ACADEMIC ADVISOR SYSTEM (AAS)

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ABSTRACT

Academic advising is crucial in helping students to excel in their academic field. A good educational plan lays the strong foundation for the positive university experience. Regular meetings with academic advisors will ensure academic success. In attempt to increase the communication effectiveness among students and advisors, the idea of developing an electronic academic advisory system for the Faculty of Computer Science and Information Technology, University of Malaya emerge.

The Academic Advisor System (AAS) has tremendous potential to provide students with a support system which is more personal and individual interactions with the academic advisors. This is to ensure and increase efficiency of student's information management for the advisors besides to aid them in keeping track of student's progress. On the other hand, the students will also gain benefits by getting more guides and tips in pursuing excellence.

This report will provide a brief description of the Academic Advisor System (AAS). It also includes the functions of the system where it can help the students and lecturers to achieve better communication pattern. The system contains three basic modules that are, Administrator Module, Academic Advisor Module and Student Module.

The Academic Advisor System (AAS) is a fully web-based system that features services that allows students to get information from the report, their academic advisors profile as well as the ease of contacting the advisors directly. This is a window based system that can be easily used by the users who are familiar with windows application.

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Thanks to God, because of his blessing I finally manage to complete this WXES 3181 report successfully.

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Chapter 1: Introduction

1.1 Introduction

The Internet is a worldwide computer network which links up millions of computer networks as well as machines belongs to private individuals. This network of networks is linked together using a common communication protocol called Transmission Control Protocol/Internet Protocol (TCP/IP).

Internet is a new technology in this information world. It is a vast network of computers all over the world that has changed the traditional way of getting information more efficient and effectively. The Internet has revolutionized the computer and communications world like nothing before which is at once a world wide broadcasting capability, a mechanism for information dissemination and a medium for collaboration and interaction between individuals and computers.

The World Wide Web (often abbreviated as WWW or Web) is the fastest growing component of the Internet. The web comprises a virtual web of connecting documents, graphics, videos and sounds hosted on thousands of web servers worldwide. It is made up of millions screens or pages of information. The collection of pages created by an individual or an organization is better as websites.

Today, both Internet and World Wide Web are experiencing explosive growth and unparalleled interest and web pages are being created at an astonishing rate. It has become the territory of information, entertainment, news and academic resources for almost everyone. More and more people spend time in isolation “surfing” the Internet to get knowledge and information as well connecting to other people around the world through electronic mail, chat, live web camera and internet phone.

Thus, inline with the high rate use of the Internet, the electronic Academic Advisor System (AAS) is being developed for the use of staff and students of

Faculty of Computer Science and Information Technology. AAS is a web-based system that is used to assist academic advisors to get in touch with students under their supervision to improve communication as well as keeping track of the students' academic background electronically.

AAS will also aid academic advisors in updating report after meetings with students has ended for personal references. Besides that, students can also use this Academic Advisor System to view their academic advisors personal particulars and set an appointment with the advisor via e-mail.

1.2 Project Objectives

The objectives of developing the Academic Advisor System are as follows:

i. To design and develop a web-based system for fast reference with relevant data about students and their academic advisor.

ii. To develop a secured system that is protected with User ID and Password whereby only authorized user can gain access. This is to avoid unnecessary modification by unauthorized users to maintain the data integrity.

iii. To develop a system that can aid academic advisors in organizing students under their care. AAS allows academic advisors to view list of students under their supervision as well as the student's personal details and current CGPA.

iv. To develop a system that can assist academic advisors as well as students in setting appointments and updating the students' information after meetings.

v. To enable students to view or modify their personal details, view their latest CGPA and previous appointments with the academic advisors. On top of that, the students are also capable of viewing their academic advisor's particulars.

vi. To upgrade the current manual system to a new online system for greater productivity and better communication trend.

1.3 Project Scope

The Academic Advisor System (AAS) project consists of three major modules that are the Administrator Module, Academic Advisor Module and Student Module and involves three main users; administrator, academic advisor and student.

1.3.1 Administrator Module

This module can only be access by an authorized administrator. It will provide detailed information about academic advisors and students such as name, department, electronic mail address and contact number. This module also contains the database maintenance and academic advisors' password changer. Other functions provided in the module are as follows:

i. Enable the administrator to maintain users log in information.

ii. Enable the administrator to view students' and academic advisors' databases.

iii. Sort students and academic advisors by department.

iv. Enable the administrator to provide relevant links to the information on the site.

v. Administrator holds the responsibility for students' examination results information.

vi. Search student function

1.3.2 Academic Advisor Module

This module includes the list of students that are under supervision of an academic advisor. The academic advisors can update any meetings report that had been held with any particular student. The functionalities of this module are elaborated below:

i. Enable academic advisors to view details of students that are under their supervision including their academic performance.

ii. Enable academic advisors to add meetings report with their students from the database.

iii. Enable academic advisors to send messages to their supervised students as well as receiving messages from their students.

iv. Academic advisors will also be able to view, edit and update their personal particulars and information such as their room number or timetable.

1.3.3 Student Module

This module is inclusive of the form for students to register and key in their own personal particulars in the database. On top of that, students are allowed to update their particulars in the database using their own User ID and Password given by the administrator. Other roles of this module are as follows:

i. Enable students to view and edit their personal particulars such as name, address, telephone number and so on.

ii. Enable students to view or change their password details from the database.

iii. Allow students to send messages to their academic advisors as well as receiving messages from the advisor.

iv. Allow students to view information about their academic advisors such as the advisor's timetable and room number.

1.4 Project Aims

The aim of this project is to develop a web-based system that will assist and facilitate both academic advisors and students at Faculty of Computer Science and Information Technology towards achieving effective academic advising system.

This system will put academic advisors at ease in supervising students provided with solid information and knowledge regarding the courses, programs, and students' details.

On top of that, this system could be access easily using a web browser such as Internet Explorer. AAS is made available at all times 24 hours a day besides providing a different access level according to types of users. This is to promise a secure environment for user to operate different task in the system.

1.5 Project Significance

This Academic Advisor System project is significant since the number of students in Faculty of Computer Science and Information Technology keeps on increasing every year besides more courses had been added in the learning syllabus. In order to ensure students' excellence, lecturers cum academic advisors play an important role in helping and guiding students to cope with their studies.

From the scenario given above, it would be improper to conduct an advising system without a computer based system to manage it. By implementing this project, it will facilitate faster dissemination of information effectively.

This system will assists academic advisors in keeping track of their supervised students in terms of their academic achievements. Besides that, this system will help academic advisors in updating meetings report after holding a meeting with a student. It also provides an option to print the report as a hard copy source. This is important if in case any disaster occurs, there is always a backup copy for the academic advisors' record.

By developing this project, indirectly it will increase the awareness of academic advising importances. Usually, students always underestimate the impact of strong and constant advising program. Students tend to overlook how tremendous potential of advising programs could benefit them.

1.6 Project Limitations

Academic Advisor System (AAS) can only be applied in Faculty of Computer Science and Information Technology as this is a pioneer system where it supplies detailed information of its users. It is better if this system is applied at FCSIT first and if the feedback gained is good or excellence, then only it is wise to consider implementing this system at other faculties in University of Malaya.

Besides that, this system does not support any online discussion between students and academic advisors. They are not allowed to do so because of the need to maintain the formality between students and their advisors. In addition, the academic advisors need to know and recognize the students under their supervision.

The system also couldn't provide pictures of students for the academic advisors to view or vice versa. Students and academic advisors will have to download it by themselves if they have any scanned photos. This may cause difficulties to both parties in recognizing each other.

1.7 Project Outcomes

This Academic Advisor System (AAS) project will produce a web-based system that will enable academic advisors to keep track of their meetings with their supervised students besides reviewing the students' achievements in academic field. AAS is expected to be a communicational web site with the following features:

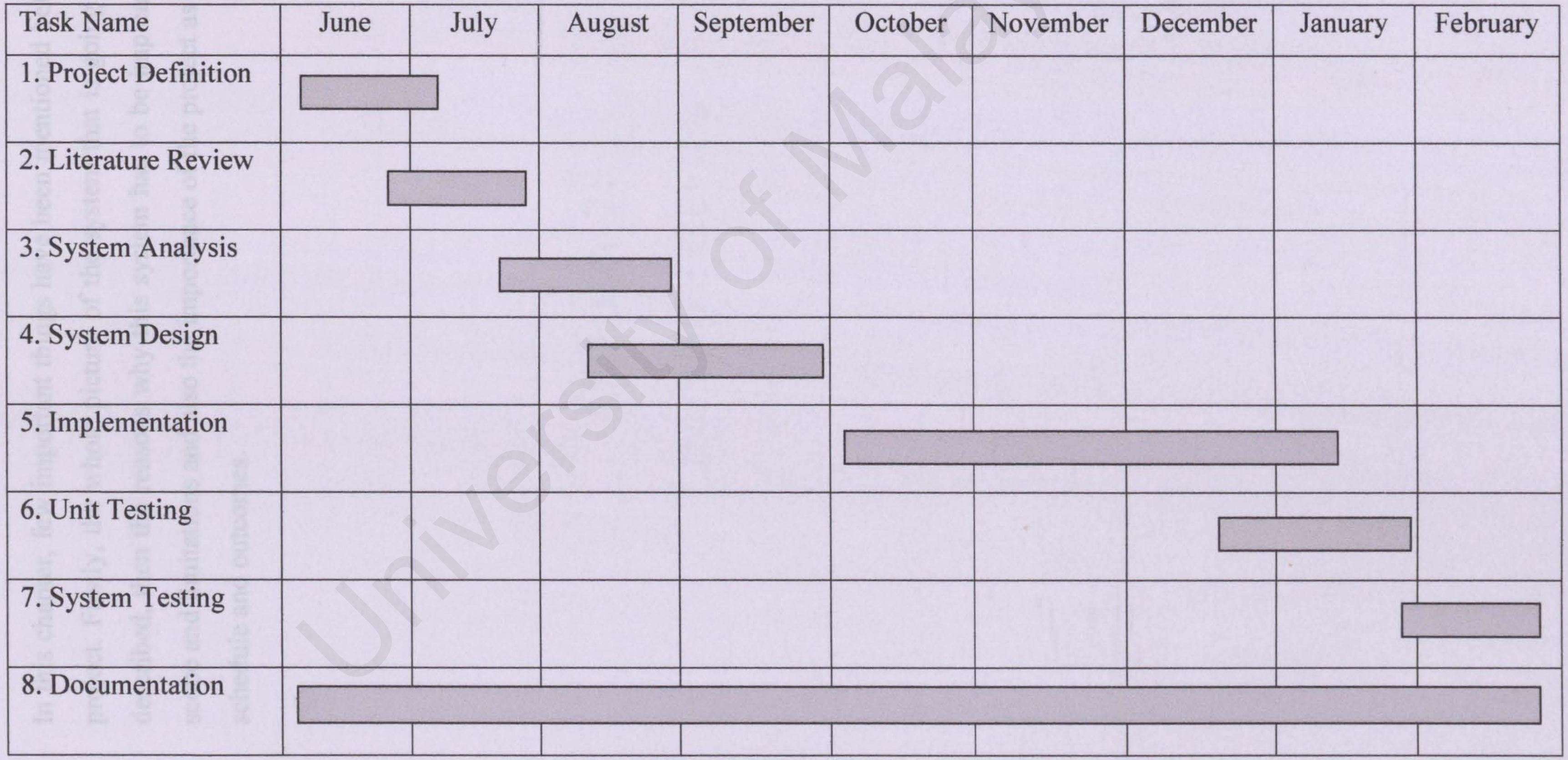
i. Main page with login form that will validate and classify the user according to their user types; administrator, academic advisor or student.

ii. Administrator module with the view of academic advisors and students database.

iii. Academic advisor module consists of the edit and view of personal profile, view of students list, information of each student, form for meeting updates, and send or receive messages to or from students.

iv. Student module consists of view of academic advisors report on previous meetings, view of academic advisor's information; view and form for personal information updates and sends or receives messages to or from academic advisor.

1.8 Project Schedule



Task Name	June	July	August	September	October	November	December	January	February
1. Project Definition	▨	▨							
2. Literature Review	▨	▨							
3. System Analysis		▨	▨						
4. System Design			▨	▨					
5. Implementation					▨	▨	▨	▨	
6. Unit Testing							▨	▨	
7. System Testing								▨	▨
8. Documentation	▨	▨	▨	▨	▨	▨	▨	▨	▨

Figure 1.1: Project Schedule

1.9 Summary

In this chapter, few important things have been mentioned before starting of the project. Firstly, the whole picture of the system that is going to build is briefly described, then the reasons why this system has to be implemented, the project scope and limitations and also the importance of the project as well as the project schedule and outcomes.

Chapter 2:

Literature Review

2.1 Role of Literature Review

Literature review is a way of studying and collecting information and knowledge background gained during the system development process. It is important because it could provide system developers with adequate information and understanding on the system developing techniques or skills as well as the methodologies used in the development process.

Besides that, literature review could also assist system developer to know more about the system that will be developed by reviewing and make assessment on existing systems with same or different concepts which are relevant and have been developed. This way, the system developer could make comparisons of their findings regarding their system with other systems. With the comparisons that can be made, the developer could determine the strengths and the weaknesses of the system and improve or enhance it before it is fully developed.

On top of that, literature review helps developer to get a better understanding on each concept that will be applied in the system development process and to compare tools and software that had been used to develop other systems. This is crucial in providing the developer with sufficient knowledge of several development tools to help them in choosing the right ones to develop their system.

In developing the Academic Advisor System (AAS), literature review is use to understand the workflows in managing information and processes. It will aid the developer with examples of existing similar system and provide adequate resources for the system development process.

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2.2 Approach to Literature Review

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).

To develop a system, a lot of information needs to be gathered before starting out with the project. Therefore, finding all the information is important to assist in deciding what are the objectives and the importance of developing this project. Besides that, this is also to ensure the development process of this project will flow smoothly and systematically according to plan.

Information can be found almost everywhere and it can be retrieve from various resources. Basically, each resource will yield different information and requires different method of sourcing. For example, information obtained from books or journals are different from information gathered from the internet. If internet is used to collect information, the keywords or phrases that are being used to find information will refer to various sites and most of the sites are different from each other.

2.3 Findings

There are many ways of collecting and gathering information needed to develop a system. Basically, all information that has been gathered to develop this Academic Advisor System (AAS) had been collected from two different categories of resources; those are printed resources such as reference books and past year thesis and electronic resources resulted from the internet.

2.3.1 Printed Resources

Printed resources are resources that can be seen, feel and touch physically such as books, articles, journals and newspaper cuttings. In order to collect information about this project workflow, some books had been used to study and find information about system development method such as system development life cycle (SDLC) and the development process models for example; waterfall model, prototype model and iteration and incremental model. Besides that, past year thesis of projects that are similar to this Academic Advisor System (AAS) also had been reviewed to get a bigger picture on how this project should be developed and implemented.

2.3.2 Electronic Resources

Electronic resources are resources that are related to the use of computers. Electronic resources can be viewed from the internet and portals. In developing this project, the internet had been used to find information about existing system that is similar to the Academic Advisor System (AAS). This is important for the developer to analyze and evaluate the existing system in terms of the advantages as well as the drawbacks to provide a better understanding of what is expected of the final product.

Moreover, internet also had been used to track information about certain development tools that can be use to develop this project. This can help the developer get a better perspective and gain more understandings on the development tools as well as aiding them to make decisions in choosing the right tools and software to develop the project.

2.4 Existing Systems

2.4.1 Dallas Baptist University (Dallas, Texas)

URL: https://webreg.dbu.edu/datatel/index_menu.html

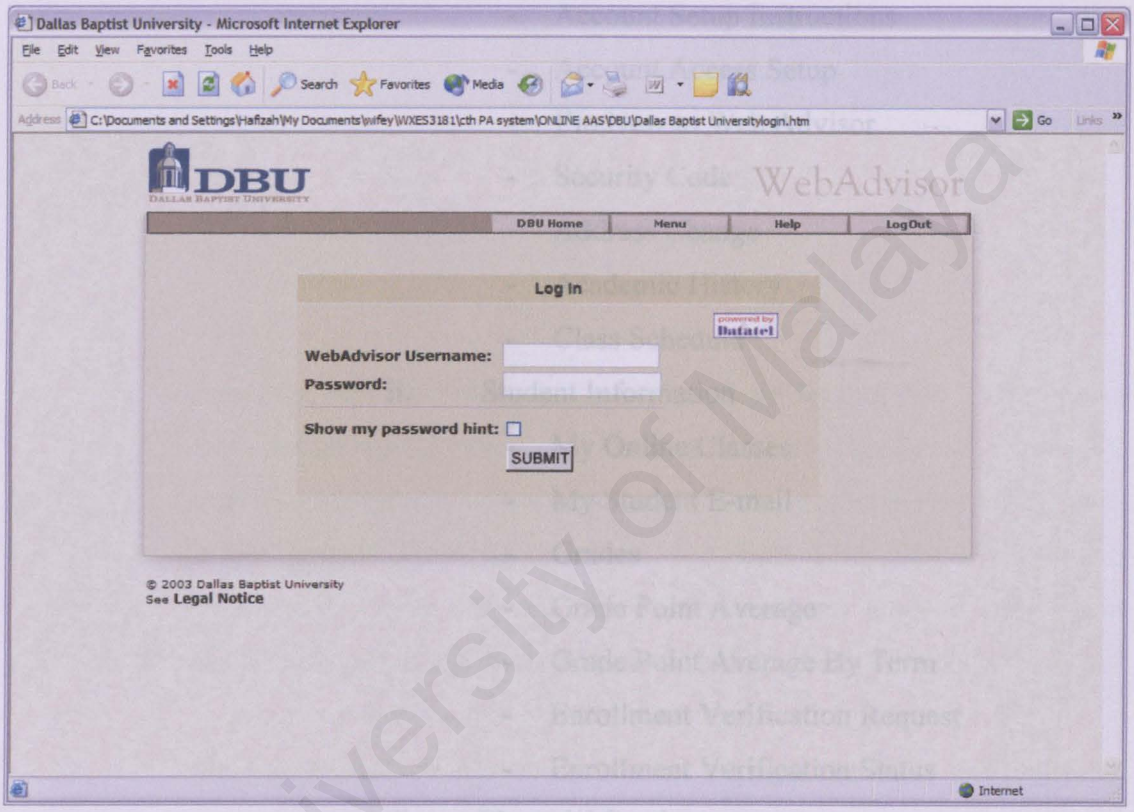

Dallas Baptist University - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address C:\Documents and Settings\Hafizah\My Documents\wifey\WXES3181\cth PA system\ONLINE AAS\DBU\Dallas Baptist Universitylogin.htm
Go Links
DBU
DALLAS BAPTIST UNIVERSITY
WebAdvisor
DBU Home
Menu
Help
LogOut
Log In
powered by Datatel
WebAdvisor Username:
Password:
Show my password hint: □
SUBMIT
© 2003 Dallas Baptist University
See Legal Notice
Internet

Figure 2.1: Dallas Baptist University Web Advisor

The Dallas Baptist University Web Advisor is good online program that caters for both students and advisors. It has many modules and the modules are divided into two users which are the students and the advisors. As for the students, the Web Advisor Student Services provide secure, convenient access to student academic and financial information. For the faculty and staff members, the Web Advisor Faculty and Staff Services provides secure, convenient access to a complete set of tools which Dallas Baptist University faculty and staff may use to perform student advising and final grade entry. The listings of some services provided by the Web Advisor for both students and faculty member are cited below.

a. Web Advisor Student Services

   i. Personal Profile
      - Account Setup Instructions
      - Account Access Setup
      - I'm New to Web Advisor
      - Security Code
      - Address Change
      - Academic History
      - Class Schedule

   ii. Student Information
      - My Online Classes
      - My Student E-mail
      - Grades
      - Grade Point Average
      - Grade Point Average By Term
      - Enrollment Verification Request
      - Enrollment Verification Status

   iii. Financial Services
      - Account Statement
      - Make A Payment

   iv. Web Registration
      - Register / Add Classes
      - Drop A Class
      - College of Adult Education Student Advising

b. Web Advisor Faculty and Staff Services

   i. Personal Profile
      - Account Setup Instructions

    - Account Access Setup
    - Security Code
    - Change Password
    - Address Change

ii. Faculty Services

    - Grading
    - Grade Change Request Form
    - Request an Incomplete Grade
    - Class Roster
    - Class Schedule
    - My Advisees
    - Advised But Not Registered

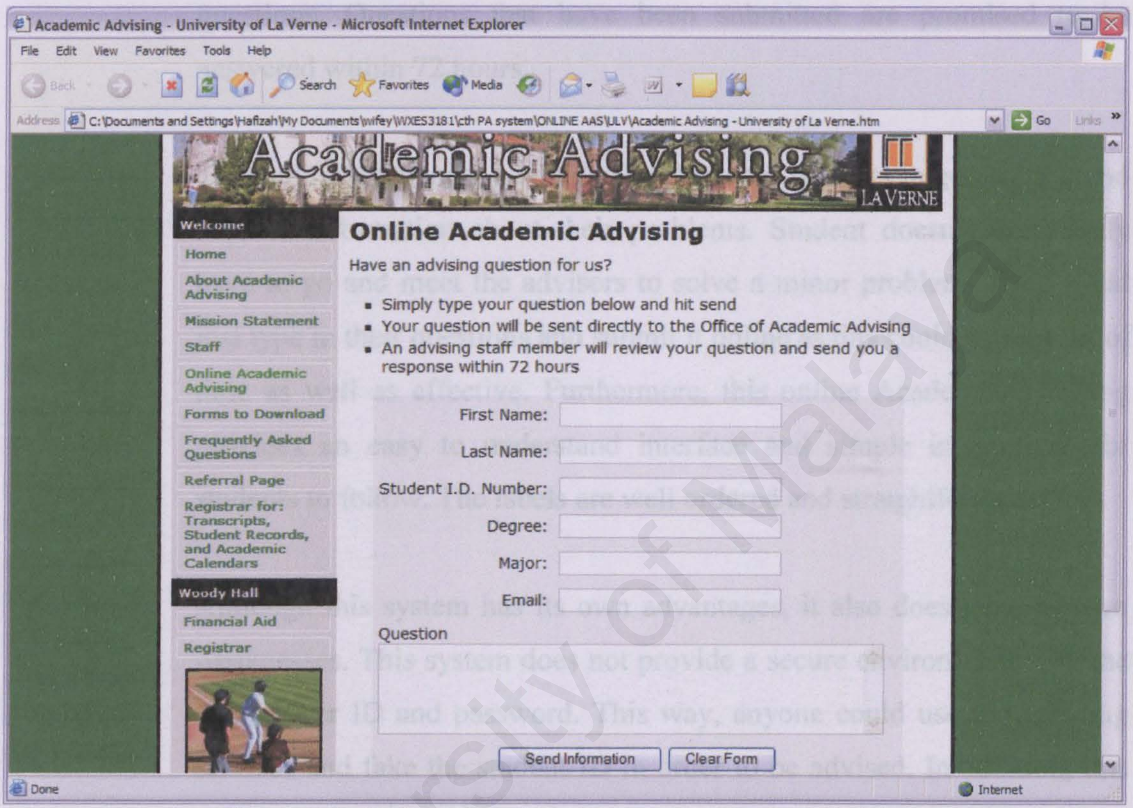
From the services listed above, it clearly shows that this Web Advisor provides all crucial information for students academically and financially. Advising program is only a small part of services that is embedded in this online system. This system has its own distinct advantages where it is protected by User ID and Password which are used to only allow authorized user to log on to the system and use all its services.

On top of that, it allows the advisor to view who are the registered advisees under their supervision in order to help them recognize and keep track of their academic record. Besides that, the advisor also is capable of giving out advice as well keep the record of the students who haven't registered to the Web Advisor System yet.

The Web Advisor is easy to understand and it is not complicated. The interface is user friendly and easy to comprehend because it provides user with understandable flow and labels. This system enhances the communication between students and advisors.

2.4.2 University of La Verne (South California)

URL: http://www.ulv.edu/advising/online-adv.phtml


Academic Advising - University of La Verne - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address C:\Documents and Settings\Hafizah\My Documents\wifey\WXES3181\cth PA system\ONLINE AAS\ULV\Academic Advising - University of La Verne.htm
Go Links
Academic Advising
LA VERNE
Welcome
Home
About Academic Advising
Mission Statement
Staff
Online Academic Advising
Forms to Download
Frequently Asked Questions
Referral Page
Registrar for: Transcripts, Student Records, and Academic Calendars
Woody Hall
Financial Aid
Registrar
Done
Internet

Online Academic Advising

Have an advising question for us?

- Simply type your question below and hit send
- Your question will be sent directly to the Office of Academic Advising
- An advising staff member will review your question and send you a response within 72 hours

First Name:

Last Name:

Student I.D. Number:

Degree:

Major:

Email:

Question

Send Information Clear Form

Figure 2.2: University of La Verne Academic Advising

This online Academic Advising is student oriented where the students are the main user. Basically, this university is sticking with the traditional academic advising method whereby students are assigned to an advisor and will work closely together in selecting a major and choosing course.

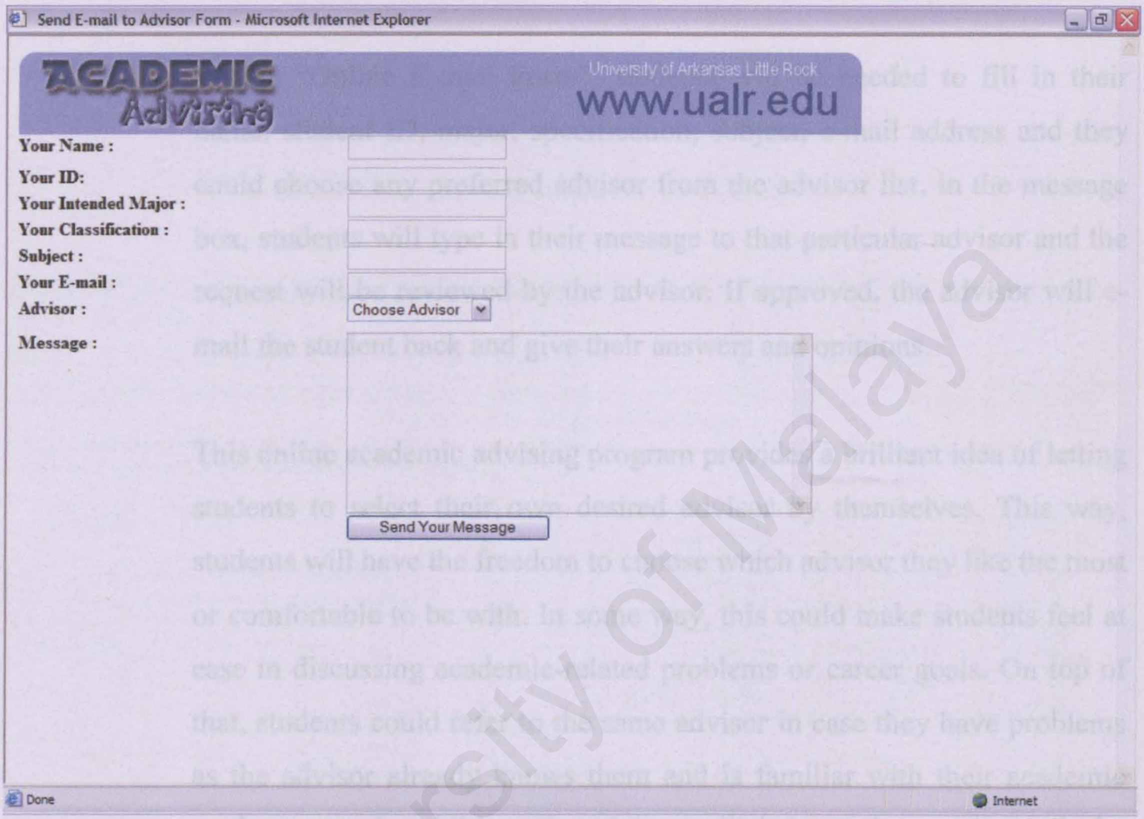
However, the university still provides the students with online advising services where they can get the answers for their curiosity regarding their academic performance. All the students have to do is just go to the web site that leads to the university's Online Academic Advising. There, students will be presented with a form. All they need to do is just type some of their personal particulars such as name, student ID, degree and major for identification purposes, simply type their questions and submit the form electronically through the website. The question will land to the advisor community and this community is responsible to answer those questions. Questions that have been submitted are promised to be answered within 72 hours.

This online Academic Advising somehow aid students in getting fast and reliable information about their problems. Student doesn't necessarily have to go and meet the advisors to solve a minor problem. They could just type in their questions and submit it online as this could saves a lot of time as well as effective. Furthermore, this online Academic Advising provides an easy to understand interface and simple instructions for students to follow. The labels are well ordered and straightforward.

Although this system has its own advantages, it also does have its own weaknesses. This system does not provide a secure environment with the use of user ID and password. This way, anyone could use the advising services and fake the student ID in order to be advised. In addition, this online Academic Advising does not allocate students to a specific advisor in order for them to seek advice. Due to this, academic advisors couldn't tackle major problems that are faced by students. All they can do is just answer questions that were mailed to them without knowing who is the particular student and how is their academic performance going on. Furthermore, students also do not know who had answered their questions and in case they might need further assistance or reference, they do not know who they should refer to. Besides, students have to key in their details repeatedly each time they want to seek for advices which are not practical at all.

2.4.3 University of Arkansas Little Rock (Little Rock, Arkansas)

URL: http://www.ualr.edu/aadept/e-advising.html


Send E-mail to Advisor Form - Microsoft Internet Explorer
ACADEMIC Advising
University of Arkansas Little Rock
www.ualr.edu

Your Name :

Your ID:

Your Intended Major :

Your Classification :

Subject :

Your E-mail :

Advisor : Choose Advisor

Message :

Send Your Message
Done
Internet

Figure 2.3: University of Arkansas Little Rock Academic Advising

Online academic advising program in this university is also a student oriented whereby the students are the target users. This online program basically helps students to search out for an advice by emailing the advisor.

Before a student could use this advising service, they are required to fill in an authorization form that can be downloaded from the website and fax it to the main office. Only after their request had been proved, they can use this online academic advising freely.

This online academic advising program is simple as it only provides e-mail services for students and advisors to communicate. Students could just browse to this web site and click on the "Online E-mail Form" to send an e-mail to any particular advisor.

In this "Online E-mail Form", students will be needed to fill in their name, student ID, major, specification, subject, e-mail address and they could choose any preferred advisor from the advisor list. In the message box, students will type in their message to that particular advisor and the request will be reviewed by the advisor. If approved, the advisor will e-mail the student back and give their answers and opinions.

This online academic advising program provides a brilliant idea of letting students to select their own desired advisor by themselves. This way, students will have the freedom to choose which advisor they like the most or comfortable to be with. In some way, this could make students feel at ease in discussing academic-related problems or career goals. On top of that, students could refer to the same advisor in case they have problems as the advisor already knows them and is familiar with their academic performance. In addition, the advisor will help students, who seek for their advices in course selections, planning a course load and many more.

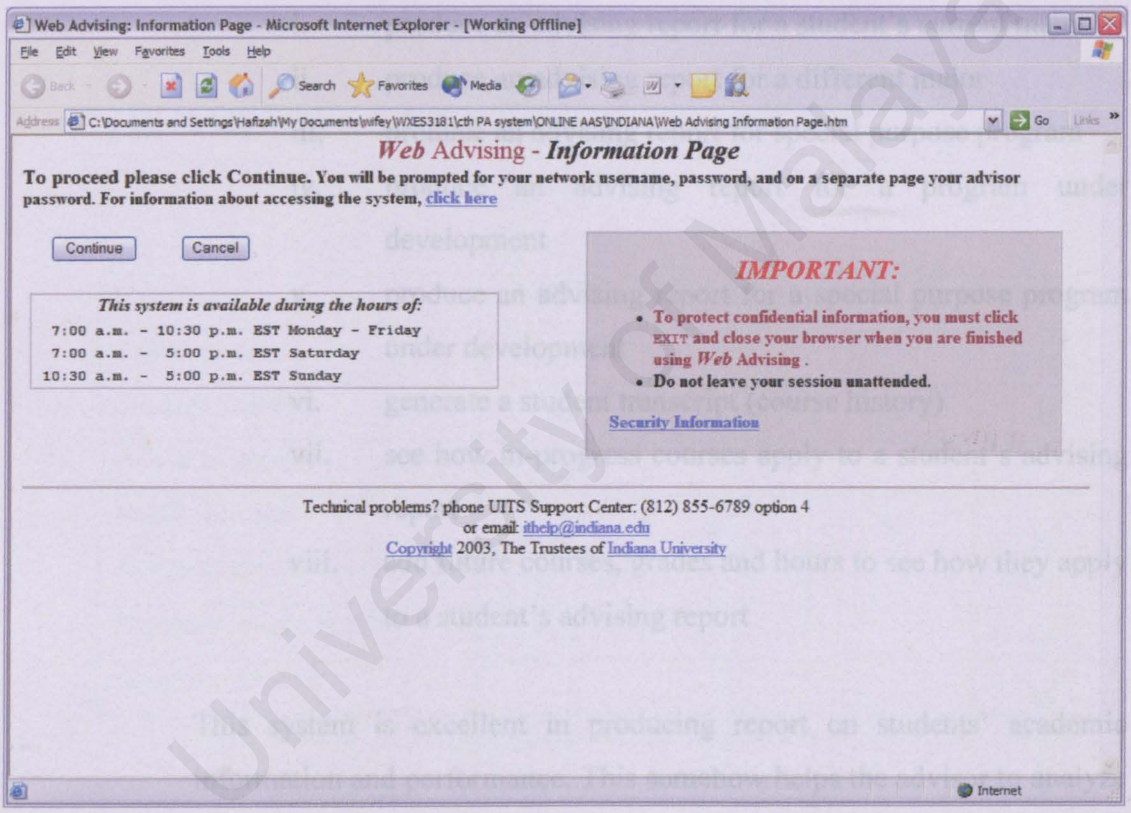
The drawbacks of this online academic advising program are that it does not shield the web site with user ID and password. This makes this web site as well as the advising program accessible to anyone. Besides that, the interface of this program is too simple and plain as it only provides basic information and requirements of this online academic advising program.

Students may find it hard to understand the content of this online advising program as the order of the labels and content is not properly organized.

Furthermore, this online program does not provide students or the advisor with ample information about student's academic achievement and performance such as grade point average by terms or cumulative grade point average.

2.4.4 Indiana University (Bloomington, Indiana)

URL: http://phoenix.indiana.edu/~www2adv/pub/


Web Advising: Information Page - Microsoft Internet Explorer - [Working Offline]
File Edit View Favorites Tools Help
Back Search Favorites Media
Address C:\Documents and Settings\Hafizah\My Documents\wifey\WXES3181\cth PA system\ONLINE AAS\INDIANA\Web Advising Information Page.htm
Go Links
Continue
Cancel
Internet

Web Advising - Information Page

To proceed please click Continue. You will be prompted for your network username, password, and on a separate page your advisor password. For information about accessing the system, click here

This system is available during the hours of:

```
  7:00 a.m. - 10:30 p.m. EST Monday - Friday
  7:00 a.m. -  5:00 p.m. EST Saturday
 10:30 a.m. -  5:00 p.m. EST Sunday
```

IMPORTANT:

- **To protect confidential information, you must click EXIT and close your browser when you are finished using *Web* Advising .**
- **Do not leave your session unattended.**

Security Information

Technical problems? phone UITS Support Center: (812) 855-6789 option 4
or email: ithelp@indiana.edu
Copyright 2003, The Trustees of Indiana University

Figure 2.4: Indiana University Web Advising

Web advising program at Indiana University is a web-based student advising system for use by authorized faculty and staff advisors. It provides secure web access to the advising system. This is a good system as it caters both students and especially advisors needs of information.

Before a user could access this Web Advising System, they will be prompted for their network username, password and followed by IUCARE advisor PIN. This is to really ensure that only students from Indiana University could gain access to the information as it is confidential.

This Web Advising System could perform several tasks in producing information for advising purposes such as:

i. produce an advising report for a student's current major
ii. produce an advising report for a different major
iii. produce an advising report for special purpose program
iv. produce an advising report for a program under development
v. produce an advising report for a special purpose program under development
vi. generate a student transcript (course history)
vii. see how in-progress courses apply to a student's advising report
viii. add future courses, grades and hours to see how they apply to a student's advising report

This system is excellent in producing report on students' academic information and performance. This somehow helps the advisor to analyze the academic achievement of students under their supervision. This allows the advisors to tackle student's academic problems and constraints in helping them to excel in the academic field.

This web advising system also keeps record of students' personal details. Therefore, students does not need to key in their personal particular each time they wanted to use the advising service unlike other advising programs.

This system also has several weaknesses which this system in not available 24 hours a day. Users need to take note of when the system is available at its services and this may cause difficulties for users who need immediate information. Furthermore, the interface of this web advising system is too plain and unattractive where the font type is not consistent.

2.4.5 Comparisons of Existing Systems

Criteria	DBU	La Verne	UALR	IU
Authentication	✓			✓
Student Details	✓	✓	✓	✓
Advisor Details	✓			
Email Service	✓	✓	✓	✓
Assign student to an advisor				
Students' exam results	✓			✓
Generate reports				✓

Table 2.1: Comparisons of Existing Systems

2.5 Development Tools

In this section, analysis is made on development tools that may be used in the development of this Academic Advisor System (AAS) to aid the developer in making decision of choosing the right tools for the development process.

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

i. Operating System
ii. Web Application Development Tools
iii. Database Management System
iv. Data Access Technology
v. Web Programming Technology
vi. Web Server

2.5.1 Operating System

Operating System is a program that was first loaded from boot and responsible to manage other programs in a computer.

There are various types of operating Systems that exist such as Linux, Unix, Novell and Windows. However, this literature review will only carry out analysis on Windows Operating Systems, which are Windows 2000 and Windows XP.

2.5.1.1 Microsoft Windows 2000 Professional

Windows 2000 Professional which is built on NT Technology offers a solid reliability and improved manageability that simplify desktop management. Its integrated Web capabilities and broad support for mobile computers and hardware devices make it easy for business users to connect to the Internet and work anywhere, anytime.

Some benefits that have been identified in Windows 2000 Professional are:

i. Reliability

Windows 2000 Professional is significantly more reliable compared to Windows 95 or Windows 98 technology. It offers high system uptime, dynamic system configuration and resilience to application failures.

ii. Manageable and Easy to Use

The support for standards-based security in Windows 2000 Professional protects corporate data in stand-alone and networked environments. In addition, it offers an intelligent user interface that adapts to the way users work thereby making the users more efficient.

iii. Built for Mobile Users

Windows 2000 Professional extends the capability of notebooks through support for Advanced Configuration and Power Interface (ACPI), Smart Battery and Advanced Virtual Private Network (VPN). The improved hardware support in Windows 2000 Professional includes support for the latest hardware standards, including Universal Serial Bus (USB), Infrared Data Association (IrDA), and IEEE 1394.

iv. Internet - enabling Businesses

The built-in Internet Explorer (IE), provides users with a faster and richer Internet experience. With support for Dynamic HTML (DHTML) and Extensible Markup Language (XML), it offers a powerful platform for developers to create highly scalable end-to-end e-commerce and line-of-business web applications.

One of the main problems of Windows 2000 Professional is compatibility. Windows 2000 isn't compatible to all hardware and software. Though Microsoft is working on an added driver database most likely there is a chance you could experience problems with hardware, with no drivers installed or the wrong drivers installed.

2.5.1.2 Microsoft Windows XP

Based on the Windows NT kernel, known for its stability and performance, Windows XP brings a whole new life to the home computer. With the strengths of Windows 2000 Professional and the best business features of Windows 98 and Windows Me, Windows XP Professional is the best desktop operating system for business.

Windows® XP Home Edition is a smarter, simplified operating system that lets user stay connected to what's important to them, from friends and family to the Internet. With the new Windows engine, Windows XP Home Edition offers greater reliability and dependability than ever before in a home operating system.

Microsoft Windows XP is reliable as it provides many features and some of it is

i. Built on the new Windows engine – Microsoft Windows XP is built on the proven code base of Windows NT® and Windows 2000, which features a 32-bit computing architecture and a fully protected memory model.

ii. Windows File Protection - Prevents you or your applications from accidentally changing the core operating system files. This helps protect your system proactively and automatically.

iii. Side-by-side DLL support - Provides a mechanism for multiple versions of individual Windows components to be installed and run "side by side".

Besides that, Microsoft Windows XP is also easy to use where it provides a fresh and friendly visual design as it is also adaptive to user environment. Furthermore, it enhances the security of the computer by utilizing the Internet Connection Firewall. In addition, Microsoft Windows XP for the Professional Edition provides several other features that can aid in networking solutions such as Remote Assistance and Network Setup Wizard.

An excellent key feature of Microsoft Windows XP is the System Restore. The System Restore feature enables users and administrators to restore a computer to a previous state without losing data. System Restore automatically creates easily identifiable restores points, which allow you to restore the system to a previous time.

2.5.2 Web Application Development Tools

This section will describe and analyze several of the tools that will be considered in developing the Web applications such as Microsoft Visual Basic 6.0 and Macromedia Dreamweaver MX.

2.5.2.1 Microsoft Visual Basic 6.0

Visual Basic is an extremely powerful, full-featured application development tool that utilizes the key features of Microsoft Windows. Interface can be created visually using this software. This will facilitate the user to create the interface before using the programming language.

Visual Basic 6.0 is able to produce Graphical User Interface (GUI) application. It is a method where a user gives instructions and the programs produced the output or decision known as user interface. This eliminates the traditional window programming styles. Users just need to plan their program's logic as well as designing the codes well without need to know how to build the interface components such as frames, command buttons and many more.

Here are several characteristics and features of Visual Basic:

i. Provide complete tools to integrate a database with other applications.

ii. Automatic data binding with programming codes.

iii. Drag and drop function to help user to use it and a record set can be created using this function.

iv. Easy to generate forms and reports with the drag and drop data-bound control functions.

2.5.2.2 Macromedia Dreamweaver MX

Macromedia Dreamweaver MX provides an environment that has visual layouts; supports code editing and hold the characteristics of a powerful Web page development.

It also has the criteria of supporting the Cascading Style Sheet (CSS) design that enable a Web page being coded efficiently.

In addition, Macromedia Dreamweaver MX also embedded with graphic editing functions where any changes in the graphics could be with Macromedia Dreamweaver MX itself without using any other graphic editing software.

Moreover, it also supports the environment of Web site creation that uses scripting languages such as PHP, HTML and many others.

2.5.3 Database Management System

Database management system or better known as DBMS is specialized computer software available from computer vendors that is used to create access, control and manage the database. The DBMS is purchased from a database technology vendor such as Oracle, IBM, Microsoft or Sybase.

2.5.3.1 MySQL

MySQL is database software which integrates highly with Hypertext PreProcessor (PHP). There are several PHP tools that can utilize to manage and maintain MySQL database.

MySQL is aimed for developing a mid-range Web whereby the selection and extraction of data is more important compared to transaction supports.

Compared to Microsoft Access, MySQL is faster and more efficient.

2.5.3.2 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.

The revolutionary 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 its 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. Besides that, Oracle8*i* provides special tools and facilities for web-enabling a database.

2.5.3.3 Microsoft Access 2000

Microsoft Access 2000 is a Windows based database management. It is a personal computer relational database management system that supports the SQL language standards.

A database is easy to be designed using this tool. Users can generate tables, forms and reports easily using simple buttons. Data in Microsoft Access can be shared by other Microsoft Office Application such as Microsoft Word 2000 and Microsoft Excel 2000.

Access 2000 also supports the usage of SQL Language. Request for certain data and tables can be done using SQL. If the users are not familiar with SQL Language, they also can request the data using tools provided by Microsoft Access 2000.

in addition, Microsoft's Access database product contains a query facility that allow the developer to visually (point and click) develop a query. The developer simply selects from database tables, columns, and rows to include in a query. If desired, the developer can view and edit the command-level SQL code that implemements the query.

The database in Microsoft Access also easy to be accessed with the data access technology such as Active Data Object (ADO) and Open Database Connectivity (ODBC).

Microsoft Access 2000 is not powerful enough to develop most enterprise-level application, but it is more than adequate to use in prototyping an application's user interface screens.

2.5.4 Data Access Technology

Data access technology is essential to access the data in the database. A number of technology is available nowadays such as ODBC and ADO.

2.5.4.1 Open Database Connectivity (ODBC)

Open Database Connectivity (ODBC) is an open standard method of accessing data. The data to be accessed needs an interpreter (driver), which understands the format of the stored data, and a connection manager that determines how the connection needs to be made. All this information is stored in a so-called Data Source Name.

Besides that, ODBC also is one type of middleware. Middleware is the layer of utility software that sits in between application software and systems software to transparently integrate differing technologies so that they can interoperate.

ODBC tools allow applications program to work with different database management systems without having to be rewritten to take into consideration the nuances and differences of those database management system (DBMS).

ODBC is important for Internet technology database system. Any applications that use ODBC interface can process the database according to ODBC standard without changing the programming codes.

2.5.4.2 ActiveX™ Data Objects (ADO)

ADO enables client applications to access and manipulate data in a database server from a variety of different vendors in the same manner. With ADO, data is updated and retrieved using a variety of existing methods including SQL. In the context of ASP, using ADO typically involves writing script procedures that interact with a database and use HTML to display information from data sources.

In ADO, the object hierarchy is de-emphasized. Unlike Data Access Objects (DAO) or Remote Data Objects (RDO), developers do not have to navigate through a hierarchy to create objects, because most ADO objects can be independently created. This allows the developer to create and track only the objects that is needed. This model also results in fewer ADO objects, and thus a smaller working set.

ADO supports key features for building client/server and web-based applications, including the following:

i. Independently-created objects

ii. Batch updating

iii. Support for stored procedures with in/out parameters and return values

iv. Different cursor types, including the potential for support of back-end-specific cursors

v. Advanced recordset cache management

vi. Support for limits on number of returned rows and other query goals

vii. Support for multiple recordsets returned from stored procedures or batch statements

viii. Free-threaded objects for efficient web server application.

2.5.5 Web Programming Technology

2.5.5.1 Hypertext PreProcessor (PHP)

Hypertect PreProcessor (PHP) is a server-side HTML embedded scripting language which is Open Source and free. The primary goal of PHP is to allow web developers to write dynamically generated web pages rapidly. The actual power of PHP arises from the fact that it is possible to seamlessly access several other modules from PHP using the API support that PHP provides.

PHP is growing swiftly as an open source with contributions from PHP professionals all over the world. PHP has a number of advantages besides it is very simple to learn and use. PHP is capable of being fitted in a number of platforms, such as Linux, Microsoft Windows NT, and Windows 98, and Web servers, such as IIS, OmniHTTPd, plentiful databases and protocols, such as

SNMP and IMAP. The latest version PHP includes support for Java, Java Servlets and XML.

Among other capabilities that have been identified in PHP are:

i. PHP executes system functions, such as create, open, read from, write to, and close files on system, execute system commands, create directories and modify permissions.

ii. PHP assembles data from forms, save the data to a file, send data via email and return manipulated data back to the user.

iii. PHP supported Lightweight Directory Access Protocol (LDAP) which it provides APIs for writing LDAP client programs.

iv. PHP supports various protocols such as Mail protocols such as Interactive Mail Access Protocol (IMAP), Simple Mail Transport Protocol (SMTP) and Simple Network Management Protocol (SNMP).

v. Extensible Markup Language (XML), touted as the future Web language, is also supported. Web Distributed Data eXchange (WDDX), a technology derived from XML is also supported.

vi. PHP sets cookies and access cookie variables, start sessions and use session variables and objects, helps for authentication to restrict access to certain Web pages and to encrypt data.

On top of that, PHP combines well with MySQL database engine to design web database, accesses database, generate content and images on-the-fly, create a web interface for adding, deleting and modifying elements within database.

In addition, PHP also supports image generation and manipulation functions where PHP can generate images dynamically. PHP also supports the Portable Document Format or also known as PDF for distributing documents on the web.

Therefore, PHP plays a very important role in developing well-defined scripts for server-side processing besides being an elegant and robust server-side technology in the client/server model web computing. Ultimately, PHP can facilitate the creation of dynamic, user responsive, data driven web site.

2.5.5.2 Active Server Pages (ASP)

ASP stands for Active Server Pages is a Microsoft technology to support dynamic content for the World Wide Web. It is incorrect to consider ASP a language; ASP is an 'environment' that enables developers to create content and sites that don't rely on the static nature of the HTML specification.

ASP is a server-side scripting environment that can be use to create and run dynamic, interactive web server applications. With ASP, HTML pages, script commands and ActiveX components can be combined to create interactive web pages or powerful web-based applications.

ASP runs under three core scripting languages, although theoretically, any scripting language form may be used provided a suitable scripting engine can be sourced. The three core languages are Visual Basic Script (VBScript), JScript (Microsoft's incarnation of the JavaScript language) and PerlScript.

Following are some of the benefit of Active Server Pages (ASP):

i. ASP works with Windows NT and IIS to provide a comprehensive set of technologies that enable secure exchange of information over public network, access control to server resources and confident identification of server and client.

ii. ASP supports client/server programming. Thus, it can be used to build client/server applications.

iii. ASP is suitable for building multi-tier Internet and Intranet applications.

2.5.6 Web Server

A Web server is the server software behind the World Wide Web. It listens for request from a client, such as a browser for example, Internet Explorer or Netscape Navigator. When the server gets one request, it will process the request and returns some data. This data usually seizes the form of a formatted page with texts and graphics. The browser then renders this data to its best ability and presents it to the user.

2.5.6.1 Apache Server

Apache is a freeware that is terrifically documented, supported and maintained besides easy to install and configure in UNIX platform. It is available in precompiled and source form types.

There are two main versions of Apache which are the Apache 1.3 series and Apache 2.0 series. Although both versions are considered production quality, they differ in architecture and capabilities. Apache 1.3 has a modular architecture. User can enable or disable modules to add and remove Web server functionality as well as customizing Apache to improve performance and security. In addition to modules bundled with the server, there is a great number of third party modules, providing extended functionality. Apache 2.0 maintains the Apache 1.3 modular architecture and adds an additional extension mechanism that is filters. Filters allow modules to modify the content generated by other modules. They can encrypt, scan for viruses or compress not only static files but dynamically generated content.

In addition, Apache is very easy to configure. It utilizes three configuration files all of which are already preset to safe default behaviors. Users just need to specify a few file locations and name their server so that Apache can find its configuration files and the location of the document tree it is serving.

Below are listed some of Apache important features:

i. Apache it a plug-and-play replacement for NCSA Web servers

ii. Fixes bugs and security holes found on NCSA 1.3 and NCSA 1.4 servers

iii. Apache compiles better with the current HTTP requirements

iv. Apache offers several user authentication methods varying from flat-file user databases to indexed files and relational database support.

v. Apache includes an automatic index file selection where users can instruct the server to return any of several resources for directory requests.

vi. Apache servers can automatically negotiate content retrieval with a browser to derive various set of equivalent documents.

vii. User can customize the error responses with the use of files or scripts. The server will intercept an error and display the specified file or execute a Common Gateway Interface (CGI) that could perform on-the-fly checking of the problem. This way, server can return more meaningful error messages.

On top of all the features below, Apache also provides several security-related modules for securing and restricting access to the server such as authentication, access control and SSL/TLS.

In authentication, the modules allow users to determine the identity of a client, usually by verifying the username and password against a backend database. Apache includes modules to authenticate against plain text and database files. While in access control, Apache provides the mod_access module that can restrict access to resources based on parameters of the client request, such as the presence of a specific header or the IP address or hostname of the client.

The SSL/TLS or stands for the Secure Sockets Layer/Transport Layer Security protocols allow data between the Web server and client to be encrypted.

2.5.6.2 Internet Information Service (IIS)

Internet Information Service (IIS) is a group of internet servers with additional capabilities for Microsoft's Window NT and Windows 2000 Server operating systems. It provides the Web applications infrastructure that is reliable and manageable. IIS is Microsoft's entry to compete in the Internet server market that is also addressed by Apache, Sun Microsystems, O'reilly and others.

IIS comes with three default services: WWW, FTP and Gopher. Its Internet Service Manager (ISM) application controls these services on ISM itself or any other IIS server on the network. ISM is run from Windows NT Server or from Windows NT or Windows 95/98 workstation.

IIS includes security features where only authorized administrator has access to the content of the Web site. It works closely with the Microsoft Transaction Server to access databases and provide control at the transaction level. It also works with Microsoft's Netshow in the delivery of streaming audio and video, delayed or live.

In addition, IIS integrates highly with ASP s well as keeping the cost low for developing and maintaining a Web site.

2.6 Summary

In this chapter, the methods of literature review are presented. Systems similar to the proposed system are reviewed and compared. Basically, most of the similar systems are web-based systems. Tools such as Internet programming languages, browsers, database applications and others that can be used for developing the proposed system are also introduced. . Literature Review really helped me on how to get a better view on my proposed system, AAS and also to get a better understanding on its scope. In the next chapter, the approach of how to develop the system is discussed.

Chapter 3:
Methodology

3.1 Introduction

System development methodology is a standardized development process that defines a set of activities, methods, best practices, deliverables, and automated tools that system developers and project managers are to use to develop and continuously improve information systems and software. A common synonym is system development process.

Since system development methodology "executes" the system development stage of the system life cycle, it ensure that

i. A consistent, reproducible approach is applied to all projects.

ii. There is reduced risk associated with shortcuts and mistakes.

iii. Complete and consistent documentation is produced from one project to the next.

iv. Systems analysts, designers, and builders can be quickly reassigned between projects because all use the same process.

v. As development teams and staff constantly change, the results of prior work can be easily retrieved and understood by those who follow.

3.2 Development Model

Choosing a methodology is a crucial step in developing a system. system development methodology is a formal and consistent development process that define a set of activities, methods, good techniques, deliverables and automated tools for system developing and maintenance.

There are many types of system development model such as Waterfall Life-Cycle Model, Spiral Life-Cycle Model, Rapid-Prototyping Life-Cycle Model and Synchronize-and Stabilize Life-Cycle Model. Techniques in system development are like prototyping, object-oriented techniques and information engineering. These methodology are used to ensure the system development process is organized and meet the clients requirements. There are several reasons why modelling a process is so important in developing a system:

i. After writing down descriptions of the development processes, it forms a common understanding of the activities, resources, and constraints involved in software development.

ii. Creating a process model helps the developer find inconsistencies, redundancies and omissions in the process an in its component. As these problems are noted and corrected, the process becomes more effective and focused in building the final product.

iii. The model should reflect the goals of development, such as building high quality product, finding faults early in development, meeting required budget and schedule constraints, and fulfilled client's needs.

iv. Every process should be molded for the special situation in which it will be used. Building a process model helps the developer understand and know where the molding process should be done.

3.3 Waterfall Model with Prototyping

The Waterfall Model with Prototyping had been selected as the development method of the Academic Advisor System (AAS). Its paradigm provides a systematic, sequential approach to software development that begins at analysis phase to design, implementation and testing phases.

As shown in the Figure 3.1, the Waterfall model provides a prototype. This prototype is applied because of the need to improve understandings besides getting precise requirements from clients. Generally, prototyping is a partially developed product and involved in the early stage of the development process. It enables users and developers to examine some aspects in the proposed system as well as assess whether it meets the requirements and suitable for the finished product. Other situations where Prototyping is most beneficial are:

i. When project objectives are unclear
ii. Functional requirements are changing
iii. User is not fully knowledgeable
iv. Innovative, flexible designs that will accommodate future changes are not critical
v. Experienced team members

In addition, the Waterfall model is also included with feedback loops. Feedback loops are used to depict the iterative process that is going on within the model. For example, if a mistake is found during the Design phase that was caused by a fault in the Requirements phase, following the dashed upward arrow, the developer can backtrack from the Design phase up to the Analysis phase and hence, to the Requirements phase. There, the developer can make necessary corrections and move down to the Analysis where he could correct the specification document that reflects the requirements, and in turn, correct the design document. After that, design activity can be continued as usual.

The iterative process that occurs in the model helps developers to correct faults earlier where they don't have to wait until the Testing phase occur. This way, when the system components are assemble and combine, there will be less errors and developers will face less troubles in repairing those faults.

There are several other reasons why the Waterfall Model with Prototyping is chosen as the development model of the Academic Advising System (AAS):

i. It depicts the view of what is happening during each development process and provides developers with the sequence of events that are going to be encountered later on.

ii. The step-by-step development approach made this model easy to comprehend by the developers.

iii. With the existence of feedback loops, it creates more opportunities for developers to correct faults early during the development process without having to wait until the Testing phase occurs.

iv. Requirement changes by clients won't be a trouble anymore as the developer could just backtrack and change the requirements. After that, the developer might do some modification on the specification document and design document before proceeding with what has been left before.

v. Less error will be detected as the development process moving on to Unit and Integration Testing phase and System Testing phase. This will make the error correction activities simpler and much easier.

vi. Prototyping help the developers to understand the system requirements clearly and identify whether it meets the client's needs. It also helps to ensure the requirements are fully understood by both client and developer.

vii. This model works well in situations where project objectives are unclear, requirements are unstable, or users are not highly knowledgeable.

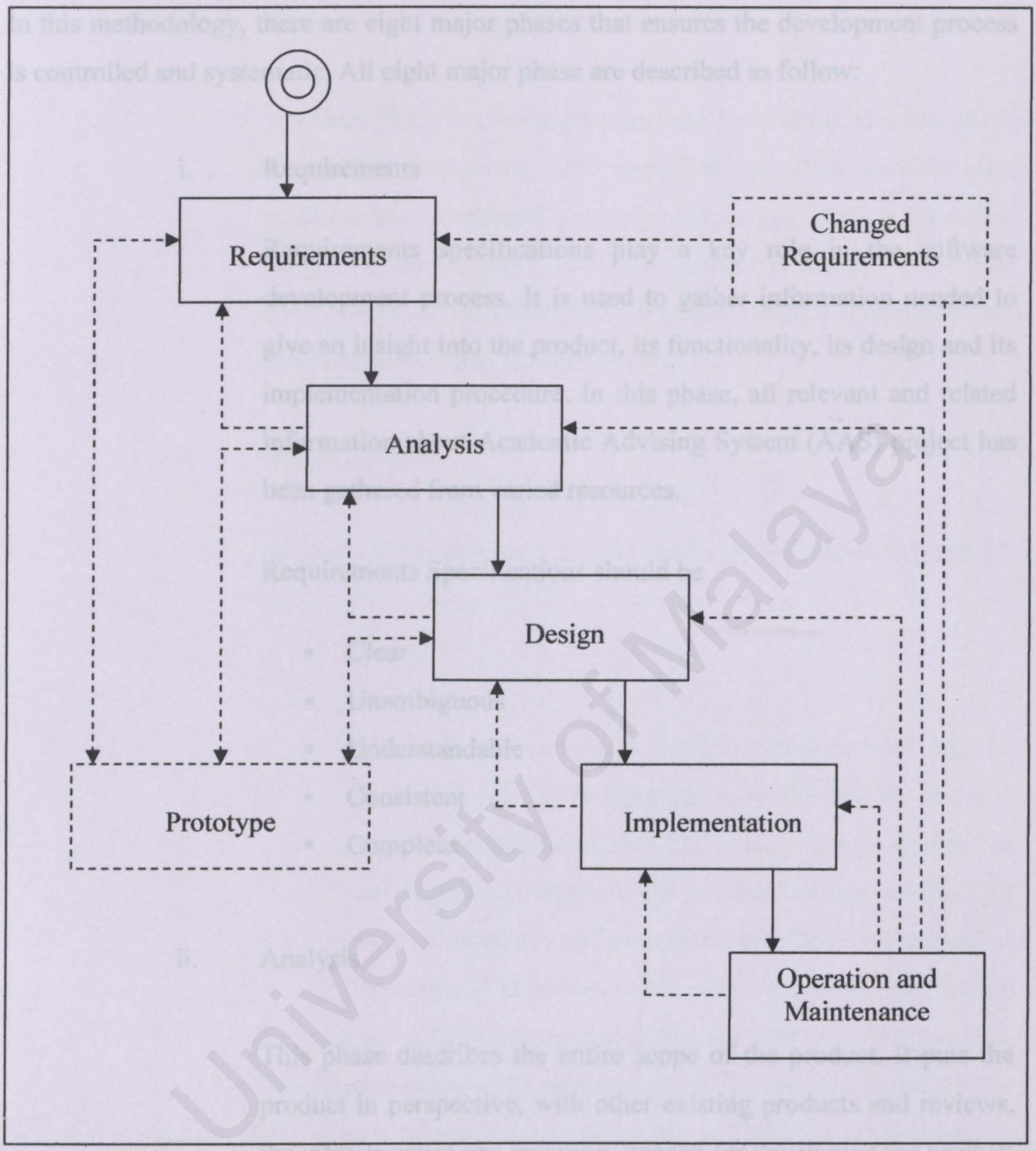


Figure 3.1: Waterfall Model with Prototyping

In this methodology, there are eight major phases that ensures the development process is controlled and systematic. All eight major phase are described as follow:

i. Requirements

Requirements specifications play a key role in the software development process. It is used to gather information needed to give an insight into the product, its functionality, its design and its implementation procedure. In this phase, all relevant and related information about Academic Advising System (AAS) project has been gathered from varied resources.

Requirements Specifications should be

- Clear
- Unambiguous
- Understandable
- Consistent
- Complete

ii. Analysis

This phase describes the entire scope of the product. It puts the product in perspective, with other existing products and reviews, the infrastructure and resources needed for developing the product including the required technical skills. Literature review on similar systems is done based on the requirements. Also, printed materials such as books and journals have been referred to perfect the analysis. By end of this phase, the systems' methodology has been determined.

iii. Design

The third phase in this development process take into accounts the system's requirements and specifications. The specifications undergo two consecutive design processes; the architectural design, in which the system as a whole is broken down into components, called modules. Then, each module is designed and this process is called detailed design.

iv. Implementation

In implementation phase, several processes are embedded such as:

Coding

In this phase, coding or programming activity will be done. This activity is a process of interpretations of every program specification that has been prepared during the design phase. Codes should be checked and verified for technical accuracy and completeness of the code as well as determine it implements the planned design, and ensure good coding practices and standards are used. In this stage, Macromedia Dreamweaver will be used to build up the system's prototype and interface. The software that will be used to develop this system is Hypertext PreProcessor (PHP) where MySQL will be used as the database system to store the input and information while Apache server will be used as server page.

Unit and Integration Testing

After various components of the system already undergo the coding phase, it will then be tested separately. Next, the components of the product are combined and tested as a whole. This is to make sure that all modules can be combined together without any errors.

System Testing

System Testing ensures that application programs written and tested in separate, work properly when they are integrated into the total system.

Acceptance Testing

This phase is the last phase of testing where clients will be called up to check and validate the system whether it meets their satisfaction or vice-versa. It is also to ensure that the system is understandable by user before it could be place into real-life.

v. Operation and Maintenance

This is the final stage where the system is delivered and installed on the client's computer. Post-delivery maintenance will be carried out if there are any changes needs to be done on the system. Post-delivery maintenance includes corrective maintenance and system enhancement. System enhancement can be divided into two; perfective maintenance and adaptive maintenance.

3.4 Information Collection Method

The process of information gathering is carried out in order to have a better understanding of the proposed system and also users' requirements. Below are the lists of several information gathering techniques that have been applied to collect information in determining the requirements of this Academic Advisor System:

i. Discussion

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

ii. Reference books and documentation

Collection of information from reference books and previous thesis had been done in order to get relevant information for the system development process such as system design and methodology. All books and documentation had been retrieved from University of Malaya's main library, Faculty of Computer Science and Information Technology's document room, bookstores and private collection.

iii. Internet surfing

Internet has been really useful in order to get quick information to develop this system. There are plenty examples of current system that are similar with the proposed system for viewings and comparing. Moreover, relevant information on web application, client-server technology and programming tools and tutorials can be found through web-based search engine. The search engines that were used to gather all this information includes Yahoo search, MSN search and Google search. As a result, the sources located can be divided into two, that is printed and electronic resources.

iv. Interview

Several informal interviews had been conducted with several lecturers of FSCIT. The purpose of this interview is to clarify the system requirements especially in designing the Academic Advisor part. Lecturers play an important role in academic advising as they are the person who acts as advisors to students. Due to this, their opinion and point of views toward AAS are very important to enhance the system functionalities.

3.5 Summary

In this chapter, the methodology for developing the system has been decided, as the Waterfall Model with Prototyping approach will be used. The user requirements analysis has been done and the needs are listed, the system requirement when developing and implementing the system are also covered. In the next chapter, the actual system design will be mainly focused, as the actual data flow processes will be covered.

Chapter 4:
System Analysis

4.1 Introduction

System Analysis is the study of a system and its components as a prerequisite to systems design, the specification of a new and improved system. It is a term that collectively describes the early phases of system development. This phase involves all activities that are necessary to determine and identify the system requirements.

The aim of this phase is to analyze and refine the requirements to achieve the detailed understanding of the requirements essential for developing the project correctly and maintaining it easily.

The objectives of this phase are:

i. To understand the project system better

ii. To determine whether the project will support its requirements

iii. To build a solid foundation for system design.

4.2 System Requirements Analysis

A requirement is feature of the system or a description of something that the system is capable of doing in order to fulfill the system's purpose. Requirements for the system should be determined to make sure that the goals of system development are achieved.

The objectives of carrying out the System Requirements Analysis are:

i. To understand what the final product could do.

ii. To ensure the success of the system development.

iii. Aid developers in developing a solution that meets the client's requirements.

Requirement analysis covers three main categories, which are functional requirements, non-functional requirements and development requirements.

4.2.1 Functional Requirements

A functional requirement specifies an action that the target product must be able to perform. Functional requirements are often expressed in terms of inputs and outputs which means, when a specific input is given, the functional requirements specifies what the output must be. Therefore, with the existence of these functional requirements, the system will run smoothly. Below are the functional requirements that have to be included after reviewing existing systems:

4.2.1.1 Log In and Welcome

This is the first part of the system that requires the user password and login to get through of the system. This is for system safety and to disallow outsiders from using the system. These authentications are important to block access to the database by an unauthorized party. Only those who are authorized are allowed to access and make updates to the database. Users need to have User ID and password to get through the system. The system will verify the data and make sure it is validated.

4.2.1.2 Administrator

The module can only be access by authorized administrators. Generally, the main purpose of this module is to manage the Academic Advisor System (AAS). The Administrator module functions are as follows:

i. Students and Academic Advisors Database

Administrator could view and edit student's personal details the students' exam results and credit hours taken by the student. As for the academic advisor, administrator can edit the list of advisors in each department and view the list of students assigned to the advisor.

ii. Add New User and Password Modification

Administrators are allow to change their password, add new administrators' to the administrator's list, add new users and cancel authorizations of users.

iii. Assign Students to a Particular Academic Advisor

Administrators are responsible to responsible for assigning lecturers to the students as students' academic advisor. The list will be generated and sent to the lecturers involved.

4.2.2.3 Academic Advisor

Functions that will be executed under Academic Advisor's Module are:

i. Supervised Students List

In this functions, list of students under a particular lecturer will be displayed first. Then, the lecturer may choose the students by clicking on the students' name and data display function will display the data about the students such as names, matric number and examination results.

ii. View and Update Metting's Report

The lecturer can use this system to update the meetings report or add a new one. This section will also display the date of the meetings. There will be a print button to enable the lecturers to make a hardcopy of the reports and submit button to send the new added report to supervised students to be validated.

iii. View or Modify Personal Particulars Form

The academic advisors are required to fill n this form with their particulars. When the "submit" button is click, the data will be saved into the database. These details are important as student's references. In the academic advisors' details section, there will be an edit button for the advisor to edit their particulars.

iv. Send Messages To Supervised Students

This functions allow the advisor to reply or to receive messages from students under their supervision.

4.2.2.4 Student

In this module, student will be required to log in to the system before they could utilize all the functions inside the system. Functions that are specifically designed for students are:

i. View Personal Profile

In this functions, students could view their own profile and examination result of that current semester. In this section also, there will be an edit button for the students to edit their particulars. Students are also able to change their password whenever they want.

ii. View the Academic Advisor's Profile

Students are able to view their own academic advisor's profile. This way, they will know who is their advisor and some other extra information about them such as their academic background, research area and subjects they taught besides taking note of the advisor's timetable, room number and other relevant information.

iii. Send Messages To Academic Advisor

This functions allow the students to send emails to their academic advisors in order to set up an appointment or for any inquiry purposes.

iv. View Previous Meeting Report

Student will be able to view what has been discussed with their academic advisor in previous meetings. In addition, the students will be required to validate the report uploaded by the academic advisor.

4.2.2 Non-Functional Requirements

Non-functional requirement specifies properties and constraints of the system under which the system must operate. The non-functional requirements can only be handled until the design workflow is performed. This is because, to be able to handle certain non-functional requirements, detailed knowledge about the target system may be needed, and this knowledge is usually not available until the requirements and analysis workflows have been completed. Below are the non-functional requirements of the proposed system.

4.2.2.1 Reliability

Reliability is a measure of the frequency and criticality of product failure. A system would be called reliable if the frequency of failure is very low or zero. Thus, this system should be reliable in performing its functions and able to generate its intended output when used.

4.2.2.2 Accuracy

The system should be able to present an accurate data and able to eliminate duplicate records which in turn will maintain an accurate database.

4.2.2.3 Maintainability

This system will allow maintenance activities to be done at ease without consuming much time because the system has been broken into several smaller modules. The maintenance process can be done separately on each module. Therefore, the system would be easy to modify, test and update to meet with new requirements.

4.2.2.4 User-friendliness

User friendliness refers to the ease with which user can communicate with the system. AAS provides simple instructions and understandable icons that can enable users to browse and navigate the system without any problem. Furthermore, the interface design should be consistent in terms of the display architecture and too much memorization of events and commands for the users should be avoided.

4.2.2.5 Security

Only authorized administrators are able to access the administrator module in order to maintain the database. In addition, only authorized users ho have been provided with User ID and Password could gain access to the database to update their details.

4.2.3 Development Requirements

4.2.3.1 Hardware Requirements

i. Pentium II porcessor 400Mhz or above

ii. 128 MB of RAM

iii. 10 GB hard disk with at least 1GB of free space

iv. Modem

v. Other computer-compatible accessories

4.2.3.2 Software Requirements

i. Windows XP

ii. Hypertext PreProcessor (PHP)

iii. MySQL

iv. Apache Web server

v. Macromedia Dreamweaver MX

vi. Microsoft Internet Explorer or Netscape Communicator

vii. Notepad

Chapter 5:
System Design

5.1 Introduction

System design is defined as those tasks that focus on the specification of a detailed computer-based solution. System design focuses on the technical or implementation concerns of the system where it transforms the problem into a solution as well as the description of the solution. Requirements that are found in analysis stage are the one actually translated into design specification.

The objective of the System Design phase is to develop detailed technical specifications for the hardware, software, data, people, and procedures. The end result of this phase includes database design, program specifications, interface design, and sizing and response time specifications.

There are five parts of the system that will be designed and these are:

i. AAS System Architecture
ii. AAS Structure Chart
iii. AAS System Modeling
iv. AAS Database Design
v. AAS Prototype

5.2 Academic Advisor System Architecture

System architecture refers to the architecture of a specific construction or system. System architecture corresponds to "architecture as a product." It is the result of a design process for a specific system and specifies the functions of components, their interfaces, their interactions, and constraints. This specification is the basis for detailed design and implementation steps.

The architecture design for AAS is divided into three components which is the Administrator Module, Academic Advisor Module and Student Module.

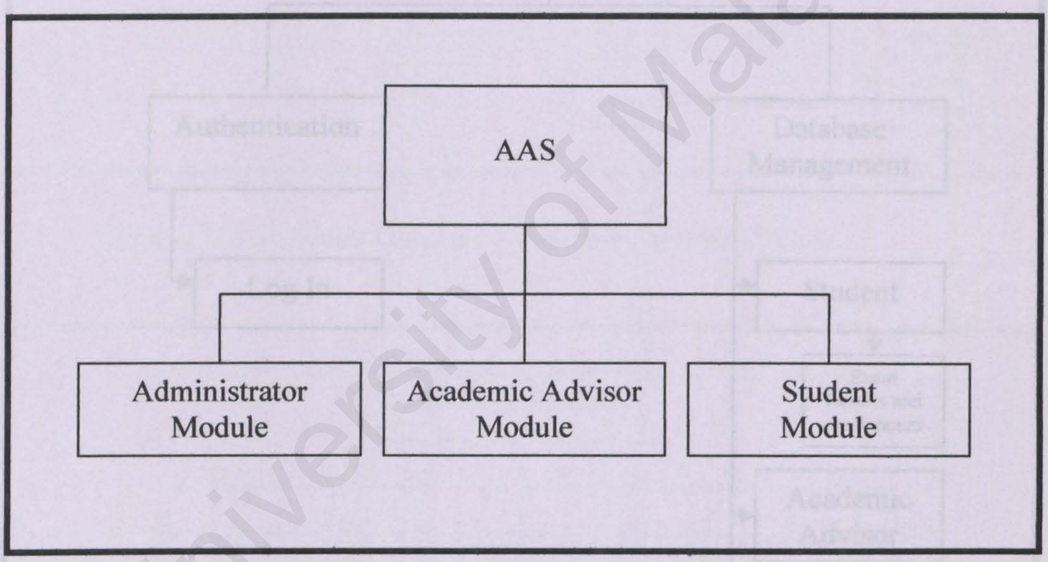


Figure 5.1: AAS Architecture

5.3 Academic Advisor System Structure Chart

Structure charts show how variables pass between modules in a computer program. In this Academic Advisor system, user should be able to link to all modules easily. Below are the structure charts for each module proposed in this system.

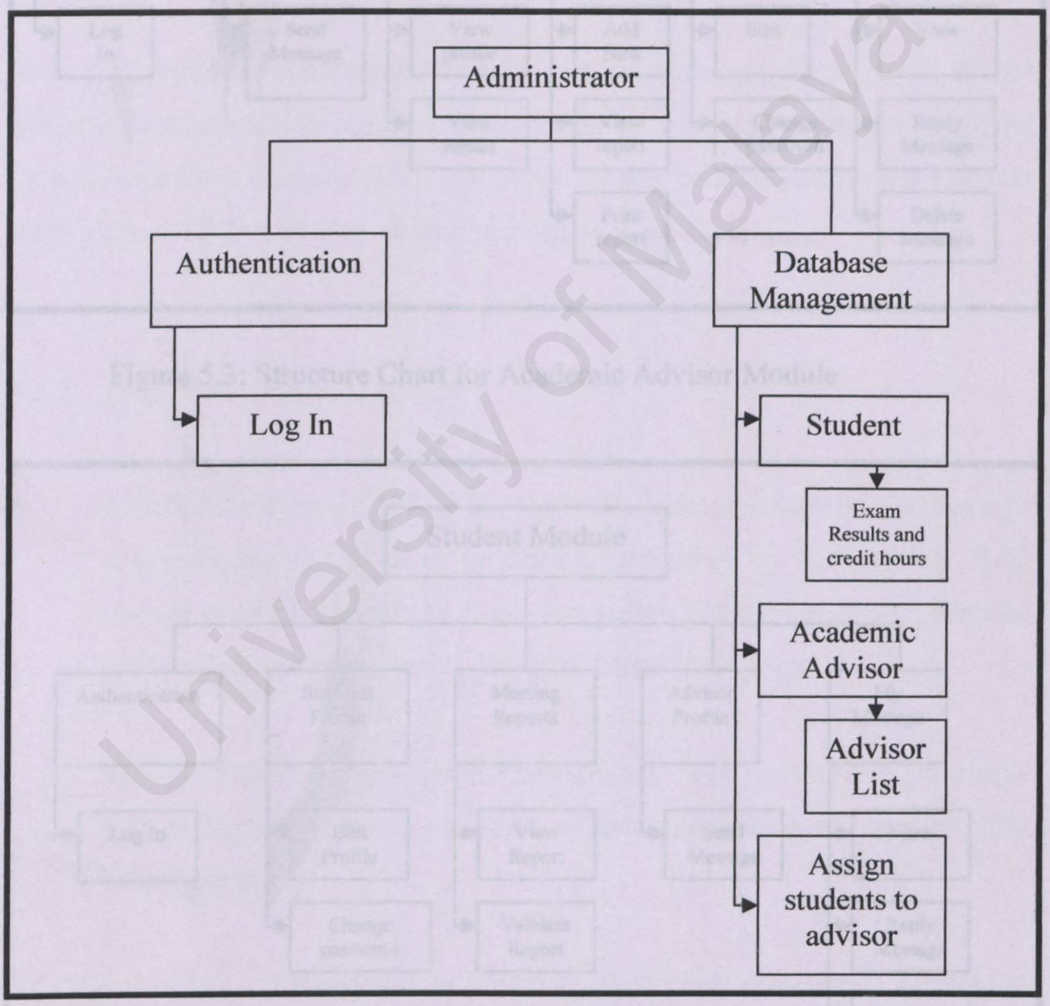


Figure 5.2: Structure Chart for Administrator Module

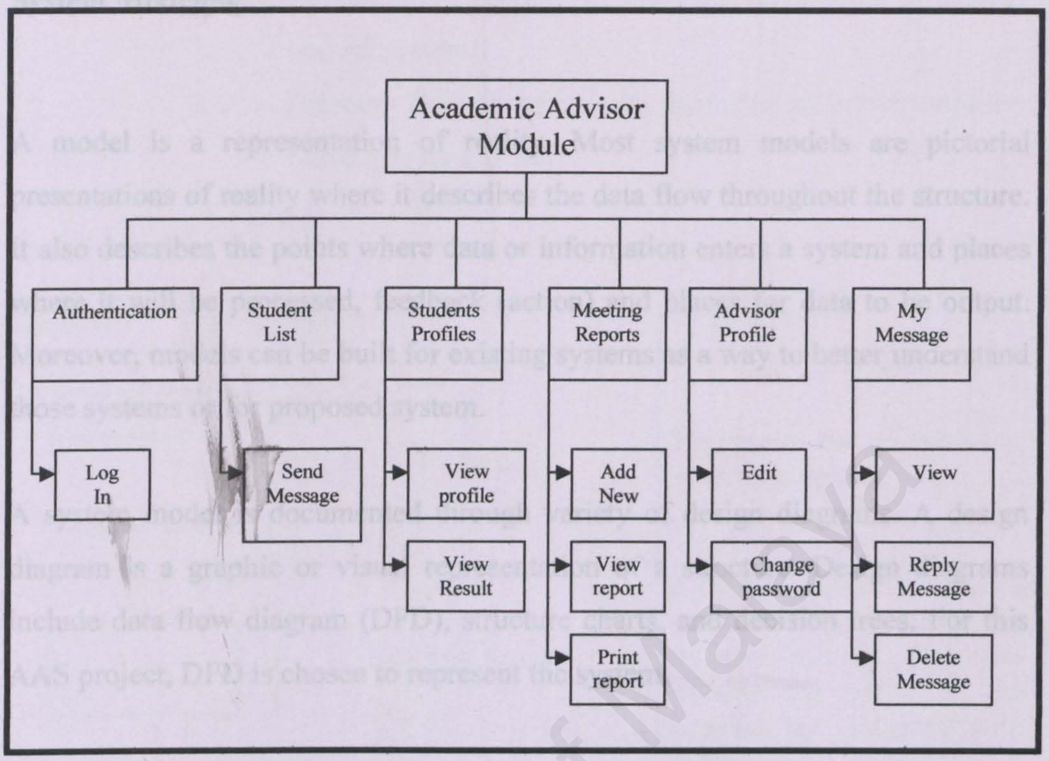


Figure 5.3: Structure Chart for Academic Advisor Module

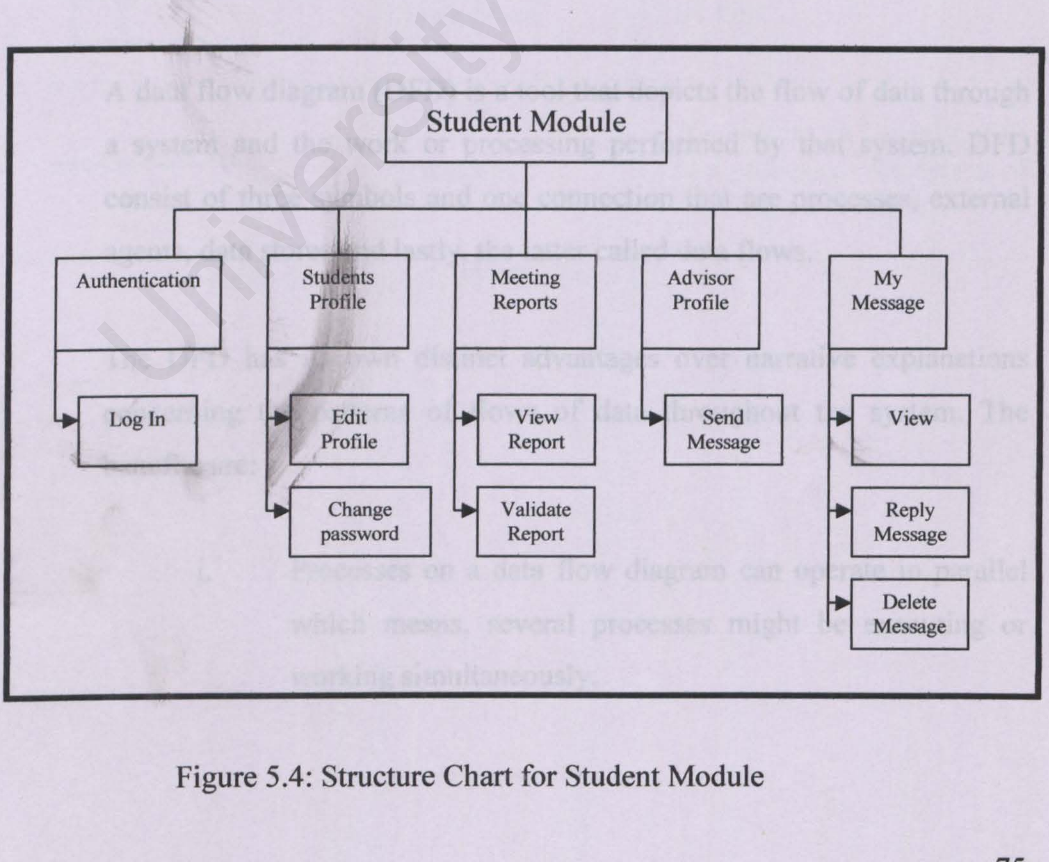


Figure 5.4: Structure Chart for Student Module

5.4 System Modeling

A model is a representation of reality. Most system models are pictorial presentations of reality where it describes the data flow throughout the structure. It also describes the points where data or information enters a system and places where it will be processed, feedback (action) and places for data to be output. Moreover, models can be built for existing systems as a way to better understand those systems or for proposed system.

A system model is documented through variety of design diagrams. A design diagram is a graphic or visual representation of a structure. Design diagrams include data flow diagram (DFD), structure charts, and decision trees. For this AAS project, DFD is chosen to represent the system.

5.4.1 Data Flow Diagram (DFD)

A data flow diagram (DFD) is a tool that depicts the flow of data through a system and the work or processing performed by that system. DFD consist of three symbols and one connection that are processes, external agents, data stores and lastly, the latter called data flows.

The DFD has its own distinct advantages over narrative explanations concerning the patterns of flows of data throughout the system. The benefits are:

i. Processes on a data flow diagram can operate in parallel which means, several processes might be executing or working simultaneously.

ii. Further understanding of the inter relatedness of system and subsystem.

iii. Freedom from committing to the technical implementation of the system too early.

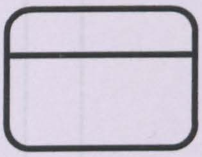
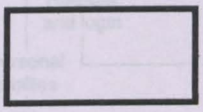
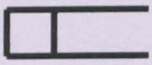
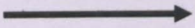
Symbol	Name	Description
	Process	Represents the processes or work to be done.
	External Agents	External agent defines a person, organization or another system that lies outside the scope of the project but interact with system being studied.
	Data Store	A data store is an inventory of data.
	Data Flow	Represents an input of data to a process or the output of data from a process.

Table 5.1: Symbols of Data Flow Diagram

5.4.1.1 Context Diagram

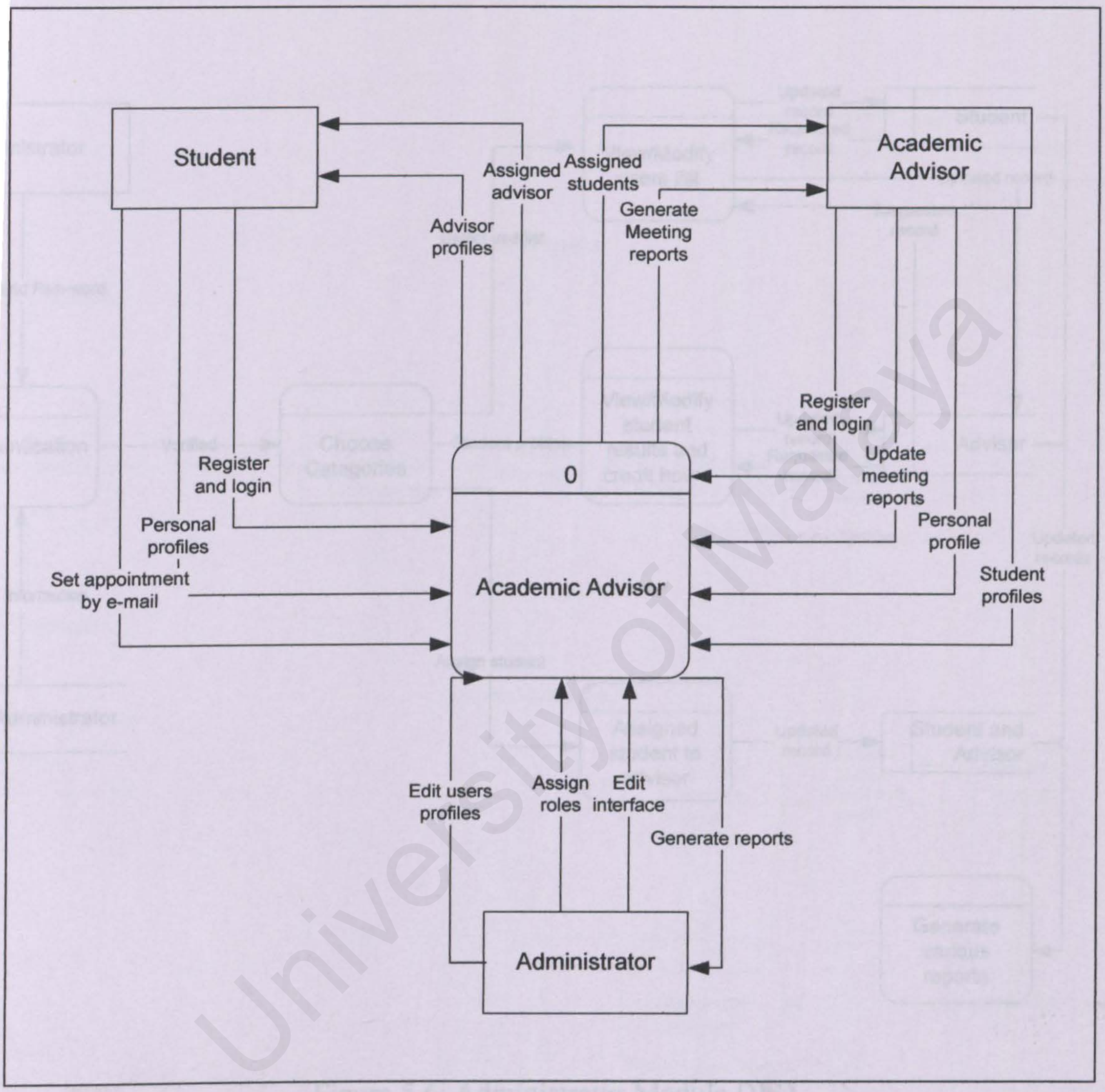


Figure 5.5: Context Diagram for Academic Advisor System

5.4.1.2 Administrator Module

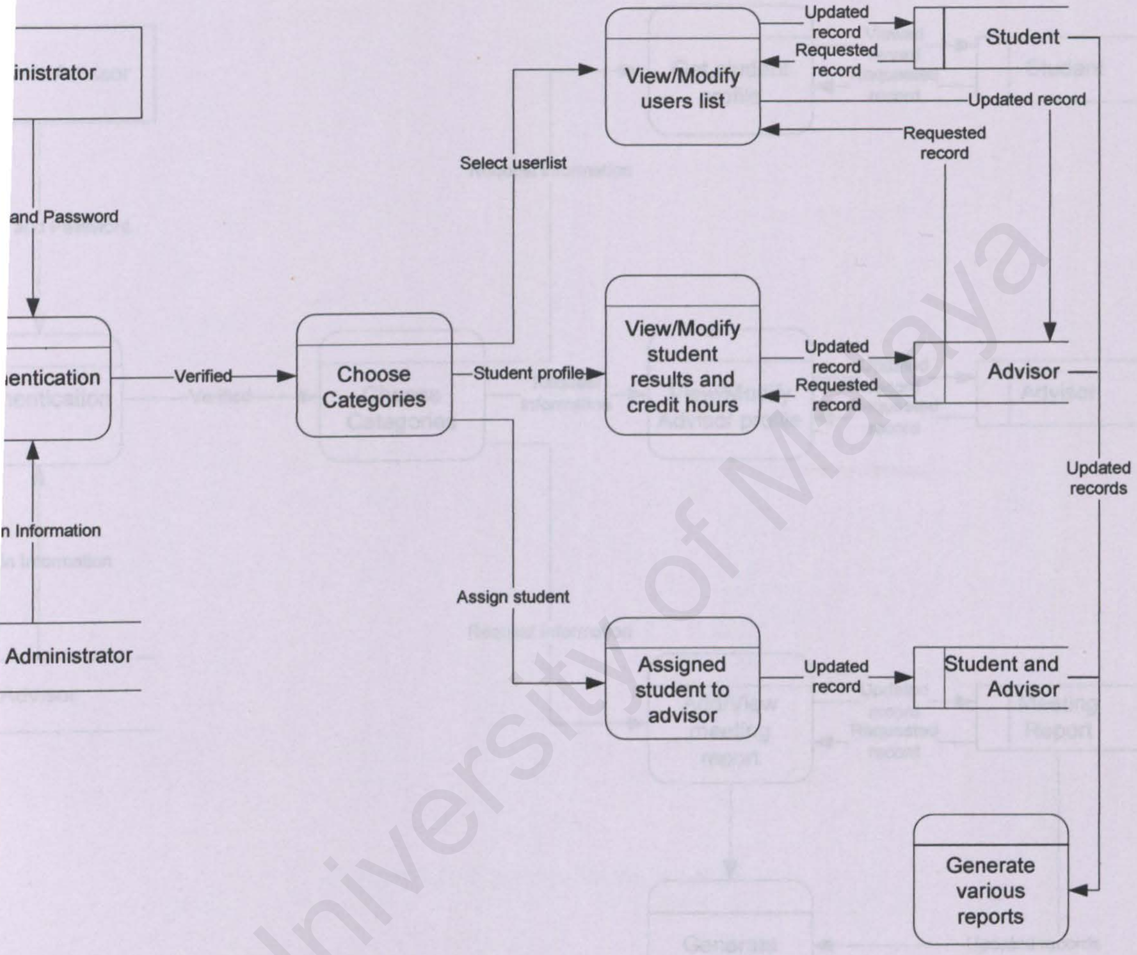


Figure 5.6: Administrator Module DFD

5.4.1.3 Academic Advisor Module

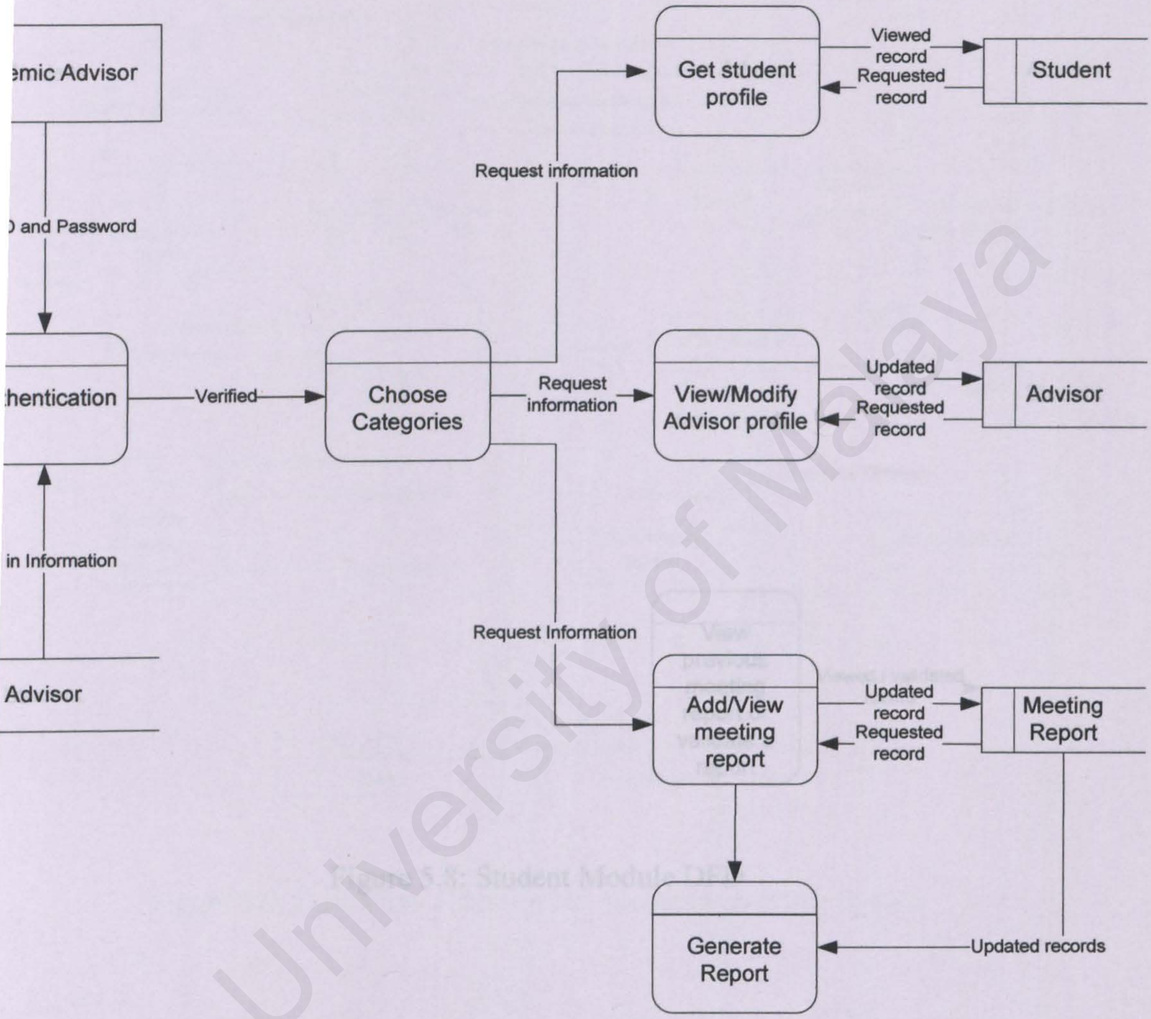


Figure 5.7: Academic Advisor Module DFD

5.4.1.4 Student Module

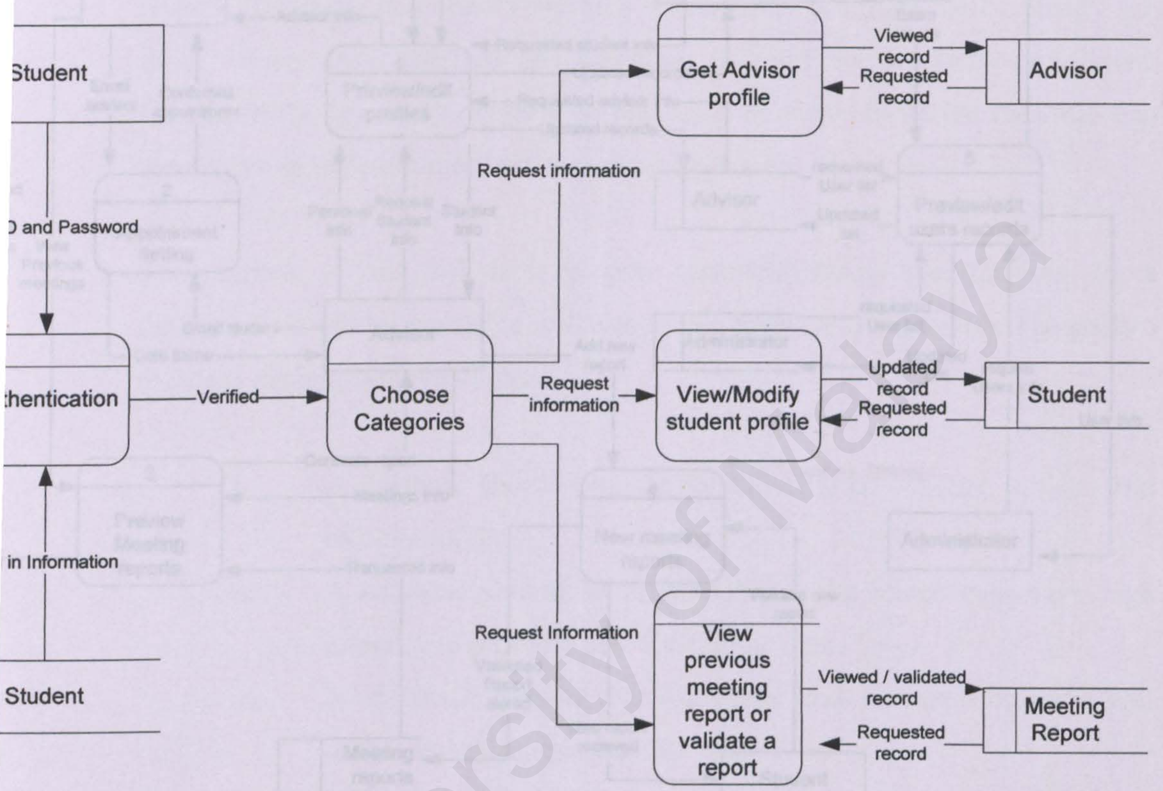


Figure 5.8: Student Module DFD

5.4.1.5 AAS Data Flow Diagram

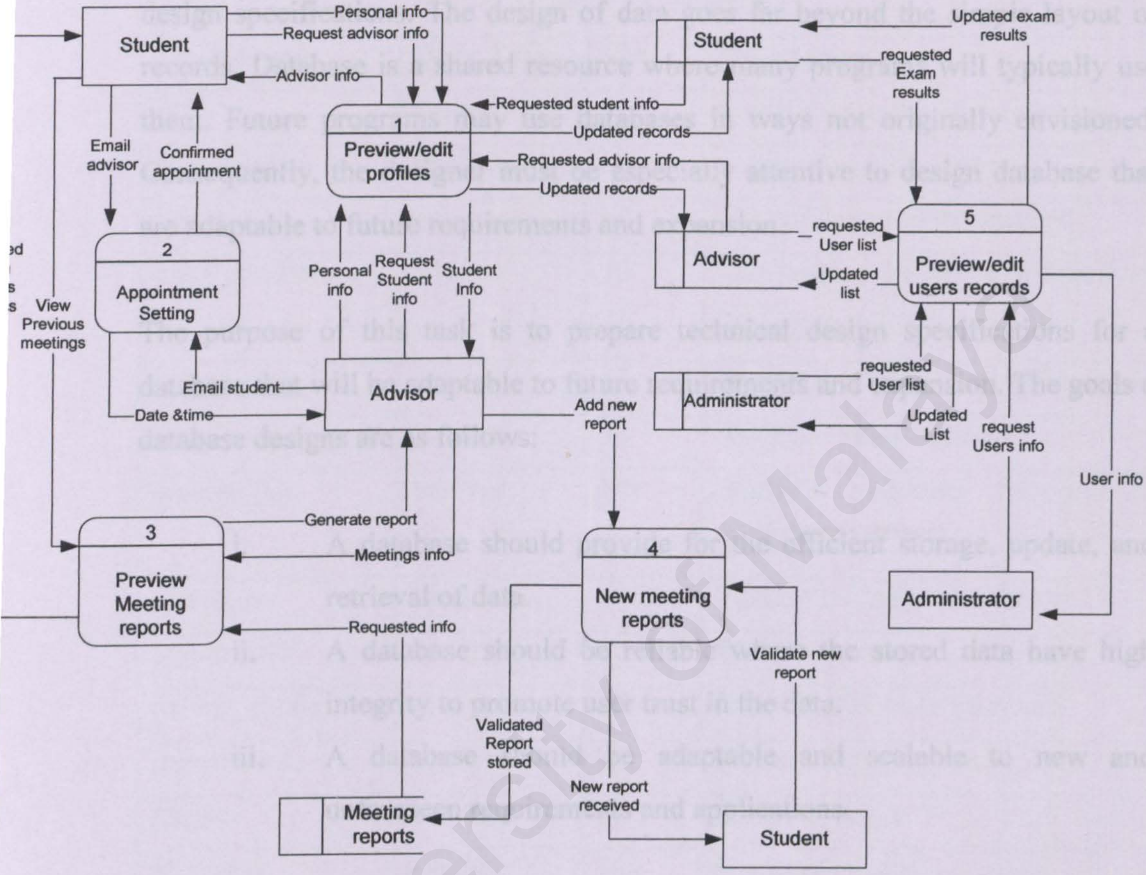


Figure 5.9: Data Flow Diagram for Academic Advisor System

5.5 Database Design

Typically, the next system design task is to develop the corresponding database design specifications. The design of data goes far beyond the simple layout of records. Database is a shared resource where many programs will typically use them. Future programs may use databases in ways not originally envisioned. Consequently, the designer must be especially attentive to design database that are adaptable to future requirements and expansion.

The purpose of this task is to prepare technical design specifications for a database that will be adaptable to future requirements and expansion. The goals o database designs are as follows:

i. A database should provide for the efficient storage, update, and retrieval of data.

ii. A database should be reliable where the stored data have high integrity to promote user trust in the data.

iii. A database should be adaptable and scalable to new and unforeseen requirements and applications.

Table Name: student

Function: Store detailed information about students

Table 5.1: student

Field Name	Data Type	Size	Description
id	varchar	30	Students' matriculation number
id_advisor	varchar	30	Lecturer's staff number
Name	varchar	50	The full name of the student
entry_session	varchar	10	The session in which the student list registers UM
ic_no	varchar	15	Students' identity card number
Email	varchar	50	Student's email address
session_add	varchar	60	Students' address for current session
phone_no	varchar	12	Student's telephone number
parent_add	varchar	60	Students parents' address
parent_phone	varchar	12	Parents' telephone numbers
department	varchar	30	Students' department
Major	varchar	30	Students' major
Picture	varchar	100	Students' picture

Table Name: advisor

Function: Store detailed information about academic advisor

Table 5.2: advisor

Field Name	Data Type	Size	Description
id	varchar	30	Academic advisors staff number
name	varchar	50	Academic advisors full name
title	varchar	30	Academic advisors title
room_no	varchar	10	Academic advisors room number
department	varchar	30	Academic advisors' department
edu_background	varchar	200	Academic advisors' educational background
expertise	varchar	200	Subjects or field of studies which the academic advisors are good at
email	varchar	50	Academic advisors' email address
phone_no.	varchar	12	Academic advisors' telephone numbers.
sub_teach1	varchar	10	Code of subject the lecturer taught
sub_teach2	varchar	10	Code of subject the lecturer taught
sub_teach3	varchar	10	Code of subject the lecturer taught
sub_teach4	varchar	10	Code of subject the lecturer taught
sub_teach5	varchar	10	Code of subject the lecturer taught
picture	varchar	100	Academic advisors' picture
timetable	varchar	100	Academic advisors' timetable

Table Name: login_user

Function: Store users' password and details

Table 5.3: login_user

Field Name	Data Type	Size	Description
no	int	11	Auto increment
username	varchar	40	Users' username
pwd	integer	1	Users' password
level	integer	1	Access Level (1=student, 2=advisor, 3=administrator)

Table Name: message

Function: To store messages sent by students or advisors

Table 5.4: message

Field Name	Data type	Size	Description
no	int	11	Autoincrement
sender	varchar	15	Message author
receiver	varchar	15	Message recipient
date	date		Date
date_db	varchar	225	Date
content	text		Message content
status	varchar	10	Message status; New or Read

Table name: report

Function: To report meetings between academic advisor and student

Table 5.5: report

Field Name	Data Type	Size	Description
no	int	11	Auto increment
student_id	varchar	15	Students' matriculation number
advisor_id	varchar	15	Academic advisor staff number
semester	varchar	5	Semester of the meeting
session	varchar	10	Session of the meeting
date	date		Date
date_db	varchar	225	Date
subject	text		Report subject
report	text		Report content
validation	varchar	10	Validation status; invalidated or validated

Table Name: session_(changeable by year)

Function: To store student results

Table 5.16: session_(changeable by year)

Field Name	Data Type	Size	Description
no	int	11	Auto increment
student_id	varchar	225	Students' Matric Number
semester	int	11	Semester of the result
credit	varchar	225	Total of credit hours taken by students on that particular semester
cgp	varchar	12	Students' latest CGP
cgpa	varchar	225	Students' latest CGPA

Table Name: session_student

Function: To store student matric number in one academic session

Table 5.10: session_student

Field Name	**Data Type**	**Size**	**Description**
no	int	11	Auto increment
student_id	varchar	225	Students' Matric Number
session	int	11	Study session

5.6 System Prototype

For the user interface design, the Graphical User Interface (GUI) approach is going to be used, which creates a user-friendly environment. Below are the some of the guidelines that are going to use when designing an effective user interface.

i. The purpose of the system. When designing the interface, developer has to make sure that user interfaces created are suit to the system's purpose.

ii. Navigation aids like hyperlinks and icons should be used to enhance the simplicity of the interface.

iii. Links, which means that there should not have any dead-end pages when the system running.

iv. Attractiveness. The user interface should be attractive enough to let users have a good impression on the system.

Academic Advisor System interface design is developed using Macromedia Dreamweaver MX. It is designed by considering the easiness and user friendliness. Users can use mouse or keyboard to make an option. Options are made through buttons and icons that are specially designed for the interface of this system.

5.6.1 Login Form

Figure 5.2 shows the login screen for users. In this login page, users are required to enter their username and password to access the system. This is to ensure that only authorized user can only gain access to this Academic Advisor System.

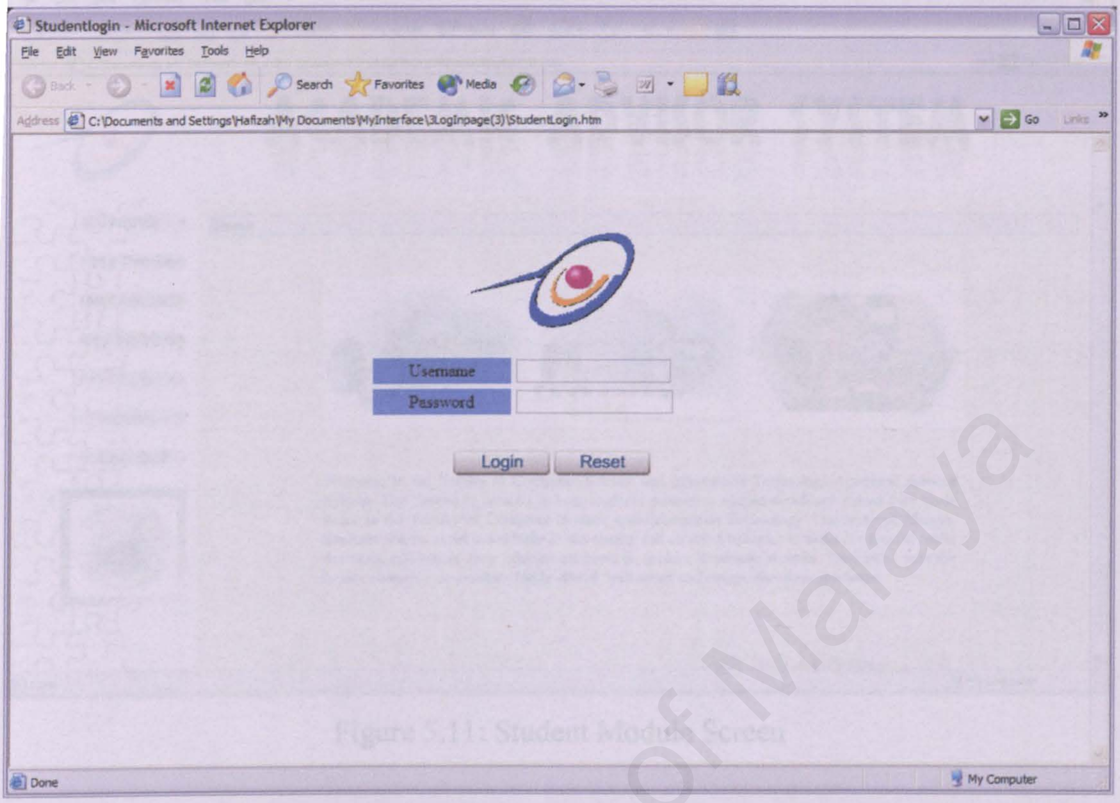
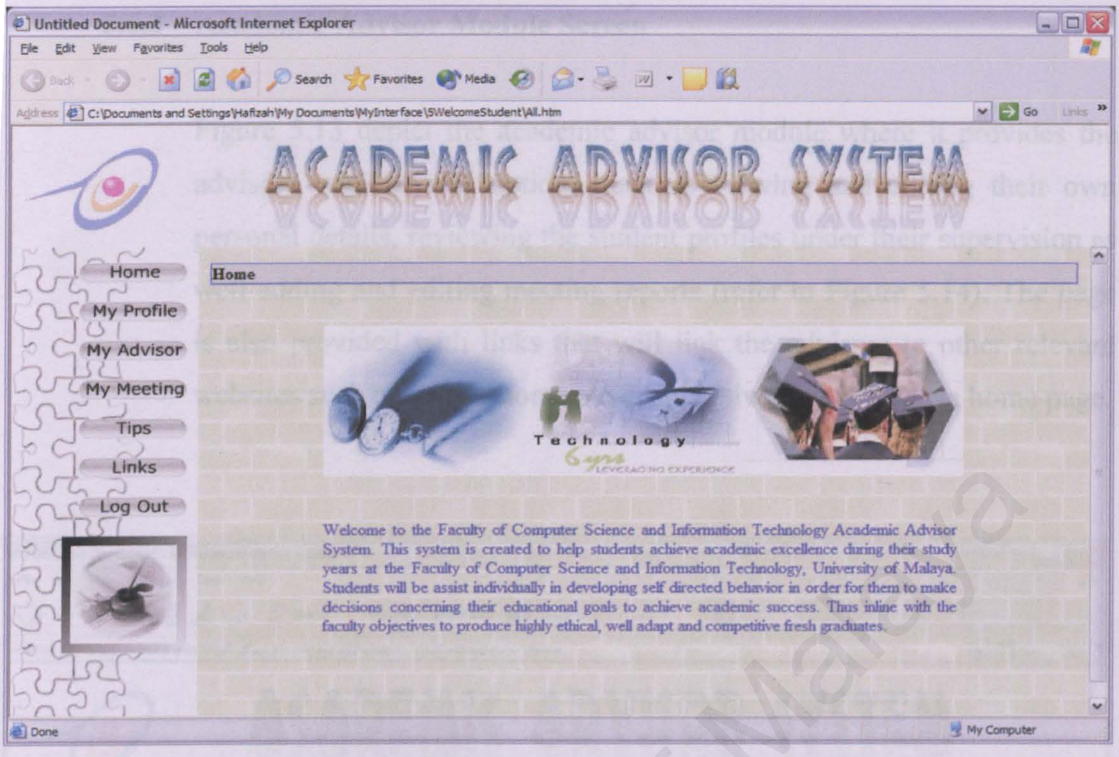

Studentlogin - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address C:\Documents and Settings\Hafizah\My Documents\MyInterface\3Loginpage(3)\StudentLogin.htm
Go Links
Username
Password
Login
Reset
Done
My Computer

Figure 5.10: User Login Form

5.6.2 Student Module Screen

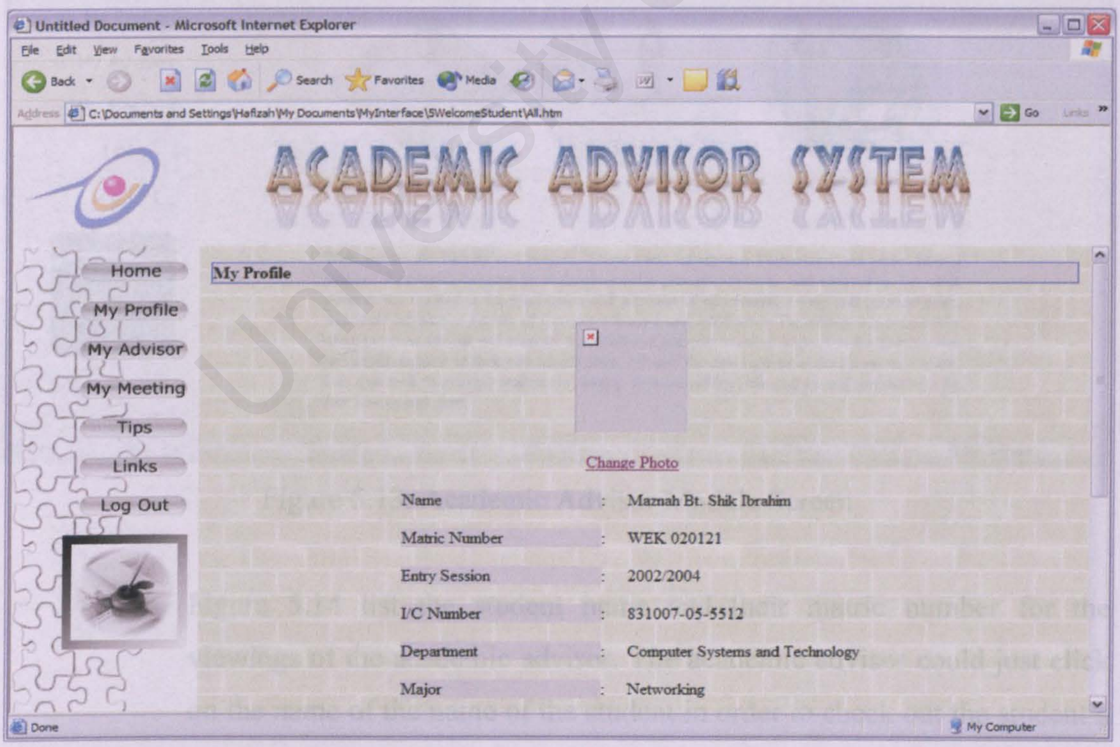
In Figure 5.11, students are presented with various options such as viewing their own personal profile and edit it, their academic advisor's profile such as full name, title, room number and timetable. Besides all that, students can also view meetings report that has been made by their advisors as well as reviewing useful tips and guidelines for studying purposes. Students are also provided with "Links" button where the students could actually browse to other related websites such as FCSIT home page and Umisisweb.


Untitled Document - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address C:\Documents and Settings\Hafizah\My Documents\MyInterface\5WelcomeStudent\All.htm
Go Links
ACADEMIC ADVISOR SYSTEM
Home
My Profile
My Advisor
My Meeting
Tips
Links
Log Out
Technology
Done
My Computer

Home

Welcome to the Faculty of Computer Science and Information Technology Academic Advisor System. This system is created to help students achieve academic excellence during their study years at the Faculty of Computer Science and Information Technology, University of Malaya. Students will be assist individually in developing self directed behavior in order for them to make decisions concerning their educational goals to achieve academic success. Thus inline with the faculty objectives to produce highly ethical, well adapt and competitive fresh graduates.

Figure 5.11: Student Module Screen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File Edit View Favorites Tools Help
Back Search Favorites Media
Address C:\Documents and Settings\Hafizah\My Documents\MyInterface\5WelcomeStudent\All.htm
Go Links
ACADEMIC ADVISOR SYSTEM
Home
My Profile
My Advisor
My Meeting
Tips
Links
Log Out
Done
My Computer

My Profile

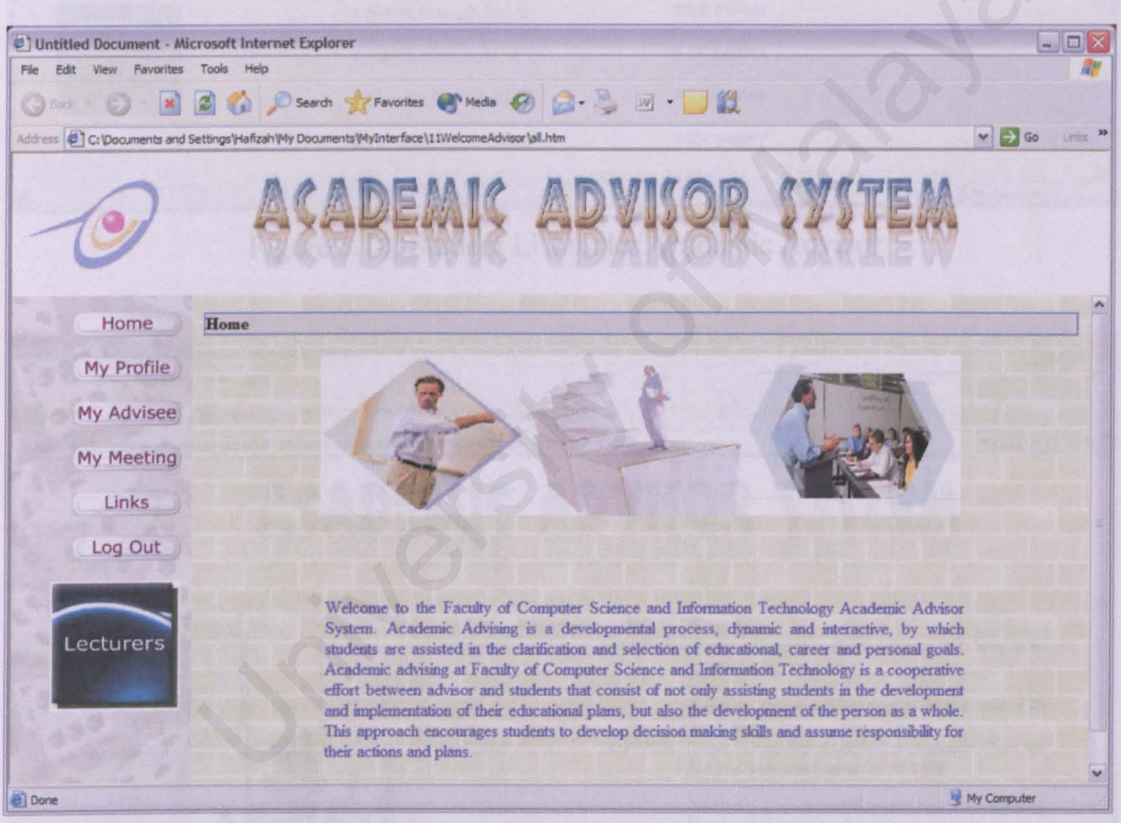
Change Photo

Name	:	Maznah Bt. Shik Ibrahim
Matric Number	:	WEK 020121
Entry Session	:	2002/2004
I/C Number	:	831007-05-5512
Department	:	Computer Systems and Technology
Major	:	Networking

Figure 5.12: Student's Profile

5.6.3 Academic Advisor Module Screen

Figure 5.13 depict the academic advisor module where it provides the advisors with several options such as viewing and editing their own personal details, reviewing the student profiles under their supervision as well adding and editing meeting reports (refer to Figure 5.14). The page is also provided with links that will link the advisors to other relevant websites such as FCSIT home page and University of Malaya home page.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C:\Documents and Settings\Hafizah\My Documents\MyInterface\11WelcomeAdvisor\all.htm
Go
Links
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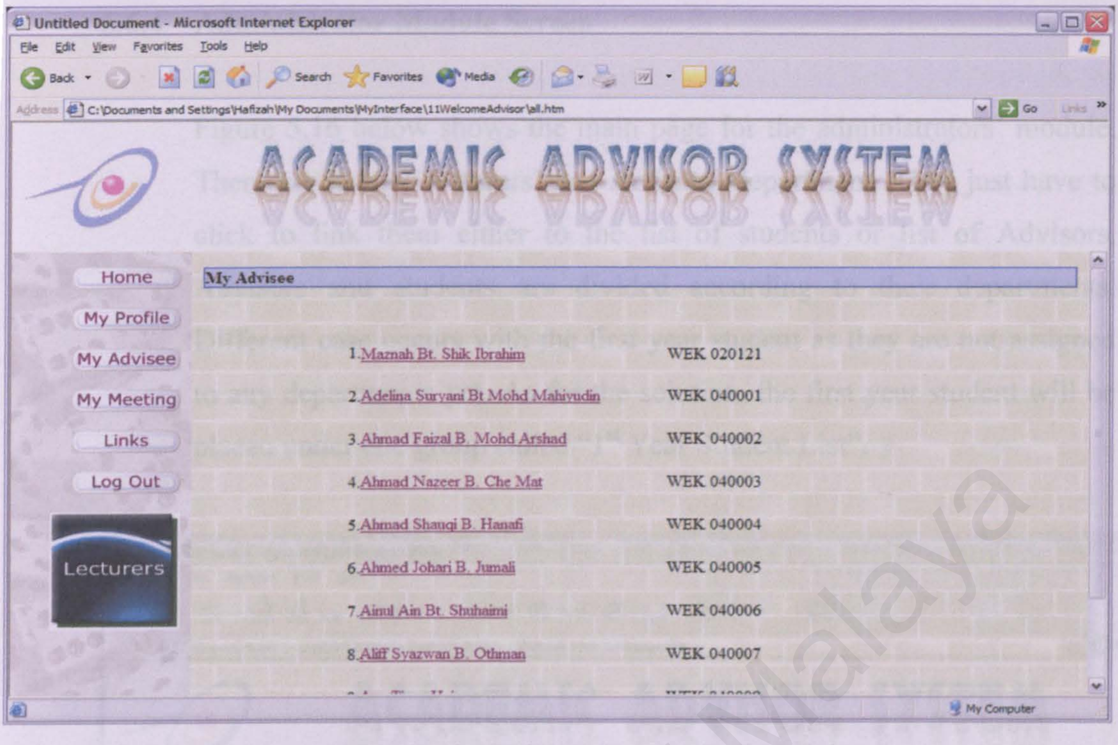
Home
My Profile
My Advisee
My Meeting
Links
Log Out
Lecturers
Home
Done
My Computer

Welcome to the Faculty of Computer Science and Information Technology Academic Advisor System. Academic Advising is a developmental process, dynamic and interactive, by which students are assisted in the clarification and selection of educational, career and personal goals. Academic advising at Faculty of Computer Science and Information Technology is a cooperative effort between advisor and students that consist of not only assisting students in the development and implementation of their educational plans, but also the development of the person as a whole. This approach encourages students to develop decision making skills and assume responsibility for their actions and plans.

Figure 5.13: Academic Advisor Module Screen

Figure 5.14 list the student name and their matric number for the viewings of the academic advisor. The academic advisor could just click on the name of the name of the student in order to check out the student's detail and examination result.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Go Links
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My Meeting
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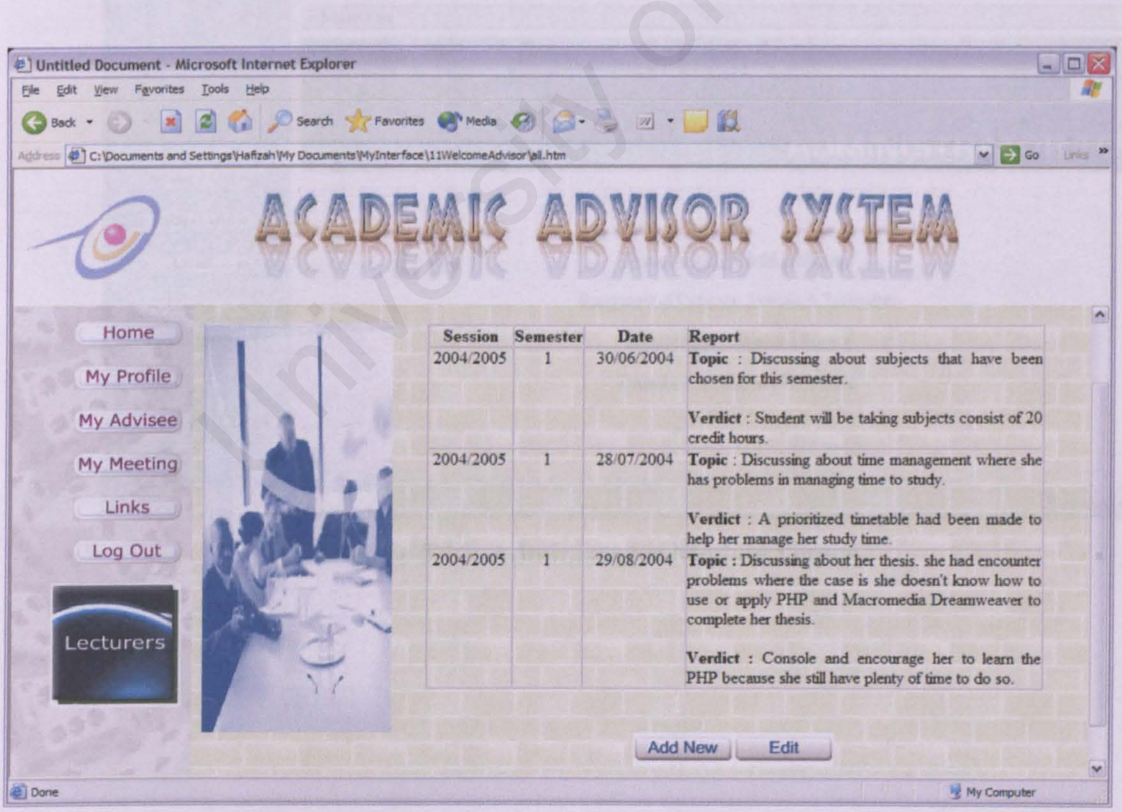
Log Out
Lecturers
My Computer

My Advisee

1.Maznah Bt. Shik Ibrahim	WEK 020121
2.Adelina Suryani Bt Mohd Mahiyudin	WEK 040001
3.Ahmad Faizal B. Mohd Arshad	WEK 040002
4.Ahmad Nazeer B. Che Mat	WEK 040003
5.Ahmad Shauqi B. Hanafi	WEK 040004
6.Ahmed Johari B. Jumali	WEK 040005
7.Ainul Ain Bt. Shuhaimi	WEK 040006
8.Aliff Syazwan B. Othman	WEK 040007

Figure 5.14: Student List under Academic Advisor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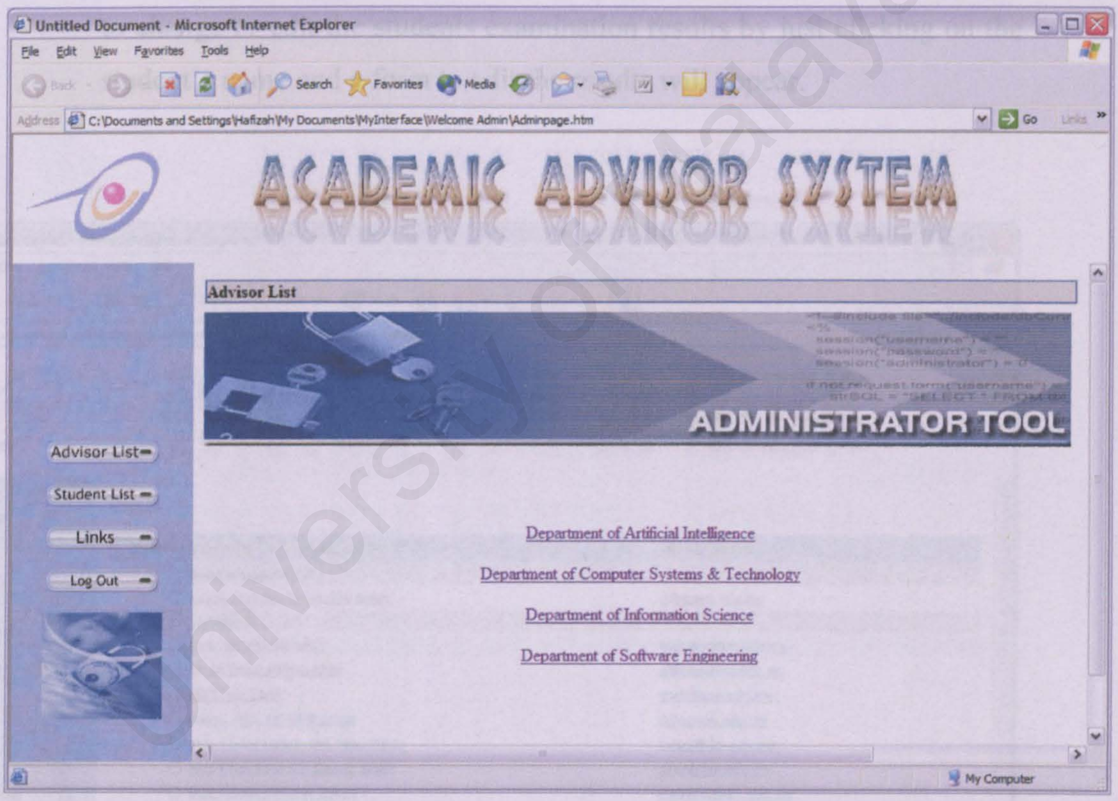
Back Search Favorites Media
Address C:\Documents and Settings\Hafizah\My Documents\MyInterface\11WelcomeAdvisor\all.htm
Go Links
ACADEMIC ADVISOR SYSTEM
Home
My Profile
My Advisee
My Meeting
Links
Log Out
Lecturers
Add New
Edit
Done
My Computer

Session	Semester	Date	Report
2004/2005	1	30/06/2004	**Topic** : Discussing about subjects that have been chosen for this semester. **Verdict** : Student will be taking subjects consist of 20 credit hours.
2004/2005	1	28/07/2004	**Topic** : Discussing about time management where she has problems in managing time to study. **Verdict** : A prioritized timetable had been made to help her manage her study time.
2004/2005	1	29/08/2004	**Topic** : Discussing about her thesis. she had encounter problems where the case is she doesn't know how to use or apply PHP and Macromedia Dreamweaver to complete her thesis. **Verdict** : Console and encourage her to learn the PHP because she still have plenty of time to do so.

Figure 5.15: Meetings Report

5.6.4 Administrator Module Screen

Figure 5.16 below shows the main page for the administrators' module. There are lists of lecturers' and students' department. They just have to click to link them either to the list of students or list of Advisors. Advisors and students are divided according to their departments. Different case occurs with the first year student as they are not assigned to any departments yet. As for the solution, the first year student will be placed under one group called "1st Year Student List".



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Address: C:\Documents and Settings\Hafizah\My Documents\MyInterface\Welcome Admin\Adminpage.htm

ACADEMIC ADVISOR SYSTEM

Advisor List

ADMINISTRATOR TOOL

Department of Artificial Intelligence

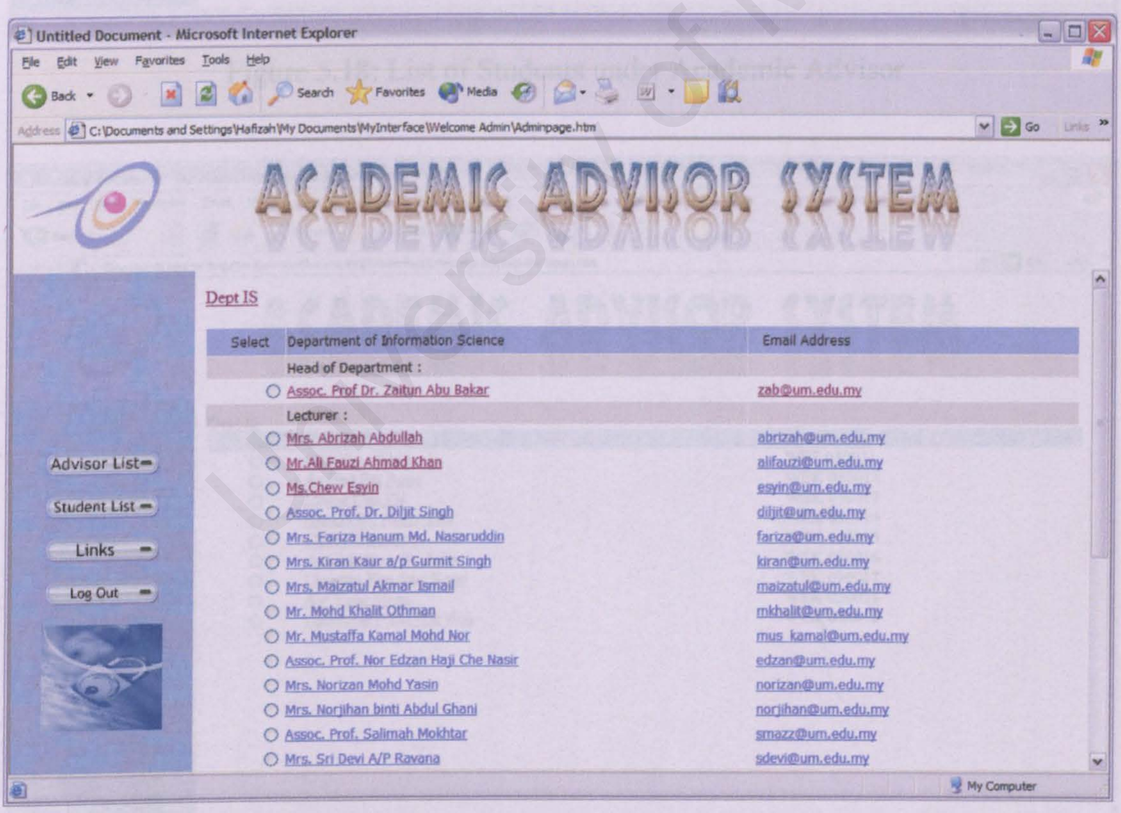
Department of Computer Systems & Technology

Department of Information Science

Department of Software Engineering

Figure 5.16: Administrator Module Screen

Figure 5.17 shows the list of academic advisors in the Department of Information Science. The administrator could add, edit or delete the list by selecting the radio button next to the name of the particular advisor. The administrator could also view the list of student under the supervision of a particular academic advisor by clicking on the advisor's name (refer to Figure 5.18). Then, the administrator could add or delete the name of student under that particular advisor. Same goes to the list of students (refer to Figure 5.19). Students are divided according to departments and there, the administrator could add, edit or delete names in the list. From that list as well, the administrator will have the authority to change or edit the students examination results by just clicking on the student's name and a form to edit the results will appear.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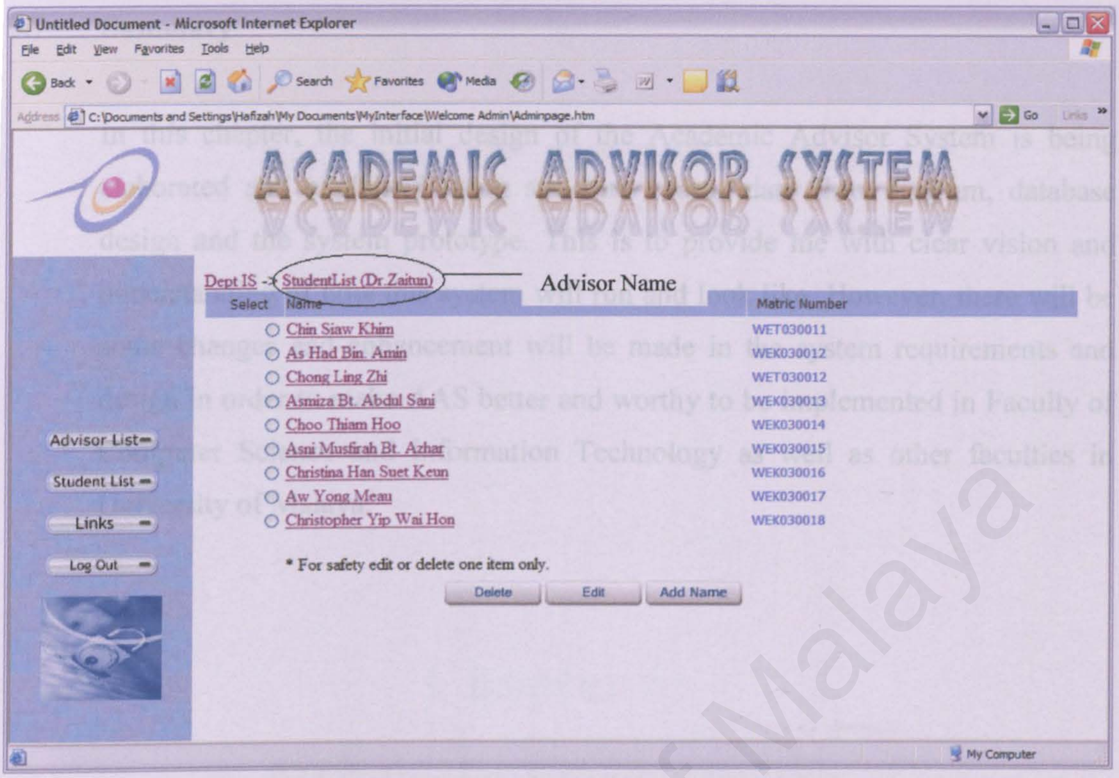
Back Search Favorites Media
Address C:\Documents and Settings\Hafizah\My Documents\MyInterface\Welcome Admin\Adminpage.htm
Go Links
ACADEMIC ADVISOR SYSTEM
Advisor List
Student List
Links
Log Out
My Computer

Dept IS

Select	Department of Information Science	Email Address
	Head of Department :	
○	Assoc. Prof Dr. Zaitun Abu Bakar	zab@um.edu.my
	Lecturer :	
○	Mrs. Abrizah Abdullah	abrizah@um.edu.my
○	Mr.Ali Fauzi Ahmad Khan	alifauzi@um.edu.my
○	Ms.Chew Esyin	esyin@um.edu.my
○	Assoc. Prof. Dr. Diljit Singh	diljit@um.edu.my
○	Mrs. Fariza Hanum Md. Nasaruddin	fariza@um.edu.my
○	Mrs. Kiran Kaur a/p Gurmit Singh	kiran@um.edu.my
○	Mrs. Maizatul Akmar Ismail	maizatul@um.edu.my
○	Mr. Mohd Khalit Othman	mkhalit@um.edu.my
○	Mr. Mustaffa Kamal Mohd Nor	mus_kamal@um.edu.my
○	Assoc. Prof. Nor Edzan Haji Che Nasir	edzan@um.edu.my
○	Mrs. Norizan Mohd Yasin	norizan@um.edu.my
○	Mrs. Norjihan binti Abdul Ghani	norjihan@um.edu.my
○	Assoc. Prof. Salimah Mokhtar	smazz@um.edu.my
○	Mrs. Sri Devi A/P Ravana	sdevi@um.edu.my

Figure 5.17: List of Advisors in Department of Information Science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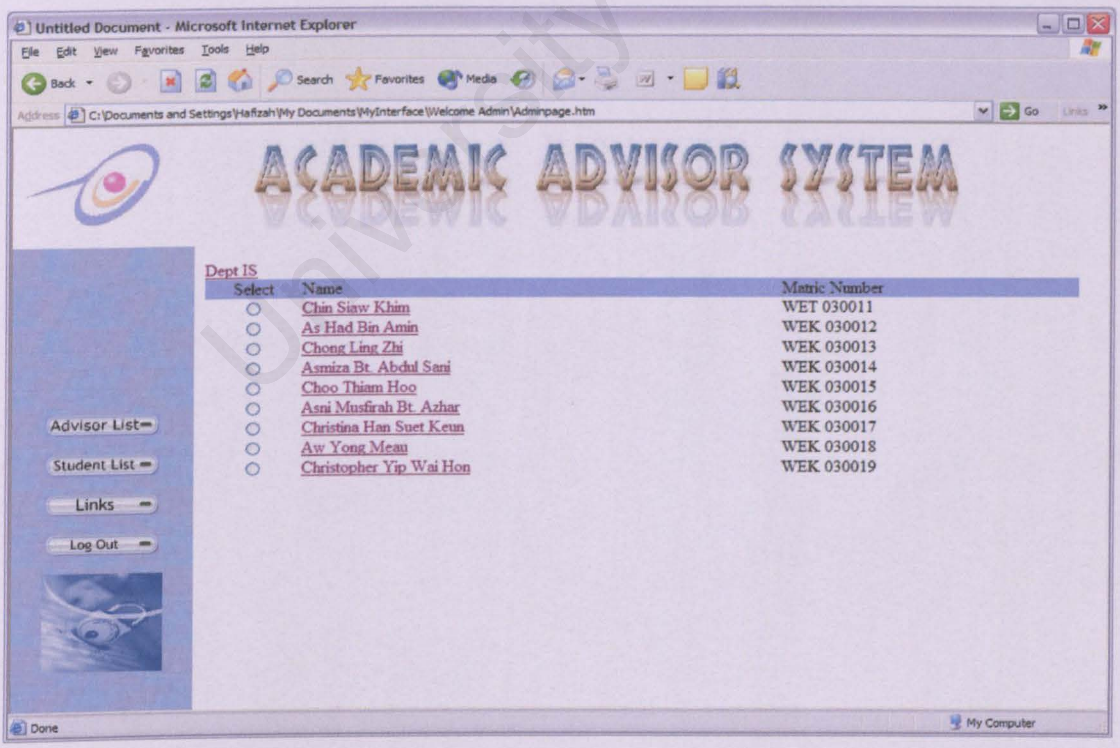
Go Links
ACADEMIC ADVISOR SYSTEM
Advisor List
Student List
Links
Log Out
Advisor Name
Delete
Edit
Add Name
My Computer

Dept IS -> StudentList (Dr Zaitun)

Select	Name	Matric Number
○	Chin Siaw Khim	WET030011
○	As Had Bin Amin	WEK030012
○	Chong Ling Zhi	WET030012
○	Asmiza Bt. Abdul Sani	WEK030013
○	Choo Thiam Hoo	WEK030014
○	Asni Musfirah Bt. Azhar	WEK030015
○	Christina Han Suet Keun	WEK030016
○	Aw Yong Meau	WEK030017
○	Christopher Yip Wai Hon	WEK030018

* For safety edit or delete one item only.

Figure 5.18: List of Students under Academic Advisor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File Edit View Favorites Tools Help
Back Search Favorites Media
Address C:\Documents and Settings\Hafizah\My Documents\MyInterface\Welcome Admin\Adminpage.htm
Go Links
ACADEMIC ADVISOR SYSTEM
Advisor List
Student List
Links
Log Out
Done
My Computer

Dept IS

Select	Name	Matric Number
○	Chin Siaw Khim	WET 030011
○	As Had Bin Amin	WEK 030012
○	Chong Ling Zhi	WEK 030013
○	Asmiza Bt. Abdul Sani	WEK 030014
○	Choo Thiam Hoo	WEK 030015
○	Asni Musfirah Bt. Azhar	WEK 030016
○	Christina Han Suet Keun	WEK 030017
○	Aw Yong Meau	WEK 030018
○	Christopher Yip Wai Hon	WEK 030019

Figure 5.19: List of Students According to Departments

5.7 Summary

In this chapter, the initial design of the Academic Advisor System is being elaborated and explained using structure charts, data flow diagram, database design and the system prototype. This is to provide me with clear vision and understanding of how this system will run and look like. However, there will be some changes and enhancement will be made in the system requirements and design in order to make AAS better and worthy to be implemented in Faculty of Computer Science and Information Technology as well as other faculties in University of Malaya.

Chapter 6:
System Implementation

6.1 Overview of System Implementation

System Implementation is a phase transforming the design model of the system into a workable system. The major sections of system implementation are coding and testing. The primary goal of this phase is the production of a simple, clear source code with internal documentation that will ease the processes of verification, debugging, testing, modification and further enhancements. In order to achieve that appropriate tools and languages are needed to code the program. As mentioned earlier, all the hardware and software described in the Methodology Phase were used in the process of developing the system. Hypertext Markup Language is used to design the system's interface.

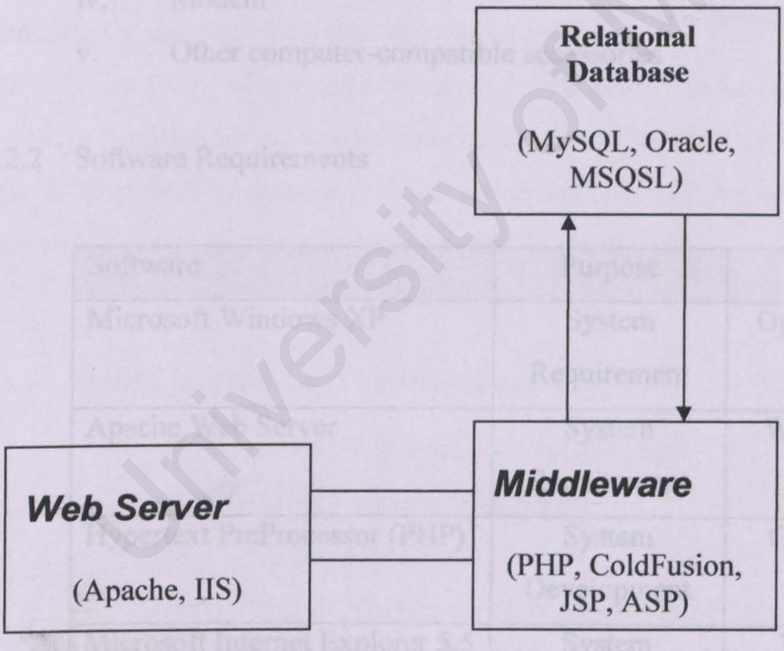

Figure 6.1: Architecture of Web Applications

6.2 System Development Environment

Development environment has certain impact on the development process of a good software system. The suitability of the hardware and software chosen is very important because it will not only help to expedite the system developments but determine the success of the project. The hardware and software tools used to develop the entire system are as below.

6.2.1 Hardware Requirements

i. Pentium II porcessor 400Mhz or above
ii. 128 MB of RAM
iii. 10 GB hard disk with at least 1GB of free space
iv. Modem
v. Other computer-compatible accessories

6.2.2 Software Requirements

Software	Purpose	Description
Microsoft Windows XP	System Requirement	Operating System [Final Stage]
Apache Web Server	System Requirement	Web Server host [Final Stage]
Hypertext PreProcessor (PHP)	System Development	Coding the web pages
Microsoft Internet Explorer 5.5	System Development	Web Browser
MySQL	System Development	Database Design
Adobe Photoshop 7.0	Interface Design	Image design and creation

Macromedia Dreamweaver MX	Interface Design	Interface structure, animation design, flash buttons and rollover images
Visio 2000	System Design	Diagram Creation [Earlier stage]
Microsoft Word 2003	Documentation	Documentation Process

Table 6.1: Software Requirements

6.3 Platform Development

The platform development will include setting up the Windows XP Professional, MySQL and configure the Apache server. Servers and development tools installations are the very first step before starting off with any development work. When using Microsoft's products, it is essential to know the sequence of products installations to ensure smooth execution without system errors. Hard disk is formatted to ensure a more stable and secured transaction across the platform. Several steps are involved during the installation.

6.3.1 Setting Development Environment

i. Install Windows XP Professional

ii. Install Apache Web Server

iii. Install MySQL

iv. Install Macromedia Dreamweaver MX

v. Install Adobe Photoshop 7.0

vi. Install Microsoft Visio 2003

6.3.2 Setting MySQL

MySQL was installed in the main server. Next, database named **'new'** 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 Academic Advisor System. I have allocated hard disk space for the database to maximize the performance of MySql and to ensure there is enough space to store the records.

6.3.3 Setting Apache Web Server

After installing the Apache Web Server, a virtual directory was created so that the user can access the application. The users can access the application through the following address. http://localhost/new

6.4 Learning Process

6.4.1 HTML

Macromedia Dreamweaver MX has been really helpful in aiding new users like me who never had basics in HTML before. The friendly user interface makes it easy for me to design the Academic Advisor System interfaces with fewer problems. For example, to create tables, users are no longer required to type long syntax to create a table, instead, with a click of 'table' icon; the table will be automatically generated. In addition, Macromedia Dreamweaver MX provides various types of viewings, for instance, users could just view the interface by the HTML coding, by the interface design or both.

6.4.2 MySQL

Creating a database using MySql is easier by using the wizard provided by phpMyAdmin. This database can be accessed through internet explorer by typing http://localhost/phpmyadmin/ at the URL box.

Through this link, database can be created using MySql without learning the coding of Mysql. After creating the table, data regarding the type, field name, length, type and value were keyed in. Php MyAdmin will generate the database.

i. The syntax or statement used to create the table are as follows:

```
Create database new
```

ii. Below is the statement used to create table

```
Create table student
(
        column_1 column_type column attributes,
        column_2 column_type column attributes,
        primary key (column_name),
        index index_name(column_name)
)
```

iii. Here is the basic syntax to create the indexes.

```
        Index index_name (indexed_column)
```

Another way to create an index is to declare a column as a primary key. Any auto_increment column must be indexed.

```
Create table my_table
(
        Id_col int unsigned
        auto_increment primary key,
        Another_col text
);
```

The primary key can also be declared like other indexes after the column definitions.

```
Create table my_table
(
        Id_col int unsigned not null
        auto_increment,
        Another_col text,
        Primary key(id_col)
);
```

iv. The syntax for declaring a table type is

```
create table table_name type=table_type
(
        col_name column attribute
);
```

v. The syntax for changing a table name is as follows:-

```
alter table table_name rename new_table_name
```

vi. The syntax for adding and dropping the column

```
Alter table table_name add column column_name
column attributes

Alter table table_name drop column column_name
```

6.4.3 Hypertext PreProcessor (PHP)

A PHP script can be quite simple or quite complex. From this project, creating a simple PHP scripts that send text output to a web browser is learnt and also how to document the script for better understanding of the purpose and structure.

To create PHP scripts, Macromedia Dreamweaver MX is used. File must be saved as php document.

Every PHP program includes two special lines that signal the PHP server that the text between them consists of PHP statements. These following two lines are typed to begin writing a PHP program.

```
<?php
?>
```

Here is syntax for creating the PHP statement that sends output to a Web browser. This statement is called *echo* statement.

```
echo (“put some text here”);
```

Here is an example of a simple PHP scripts that include comments.

```
<?php
//example-script.php
//This script prints a message the user can read.
echo(“this is a very simple script.”);
?>
```

6.4.4 JavaScript

Java Script was used mainly for validation purpose. Validation was the most important function. Forms which require user input, need JavaScript functions to be embedded into the coding of the web page. When the user click on 'submit' button, the button would invoke the embedded function and validation would begin. Whenever a user fills in the form field and the data is not within required range, a window will pop up and display an error message. The message display is spontaneous and immediate as no interaction is needed with the server. For example,

```
<script language='JavaScript'>
function TheFormCheck()
{
        if (document.form1.name.value=="")
        {

                alert("Please insert your Name");
                event.returnValue=false;
        }
        if (document.form1.entry_session.value=="")
        {
                alert("Please     insert     your     Entry
                Session");
                event.returnValue=false;
        }
}
</script>
```

6.5 System Workflow

The process of building Web applications has 2 marked phases, one of creating a page design and the other of adding dynamic functionality to the page. The tools and features of HTML and PHP Triad aid in the entire process of developing dynamic Web Application, from the page design phase to that hosting the Web application on the server. As Web development happens in a step-by-step process, it helps to learn how the HTML and Php Triad environment models the development process. Here are some brief descriptions of the various tools that Php Triad provides in order to carry out these tasks. There are 4 distinct phases in the HTML and Php Triad workflow pattern. These phases are as follows:

i. Design and lay out a page

ii. Specify sources of data from which dynamic content will be added to the page.

iii. Add dynamic content to the page.

iv. Extend the functionality to the page.

6.5.1 Designing a Page

By using Macromedia Dreamweaver MX, I added elements such as text, images, forms to the page. Forms are an important component of dynamic Web applications because they are essential for including interactivity in a page. The pages designed had to have dynamic content displayed in them, so it is best to decide in advance what elements in a page are going to be dynamic. This can help to decide on alternative design strategies to be applied to the dynamic elements. For example, I planned to include login feature in my website, I had to display personalized page after the login is successful. In this case, the personalized page will have a dynamic text, which contains the name of the user. I should take care to ensure that the part where a dynamic element is going to appear is appropriately labeled. This makes the type content that will appear in that element clear. As for the user who is going to view the page, labels for dynamic content explain more clearly what the information is all about.

6.5.2 Creating Data Sources

Dynamic web applications require a data source from which they can retrieve and display up-to-date information. Therefore the primary step in creating dynamic pages is to identify a data source. Data sources can be database or browser variables such as request, application and session variables.

6.5.3 Adding Dynamic Functionality to a Page

After specified the data sources that will be used, the next phase involves binding the dynamic data to the elements in the page. Adding dynamic data is a simple process of dragging and dropping the required data onto the page element where I wanted the data to appear.

6.6 System Modules Implementation

The Academic Advisor System is divided into three major modules, which are Student Module, Advisor Module and Administrator Module. Each of these modules is developed and designed by using two major types of languages, HTML and Hypertext PreProcessor (PHP). The following sections explain the details about the implementation of each module throughout the project. All modules contains of several sub modules which are

i. Login and authentication
ii. Data entry
iii. Data updating
iv. Data viewing

v. Sending and receiving message

vi. Sending report

vii. Report validation.

viii. Search student

ix. Upload image

6.6.1 Student Module

The Student Module consists of several sub-modules, which are authentication and login module, data viewing module, data updating module, sending and receiving message module, and report validation module. These modules are developed by using PHP technology and HTML language. The entire module is implemented individually before it is integrated as a whole system.

Login Process

This module is implemented to verify the username and password entered by the user. It will check the user's 'username', 'password' and 'level'. Level is used to identify whether user's are logging in as a student, advisor or as the administrator. *(Please refer Appendix C for source code)*

Data Viewing

This module is implemented for students to

i. View own personal details such as `name, entry session, department, majoring` and etc.

ii. View their exam results organized by Academic Session and semester.

iii. View advisor's profile such as `name, title, room number, timetable,` etc.

Data Updating

This module is implemented for the purpose of updating the student records such as `password, picture, name, address, telephone number` and etc. *(Please refer to Appendix C for source code)*

Upload Image

The upload image module is implemented for the student to upload their picture for the viewings of their respective academic advisor. *(Please refer to Appendix C for source code)*

Send / Receive Message

This module is created to provide a simple messaging system for students to communicate with their respective academic advisors. *(Please refer to Appendix C for source code)*

Report Validation

This module will be used by students to validate reports send by their academic advisor. This module is basically done to ensure the formality and validity of the reports complies with the faculty's reporting guidelines. *(Please refer to Appendix C for source code)*

6.6.2 Advisor Module

This module is created to aid academic advisors in supervising students assigned to them. Here, the advisors could view the profile of the students under their supervision electronically, send periodic reports to a particular student under their supervision, send and receive messages to students in appointments setting and update his/her own profile such as name, room number, telephone number, expertise and upload picture.

Login Process

This module is implemented to verify the username and password entered by the user. It will check the user's 'username', 'password' and 'level'. Level is used to identify whether user's are logging in as a student, advisor or as the administrator. *(Please refer Appendix C for source code)*

Data Viewing

This module is implemented for advisors to

i. View own personal details such as name, room number, department, subject teach and etc.

ii. View advisor's profile such as name, matric number, department, reports and exam result.

Data Updating

This module is implemented for the purpose of updating the advisor records such as password, picture, name, subject teach, telephone number and etc. *(Please refer to Appendix C for source code)*

Upload Image

The upload image module is implemented for the advisor to upload their picture for the viewings of their respective student under his/her supervision. *(Please refer to Appendix C for source code)*

Send / Receive Message

This module is created to provide a simple messaging system for advisor to communicate with their respective supervised students. *(Please refer to Appendix C for source code)*

Report

This module will be used by advisors to send reports to a particular student for advising purposes. Reports that have been validated by students can be printed out.

6.6.3 Administrator Module

This module is implemented to eliminate the purpose of paper-based documents usually used by clerks at FCSIT in assigning students to academic advisors.

Login Process

This module is implemented to verify the username and password entered by the user. It will check the user's 'username', 'password' and 'level'. Level is used to identify whether user's are logging in as a student, advisor or as the administrator. *(Please refer Appendix C for source code)*

Data Viewing

This module is implemented for administrator to

iii. View students' personal details such as `name, majoring, department, address` and etc. (Please refer to Appendix C for module coding)

iv. View student list under particular advisor.

Data Updating

This module is implemented for the purpose of updating the students' records such as `department, majoring, advisor id, entry_session` and students' examination results according to Academic session and semester.

Search Student

To enable the administrator to quick search targeted student efficiently. *(Please refer to Appendix C for source code)*

6.7 Summary

This chapter basically summed up all the methods that I've been using while implementing my system. With the help of Php, Dreamweaver MX, and HTML books and tutorials I managed to come up with an idea on how to build a web base system and understand PHP technology which can create dynamic Web pages. I had included all the steps by steps action taken during the implementation of this Academic Advisor System (AAS) in this chapter. For source codes, kindly view Appendix C.

Chapter 7:
System Testing

7.1 Overview of System Testing

A testing strategy is a general approach to the testing process rather than a method of devising particular system or component test [Sommerville, 1995]. System testing is one of the important steps in system development. The purpose of testing is to detect the presence of errors in system; errors that have not been discovered yet. That means, a good test case is one that has a high probability of finding as a yet undiscovered error. A successful test is one that discovers errors whereas an unsuccessful test is one that discovers no errors. The goal is to design tests that will uncover the greatest number of errors or classes of errors in minimum amount if time and effort. Successful testing will result in quality system; system with fewer errors and which work according to specification and performance requirements. It will lead to dependable and reliable system.

7.2 Testing Principles

Several principles have been suggested for system testing:

i. Tests should be planned long before testing begins.

ii. All tests should be traceable to customer requirements. That means, the software must meet all the requirements of the user. In other words, the system must be validated against user requirements.

iii. Testing should begin in small and progress toward testing in the large, from micro to macro or from small modules to large modules.

iv. Exhaustive testing is not possible. There are far too many paths even in a moderately sized program. And for each path, there are usually many test cases.

v. An independent third party must conduct testing, not by those who designed the system. This minimizes bias in testing, as those who developed the system know exactly how the system works.

iii. They are not likely to interact in a way contrary to the expectations of the system.

7.3 Attributes of a Good Test

i. It should not be redundant and have the same purpose as another test. That means, every test carried out must served distinct purposes.

ii. It must have a high probability of detecting an error. That means the tester must picture how the system might fail. Ideally the potential classes or errors are identified and tests are designed to detect those classes of errors.

iii. It must uncover a whole class of errors.

iv. Each test case should be executed separately.

7.4 Test Planning

The purpose of having test planning is to help in designing and organizing tests, so that testing is carried out appropriately and thoroughly. A test plan has the following steps:

i. Establishing test objectives

At the beginning, we have to know what we are going to test on. So we have to establish our test objectives that tell us what kinds of test cases to generate.

ii. Designing test cases

After establishing test objectives, we begin to design the test cases that are used to test the system. If test cases are not representative and do not thoroughly exercise the functions that demonstrate the correctness and validity of the system, then the reminder of the testing process is useless.

iii. Writing test cases

iv. Testing test cases

v. Executing tests

Tests are executed.

vi. Evaluating test results

Results are evaluated.

7.5 Testing Strategies

For this Academic Advisor system, the coding and integration stage begins after the detailed design phase is complete. During this phase of the system development cycle, module is coded and documented using the detailed design as a blueprint. As each module in Academic Advisor System is written, it is tested for errors and any errors discovered are removed. The modules are then assembled together to build the system. As the modules are integrated, the system is tested. After the integration is completed, the entire system is tested further for errors. It is important to consider ahead of time the order in which the modules are to be coded and the strategy used to build the system. The approach used in coding the modules and assembling the system is called an integration strategy. There are several alternative methods, each of which has its pros and cons.

Coding and testing are carried out in parallel. The approach chosen to guide integration affects both the progression of the coding and the scheduling of testing activities. The levels of testing include:

i. Unit Testing

ii. Module Testing

iii. Integration Testing

iv. System Testing

v. Acceptance Testing

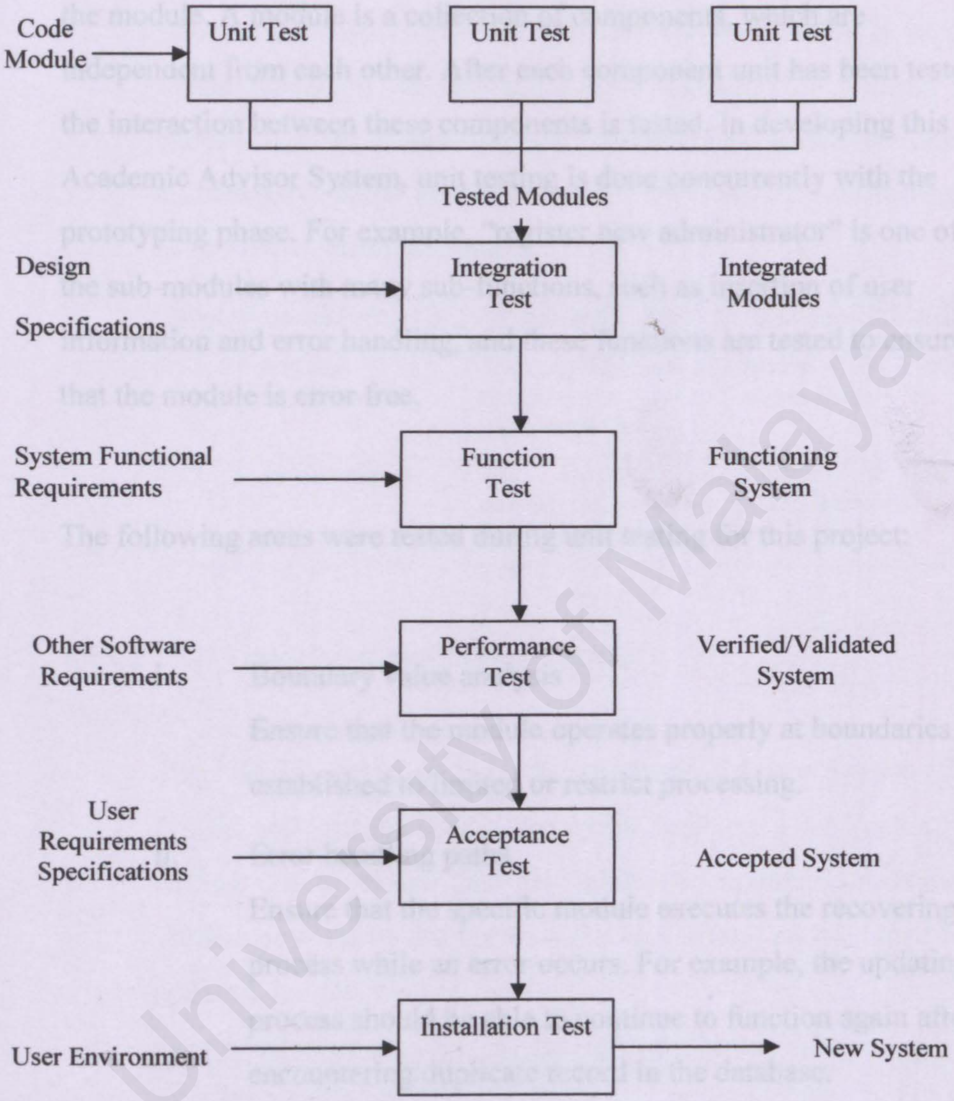

Figure 7.1: Levels of Testing

7.5.1 Unit Testing

Unit testing concentrates on the smallest unit of system design, which is the module. A module is a collection of components, which are independent from each other. After each component unit has been tested, the interaction between these components is tested. In developing this Academic Advisor System, unit testing is done concurrently with the prototyping phase. For example, “register new administrator” is one of the sub-modules with many sub-functions, such as insertion of user information and error handling, and these functions are tested to ensure that the module is error free.

The following areas were tested during unit testing for this project:

i. Boundary value analysis

Ensure that the module operates properly at boundaries established to limited or restrict processing.

ii. Error handling paths

Ensure that the specific module executes the recovering process while an error occurs. For example, the updating process should be able to continue to function again after encountering duplicate record in the database.

iii. All possible independent program paths are executed

Ensure that the control structures are implemented correctly.

7.5.1.1 Unit Testing Example (Test Case 1)

The Add Record function in this system is used to add new record into the database while the Delete Record function is used to delete unwanted records from the database. Unit Testing was carried out to ensure that the record was added or deleted successfully. Table below shows the test case for unit testing on the above mentioned functions.

Step	Test Procedure	Expected Output	Test Case Evaluation
1	Add new Administrator	The record is inserted permanently into table 'login_user'.	Record is inserted successfully.
2	Delete message	The message is deleted permanently from table 'message'	Record is deleted successfully

7.5.1.2 Unit Testing Example (Test Case 2)

The Edit Record module in the Academic Advisor System : Edit Profile will update table in the server database. Unit Testing was carried out to ensure that the table was updated successfully. Table below shows the test case for unit testing on the function of updating the records.

Step	Test Procedure	Expected Output	Test Case Evaluation
1	Edit student profile by changing name, address, email and etc.	The record in table 'student' will be updated permanently	Record is updated successfully
2	Change password	The record in table 'login_user' will be updated permanently	Record is updated successfully

7.5.2 Module Testing

A module is a collection of dependent components. A module encapsulates all of the related components. Module testing enables each module to be tested independently. This testing will ensure that the module calling sequence in this project is systematic.

In module testing, two or more units in which either unit that use output data from or provide input data for another unit were tested in collection. These units have related characteristics to perform a common goal or function such as the search engine function which comprised of SQL statement generating, query form submission, and displaying query results.

7.5.2.1 Module Testing Example (Test Case 1)

The Upload Images function in this system is used to upload images, which used to display picture of students and academic advisors. Module Testing was carried out to ensure that the image was being uploaded successfully. Table below shows the test case for module testing on the function of uploading image.

Step	Test Procedure	Expected Output	Test Case Evaluation
1	Browse picture to upload	The path of the image will be shown	The path of the image is successfully shown.
2	Click 'submit' button	The image path will be stored in table 'student' or 'advisor' and the image will be displayed on student or advisor profile page.	The picture is uploaded successfully and can be view through the student or advisor profile page.

7.5.3 Integration Testing

When the individual components are working correctly and meet the objectives, these components are combined into a working system. In other words, integration testing is the process of verifying that the system components are working together as described in the system and program design specifications. This integration is planned and coordinated in order to identify faults caused by the integration as well as to review and to rectify the correct path of the system flow.

Sandwich integration testing approach is used for this system. This approach combines top-down integration with bottom-up integration. The testing starts from the login screen of the system and down to the lowest level of the form functions and from the form function back to the login screen of the system. This testing is repeated several times to make sure that all the control objects work properly.

7.5.4 System Testing

System testing is a series of different tests designed to fully exercise the software system to uncover its limitations and measure its capabilities. The objective is to test an integrated system and verify that it meets specified requirements. Although each test in this project has a different, all work to verify that system elements have been properly integrated and perform allocated functions. Integration testing has 2 broad purposes:

i. To test the interfacing and integration of the modules in the system

ii. To test the functional performance of the system

The Academic Advisor System involving three types of system testing. They are security testing, function testing and performance testing.

i. Security Testing

Verifies the protection mechanisms built in the system can protect it from improper penetration.

ii. Function Testing

Function testing is based on the system functional requirements. In other words, a function test is used to check that whether the integrated system performs its functions as specified in the requirements. The testing is carried out on three main modules in this system which is Administrator Module, Advisor Module and Student Module. Each module is tested individually to determine whether the system performs as required.

iii. Performance Testing

- Compatibility Test

  This test was performed to find out that the interface functions perform according to the requirements. The accuracy of data retrieval was high in this system. Besides, the speed of data retrieval was acceptable too.

- Human Factors Test

  This test was performed to investigate requirements dealing with the user interface to the system. In this system, simple forms and related messages are displayed to determine user friendliness. These tests are sometimes called usability tests.

- Timing Tests

  This test was performed to evaluate the requirements dealing with the time to respond to a user and time to perform a function. The response time of this system is acceptable.

- Stress Testing

  Tries to break the system (for example, what happens when a record is written to the database with incomplete information).

- Volume Testing

  This test was performed to address the handling of large amounts of the data in the system. The fields and records are checked to see if they can accommodate all expected data.

7.5.5 Acceptance Testing

The final phase of the Academic Advisor System testing is on the user acceptance testing. This is to ensure that the system is able function normally in run time environment. The person who is doing the acceptance testing is students from FCSIT, University Of Malaya. The method carried out by the user during the acceptance testing is by performing edit functions, uploading images, view their exam results, sending message to their advisors as well viewing their advisors profiles.

To put it short, the acceptance testing mechanism approach is duly focusing on the simulation of a real time event. This is deemed the most appropriate method because it will test out the eventual performance of the Academic Advisor System if it is to be implemented in our faculty.

7.6 System Debugging

Testing is done throughout system development, not just at the end. It is meant to identify unknown problems, not to demonstrate the perfection of programs, manuals or equipment. So to make my Academic Advisor System (AAS) works smoothly, I tried to figure out on method of testing the system before finally present it to the supervisor and moderator.

After I was done with all the user interfaces of AAS, I'd make sure that all the links are linked properly and any errors that occurred in the system are eliminated step-by-step. Using Dreamweaver MX is easy since it provides error alert at the bottom of the page if there are any coding errors exist and I changed the errors periodically.

When it came to database, PhpMyAdmin was helping me wonderfully since I was not familiar enough to use this at the beginning, but by trying an error and by reading the book, I managed to handle the situation and finished the part of database.

The next step was linking the database with the interface coding. I really put on much effort in this part since I started with zero knowledge about PHP language. I borrowed PHP books from the library as well as downloading PHP tutorials from the internet had really helped me out.

Next to make it run in the Personal Web Server, I searched for this program since my computer was not set up before with this intranet server, and I learned on how to use of it by asking my friends who were already familiar with this.

Finally, when the system has fully developed, I asked some of my friends to try and used this system. As a result, I gained a lot of feedbacks and ideas on how to make my system user friendly since some of the users' maybe quite computer illiterate and they might get confused with the functions. But after some explanations had been made, I managed to give them their confidence on using this system and I was really satisfied with the system even though there were still rooms of improvements.

7.7 Summary

Testing is one of the important steps in developing a system. Precision and accuracy of output data is considered during this process. Unit, module, integration and system testing has been carried out for the Academic Advisor System. These testing approaches lead up in delivering a quality system to users. The objective of a system will only be achieved after all the thorough testing done by different user with different aspects.

Chapter 8: System Evaluation

8.1 System Evaluation

System Evaluation is a process of evaluating the developed system to identify the system's strengths and limitations as well as future enhancements. It also enables the developer to problem encountered during the development of the system.

8.2 Systems Features

The Academic Advisor System (AAS) was specially developed in order to give the academic advisors and student's information about the students and their records. This site was designed in such a way that will benefits Academic Advisors, Students and Administrators of the Faculty of Computer Science and Information Technology who would like to update information or obtain up-to-date and useful information about the students.

Basically, AAS is an informative site. This system provides a series of web pages that provide users with up-to-date information and links to some useful and relevant sites. Besides this system also allows the student and advisors to update their own profiles and for the advisor to check and search students' information. In addition, this system provides an internal messaging system to aid communications between students and academic advisor. The messaging system can be used to set appointments, alert message or urgent needs.

This AAS also provides a convenient way for the advisors to send meeting reports to student electronically. The validation system provided makes it easier for students to validate reports sent by their respective academic advisor.

As for the administrator, this Academic Advisor System provides 'search student' function to make it easier for them to update student results or records.

Furthermore the web pages interfaces that were developed are attractive with colorful, simple and user-friendly features. Users who are familiar with World Wide Web should have no problem at all in browsing and using this system.

This system also is developed to achieve the objectives as below:-

i. To reduce administrators paper works

ii. Easy to access and fast reference

iii. To be confidential

iv. User-friendly

v. Assist the lecturers and students in making appointments by using the internal messaging system

vi. Updating student and advisors information

vi. To upgrade the current manual system to a new online system to cater for better communication trend.

8.3 System Strengths

Evaluation of the strength for this AAS's system is mainly focus on the PHP codes and javascript that was used. By using the PHP codes and Javascript, the system that was developed is able to deliver a dynamic and interactive content on the web.

For the administrator module, this AAS enables the authorized administrator to update new information such as students' list, advisors' lists. Below is the strength of AAS that have achieved the objective.

8.3.1 Friendly User Interface

The major advantage that has been figured from AAS is that it provides friendly and easy to use interfaces. The interface has been designed using

Macromedia Dreamweaver MX and some research have been carried out on how to present the system by creating a formal look since AAS is for the used of FCSIT which interested on managing academic advisory system electronically.

Hyperlinks and flash button are provided for users to enable them to navigate from page to page easily by pointing and checking.

8.3.2 Easy Accessibility

This system is a web-based application and can be accessed easily using the Web browser. The Web browser needed, especially Internet Explorer, could be downloaded free from Microsoft's Website.

8.3.3 System Transparency

This refers to the condition where the users do not need to worry about how the system is conducted and structured. The system will handle the queries of the user without their intervention. Database transparency is also applied in the system where users do not need to know the structure of the database or anything related to the system built. For example, the student records retrieval from the database.

8.3.4 Password Protected Site

AAS is a password-protected site. There are three types of authorizers that are for Students, Advisors and Administrators. The students are required to login as a member of the system before they can successfully access the system. As for the Lecturers, they are required to login with their own username and password for full access to the system. Same goes to the Administrator, they can make any changes to the system's database such as editing and adding students and lecturers by login with the authorized username and password. This can make sure that the system is secure and also to prevent intruders.

8.4.5 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.

8.4.6 Data validation

Data validation is performed before record is inserted into the database. The purpose of this feature is to make sure invalid data will not be inserted into the database and cause error. All the fields in the form will be checked for null value or invalid data type. With this feature, error when inserting record into the database will not occur. Error message will also be prompted to the user if important field is not filled. For example, when the employee code for the leave application form is blank, an error message will be prompt to the user to complete the form before submitted.

8.4 System Limitations

Due to the time constraints and learning curve, there are some weaknesses in this Academic Advisor System. The weaknesses are elaborated as follow:

i. This homepage is mainly written in English; hence the information provided is limited for those who can understand English.

ii. This homepage doesn't include a module that enables the administrator to print any report in an appropriate report format.

iii. The administrator module is not fully automated as most of the data entry involves manual work. For example, administrator will have to key in student results one bye one for every semester.

iv. The system doesn't provide information that could tell whether lecturers are available at FCSIT or on Sabbatical or maternity leaves.

8.5 System Enhancements

This AAS was developed around two to three months time. Since the system development is a dynamic process, hence new ideas have come out while developing the system. Some of the ideas were implemented in the system but some of it could not incorporate into the system. Below are the ideas that are not incorporated into the system but can be implemented in the future:

i. The student's results are not displayed as detail as shown in Umisisweb. It is advisable to provide a detailed description of students' results so the advisor could monitor student's performance every now and then.

ii. The system should provide an alert message to academic advisors when there are students under his/her supervision had failed so many subjects.

iii. The system should also have an automatic generated email send to students' or advisor's mailbox when there's a new message stored in their message inbox.

iv. Exclude lecturers who are currently on sabbatical or maternity leaves from the Advisor List. This is to help administrator in assigning students to advisors without having to double check whether the particular lecturer is available or not.

8.6 Problems Encountered

During the development of AAS, various problems were encountered. Some of them could be overcome through certain solution while some of them were not. The following are some of the major problems raised and the approaches taken to solve them from the beginning through the end of the system development process.

8.6.1 No Experience in using Programming Language

As HTML is the default language for PHP, most of the coding is done using HTML. Building the interface using Macromedia Dreamweaver MX was not much of a problem but to embed PHP in it was a major crisis. Since this software and language was not taught before as well as with no prior knowledge of PHP coding, to organize the structure and codes during the process was a difficult task for me. To overcome this problem, I spent much time in learning and grasping the new language. I learnt from books, tutorials downloaded from the Internet and surfing the related materials were also some of the approaches taken to solve the problems. Discussion with friends who are experienced in PHP was a great help.

8.6.2 Lack of time

Due to lack of time, some specification suggested by the moderator before failed to be developed during the time frame given. Since I have to catch up with other subjects, I really have to squeeze in my time in order to finish up my final project.

8.6.3 Changing of Requirements

It is very difficult to develop and implement the system when the requirements change frequently. Sometimes the changes are easily made but sometimes it requires changing the whole coding in order to follow the new requirements.

8.6.4 Set Up and Configuration

The set up of the operating system are critical for the operation of the application developed. However, the setup process takes a long period of time because of lack of experience in installing the operating system. Besides, the repeated failure cause by the installer required re-installation of the operating system as a remedy and this consumed time and effort.

8.7 Knowledge Gained

There was a lot of knowledge gained throughout the development of this system. This includes knowledge in web application development, computing environment, Internet technologies, programming languages and concepts as well as database server as web server. The following are some of the knowledge I gained after developing this system:

i. **Setting up the Windows XP Professional**

Windows XP is used as an operating system on this project. During this period, I have the opportunities to set up the Windows XP by myself.

ii. **Using Php Triad as Tools**

By developing this system, I have learned how to write the PHP coding and how to use the MySql that is built in the Php Triad software. This software really helps me in constructing my database.

iii. **Using Macromedia Dreamweaver MX**

Learning and developing system interface has been exciting to me as Dreamweaver provides tools and other media objects that can be use to create a nice, structured and friendly user interface such as Flash Buttons, Rollover images and etc.

8.8 Chapter Summary

As a conclusion, I would say that the main objective of developing the Academic Advisor System (AAS) is achieved. This system can be used to facilitate academic advisors in supervising the students in their studies. It also provides the convenient way for the academic advisors and students to communicate. Although this system meets its goals and specifications, but there are plenty of rooms for improvements as mentioned in the system enhancements section.

Developing of AAS has given me a golden opportunity to learn PHP, HTML using Macromedia Dreamweaver MX and Javascript coding beside to train me to be more systematic in which I need to work and complete the tasks according to the time given besides practicing good planning and problem solving skills due to time constraints. It is hoped that EAAS can help the targeted users with its basic functionality that can assist in daily tasks.

APPENDIX

APPENDIX A: ACADEMIC ADVISOR SYSTEM USER MANUAL

1.1 Introduction

Academic Advisor System was developed to cater the growing demands of an electronic advising system to assist students and lecturers. This system provides adequate, useful and up to date information about students and their meetings with their academic advisor. Besides, this system enables user such as students to login to the system and view or update their profiles and password, messaging the academic advisor as well viewing the advisor's profile and send messages to advisor. As for the lecturers who act as the academic advisor, they are able to login and make updates on their own profile, students' meetings report as well as messaging the students. While for the administrator, they can log on to the system to make updates [illegible] academic advising, adding new lecturers or students and update student's exam results.

This system is easy to use and user friendly. All the functions provided in this system can be easily executed by just clicking on the hypertext and icons. Below is the user manual to provide guidance on how to use the system.

2.1 Getting Started

2.1.1 System Requirements

There are several minimum requirements the user should fulfill before they can start using the system. The hardware and software requirement are listed as follow:

2.1.1.1 Hardware Requirements

i. Pentium II porcessor 400Mhz or above

ii. 128 MB of RAM

iii. 10 GB hard disk with at least 1GB of free space

iv. Modem

v. Other computer-compatible accessories

APPENDIX A: ACADEMIC ADVISOR SYSTEM USER MANUAL

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i. Pentium II porcessor 400Mhz or above

ii. 128 MB of RAM

iii. 10 GB hard disk with at least 1GB of free space

iv. Modem

v. Other computer-compatible accessories

2.1.1.2 Software Requirements

i. Windows XP

ii. Hypertext PreProcessor (PHP)

iii. MySQL

iv. Apache Web server

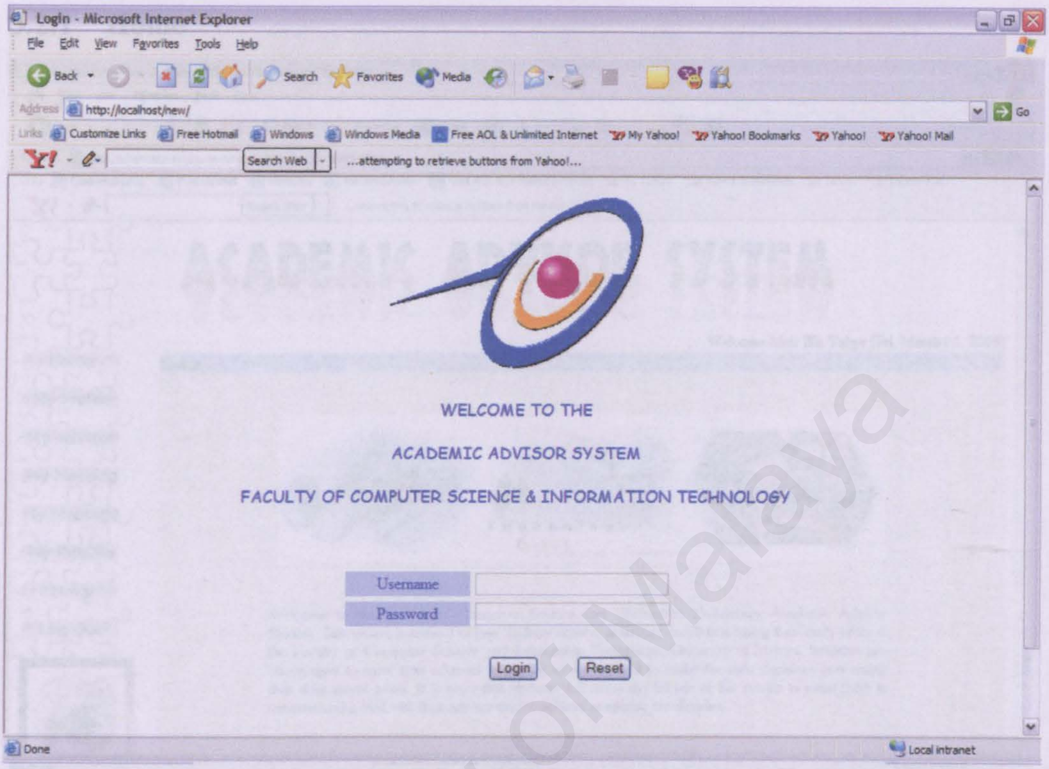
v. Macromedia Dreamweaver MX

vi. Microsoft Internet Explorer or Netscape Communicator

2.2.2 Accessing Academic Advisor System

To access the Academic Advisor System, user will have to start Apache Web Server as well as the MySQL database. Next, launch Internet Explorer and in the URL box at the top of the page, type http://localhost/new . User will be directed to the system's login page. For administrator, they will have to login at another URL; http://localhost/new/index1.php

3.1 Login Page for Student and Advisor



Login - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost/new/
Go
Links Customize Links Free Hotmail Windows Windows Media Free AOL & Unlimited Internet My Yahoo! Yahoo! Bookmarks Yahoo! Yahoo! Mail
Search Web
...attempting to retrieve buttons from Yahoo!...
Username
Password
Login
Reset
Done
Local intranet

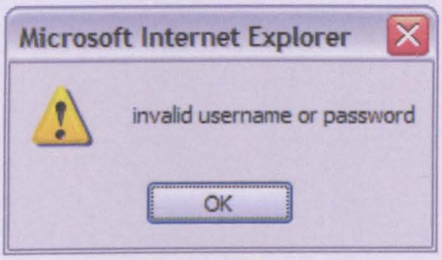
WELCOME TO THE

ACADEMIC ADVISOR SYSTEM

FACULTY OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

Figure A 1.1: Student's Login Page

In this page there will be a login button for the authorized user to access the system. After the password and username validation, the students will be linked to their own personal page. User is required to type their username and password in the box provided. And click 'Submit' button. If user enters an invalid or incomplete username and password, windows will prompt an error message.

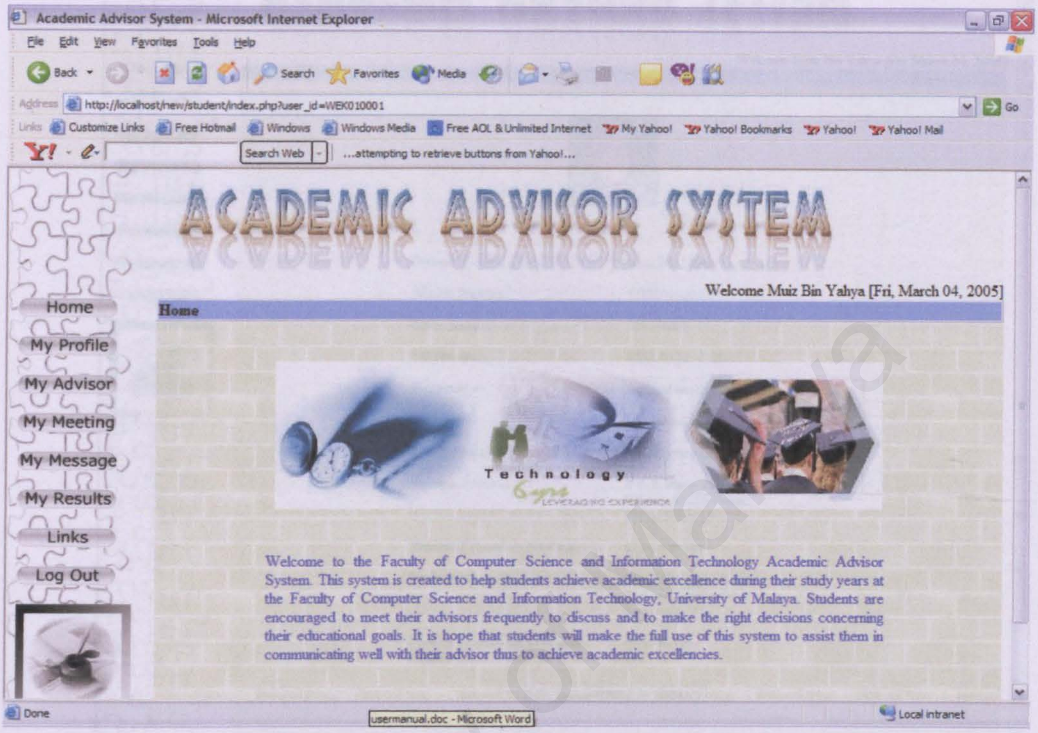


invalid username or password

Figure A 1.2 : Error Message

3.2 Student Module

3.2.1 Home



Academic Advisor System - Microsoft Internet Explorer

http://localhost/new/student/index.php?user_id=WEK010001

Welcome Muiz Bin Yahya [Fri, March 04, 2005]

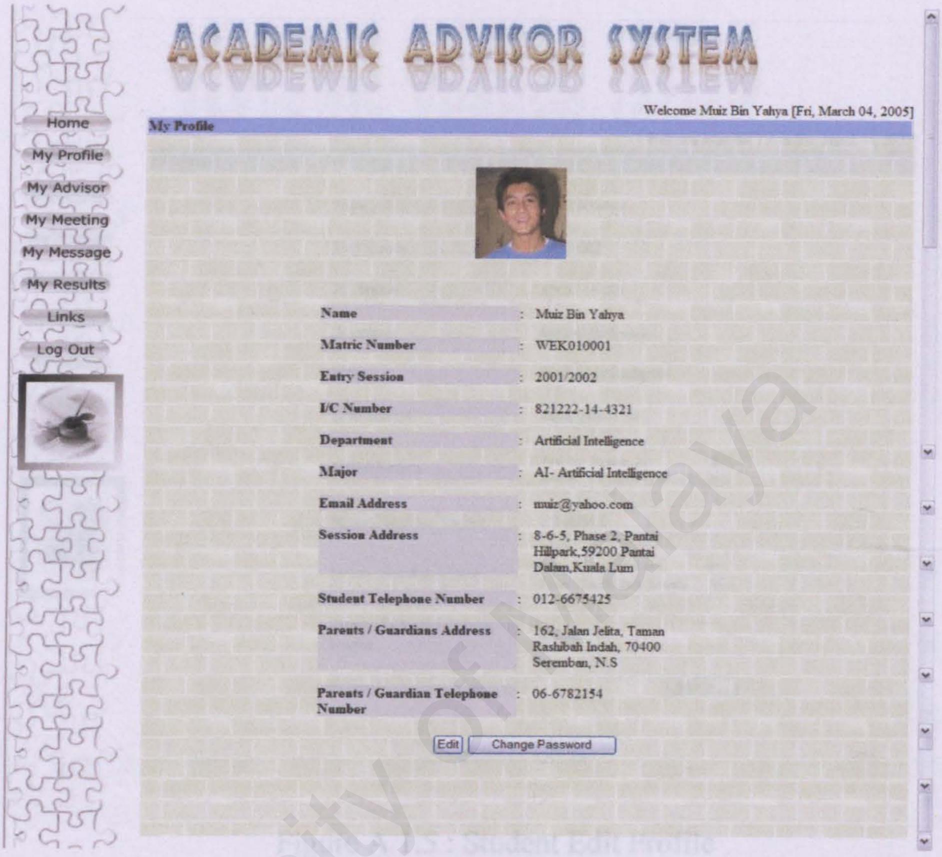
Home

Welcome to the Faculty of Computer Science and Information Technology Academic Advisor System. This system is created to help students achieve academic excellence during their study years at the Faculty of Computer Science and Information Technology, University of Malaya. Students are encouraged to meet their advisors frequently to discuss and to make the right decisions concerning their educational goals. It is hope that students will make the full use of this system to assist them in communicating well with their advisor thus to achieve academic excellencies.

Figure A 1.3 : Student Home

This is the page after the student has logged in where a welcome message is displayed. On the left menu of the page, there are several buttons to help student in navigating the system such as 'My Profile', 'My Advisor', 'My Meeting', My Message', 'Links' and 'Log Out'.

3.2.2 My Profile



Welcome Muiz Bin Yahya [Fri, March 04, 2005]

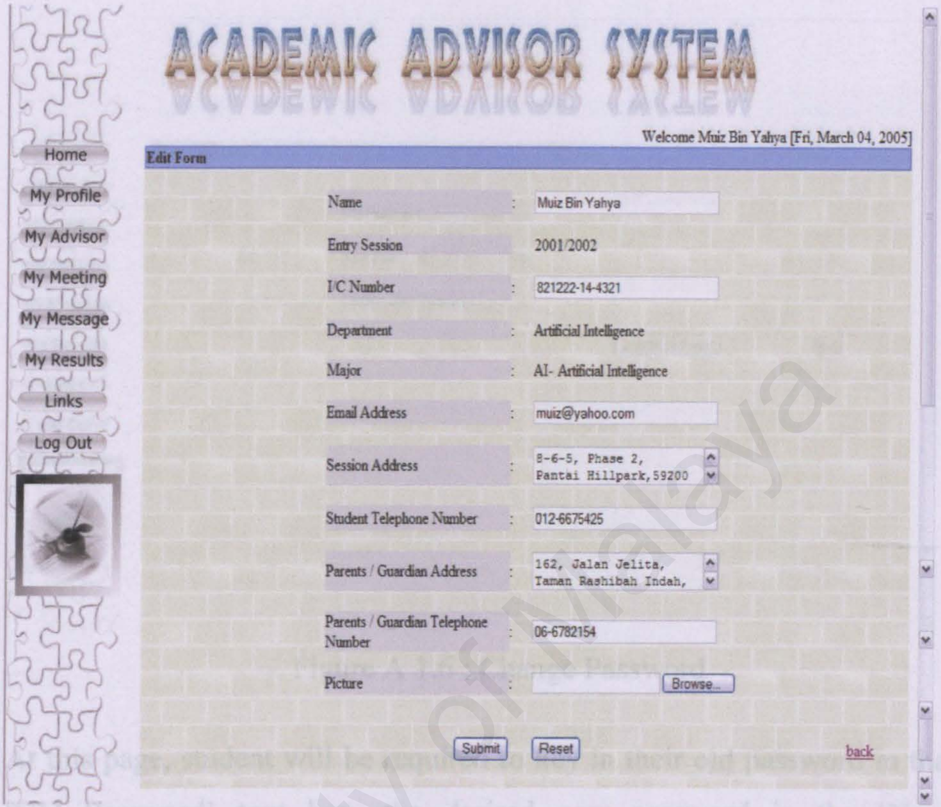
My Profile

Name	:	Muiz Bin Yahya
Matric Number	:	WEK010001
Entry Session	:	2001/2002
I/C Number	:	821222-14-4321
Department	:	Artificial Intelligence
Major	:	AI- Artificial Intelligence
Email Address	:	muiz@yahoo.com
Session Address	:	8-6-5, Phase 2, Pantai Hillpark,59200 Pantai Dalam,Kuala Lum
Student Telephone Number	:	012-6675425
Parents / Guardians Address	:	162, Jalan Jelita, Taman Rashibah Indah, 70400 Seremban, N.S
Parents / Guardian Telephone Number	:	06-6782154

Figure A 1.4 : Student Profile

This page displays the details of the students and students can press the 'Edit' button to make changes to their profile such as address, telephone number and etc. The 'Change Password' button will direct user to a new page where user can change their existing password to a new one.

3.2.3 Edit Profile



Welcome Muiz Bin Yahya [Fri, March 04, 2005]

Edit Form

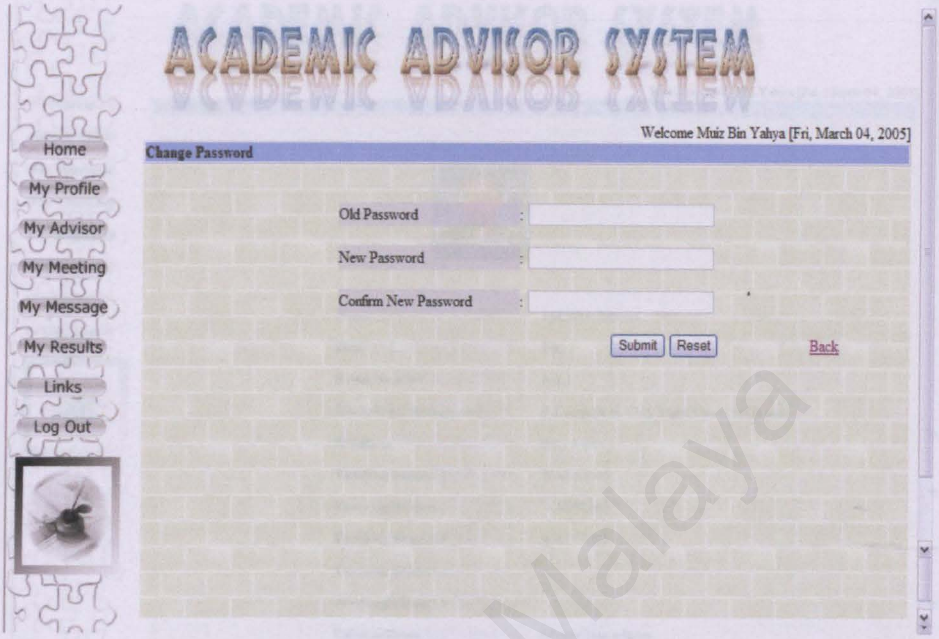
Name	:	Muiz Bin Yahya
Entry Session	:	2001/2002
I/C Number	:	821222-14-4321
Department	:	Artificial Intelligence
Major	:	AI- Artificial Intelligence
Email Address	:	muiz@yahoo.com
Session Address	:	8-6-5, Phase 2, Pantai Hillpark, 59200
Student Telephone Number	:	012-6675425
Parents / Guardian Address	:	162, Jalan Jelita, Taman Rashibah Indah,
Parents / Guardian Telephone Number	:	06-6782154
Picture	:	Browse...

Submit Reset back

Figure A 1.5 : Student Edit Profile

This is the page where the student can make changes to their profile. After changing their details, just click on button 'Submit' to save the changes or button 'Reset' to erase and empty the form. The back link can lead the user to 'My Profile' page when clicked.

3.2.4 Change Password



Welcome Muiz Bin Yahya [Fri, March 04, 2005]

Change Password

Old Password :

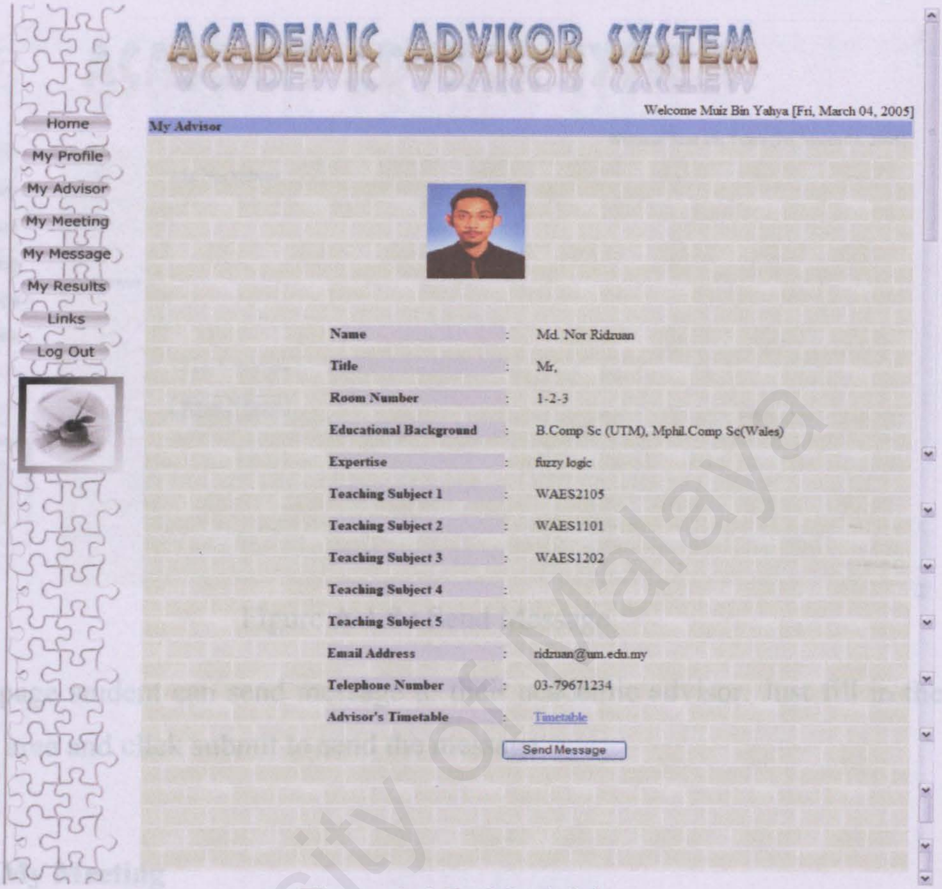
New Password :

Confirm New Password :

Figure A 1.6 : Change Password

At this page, student will be required to key in their old password in the 'Old Password' text box, the desired new password in the 'New Password' text box and finally re-enter the desired new password in the 'Confirm New Password' text box. This is to ensure that password will be updated successfully when the 'Submit' button is clicked. To erase and empty the form, user may click the 'Reset' button. The back link can lead the user to 'My Profile' page when clicked.

3.2.5 My Advisor



Welcome Muiz Bin Yahya [Fri, March 04, 2005]

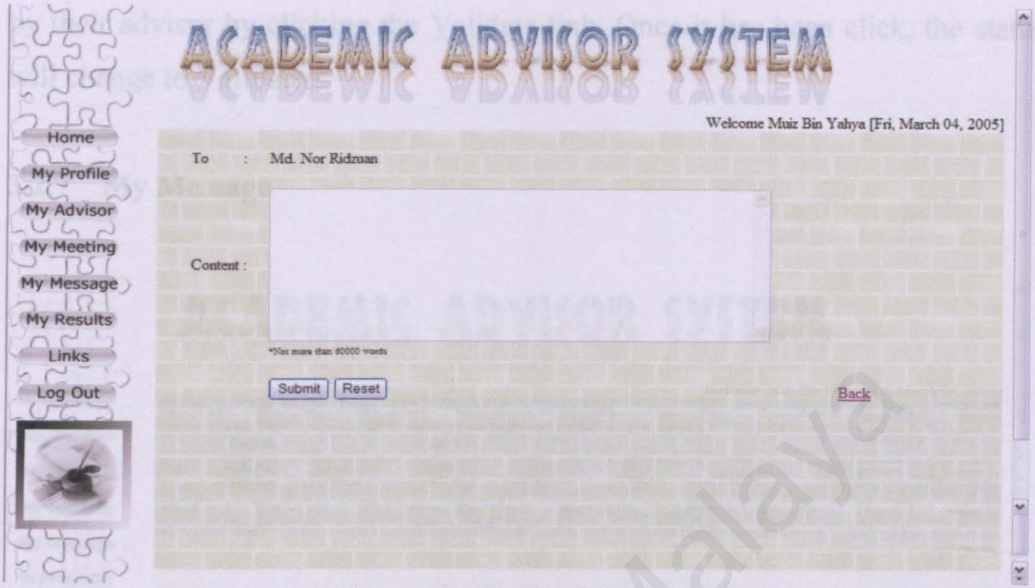
My Advisor

Name	:	Md. Nor Ridzuan
Title	:	Mr,
Room Number	:	1-2-3
Educational Background	:	B.Comp Sc (UTM), Mphil.Comp Sc(Wales)
Expertise	:	fuzzy logic
Teaching Subject 1	:	WAES2105
Teaching Subject 2	:	WAES1101
Teaching Subject 3	:	WAES1202
Teaching Subject 4	:	
Teaching Subject 5	:	
Email Address	:	ridzuan@um.edu.my
Telephone Number	:	03-79671234
Advisor's Timetable	:	Timetable

Figure A 1.7 : My Advisor

When user click 'My Advisor' button at the Home page, it will lead user to his/her academic advisor which has been assigned to them. Here, student could view the advisor's profile and important facts about the advisor. To view the advisor's timetable, student can click on the Timetable link. To send message to the advisor for any advising or appointment setting purposes, student can click on the 'Send Message' button below.

3.2.5 Send Message



Welcome Muiz Bin Yahya [Fri, March 04, 2005]

To : Md. Nor Ridzuan

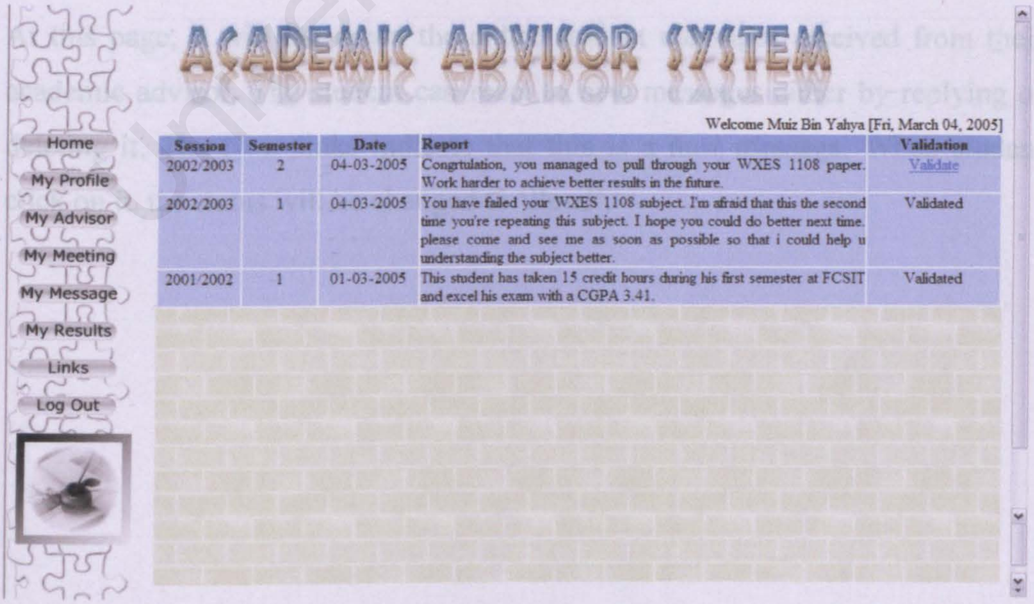
Content :

*Not more than 60000 words

Figure A 1.8 : Send Message

In this page student can send message to their academic advisor. Just fill in the content area and click submit to send the message.

3.2.6 My Meeting



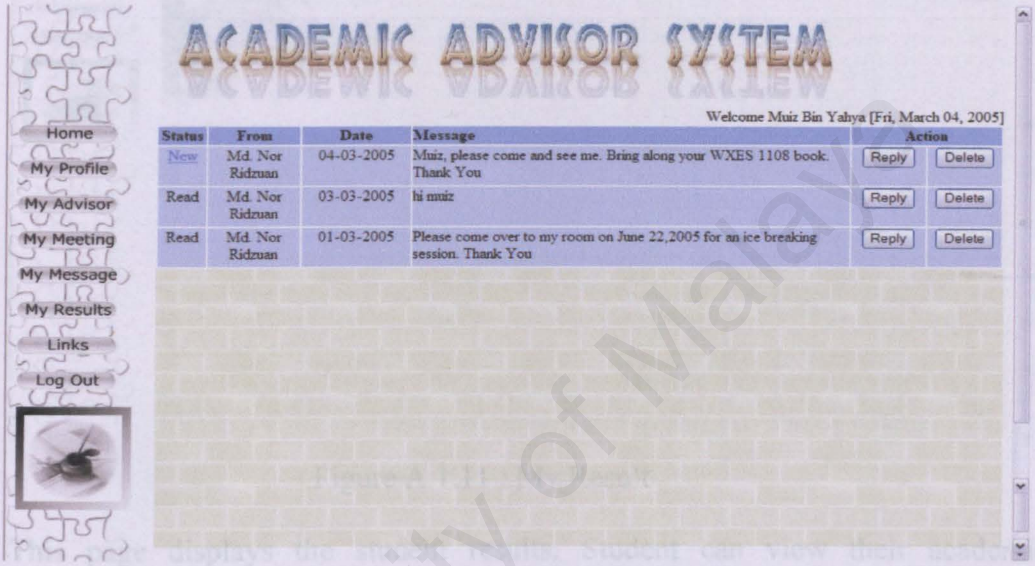
Welcome Muiz Bin Yahya [Fri, March 04, 2005]

Session	Semester	Date	Report	Validation
2002/2003	2	04-03-2005	Congrtulation, you managed to pull through your WXES 1108 paper. Work harder to achieve better results in the future.	Validate
2002/2003	1	04-03-2005	You have failed your WXES 1108 subject. I'm afraid that this the second time you're repeating this subject. I hope you could do better next time. please come and see me as soon as possible so that i could help u understanding the subject better.	Validated
2001/2002	1	01-03-2005	This student has taken 15 credit hours during his first semester at FCSIT and excel his exam with a CGPA 3.41.	Validated

Figure A 1.9 : My Meeting

When student click on 'My Meeting' button on the left menu, the system will direct the user to this page. Here, student will have to validate new reports given by their advisor by clicking the Validate link. Once it has been click, the status will change to Validated.

3.2.7 My Message



ACADEMIC ADVISOR SYSTEM

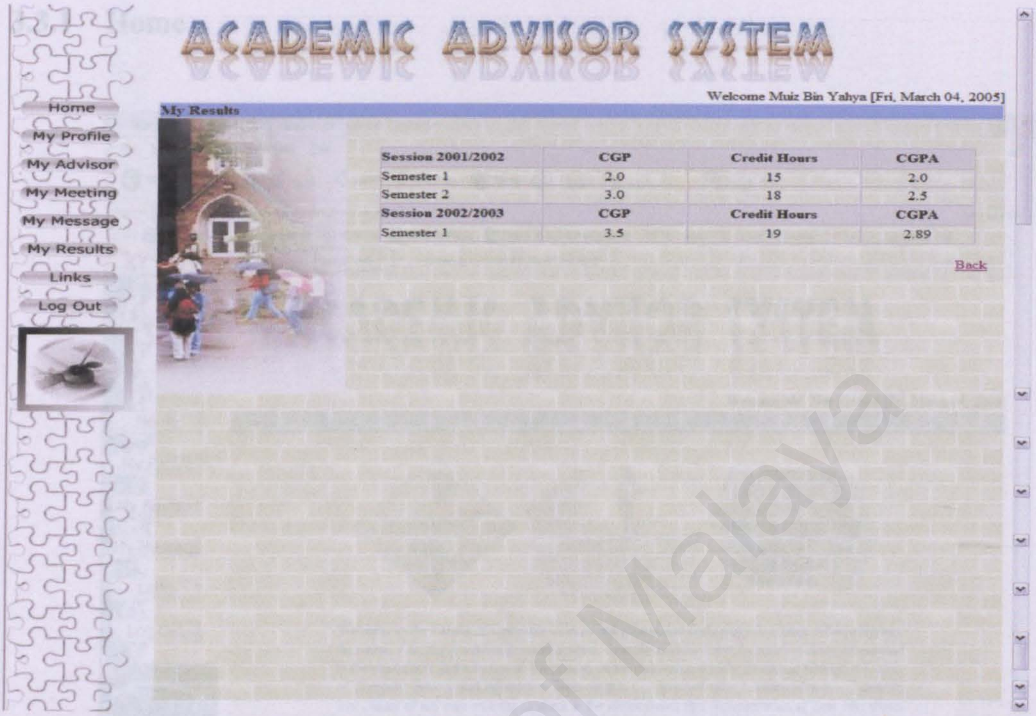
Welcome Muiz Bin Yahya [Fri, March 04, 2005]

Status	From	Date	Message	Action	
New	Md. Nor Ridzuan	04-03-2005	Muiz, please come and see me. Bring along your WXES 1108 book. Thank You	Reply	Delete
Read	Md. Nor Ridzuan	03-03-2005	hi muiz	Reply	Delete
Read	Md. Nor Ridzuan	01-03-2005	Please come over to my room on June 22,2005 for an ice breaking session. Thank You	Reply	Delete

Figure A 1.10 : My Message

At this page, it will list down the entire student messages received from their academic advisor. The student can react to new messages either by replying or deleting it. The New links indicate that this is a new message. When student click on it, the status will be changed to 'Read'.

3.2.8 My Result



Welcome Muiz Bin Yahya [Fri, March 04, 2005]

My Results

Session 2001/2002	CGP	Credit Hours	CGPA
Semester 1	2.0	15	2.0
Semester 2	3.0	18	2.5
Session 2002/2003	**CGP**	**Credit Hours**	**CGPA**
Semester 1	3.5	19	2.89

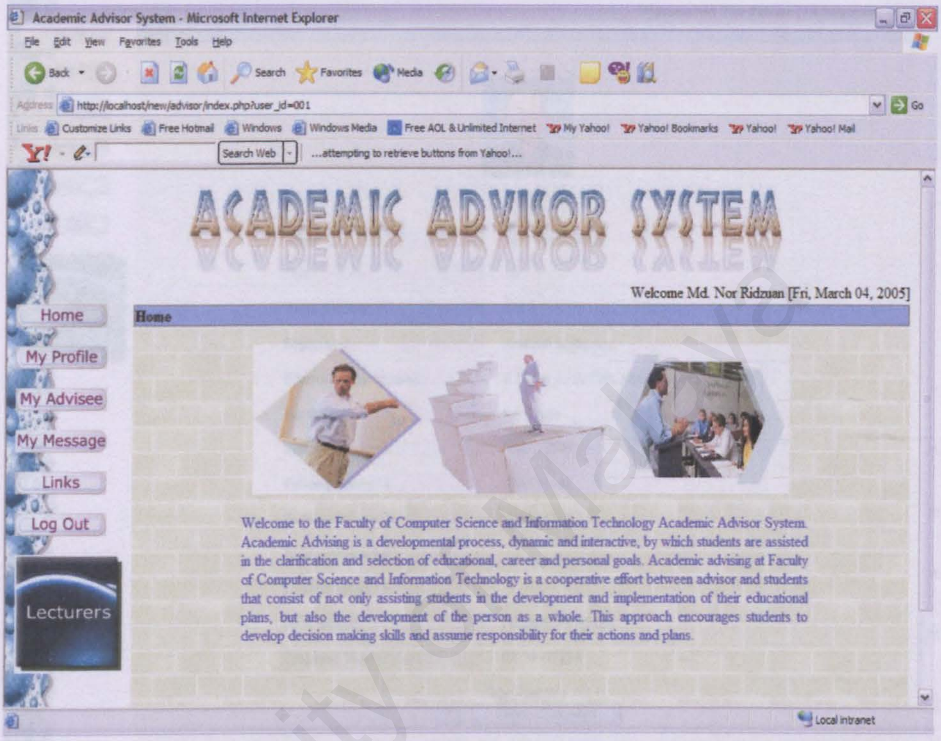
Back

Figure A 1.11 : My Result

This page displays the student results. Student can view their academic achievements according to Academic Session and semester.

3.3 Advisor Module

3.3.1 Home


Academic Advisor System - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost/new/advisor/index.php?user_id=001
Go
Links Customize Links Free Hotmail Windows Windows Media Free AOL & Unlimited Internet My Yahoo! Yahoo! Bookmarks Yahoo! Yahoo! Mail
Search Web
...attempting to retrieve buttons from Yahoo!...
ACADEMIC ADVISOR SYSTEM
Home
My Profile
My Advisee
My Message
Links
Log Out
Lecturers
Local intranet

Welcome Md. Nor Ridzuan [Fri, March 04, 2005]

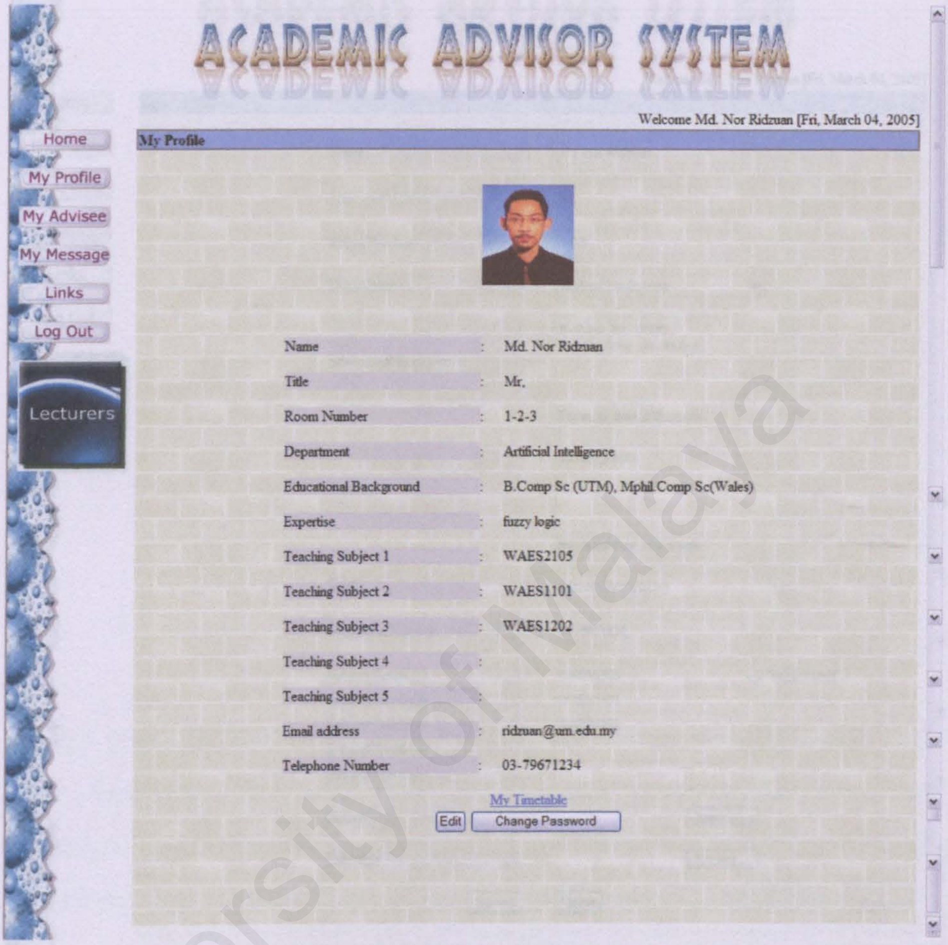
Home

Welcome to the Faculty of Computer Science and Information Technology Academic Advisor System. Academic Advising is a developmental process, dynamic and interactive, by which students are assisted in the clarification and selection of educational, career and personal goals. Academic advising at Faculty of Computer Science and Information Technology is a cooperative effort between advisor and students that consist of not only assisting students in the development and implementation of their educational plans, but also the development of the person as a whole. This approach encourages students to develop decision making skills and assume responsibility for their actions and plans.

Figure A 1.12 : Advisor Home

In this page the lecturer can view the students that are under their supervision by clicking 'My Advisee' button. Instead of searching through the database, the lecturer also can just click on the names of the students to access the student details. In My profile, lecturer could edit and update their profiles such as Timetable and Picture. There is also a Logout button for the lecturer to log out from the system.

3.3.2 My Profile



Welcome Md. Nor Ridzuan [Fri, March 04, 2005]

My Profile

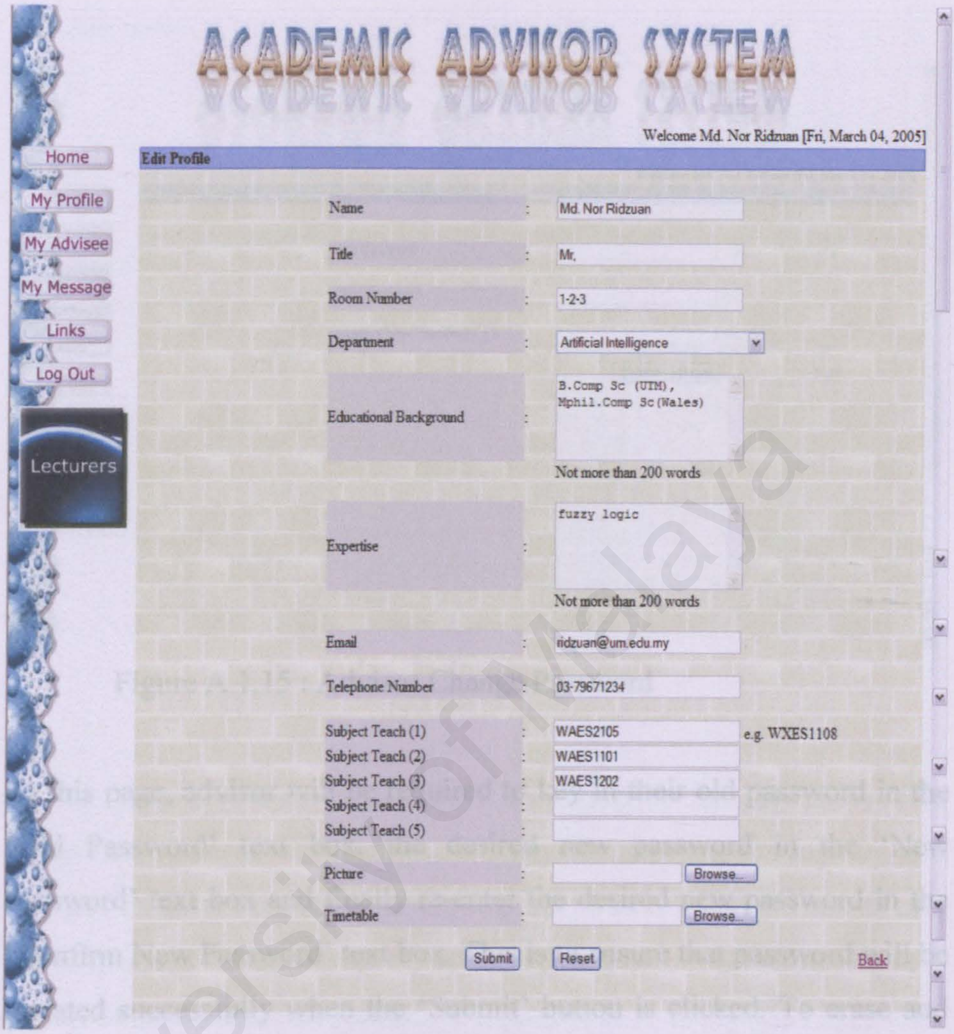
Name	:	Md. Nor Ridzuan
Title	:	Mr.
Room Number	:	1-2-3
Department	:	Artificial Intelligence
Educational Background	:	B.Comp Sc (UTM), Mphil.Comp Sc(Wales)
Expertise	:	fuzzy logic
Teaching Subject 1	:	WAES2105
Teaching Subject 2	:	WAES1101
Teaching Subject 3	:	WAES1202
Teaching Subject 4	:	
Teaching Subject 5	:	
Email address	:	ridzuan@um.edu.my
Telephone Number	:	03-79671234

My Timetable

Figure A 1.13 : Advisor Profile

This page displays the details of the advisors. The advisor can click the 'Edit' button to make changes to their profile such as timetable, telephone number and etc. The 'Change Password' button will direct user to a new page where user can change their existing password to a new one.

3.3.3 Edit Profile



Welcome Md. Nor Ridzuan [Fri, March 04, 2005]

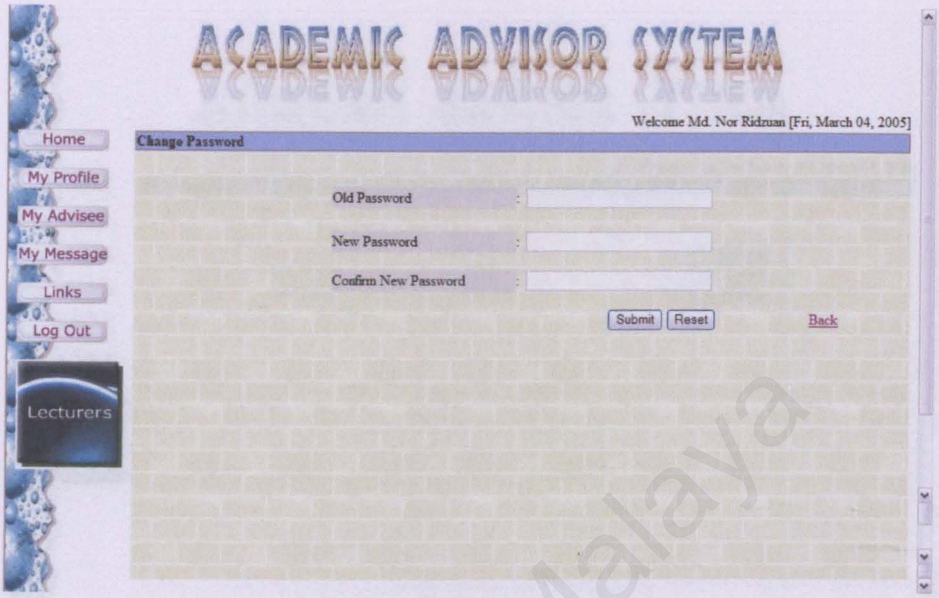
Edit Profile

Name	:	Md. Nor Ridzuan
Title	:	Mr,
Room Number	:	1-2-3
Department	:	Artificial Intelligence
Educational Background	:	B.Comp Sc (UTM), Mphil.Comp Sc(Wales) Not more than 200 words
Expertise	:	fuzzy logic Not more than 200 words
Email	:	ridzuan@um.edu.my
Telephone Number	:	03-79671234
Subject Teach (1)	:	WAES2105 e.g. WXES1108
Subject Teach (2)	:	WAES1101
Subject Teach (3)	:	WAES1202
Subject Teach (4)	:	
Subject Teach (5)	:	
Picture	:	
Timetable	:	

Figure A 1.14 : Advisor Edit Profile

This is the page where the advisor can make changes to their profile. After changing their details, just click on button 'Submit' to save the changes or button 'Reset' to erase and empty the form. The back link can lead the user to 'My Profile' page when clicked.

3.3.4 Change Password


ACADEMIC ADVISOR SYSTEM

Welcome Md. Nor Ridzuan [Fri, March 04, 2005]

Change Password

Old Password :

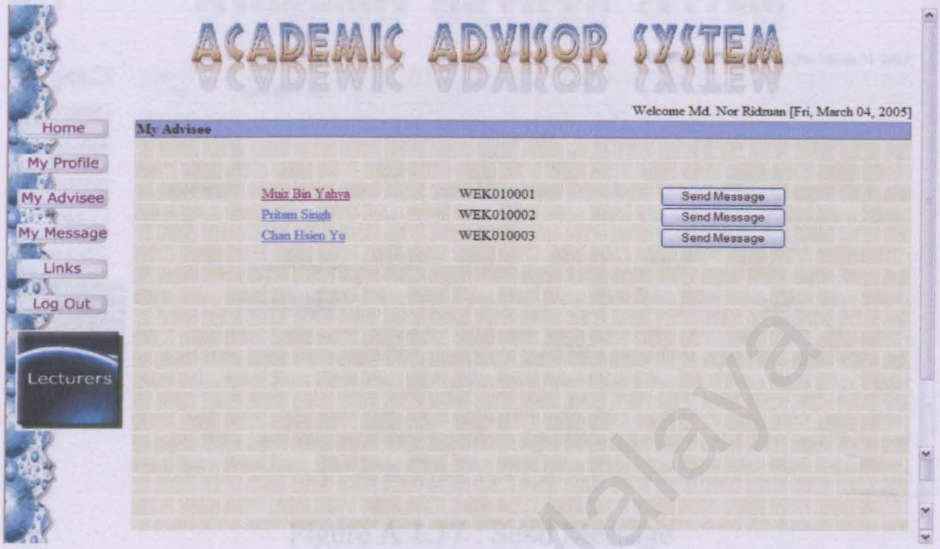
New Password :

Confirm New Password :

Figure A 1.15 : Advisor Change Password

At this page, advisor will be required to key in their old password in the 'Old Password' text box, the desired new password in the 'New Password' text box and finally re-enter the desired new password in the 'Confirm New Password' text box. This is to ensure that password will be updated successfully when the 'Submit' button is clicked. To erase and empty the form, user may click the 'Reset' button. The back link can lead the user to 'My Profile' page when clicked.

3.3.5 My Advisee



Welcome Md. Nor Ridzuan [Fri, March 04, 2005]

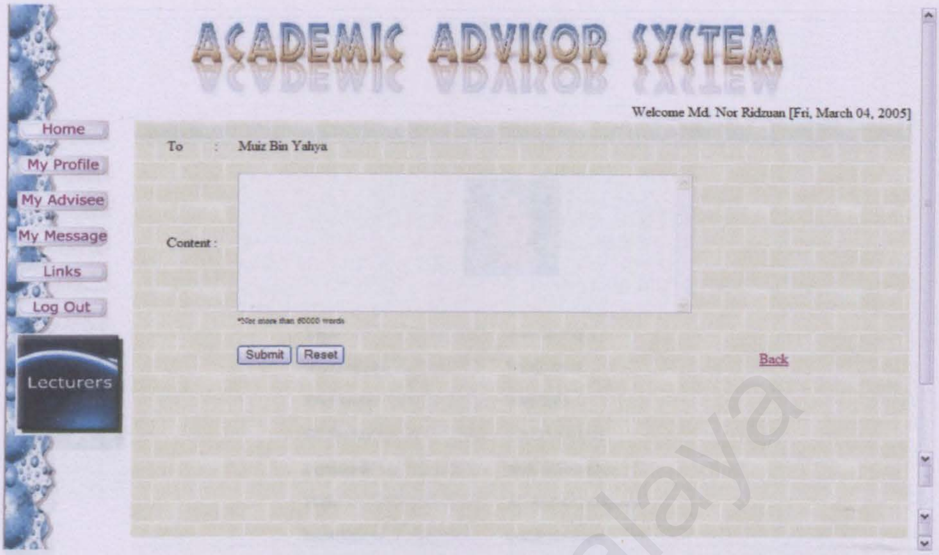
My Advisee

Muiz Bin Yahya	WEK010001	Send Message
Pritam Singh	WEK010002	Send Message
Chan Hsien Yu	WEK010003	Send Message

Figure A 1.16 : My Advisee

In this page the lecturer can view the students that are under their supervision. Instead of searching through the database, the lecturer also can just click on the names of the students to access the student details. There is also a 'Send Message' button for the lecturer to send message to his/her student from the system.

3.3.6 Send Message



Welcome Md. Nor Ridzuan [Fri, March 04, 2005]

To : Muiz Bin Yahya

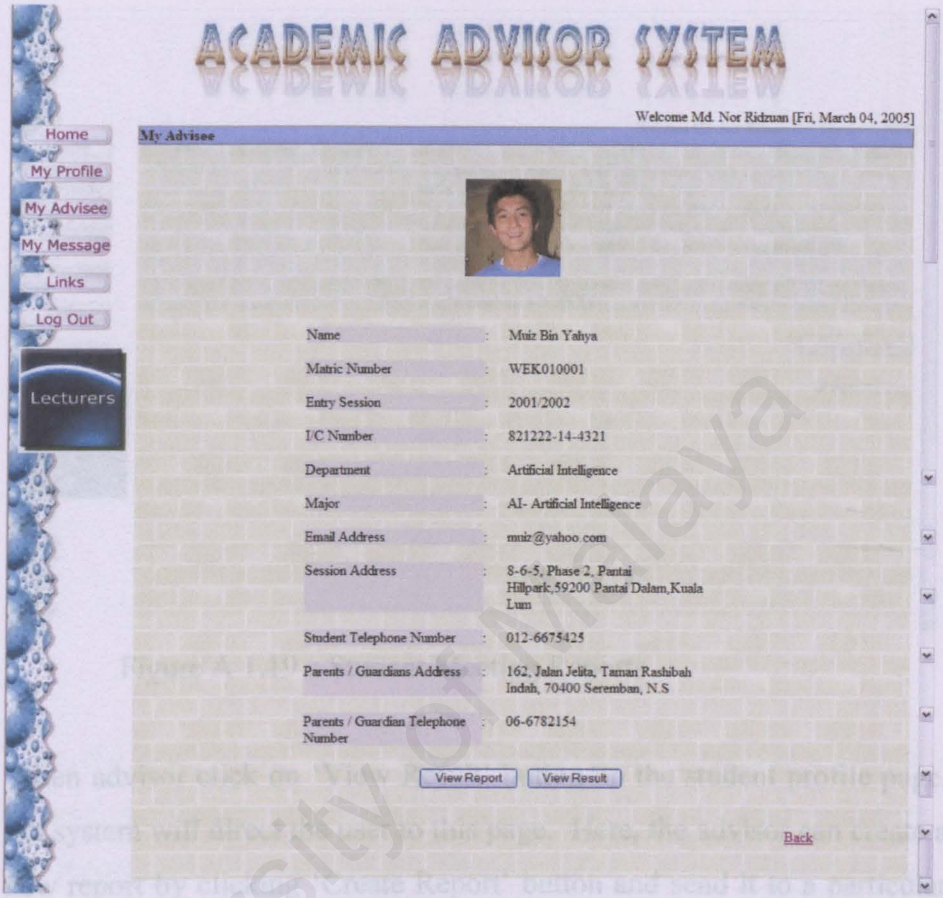
Content :

*Not more than 60000 words

Figure A 1.17 : Send Message

In this page, advisor can send message to his/her supervised student. Just fill in the content area and click submit to send the message.

3.3.7 Student Profile



Welcome Md. Nor Ridzuan [Fri, March 04, 2005]

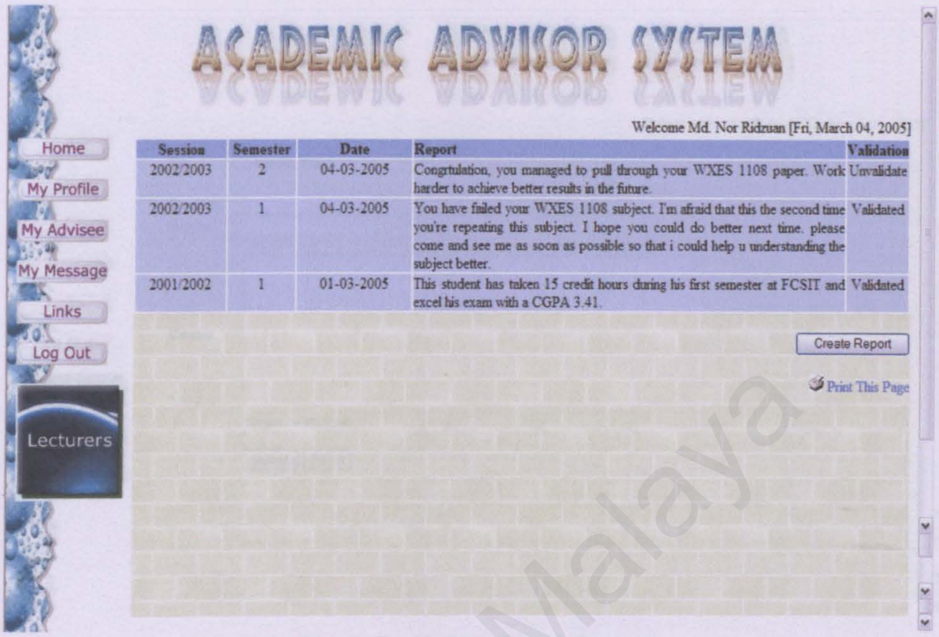
My Advisee

Name	:	Muiz Bin Yahya
Matric Number	:	WEK010001
Entry Session	:	2001/2002
I/C Number	:	821222-14-4321
Department	:	Artificial Intelligence
Major	:	AI- Artificial Intelligence
Email Address	:	muiz@yahoo.com
Session Address	:	8-6-5, Phase 2, Pantai Hillpark,59200 Pantai Dalam,Kuala Lum
Student Telephone Number	:	012-6675425
Parents / Guardians Address	:	162, Jalan Jelita, Taman Rashibah Indah, 70400 Seremban, N.S
Parents / Guardian Telephone Number	:	06-6782154

Figure A 1.18 : Student Profile

At this page, academic advisor could perform a couple of tasks; one is to view student's meeting reports and the other to view the student's result.

3.3.8 Student Meeting Reports



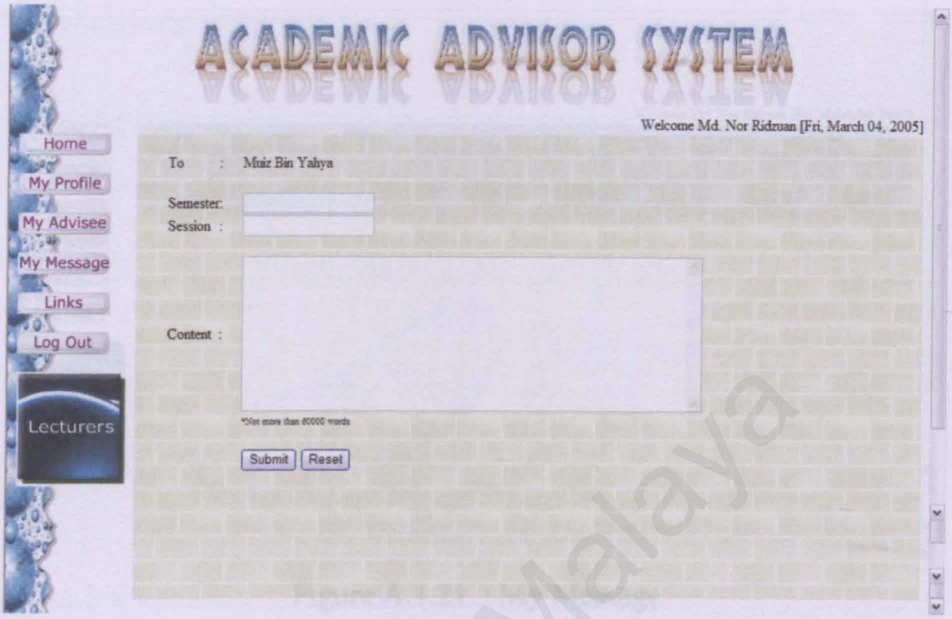
Welcome Md. Nor Ridzuan [Fri, March 04, 2005]

Session	Semester	Date	Report	Validation
2002/2003	2	04-03-2005	Congrtulation, you managed to pull through your WXES 1108 paper. Work harder to achieve better results in the future.	Unvalidate
2002/2003	1	04-03-2005	You have failed your WXES 1108 subject. I'm afraid that this the second time you're repeating this subject. I hope you could do better next time. please come and see me as soon as possible so that i could help u understanding the subject better.	Validated
2001/2002	1	01-03-2005	This student has taken 15 credit hours during his first semester at FCSIT and excel his exam with a CGPA 3.41.	Validated

Figure A 1.19 : Student Meeting Reports

When advisor click on 'View Result' button on the student profile page, the system will direct the user to this page. Here, the advisor can create a new report by clicking 'Create Report' button and send it to a particular student. The status shown 'Unvalidate' depicts that student hasn't yet to validate report that was given to them. The 'Print This Page' function can be used to print the particular page.

3.3.9 Send Report



Welcome Md. Nor Ridzuan [Fri, March 04, 2005]

To : Muiz Bin Yahya

Semester:

Session :

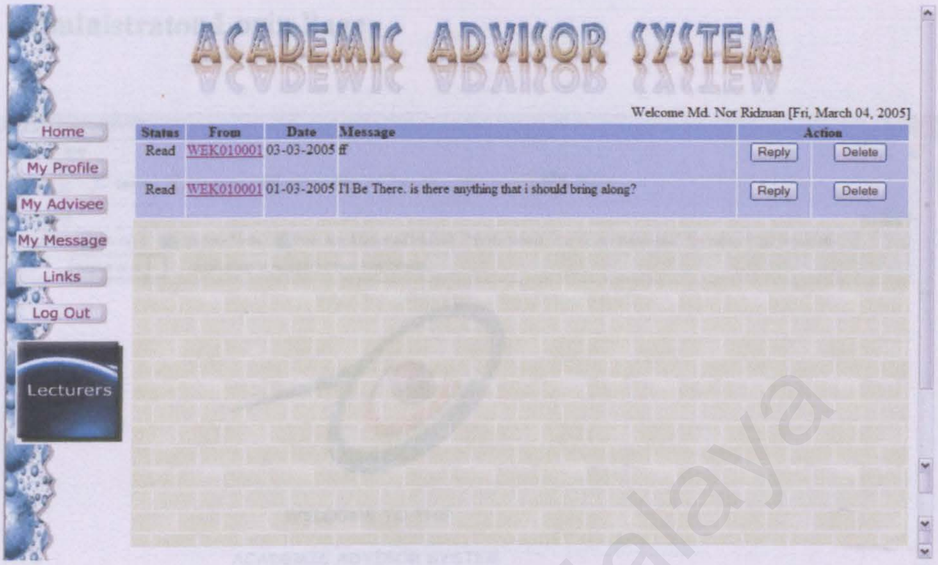
Content :

*Not more than 60000 words

Figure A 1.20 : Send Report

From the Student Record, the advisor is able to send report to a particular student. In this page the advisor is required to fill all the column and type the report regarding the student. Then click the 'Submit' Button in order to save the report in the database or 'Reset' button, to clear the form.

3.3.10 My Message



Welcome Md. Nor Ridzuan [Fri, March 04, 2005]

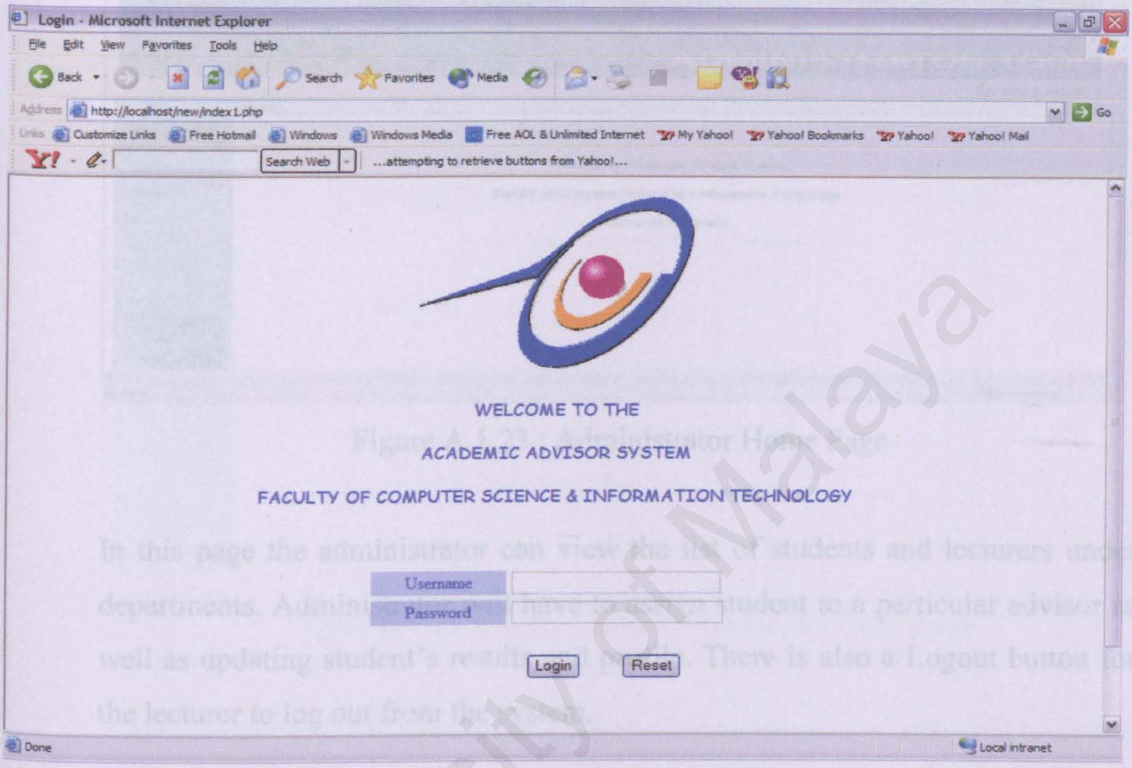
Status	From	Date	Message	Action	
Read	WEK010001	03-03-2005	ff	Reply	Delete
Read	WEK010001	01-03-2005	I'l Be There. is there anything that i should bring along?	Reply	Delete

Figure A.1.21 : My Message

At this page, it will list down all messages received from their supervised students. Advisor can react to messages either by replying or deleting it. The New links indicate that this is a new message. When the advisor click on it, the status will be changed to 'Read'. If the advisor wants to from whom the message was from, he/she could click on the student's matric number to view the sender's profile.

3.4 Administrator Module

3.4.1 Administrator Login Page

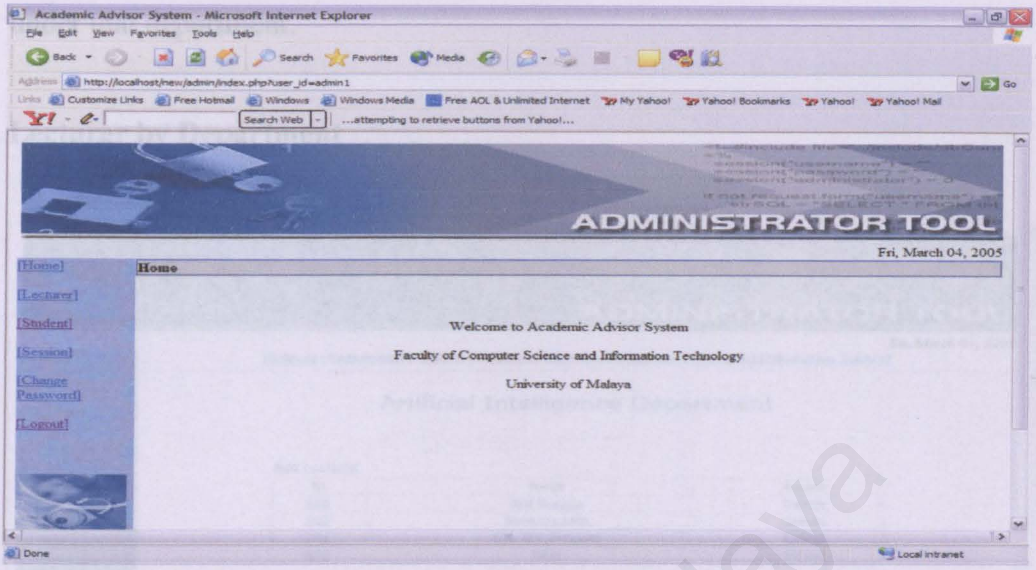

Login - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost/new/index1.php
Go
Links Customize Links Free Hotmail Windows Windows Media Free AOL & Unlimited Internet My Yahoo! Yahoo! Bookmarks Yahoo! Yahoo! Mail
Search Web
...attempting to retrieve buttons from Yahoo!...
Username
Password
Login
Reset
Done
Local intranet

WELCOME TO THE
ACADEMIC ADVISOR SYSTEM
FACULTY OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

Figure A 1.22 : Administrator Login Page

For administrator login, administrator will have to type http://localhost/new/index1.php in order to get into the login page of this Academic Advisor System. In this page there will be a login button for the authorized user to access the system. After the password and username validation, the admnistrator will be linked to their own personal page. User is required to type their username and password in the box provided. And click 'Submit' button. If user enters an invalid or incomplete username and password, windows will prompt an error message.(Refer figure A 1.2 : Error Message)

3.4.2 Administrator Home


Academic Advisor System - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost/new/admin/index.php?user_id=admin1
Go
ADMINISTRATOR TOOL
[Home]
[Lecturer]
[Student]
[Session]
[Change Password]
[Logout]
Done
Local intranet

Fri, March 04, 2005

Home

Welcome to Academic Advisor System

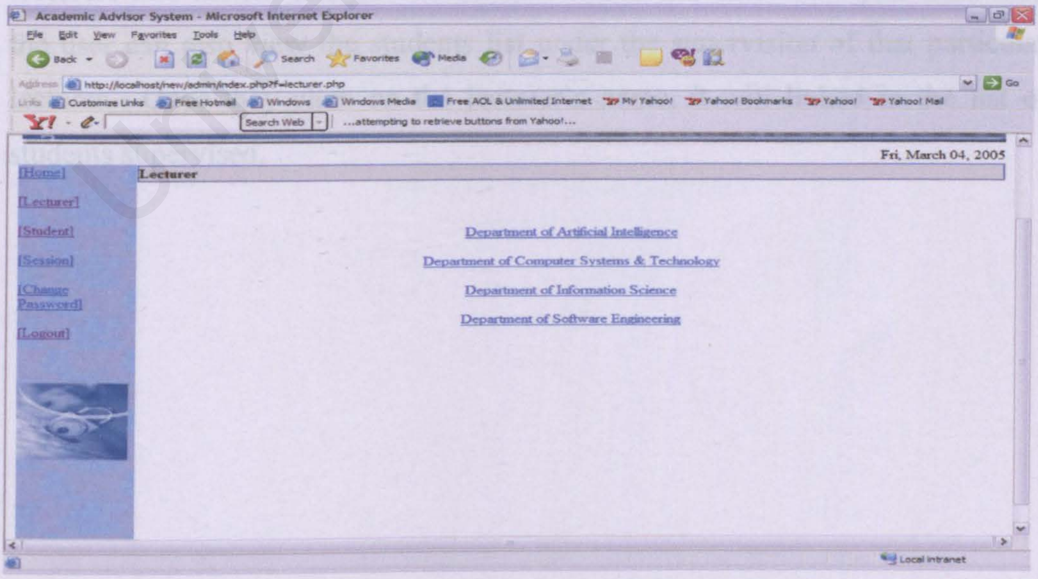
Faculty of Computer Science and Information Technology

University of Malaya

Figure A 1.23 : Administrator Home Page

In this page the administrator can view the list of students and lecturers under departments. Administrator will have to assign student to a particular advisor as well as updating student's results and profile. There is also a Logout button for the lecturer to log out from the system.

3.4.3 Lecturer


Academic Advisor System - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost/new/admin/index.php?f=lecturer.php
Go
[Home]
[Lecturer]
[Student]
[Session]
[Change Password]
[Logout]
Local intranet

Fri, March 04, 2005

Lecturer

Department of Artificial Intelligence

Department of Computer Systems & Technology

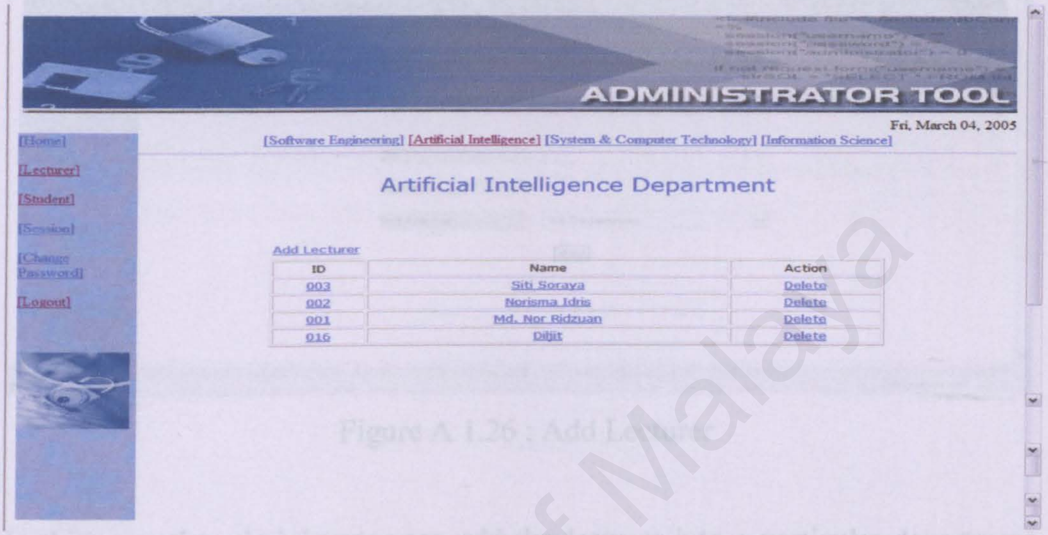
Department of Information Science

Department of Software Engineering

Figure A 1.24 : Lecturer by Departments

At this page, administrator can click on any department to view list of lecturer under that department.

3.4.4 Lecturer by Department



Fri, March 04, 2005

[Home]
[Lecturer]
[Student]
[Session]
[Change Password]
[Logout]

[Software Engineering] [Artificial Intelligence] [System & Computer Technology] [Information Science]

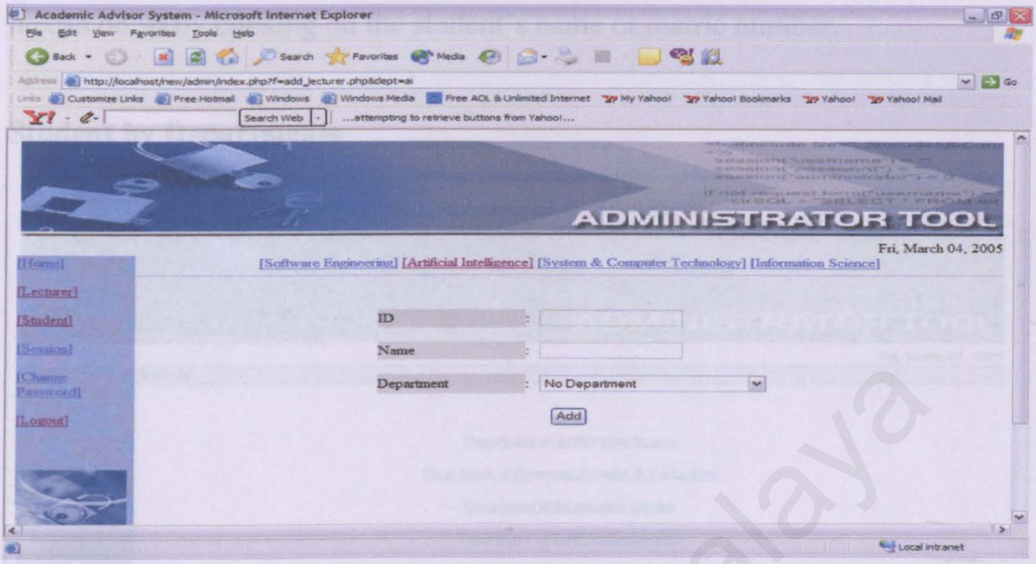
Artificial Intelligence Department

ID	Name	Action
003	Siti Soraya	Delete
002	Norisma Idris	Delete
001	Md. Nor Ridzuan	Delete
016	Diljit	Delete

Figure A 1.25 : List of Lecturer under one department

After clicking the department names in the previous page, Admin will be linked to the list of lecturers in that particular department. Admin are able to add the lecturers into the list and also delete the lecturer from the list. Apart from that, the user can also view the students list under the supervision of that particular lecturer. Once they click on the lecturer's name, it will linked to the list of students supervised.

3.4.5 Add Lecturer


Academic Advisor System - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost/new/admin/index.php?f=add_lecturer.php&dept=ai
Go
Links Customize Links Free Hotmail Windows Windows Media Free AOL & Unlimited Internet My Yahoo! Yahoo! Bookmarks Yahoo! Yahoo! Mail
Search Web ...attempting to retrieve buttons from Yahoo!...
ADMINISTRATOR TOOL
[Home]
[Lecturer]
[Student]
[Session]
[Change Password]
[Logout]
Local intranet

Fri, March 04, 2005

[Software Engineering] [Artificial Intelligence] [System & Computer Technology] [Information Science]

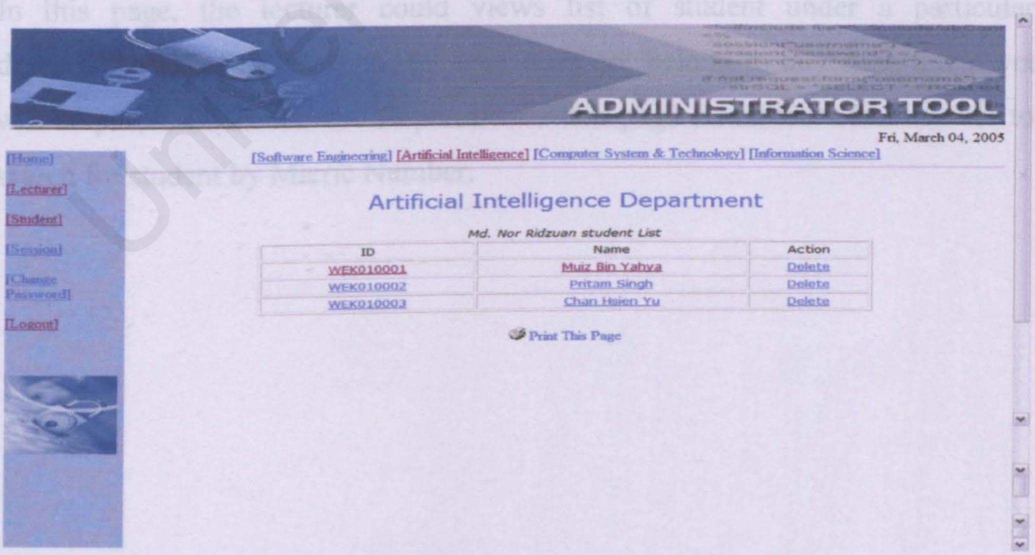
ID	:	
Name	:	
Department	:	No Department

Add

Figure A 1.26 : Add Lecturer

In this page the administrator can add the lecturer into a particular department. They have to fill in the form in order to register the lecturer to the system. Once they click on the Submit button, all the details will be saved in the database.

3.4.6 Student List under one Lecturer



Fri, March 04, 2005

[Software Engineering] [Artificial Intelligence] [Computer System & Technology] [Information Science]

Artificial Intelligence Department

Md. Nor Ridzuan student List

ID	Name	Action
WEK010001	Muiz Bin Yahya	Delete
WEK010002	Pritam Singh	Delete
WEK010003	Chan Hsien Yu	Delete

Print This Page

Figure A 1.27 : List of Student Under Lecturer Supervision

In this page, administrator can delete a student if the student is no longer belongs to that particular lecturer. If the administrator wants to view the student's profile, he can do so by clicking on the student's name or matric number.

3.4.7 Student by Departments

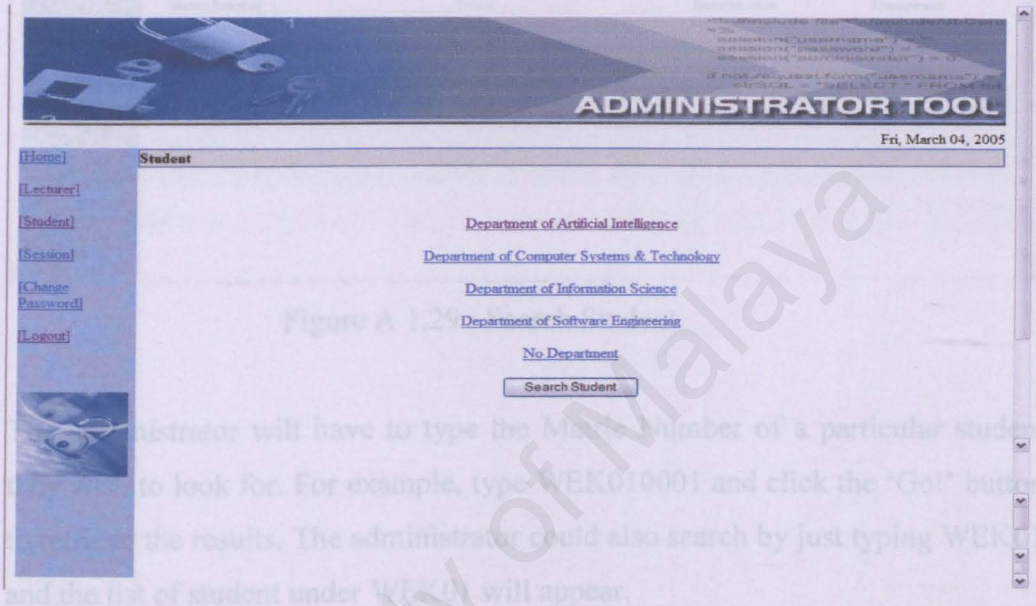
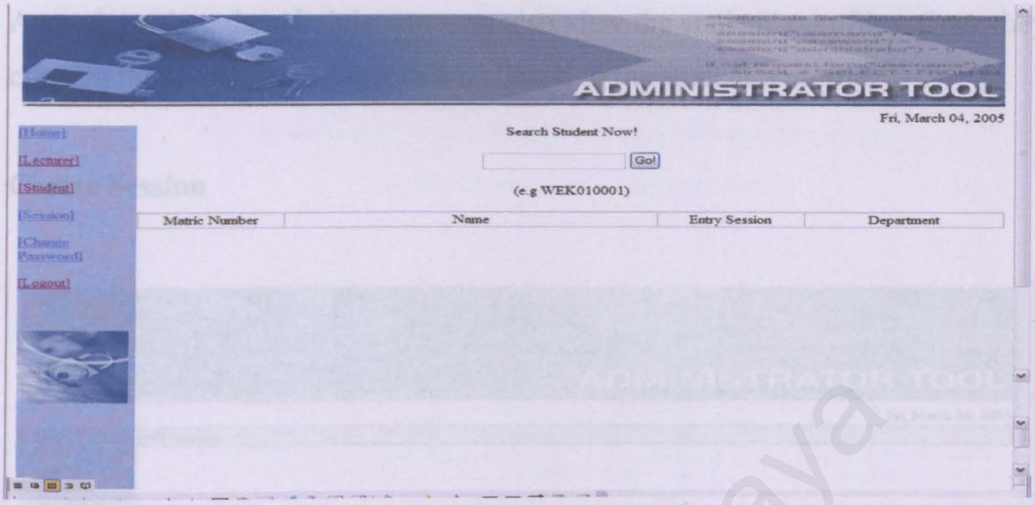

ADMINISTRATOR TOOL
Fri, March 04, 2005
[Home]
[Lecturer]
[Student]
[Session]
[Change Password]
[Logout]
Student
Department of Artificial Intelligence
Department of Computer Systems & Technology
Department of Information Science
Department of Software Engineering
No Department
Search Student

Figure A 1.28 : Student's Department

In this page, the lecturer could views list of student under a particular department. For first year student who does not belong to any department yet will be placed under the 'No Department'. This page also allow administrator to search for student by Matric Number.

3.4.8 Search Student



Fri, March 04, 2005

Search Student Now!

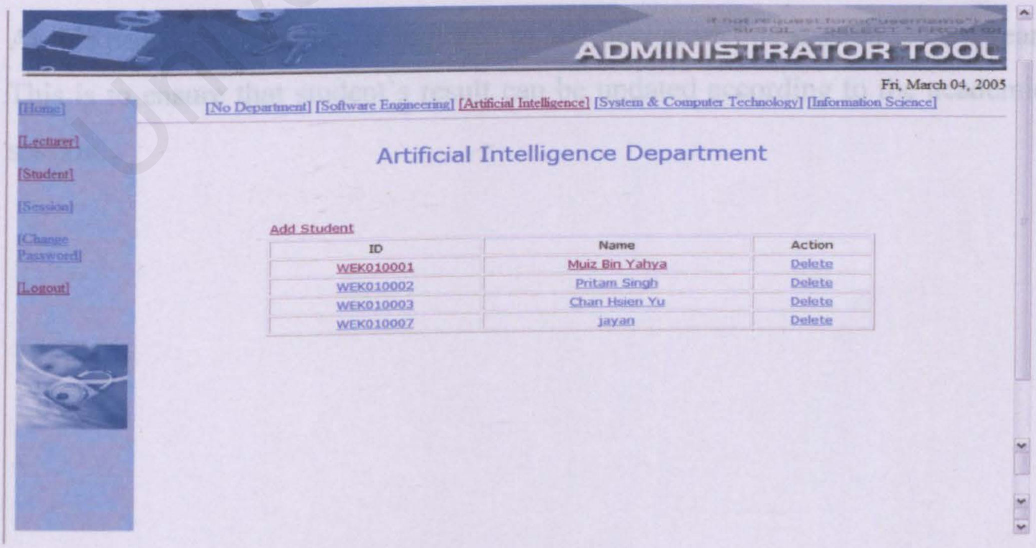
(e.g WEK010001)

Matric Number	Name	Entry Session	Department

Figure A 1.29 : Search Student

The administrator will have to type the Matric Number of a particular student they wish to look for. For example, type WEK010001 and click the 'Go!' button to retrieve the results. The administrator could also search by just typing WEK01 and the list of student under WEK01 will appear.

3.4.9 Student List under Department


ADMINISTRATOR TOOL
[Home]
[Lecturer]
[Student]
[Session]
[Change Password]
[Logout]
[No Department] [Software Engineering] [Artificial Intelligence] [System & Computer Technology] [Information Science]

Fri, March 04, 2005

Artificial Intelligence Department

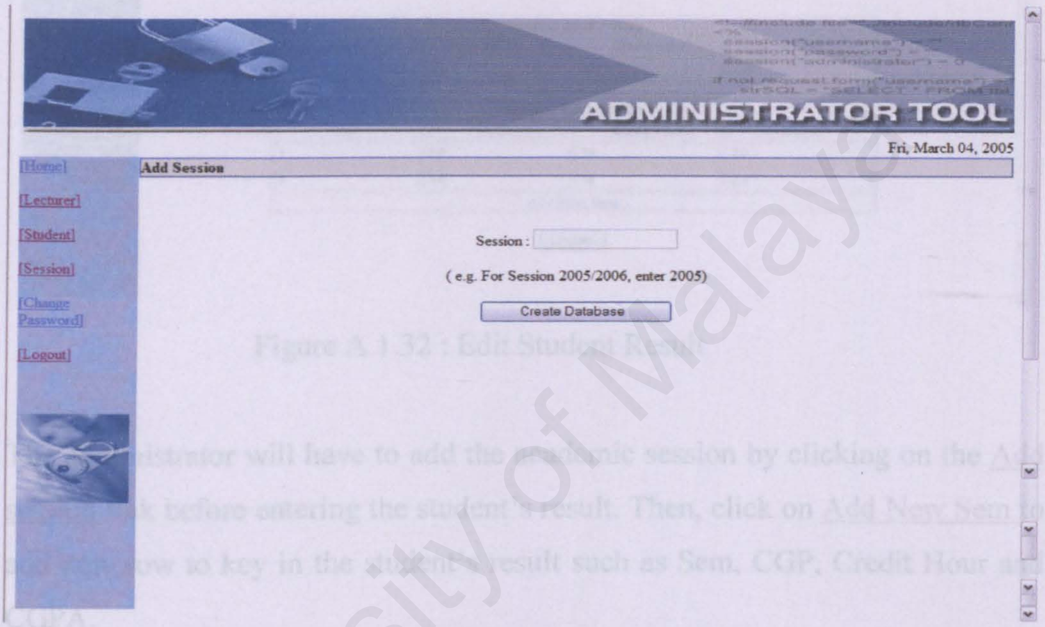
Add Student

ID	Name	Action
WEK010001	Muiz Bin Yahya	Delete
WEK010002	Pritam Singh	Delete
WEK010003	Chan Hsien Yu	Delete
WEK010007	jayan	Delete

Figure A 1.30 : Student List

Admin are able to add students into the list and also delete students from the list. Apart from that, the administrator can also view the student's profiles. Once they click on the student's name, it will be linked to the student's profile.

3.4.10 Create Session



Fri, March 04, 2005

Add Session

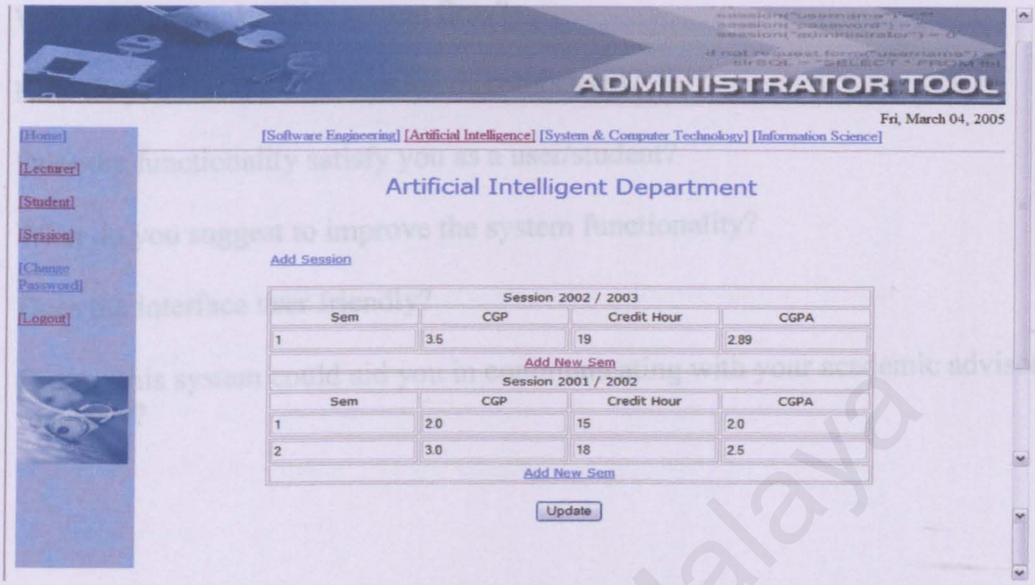
Session :

(e.g. For Session 2005/2006, enter 2005)

Figure A 1.31 : Create Session

At this page, administrator is required to add new academic session once a year. This is to ensure that student's result can be updated according to the academic session.

3.4.11 Edit Student Result



Artificial Intelligent Department

Session 2002 / 2003

Sem	CGP	Credit Hour	CGPA
1	3.5	19	2.89

Session 2001 / 2002

Sem	CGP	Credit Hour	CGPA
1	2.0	15	2.0
2	3.0	18	2.5

Figure A 1.32 : Edit Student Result

The administrator will have to add the academic session by clicking on the Add session link before entering the student's result. Then, click on Add New Sem to add new row to key in the student's result such as Sem, CGP, Credit Hour and CGPA.

APPENDIX B : INTERVIEW QUESTIONS

1. What do you think of the system flow?

2. How do you rate the combination of colors used?

3. Does the functionality satisfy you as a user/student?

4. What do you suggest to improve the system functionality?

5. Does the interface user friendly?

6. Do you this system could aid you in communicating with your academic advisors regularly?

APPENDIX C : SOURCE CODE FROM ACADEMIC ADVISOR SYSTEM

User Login

```
<?
session_start();
session_register("user_id");
include("include/configure.php");
include("function/sql.php");

$check_user =
_get_data('username','login_user','username',$username,'','');

if($check_user != "")
{
      $password1 = md5($password1);
      $check_user =
_get_data('pwd','login_user','pwd',$password1,'','');

      if($check_user != "")
      {
            $check_level =
_get_data('level','login_user','pwd',$check_user,'','');
            $user_id =
_get_data('username','login_user','pwd',$check_user,'','');
            if($check_level == '1')
            {
            ?>
            <meta http-equiv=refresh
content="0;URL=student/index.php?user_id=<? echo $user_id ?>">
            <?
            }
            else if($check_level == '2')
            {
            ?>
            <meta http-equiv=refresh
content="0;URL=advisor/index.php?user_id=<? echo $user_id ?>">
            <?
            }
            else if($check_level == '3')
            {
            ?>
            <script language="javascript">window.alert("invalid
username or password");</script>
            <script> location="index.php"</script>
            <?
            }
      }
      else
      {
      ?>
      <script language="javascript">window.alert("invalid username or
password");</script>
      <script> location="index.php"</script>
      <?
```

```
        }
}
else
{
?>
        <script language="javascript">window.alert("invalid username or
password");</script>
        <script> location="index.php"</script>
        <?
}

?>
```

View Student's Result

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html>
<head>
<title>studentresult</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-
1">
</head>

<body background="../Background/background2.gif">
<table width="100%" border="1" cellspacing="0" cellpadding="0">
  <tr>
    <td bordercolor="#FFFFFF" bgcolor="#9999FF"><strong>My
Results</strong></td>
  </tr>
</table>
<table width="100%" border="0" cellspacing="0" cellpadding="0">
  <tr>
    <td width="24%" height="647" valign="top"><img
src="../pics/unilife%20copy.jpg" width="188" height="380"
align="top"></td>
    <td width="2%" valign="top">&nbsp;
    <td width="72%" valign="top"><p>&nbsp;</p>
      <table width="98%" border="1" cellpadding="0" cellspacing="0">
        <?
        $result =
_loop_sort_data('session_student','student_id',$user_id,'','','asc','se
ssion');

        while($row = mysql_fetch_object($result))
        {
        ?>
        <tr bgcolor="#CCCCCC">
          <td width="17%" height="28"><strong>Session <? echo $row-
>session ?>/<? echo $row->session + 1 ?> </strong> <div
align="left"></div></td>
          <td><div align="center"><strong>CGP</strong></div></td>
          <td bgcolor="#CCCCCC"><div align="center"><strong>Credit
Hours</strong></div></td>
```

```
            <td bgcolor="#CCCCCC"><div
align="center"><strong>CGPA</strong></div></td>
          </tr>
        <?
        $no = "session_".$row->session;
        $result1 =
_loop_sort_data($no,'student_id',$user_id,'','','asc','sem');
        while($row1 = mysql_fetch_object($result1))
        {
        ?>
          <tr>
            <td height="25">Semester <? echo $row1->sem ?></td>
            <td width="15%"><div align="center"><? echo $row1->cgp
?></div></td>
            <td width="18%"><div align="center"><? echo $row1->credit
?></div></td>
            <td width="12%"><div align="center"><? echo $row1->cgpa
?></div></td>
          </tr>
        <?
        }
        }
        ?>
        </table>
        <p align="right"><a href="index.php?f=profile.php">Back</a></p>
        <p>&nbsp;</p>
        <p>&nbsp;</p>
      <th width="0%"></th>
      <td width="2%"></td>
    </tr>
</table>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
</body>
</html>
```

Update Profile Process and Upload Image Function

```
<?
$query = "update student set name = '$name',entry_session =
'$entry_session',ic_no = '$ic_no',department = '$department',major =
'$major',email= '$email',session_add = '$session_add',phone_no =
'$phone_no',parent_add = '$parent_add',parent_phone = '$parent_phone'
where id= '$user_id'";
$result = mysql_query($query);

if($picture1!="")
    {
        $picture_name = $_FILES['picture1']['name'];

        $IMAGES_UPLOAD_DIR = "../images/";
    if (trim($_FILES['picture1']['name'])!="")
        {

        $newfile = $IMAGES_UPLOAD_DIR.$_FILES['picture1']['name'];
                $stored_images_pathname =
$_FILES['picture1']['name'];
                //$success = @unlink($newfile);
                move_uploaded_file($_FILES['picture1']['tmp_name'],
$newfile);
                //$orig_filename = $newfile;

                //$new_filename =
$IMAGES_UPLOAD_DIR.$picture_name.".jpg";
                //$success = @unlink($new_filename);
                $name_picture = $picture_name;

                //$success = @rename($orig_filename,$new_filename) or
die("Picture cannot be uploaded");
                $query = "update student set picture =
'$picture_name' where id = '$user_id'";
                $result = mysql_query($query);
        }
    }

?>
<meta http-equiv=refresh
content="0;URL=index.php?f=profile.php&user_id=<? echo $user_id ?>">
```

Message Editor

```
<form action="index.php?f=_message.php" method="post">
  <table width="101%" border="0" cellspacing="0" cellpadding="0">
    <tr>
      <td width="4%">&nbsp;</td>
      <td width="6%">&nbsp;</td>
      <td width="3%">&nbsp;</td>
      <td width="66%">&nbsp;</td>
      <td width="21%">&nbsp;</td>
    </tr>
    <tr>
      <td height="24">&nbsp;</td>
      <td>To</td>
      <td>:</td>
      <td><? echo _get_data('name','advisor','id',$advisor_id,'','')
?></td>
      <td>&nbsp;</td>
    </tr>
    <tr>
      <td>&nbsp;</td>
      <td>&nbsp;</td>
      <td>&nbsp;</td>
      <td>&nbsp;</td>
      <td>&nbsp;</td>
    </tr>
    <tr>
      <td>&nbsp;</td>
      <td>Content</td>
      <td>:</td>
      <td><textarea name="content" cols="60" rows="10"></textarea></td>
      <td>&nbsp;</td>
    </tr>
    <tr>
      <td>&nbsp;</td>
      <td>&nbsp;</td>
      <td>&nbsp;</td>
      <td><font size="-5">*Not more than 60000 words</font></td>
      <td>&nbsp;</td>
    </tr>
    <tr>
      <td>&nbsp;</td>
      <td>&nbsp;</td>
      <td>&nbsp;</td>
      <td>&nbsp;</td>
      <td>&nbsp;</td>
    </tr>
    <tr>
      <td>&nbsp;</td>
      <td>&nbsp;</td>
      <td>&nbsp;</td>
      <td> <input type="hidden" name="advisor_id" value="<? echo
$advisor_id ?>">
        <input type="hidden" name="user_id" value="<? echo $user_id
?>"> <div align="left">
          <input name="submit" type="submit" value="Submit">
          <input name="reset" type="reset" value="Reset">
      </div></td>
      <td valign="bottom"><a
 href="index.php?f=advisor.php">Back</a></td>
    </tr>
  </table>
</form>
</body>
</html>
```

Message Processed to Database

```
<?
$date = date("Y-m-d");
$date_db = date("d-m-Y");
$query = "insert into message
(sender,receiver,date,date_db,content,status) values
('$user_id','$advisor_id','$date','$date_db','$content','1')";
$result = mysql_query($query);
?>
<meta http-equiv=refresh
content="0;URL=index.php?f=advisor.php&user_id=<? echo $user_id ?>">
```

Receiving Message

```
<?
if($s = "status")
{
      $query = "update message set status = '0' where no = '$no'";
      $result = mysql_query($query);
}
?>

<?
//if($delete = "delete")
//{
      //$query = "delete from message where no=$no";
      //$result = mysql_query($query);
//}
?>
<table width="100%" border="1" cellpadding="0" cellspacing="0"
bordercolor="#FFFFFF">
  <tr>
    <td width="6%" height="22" bgcolor="#9999FF">
      <div align="center"><strong>Status</strong></div></td>
    <td width="11%" bgcolor="#9999FF">
      <div align="center"><strong>From</strong></div></td>
    <td width="13%" bgcolor="#9999FF">
      <div align="center"><strong>Date</strong></div></td>
    <td width="52%" bgcolor="#9999FF">
      <div align="left"><strong>Message</strong></div></td>
      <td colspan="2" bgcolor="#9999FF">
          <div align="center"></div>
          <div align="center"><strong>Action</strong></div></td>
  </tr>
    <?
          $result =
 _loop_sort_data('message','receiver',$user_id,'','','desc','no');

          while($row = mysql_fetch_object($result))
          {
          ?>
    <tr bgcolor="#CCCCCC">
      <td height="21" valign="top" bgcolor="#CCCCFF">
         <div align="center">
          <? if($row->status == "1"){ ?>
          <a href="index.php?f=mymessage.php&s=status&no=<? echo $row->no
 ?>">New</a>
          <? } else { echo "Read";}?>
        </div></td>
      <td valign="top" bgcolor="#CCCCFF">
        <div align="center"><? echo
 _get_data('name','advisor','id',_get_data('id_advisor','student','id',$
user_id,'',''),'','') ?></div></td>
      <td valign="top" bgcolor="#CCCCFF">
        <div align="center"><? echo $row->date_db ?></div></td>
      <td valign="top" bgcolor="#CCCCFF">
        <div align="left"></div>
        <? echo $row->content ?></td>
      <td width="9%" valign="top" bgcolor="#CCCCFF">
        <div align="center">
          <form name="form1" method="post"
action="index.php?f=replymessage.php">
             <p><input type="hidden" name="advisor_id" value="<? echo
_get_data('id_advisor','student','id',$user_id,'','') ?>">
                   <input type="submit" name="Submit" value="Reply">
          </p></form>
        </div></td>
      <td width="9%" valign="top" bgcolor="#CCCCFF">
        <div align="center">
          <form name="form2" method="post"
action="index.php?f=_delete.php&no=<? echo $row->no ?> ">
             <input name="delete" type="submit" id="delete"
value="Delete">
          </form>
        </div></td>
    </tr>
    <?
    }
    ?>
</table>
```

Report Validation

```
<?
if($v = "validate")
{
      $query = "update report set validation = '0' where no = '$no'";
      $result = mysql_query($query);
}
?>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html>
<head>
<title>studentmeetings</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-
1">
</head>

<body background="../Background/background2.gif">
<table width="100%" border="1" align="center" cellpadding="0"
cellspacing="0" bordercolor="#FFFFFF">
  <tr bgcolor="#9999FF">
    <td width="10%">
      <div align="center"><strong>Session</strong></div></td>
    <td width="9%">
      <div align="center"><strong>Semester</strong></div></td>
    <td width="12%">
      <div align="center"><strong>Date</strong></div></td>
    <td width="53%"><strong>Report</strong></td>
      <td width="16%">
      <div align="center"><strong>Validation</strong></div></td>
  </tr>
    <?
      $result =
_loop_sort_data('report','student_id',$user_id,'','','desc','no');

      while($row = mysql_fetch_object($result))
      {
      ?>
  <tr bgcolor="#FFFFFF">
    <td valign="top" bgcolor="#CCCCFF">
      <div align="center"><? echo $row->session ?></div></td>
    <td valign="top" bgcolor="#CCCCFF">
      <div align="center"><? echo $row->semester ?></div></td>
    <td valign="top" bgcolor="#CCCCFF">
      <div align="center"><? echo $row->date_db ?></div></td>
    <td valign="top" bgcolor="#CCCCFF">
      <p align="justify"><? echo $row->report ?></p></td>
      <td align="center" valign="top" bgcolor="#CCCCFF">
      <? if($row->validation == "1"){ ?>
      <a href="index.php?f=meeting.php&v=validate&no=<? echo $row->no
?>">Validate</a>
      <? } else { echo "Validated";}?>
    </td>
  </tr>
  <?
  }
```

```
   ?>
  </table>
  <p>&nbsp;</p>
  </body>
  </html>
```

Search Student

```
  <?
  if($Submit == "Go!")
  {
        $query = "select * from student where id like '%$student_id%'";
        $result = mysql_query($query);
        function check_mysql()
       {
             if(mysql_errno()>0)
             {
                   die("MySQL error ". mysql_errno(). ":
 ".mysql_error());
             }
       }
 }
 else
 {
 $query = "select * from student where id = ''";

 $result = mysql_query($query);
 }
 ?>

 <div align="center">
   <form name="form1" method="post" action="index.php?f=search.php">
     <p>Search Student Now!</p>
     <p>
       <input type="text" name="student_id">
       <input type="submit" name="Submit" value="Go!">
     </p>
     <p>(e.g WEK010001) </p>
   </form>
   <table width="100%" border="1" cellspacing="0" cellpadding="0">
     <tr>
       <td width="17%"><div align="center">Matric Number</div></td>
       <td width="43%"><div align="center">Name</div></td>
       <td width="17%"><div align="center">Entry Session</div></td>
       <td width="23%"><div align="center">Department</div></td>
     </tr>
     <?
       while($row=mysql_fetch_object($result))
       {
       ?>
     <tr>
       <td><div align="center"><a
href="index.php?f=liststudent_ai.php&student=<? echo $row->id ; ?>"><?
echo $row->id ?></a></div></td>
       <td>
```

```
        <?=$row->name ?>
      </td>
      <td>
        <?=$row->entry_session ?>
        <div align="center"></div></td>
      <td>
        <?=$row->department ?>
        <div align="center"></div></td>
    </tr>
    <?
      }
      ?>
  </table>
  <p>&nbsp;</p>
</div>
```

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