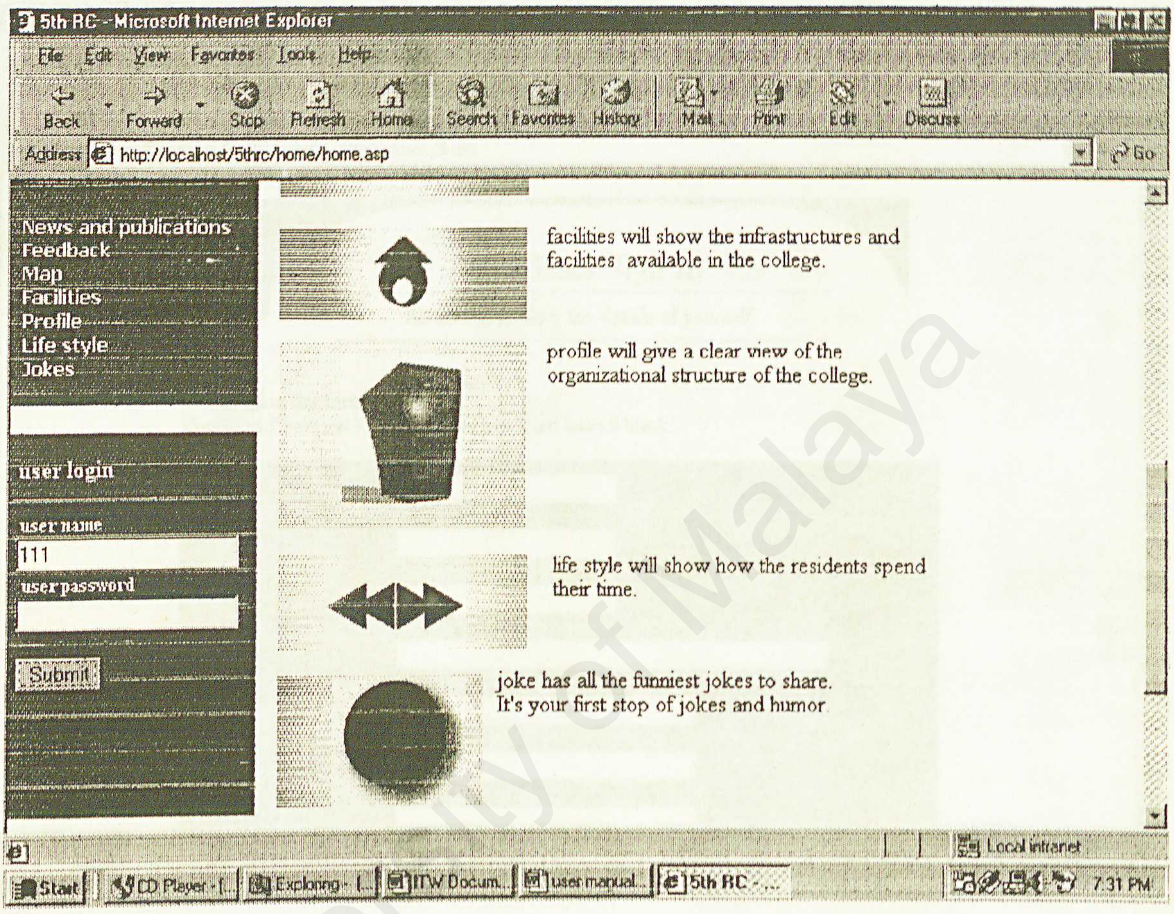
Delete	Name	User Name
Delete	goh wei ming	111
Delete	mohammad bin jamalluddin	333
Delete	111	444
Delete	333	666
Delete	444	777
Delete	555	999
Delete	u	we
Delete	goh wei ming	gwm
Delete	1	1

Done
Local intranet
Start
CD Pl...
user ...
ITW ...
Ne...
Micro...
Explo...
Main...
feedb...
7:23 AM

Figure 5.9 Delete User

- This is the page for the administrator to view all the registered users of this site. It only shows the name and the user name of the registered user.
- It also provides the delete function for the administrator to delete any users from the system. All the administrator has to do is to click on the **Delete** to delete any user from the list.

6 User Module


5th RC - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss
Address
Go
News and publications
Feedback
Map
Facilities
Profile
Life style
Jokes
user login
user name
user password
Submit
Local intranet
Start
CD Player - [...
Exploring - [...
ITW Docum...
user manual...
5th RC - ...
7:31 PM

Address: http://localhost/5thrc/home/home.asp

facilities will show the infrastructures and facilities available in the college.

profile will give a clear view of the organizational structure of the college.

life style will show how the residents spend their time.

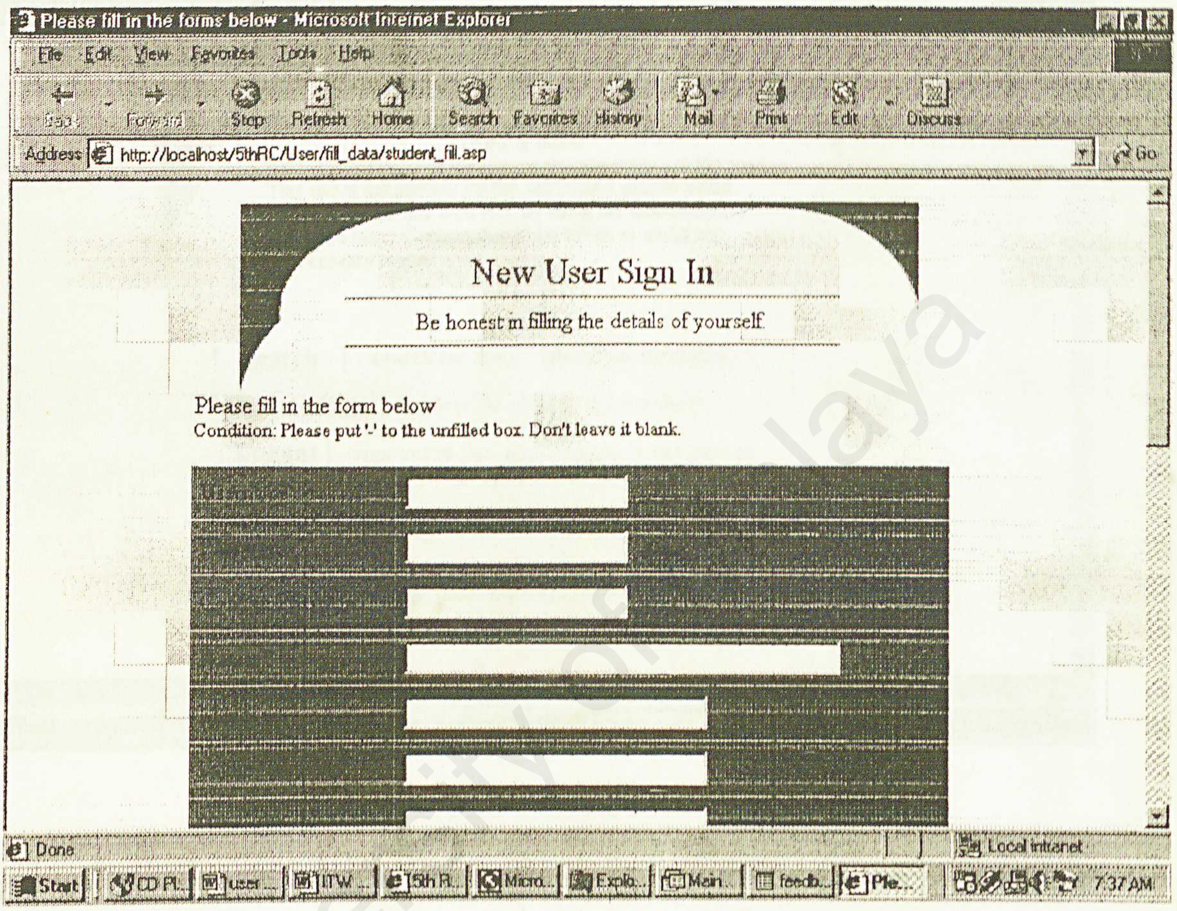
joke has all the funniest jokes to share. It's your first stop of jokes and humor.

user name: 111

Figure 6.1 User Login

- This is the main access for the authorized user to log on to the user module.
- He/she only has to do is to type in the user name and user password to log on to the user module.
- For a new comer, he/she can register as an authorized user by clicking the **Please click here.**

6.1 New User Sign-in


Please fill in the forms below - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss
Address
Go
Done
Local intranet
Start
7:37 AM

http://localhost/5thRC/User/fill_data/student_fill.asp

New User Sign In

Be honest in filling the details of yourself.

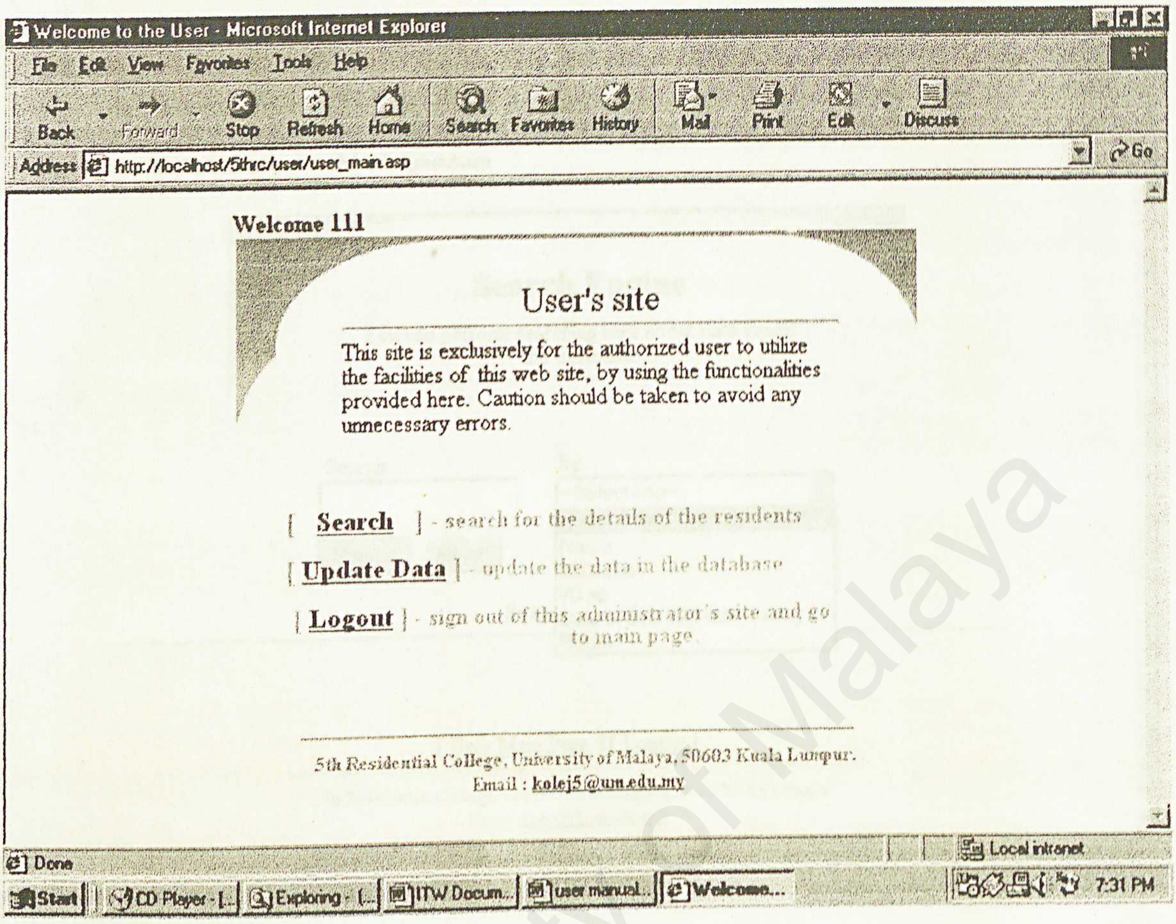
Please fill in the form below

Condition: Please put '-' to the unfilled box. Don't leave it blank.

Figure 6.2 New User Sign-in

- This is the user registration form.
- Only the user has filled up this form can access the user module.
- It has all the instruction on side to show how user should to fill up the form.
- After filling up, the user has to press the **Submit** button to submit this form. Then the user can use the submitted information to logon to the user module.

6.2 User Module Main Page


Welcome to the User - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss
Address http://localhost/5thrc/user/user_main.asp
Go
Done
Local intranet
Start CD Player - [...] Exploring - [...] ITW Docum... user manual... Welcome...
7:31 PM

Welcome 111

User's site

This site is exclusively for the authorized user to utilize the facilities of this web site, by using the functionalities provided here. Caution should be taken to avoid any unnecessary errors.

[**Search**] - search for the details of the residents

[**Update Data**] - update the data in the database

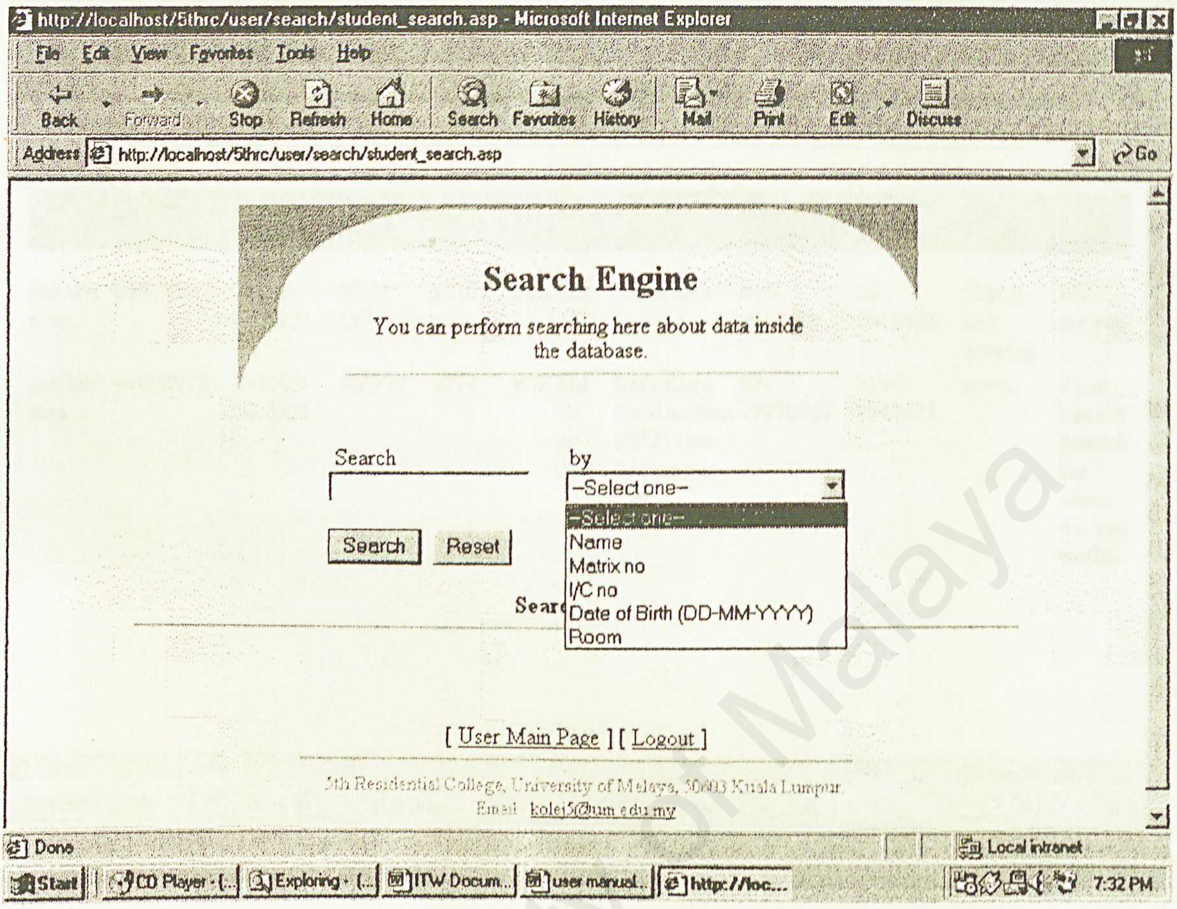
[**Logout**] - sign out of this administrator's site and go to main page.

5th Residential College, University of Malaya, 50603 Kuala Lumpur.
Email : kolej5@um.edu.my

Figure 6.3 User Module Main Page

- After one user has successfully logged on to the user module, user main page will pop up like above.
- There are 2 functions that the user can perform here. One is the search engine and the other one is data updating.
- If the user wants to log out of the user module, he/she can click the **Logout**.

6.3 Search Engine



http://localhost/5thrc/user/search/student_search.asp - Microsoft Internet Explorer

Address http://localhost/5thrc/user/search/student_search.asp

Search Engine

You can perform searching here about data inside the database.

Search

by –Select one–

[User Main Page] [Logout]

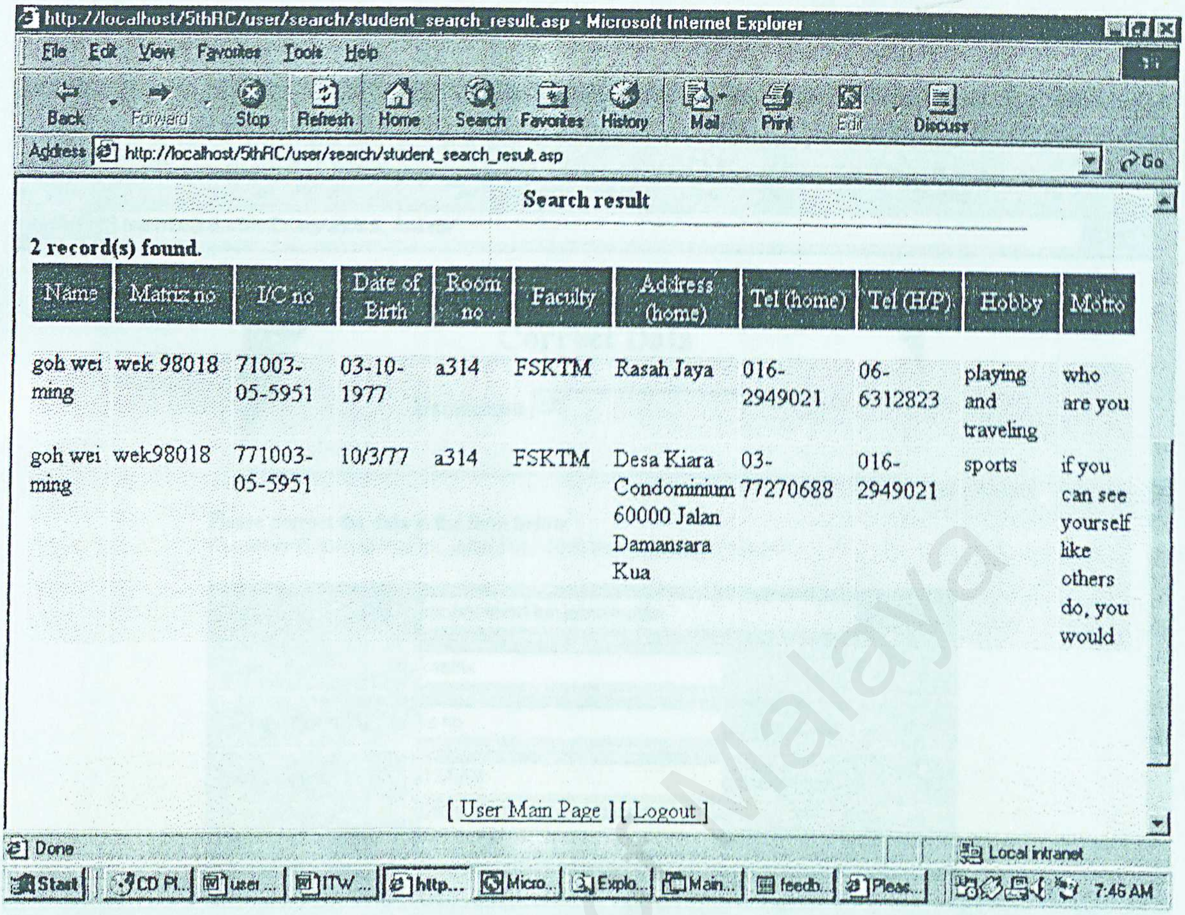
5th Residential College, University of Malaya, 50603 Kuala Lumpur.

Email: kolej5@um.edu.my

File
Edit
View
Favorites
Tools
Help
Back
Forward
Stop
Refresh
Home
Search
Favorites
History
Mail
Print
Edit
Discuss
Go
–Select one–
Name
Matrix no
I/C no
Date of Birth (DD-MM-YYYY)
Room
Search
Reset
Done
Local intranet
Start
CD Player - [...
Exploring - [...
ITW Docum...
user manual...
http://loc...
7:32 PM

Figure 6.4 Search Engine

- This is the page that will come out when the user presses the **Search** on the user main page.
- The user can search through the database for the information that he/she needs.
- For example, the user can search other person's name by typing the name of that person under the **Search** box and select **Name** under the **by** box.
- Then the system will search through the database for that person's name and show all the particulars about that person.


http://localhost/5thRC/user/search/student_search_result.asp - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss
Address http://localhost/5thRC/user/search/student_search_result.asp
Go
Done
Local intranet
Start CD Pl... user ... ITW ... http... Micro... Explo... Main... feedb... Pleas...
7:46 AM

Search result

2 record(s) found.

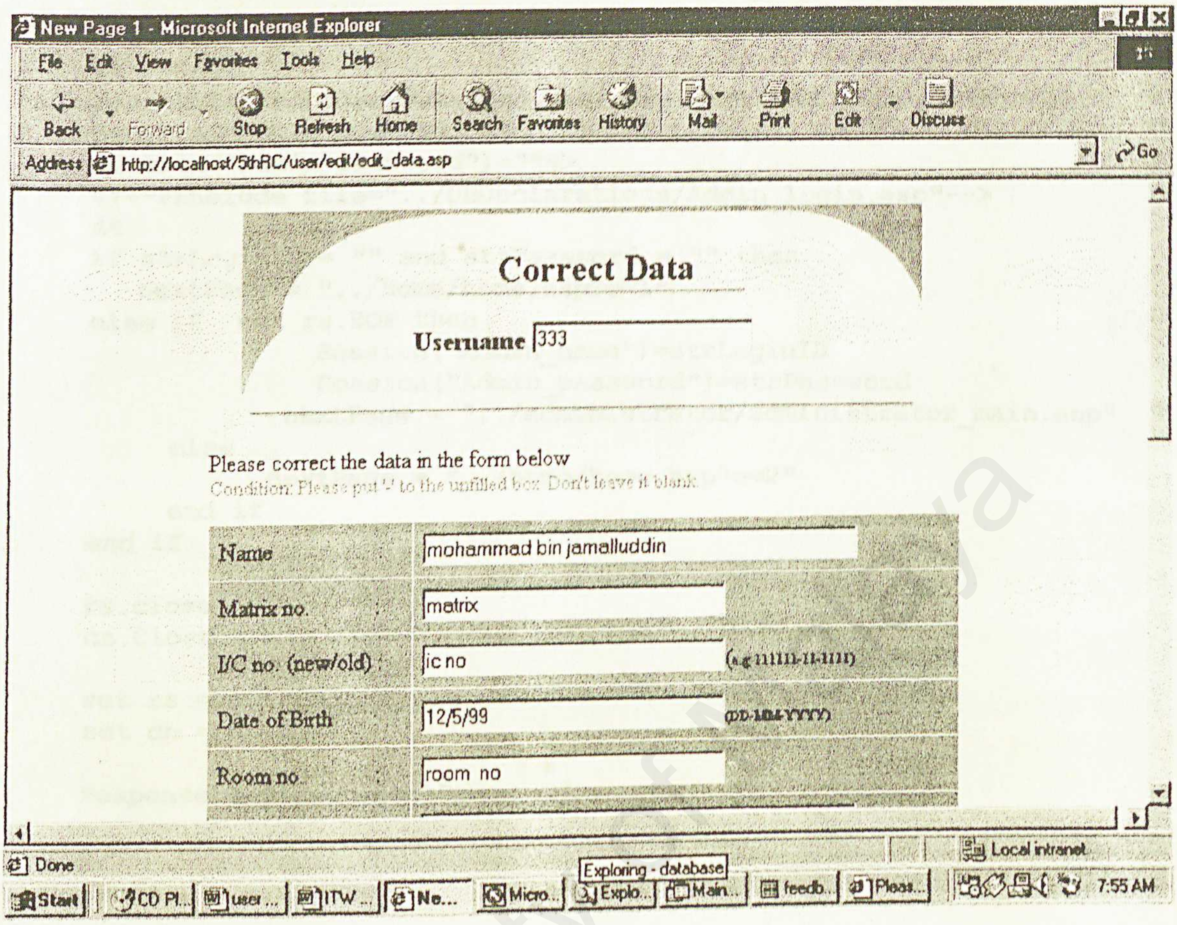
Name	Matriz no	I/C no	Date of Birth	Room no	Faculty	Address (home)	Tel (home)	Tel (H/P)	Hobby	Motto
goh wei ming	wek 98018	71003-05-5951	03-10-1977	a314	FSKTM	Rasah Jaya	016-2949021	06-6312823	playing and traveling	who are you
goh wei ming	wek98018	771003-05-5951	10/3/77	a314	FSKTM	Desa Kiara Condominium 60000 Jalan Damansara Kua	03-77270688	016-2949021	sports	if you can see yourself like others do, you would

[User Main Page] [Logout]

Figure 6.5 Search Result

- This is search result of the searching that had been performed.

6.4 Update Data


New Page 1 - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss
Address http://localhost/5thRC/user/edit/edit_data.asp
Go
Done
Local intranet
Start CD Pl... user ... ITW ... Ne... Micro... Explo... Main... feedb... Pleas...
Exploring - database
7:55 AM

Correct Data

Username	333

Please correct the data in the form below

Condition: Please put '-' to the unfilled box. Don't leave it blank.

Name	mohammad bin jamalluddin	
Matrix no. :	matrix	
I/C no. (new/old) :	ic no	(e.g 111111-11-1111)
Date of Birth	12/5/99	(DD-MM-YYYY)
Room no. :	room no	

Figure 6.6 Update Data

- This is the page showing the data that the user had sent in. The user can go to this page by clicking the **Update Data** on the user main page.
- User can correct his/her data here to update the information that had been sent.
- After that, the user has to press the **Update** button to submit the updated data to the database.

Coding

administrator login code

```
<%option explicit%>
<%
dim strLoginID, strPassword, sql, rs , StrDSN , cn , nextPage
Session("Admin_name")=""
Session("Admin_password")=""%>
<!--#include file="../DBDeclarations/Admin_login.asp"-->
<%
if strLoginID = "" and strPassword = "" then
   nextPage = "../home/home.asp?e=1"
else if  not rs.EOF then
             Session("Admin_name")=strLoginID
             Session("Admin_password")=strPassword
          nextPage = "../administrator/administrator_main.asp"
     else
          nextPage = "../home/home.asp?e=2"
     end if
end if

rs.close
cn.Close

set rs = nothing
set cn = nothing

response.redirect nextPage

%>
```

user login code

```
<%option explicit%>
<!--#include file="../DBDeclarations/student.asp"-->
<%
dim strLoginID, strPassword, sql, rs , StrDSN , cn , nextPage
Session("UserName")=""
Session("UserPassword")=""


'Instantiate a Recordset object
Set rs = Server.CreateObject("ADODB.Recordset")

strLoginID = Request.Form("UserName")
strPassword = Request.Form("UserPassword")

  'Open a recordset using the Open method
  'and use the connection established by the Connection object
sql = "SELECT UserName, UserPassword FROM student_table " & _
     "WHERE  UserName= '" & strLoginID & "' and UserPassword ='"
&strPassword &"'"

rs.Open  sql, cn

if strLoginID = "" and strPassword = "" then
   nextPage = "../home/home.asp?e=3"
```

```
    else
       nextPage = "../home/home.asp?e=4"
    end if

    while  not rs.EOF
         if   strLoginID= rs("UserName")and  strPassword=
    rs("UserPassword")then
                   Session("UserName")=strLoginID
                   Session("UserPassword")=strPassword
                   nextPage = "../user/user_main.asp"
         end if
    rs.moveNext
    wend

    rs.close
    cn.Close

    set rs = nothing
    set cn = nothing

    response.redirect nextPage

    %>
```

this is the database declaration to open connection

```
   <%
   StrDSN = "FILEDSN=MainDSN.dsn"

   Set cn = Server.CreateObject("ADODB.Connection")
   cn.Open StrDSN

   'Instantiate a Recordset object
   Set rs = Server.CreateObject("ADODB.Recordset")
   strLoginID = Request.Form("LoginId")
   strPassword = Request.Form("Password")
     'Open a recordset using the Open method
     'and use the connection established by the Connection object
   sql = "SELECT Admin_Name, Admin_Password FROM Admin_login " & _
         "WHERE Admin_Name = '" & strLoginID & "' and Admin_Password ='"
   &strPassword &"'"

   rs.Open  sql, cn
   %>
```

Bibliography

[1] Fertuck, Len, *System Analysis & Design*, Wm. C.Brown Communications Inc, 1995

[2] Pfleeger, Shari Lawrence, *Software Engineering Theory and Practice*, Prentice Hall, 1998

[3] Kendall & Kendall, *System Analysis And Design*, Prentice Hall, 1999

[4] Cowart, Robert, *Windows NT Server 4*, Sybex, 1997

[5] Wynkoop, Stephen, *Special Edition Using Microsoft SQL Server 7.0*, Que, 1999

[6] "Introduction: Oracle 8i vs SQL Server 7.0" http://oracle.com/html/8i_vs_sql.html

[7] Mueller, John Paul, *Microsoft Internet Information Server 4*, Osborne, 1998

[8] Siler, Brian, *Special Edition Using Visual Basic 6*, Que, 1998

[9] http://localhost/iishelp/VBScript/htm/vbs17.htm)

[10] http://localhost/iishelp/Jscript/htm/js0.htm

[11] Husain, Kamran, *ActiveX developer's resource*, Prentice Hall PTR, 1997

[12] http://www.corel.com/paint9/index.htm

[13] Johnson, Scot, *Special Edition Using Active Server Page*, Que, 1997

[14] Silver & Silver, 1989

[15] McNurlin & Sprague, Prentice Hall