Faculty of Computer Science And Information Technology

SAMS

Student Advisee Management System

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Abstract

Student Advisee Management System (SAMS) is a web base system developed to help the faculty advisor's to manage advisee's records. This system consists of three modules; admin module, advisor module and student module. Main target users for the system are administrator, advisor and student. It is a secured system whereby only authorized personal can access. SAMS will enable the advisors to add, view, edit, delete and search on student particulars, results, appointments, meeting, and attendance. Meanwhile the students are allowed to read only these in formations. The administrators will deal with the registration of the system user's information and assign them to authorize ID and password. They are also in charge in entering the data on student particulars and result and divide students to advisors. SAMS is important to be developed for it can increases the efficiency of student information management for the advisors to smoothen their way to keep track on their advisee's academic progress. Research on existing systems shows that most of the existing system does not involve student information management modules but function as a general information medium. Waterfall with prototyping has been chosen as the software process model. This project's functional requirement focused on three modules of the system. Admin module function is to manage registration, student information and student result. Advisor module focused on managing the student information, student result, meeting/ appointment and attendance. Where by student module focused on adding academic plan browsing on their in formations, result, appointment and meeting. This system has been tested in three level; unit testing on each functions, integration test within functions of every module and finally system tested as a whole. This system will be very useful to be implemented in faculty advisory system to manage records effectively and efficiently.

Acknowledgement

I would like to thank the faculty of Computer Science and Information Technology for offering this opportunity to carry out the final year project. I would also like to extend my sincere appreciation to my supervisor, Assoc. Prof. Dr. Diljit Singh for his guidance, and instructions and thoughtful contribution in this project. Besides, I also would like to thank Mr. Teh Ying Wah for sparing his precious time to be my moderator.

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Chapter 1: Introduction

1.1 Background to Project

Academic advising is considered a very important part in education field. It is considered to be the most influencing component in determining the quality of student's education.

In University Malaya, lecturers from each faculty play an important role as advisors in helping the students to support their education progress. The advisors are required to keep track on student academic progress and required to provide them guidance on their greater achievement. In the process of keeping track on academic progress, the advisors need to know their advisees closely by having their profile, academic performance, each meeting progresses and their academic plan for the following semester. These tasks are easy for advisors with a small number of students under him. However it is very difficult to keep track as the number of advisees increases each day.

Thus, there is a need to develop a system to manage the interaction between the advisors and students, SAMS is proposed to overcome the current situation.

1.2 Project Overview

SAMS is a web-based system which satisfy the requirement to keep track on student's academic performance. It is meant for advisors to manage student information. SAMS consist of three modules which are the admin module, advisor module and the student module. It involves three users (admin, advisor and student).

For security purpose, each user is required to logon first in order to add, delete, modify and to search records. SAMS will be able to keep users information such as user ID and password to verify them and allow authorize users to access the system.

The administrator's main responsibility would be to register only authorized users of the system. In that case, advisors are fully authorized to add, delete, and modify the details of the system. Student will be allowed to view or read only most of the records.

Data on student particulars and result will be stored in the system database by advisors and can be retrieved easily and fast. Any modification on these data will be captured and saved into the database immediately, and efficiently. Meeting and appointment schedules will be plan by considering the free time available for both sides in meeting and appointment sub modules. SAMS also able to keep records on the past meetings and forthcoming appointment such as time, day, remarks and students name involved and able to generate reports on these records according to name and time. Student particulars such as name, matric number, and e-mail address will be kept in student particulars sub module. Meanwhile the result sub module will supply information on students results for each semester such as course taken, grades for every course taken, total credit hours and their status for each semester. Through this the advisor will be able to keep track on student's performance. Students are able to propose their academic plan for the forthcoming semester to their advisors through the academic plan sub module in student module. The advisor will go through student's academic plan and will be able give advice in the next appointment.

This system is considered as the best solution to the current informal Advising System where there is no appropriate data keeping on students particulars and systematic appointment configured to successfully accommodate the advising system.

1.3 Project Objectives

The Objective of SAMS is as follows:

- **To develop a system which can keep students particulars, results, meeting and appointment records and to monitor their performance via this record.**

  The main purpose of this project is to develop a system which can keep students particular such as their name, matric number, e-mail address, majoring and so on. This information is necessary for advisors to get to know his advisees closer.

- **To develop a secured system whereby only authorized personal can access.**

  This project is also to develop a secured system protected with authorized user ID and password so that only authorized personal can access to the system. This is to avoid unnecessary modification by unauthorized users as the record has to be accurate for the advisors reference.

- **To come up with a system which is able to generate report on meetings and appointments**

  Next objective would be to develop a system which is able to generate report on meetings and appointments. The advisor sometime wants to know the number of meetings held with particular student. Thus there should be a module which can sort the past and forthcoming meetings and appointments according to name and time.

- **To create a system which enable the advisors to monitor students academic performance**

  The projects aim is also to create a system which enables the advisors to monitor student's academic performance. These can be done via the result module where the advisor can monitor students result and categories them according to their grades.

- **To create a system which can search for information on students information, their result fast and easily**

  Finally the project is to create a system which can search information fast and easily by entering certain keys like matric number and so on. The advisor doesn't have to go through the whole list to find information for one particular student. He just has to key in the student's name or matric number together with other necessary keys to find for that particular students information.

- **To develop a system this allows the advisor to view student's forthcoming academic plan.**

1.4 Project Scope

The SAMS is developed to have something systematic for the faculty's Student Advising System. It is implemented using computer based and some of the useful technologies in Web and database management. Generally, in integrates three modules, which are the admin module, advisor module and the student module. There are three main level users in the SAMS system, which are the Administrator, Advisor and the Student. The advisor is the main part of SAMS who is responsible on the authorized staffs to access the student's information. Thus, every user must register with the system administrator before they can actually access this module through the login page.

1. **Admin Module.**

   In this module, all user information is presented. The admin can perform tasks such as add user information like name, user ID and password, update, delete search and save these information in the database. This information allows the system to verify the user ID and password entered by users to enable them accessing the system. Information on student and their results are also managed in this module

2. **Advisor Module**

   In this module, students particulars such as name, matric number and e-mail address and student academic information such as every semester results, course taken, current CGP and so on are presented. Also present each meetings and appointment schedule students attendance for each meeting and appointment. Advisors are able to add, update, view, delete, search and save this information.

This information's are necessary for advisors to keep track students academic performance.

3. **Student Module**

   Students are able to only view information on student's particulars, result and meetings. However, they are allowed to add their academic plan for the advisors reference to guide them in their academic planning.

1.5 Project Significance

This project is significant since the number of students enrolled in FSKTM consistently increasing. The numbers of courses or subjects offered in FSKTM is also following this trend. It would be an improper advising system without a computer based system to manage it. This project will probably make the transaction between advisors and students more effectively and efficiently. The importance of the project implementation is as below:

1. **Increases the efficiency of the student information management**

   It allows information to be retrieved easily and makes the checking process easier through the friendly user interfaces. This system implementation can avoid unnecessary carelessness in keeping the student's academic plan. In addition, the academic documents (result slip, previous registration form and other documentations) seldom filed by the students. Therefore, it is a need to have a system to produce an efficient filling process.

2. **Allow the advisors to search the students information fast and easily**

   Advisors are able to conclude the progress of a particular student who is under his/her supervision without any difficulty and this will help them in going useful advice any academic matter.

3. **Increases the awareness of advisors importance**

   It is important not to underestimate the impact of a strong advisor program. The advisor system has tremendous potential to provide students with a support system, which is more personal than typical teacher-student, or counselor-student roles can provide. Each advisor can provide with a wealth of information regarding academic career and beyond.

1.6 Definitions

- **Advisor**

  Is meant to serve as a mentor, assisting the student **in** making curriculum, academic or career plans.

- **Advisee**

  One that is advised; someone who receives advice

- **System Management**

  Activities performed by a system manager, aiming to minimize the use of excessive, redundant resources to address the overlapping requirements of performance balancing, network management, reducing outages, system maintenance costs, diagnosis and repair, and migration to new hardware and software system versions.

- **Authentication**

  To establish the authenticity of; prove genuine

- **Authorization**

  The act of giving authority or legal power; establishment by authority; sanction or warrant.

Chapter 2: Literature Review

2.1 Purposes of the Literature Review

Review of literature is a background study about the knowledge and information gained to develop this project. A literature review of a project is important as it places the project in the context of others, which might have similar characteristics. It helps the developer to know some of the existing features offered by a similar system.

Apart from that, the literature review also enables the developer to do comparison on the past-developed projects and study the strength and weakness of it. It will also give an overview of how to improve the weakness and fulfill the requirements needed.

2.2 Approaches to Literature Review

A system is a collection of related parts treated as a unit where its components interact. Therefore, to develop SAMS, a lot of information needs to be gathered about the system itself, and procedures involved in developing the system and the methodologies used to develop the system. This information can be obtained from various sources. Several techniques have been taken to seek information. These techniques are listed as follows:

- **Refer to reference books from the library**

  Reference books on methodology and system design can be found from the library. With the help of these reference books, students can easily access any information that they need to complete the project.

- **Search information from the internet**

  Nowadays, internet is the main source of information. Relevant information on Web applications, client-server technology and

programming tools can be found through the Web-based search engines. Detailed analyses of some of the technologies are provided for the public. Current systems that are similar with the proposed system also can be viewed and compared.

- **Do analysis on the past year thesis**

  Several past year thesis documentations have been studied from FSKTM Documentation Room in order to identify any potential mistakes and gain some skills in software development. The format on how to do a complete report and documentation can be found from the previous thesis documentations. It is a very useful resource for students to access.

- **Have discussions with friends and lecturers**

  Useful advises have been given for each meeting sessions conduct with my supervisor and other lecturers. It is a useful method for error correctness and act as reminder when carried out the system designing process.

2.3 Findings

2.3.1 Technology Consideration

2.3.1.1 Programming Languages

Active Server Pages (ASP)

An Active Server Page (ASP) is an HTML page that includes on or more scripts (small embedded programs) that are proposes on a Microsoft Web server before the page is sent to the user. Typically, the script in the web page at the server uses input received as the

result of the user's request for the page to access data from a database and then builds or customizes the page on the fly before sending it to the requestor.

ASP and Internet Information Server (IIS) act as medium for- porting existing applications to build new application for the web. ASP is faster in execution and it will save customers a lot of time because it is more convenient to the customers that they can get some information quickly. When come to the time frame consideration, ASP properly is the appropriate technology used to develop SAMS since ASP is fast in execution, time saving, easy to learn and use Web languages.

ASP is selected also because of the features provided and high stability of ASP to the system. Its features that make it unique are as follows:

- Can contain server side script- with the server-side scripts, users can create Web pages with dynamic content.
- Provides a number of built in objects- by using the built in objects accessible in an ASP, users can make their scripts much more powerful. These objects allow user to retrieve information from and send information to browsers.
- Can be extended with additional components- ASP comes bundle with a number of standard server-side ActiveX components. These components allow users to do such things as determine the capabilities of different Web browsers or include a page counter on a Web page.
- Response to user queries or data submitted from HTML forms
- Access any databases and return the result to a browser
- Customize a Web page to make it make it more useful for individual users
- Provides security since the ASP code cannot be viewed from the browser

- Since ASP files are returned as plain HTML, they can be viewed in any browser
- Clever ASP programming can minimize the network traffic.

VB Script

VBScript is a subset of the Visual Basic language and is Microsoft's entry into the Internet scripting languages arena. For developers who are familiar with Visual Basic, they will recognize much of the VBScript language and syntax. VBSript is very easy to learn and implement. Microsoft has created and optimized this scripting language specifically for the internet. Microsoft's Internet Explorer supports the use of VBSript by providing the VBScript run-time interpreter.

VBScript uses procedures and functions to process the application needs. In general, script languages are easier and faster to code in than the more structured, compiled languages such as C and C++ and are ideal for smaller programs of limited capability or that can reuse and tie together existing compiled programs.

JavaScript

JavaScript or Jscript is Netscape's cross-platform, object-based scripting language for client and server applications. Javascript allows the applications that run over the Internet been created, which the client applications run in a browser and server application run in server.

Javascript is light weight in that here isn't a great deal in learning. So, we can be productive with it very quickly, in contrast to much more complex languages such as

Java. AS scripting languages, JavaScript is meant to tell an application what to do. Unlike languages used to create applications, it cannot do anything without the application.

2.3.1.2 Database

Microsoft Access

Microsoft Access integrates data from spreadsheets and other database, and is the easy way to find answers, share information over Intranet and the internet, and build faster business solutions. Access allows users to generate, analyze and create reports without hours of work. It integrates ease of use from the data entry point to printing in HTML. With data access interface paradigm such as Remote Data Object (RDO) and Data Access Object (DAO), Ms Access can be used as a database in a client/ server or an n-tier architecture system.

Benefits:

- From beginning to advance users, this relational database is powerful yet easy to use. Features such as the Help Wizard make it easy to find answers to questions about using Access, and help users get the most from their software tools.
- Share timely information across the workplace or the world. Access has several features that integrate network, Intranet and internet features, allowing users to produce professional reports on paper, online or in HTML.
- Access is scalable. From home businesses to corporations, it's the only database that will grow with users as heir business grows.

Microsoft SQL Server 7.0

Microsoft SQL Server version 7.0 is the most robust database for the windows family, the rational Database Management System (RDBMS) of choice for a broad-spectrum of corporate customers and independent Software Vendors (ISVs) building business application. Customer needs and requirements have driven significant product innovations in ease of use, reliability and scalability and data warehousing.

SQL Server 7.0 is a scalable, reliable and flexible and high-performance database management system. It is capable of supporting thousands of concurrent users, processing millions of transactions per day. Moreover, it provides the means for building and deploying large-scale distributed applications, making it the best platform for the largest and most mission-critical database applications. Besides, it also provides clustering support and can expand to use up to 3GB of memory.

MS SQL Server is a suitable database engine for powering Web site. Combined with Microsoft Internet Information server and the SQL Server Internet Connector, customer has complete Internet database publishing capabilities. It supports for heterogeneous replication to non-SQL Server databases including Microsoft Access, ORACLE and so on. SQL server's replication uses ODBC as the connection mechanism.

2.3.1.3 Programming Tool

Dream weaver

I have decided to use Macromedia Dreamweaver because Dreamweaver is a WYSIWYG web site editor aimed at the more advanced web developer, as it provides you with all the tools to really enhance your web site using technology such as JavaScript, Flash and Dynamic HTML to name just a few.

Dreamweaver has a full whole-site management system allowing you to manage every page in your web site easily, and also see how they are all linked together. It also has a full publishing system so that you can upload your complete web site to your web space.

Dreamweaver allows you to view the HTML code of your web sites pages, enabling you to see the code it has produced for you, and it also allows you to edit the code directly if need be. It can also use an external piece of software to allow you to edit the HTML code it has produced.

The software produces HTML code that is approved by the two main web browsers used on the Internet – Microsoft's Internet Explorer and Netscape Navigator. This enables you to produce a web site that looks identical in both browsers.

Microsoft FrontPage

FrontPage is a WYSIWYG web site editor that is aimed at the new web developer, as it provides you with some good, simple, components that you can use to enhance your site such as Counters, Guest Books and Site Search facilities to name just a few. FrontPage has a large collection of pre-defined templates/themes for your web site so you

can spend more time working on the content of your Website, and less time worrying about the look of your site.

The FrontPage Publish option makes uploading your web site quick and simple even for users who has never uploaded a web site before. FrontPage also has an excellent built-in Web Site management tool, which allows you to manage the whole site as well as how all the pages link together.

FrontPage has the same look and feel as other products such as Microsoft Office Professional and a lot of the features are available through standard wizards making it even easier to put them onto your web site.

Disadvantages:

All FrontPage's components that can be used to enhance your site only work on web space that has enabled FrontPage extensions. This means you would need to check with your web space provider to see if they support this. This also applies to the Publish option in FrontPage.

FrontPage doesn't support a lot of the Internet's new technologies very well and can cause you problems when trying to use them on your web site (i.e. Cascading Style sheets).

2.3.1.4 Web Server Software

Internet Information Service

Internet Information Service (IIS) is a desktop Web server for Windows NT Workstation, Macintosh, Windows client documents with certain workgroup or build Web applications for Window NT Server's built in web Server, which is internet information

Server (IIS). Owner of the web server can use the site administrator tools to read messages, browse and retrieve file from user's disk.

Advantages:

- Provides a good test drive for IIS Web site

  Personal web Server on Microsoft Windows NT Workstation is also for developing Web applications for IIS. Personal web server on Windows NT Workstation includes support for features such as ASP, script debugging and the Internet Service Manager (the comprehensive administration tool for IIS integrated into Microsoft Management Console). Transactional Web applications for Microsoft transaction Server (MTS), also part of Windows NT Server, can be developed. Personal Web Server is a great platform for testing before hosting the site on the company server, or on an Internet Service provider (ISP). Links, form, scripts and applications can be tested and checked to be sure they are displaying and functioning correctly. Microsoft FrontPage also can be used to easily copy a Web site developed on Personal Web Server to IIS.

- Provide wizards

  Personal Web Server includes a wizard that walks developer through setting up a home page and sharing files. The Personal Web server administrator also reduces the complexity of running a Web server, view statistics, and easily share additional directories or the Windows Explorer.

2.3.2 Existing System Review

Below are some of the existing systems available in the internet. These web sites are not exactly the same as SAMS but there are some similarities between these web sites and SAMS. These are the examples of few web sites with its explanations.

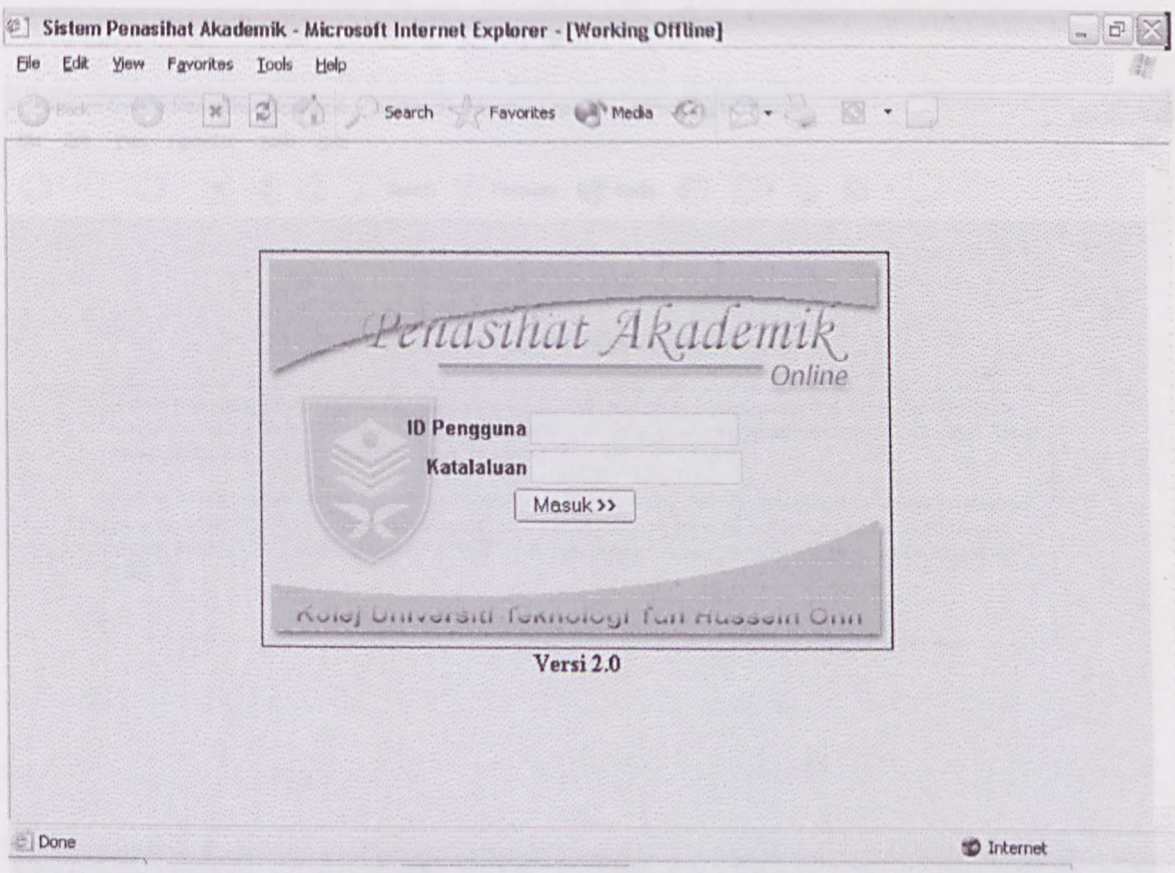


Figure 2.1: College of University Technology Tun HusseinOnn

This is a web site located at http://wap.kuittho.edu.my/pa/start.php.

This online advisory system is not accessible by unauthorized users. It is protected with User ID and Password. This system enable authorized users (advisors) to keep the advisees particulars and enable the users to view them as needed. But types of particulars are not known as only authorized users are allowed to access.

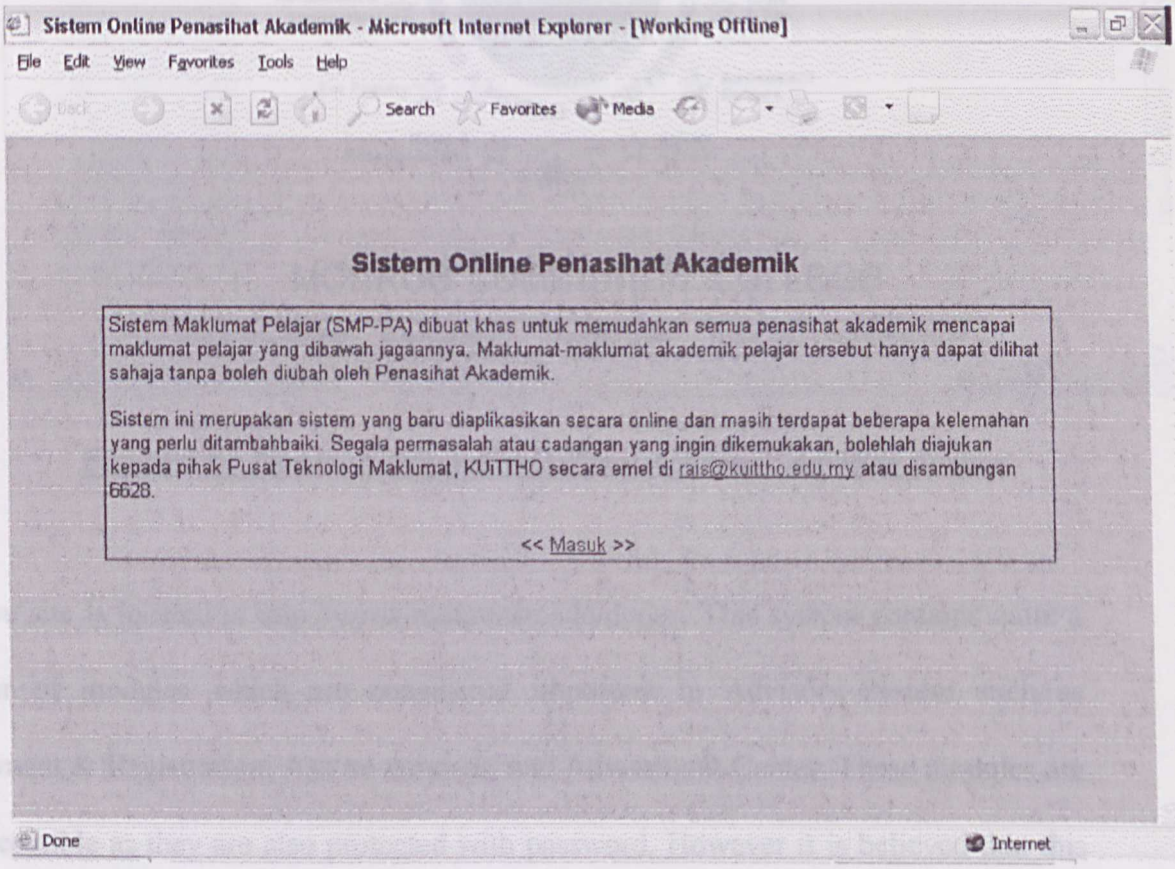


Figure 2.2 : On-line Academic Advising Page

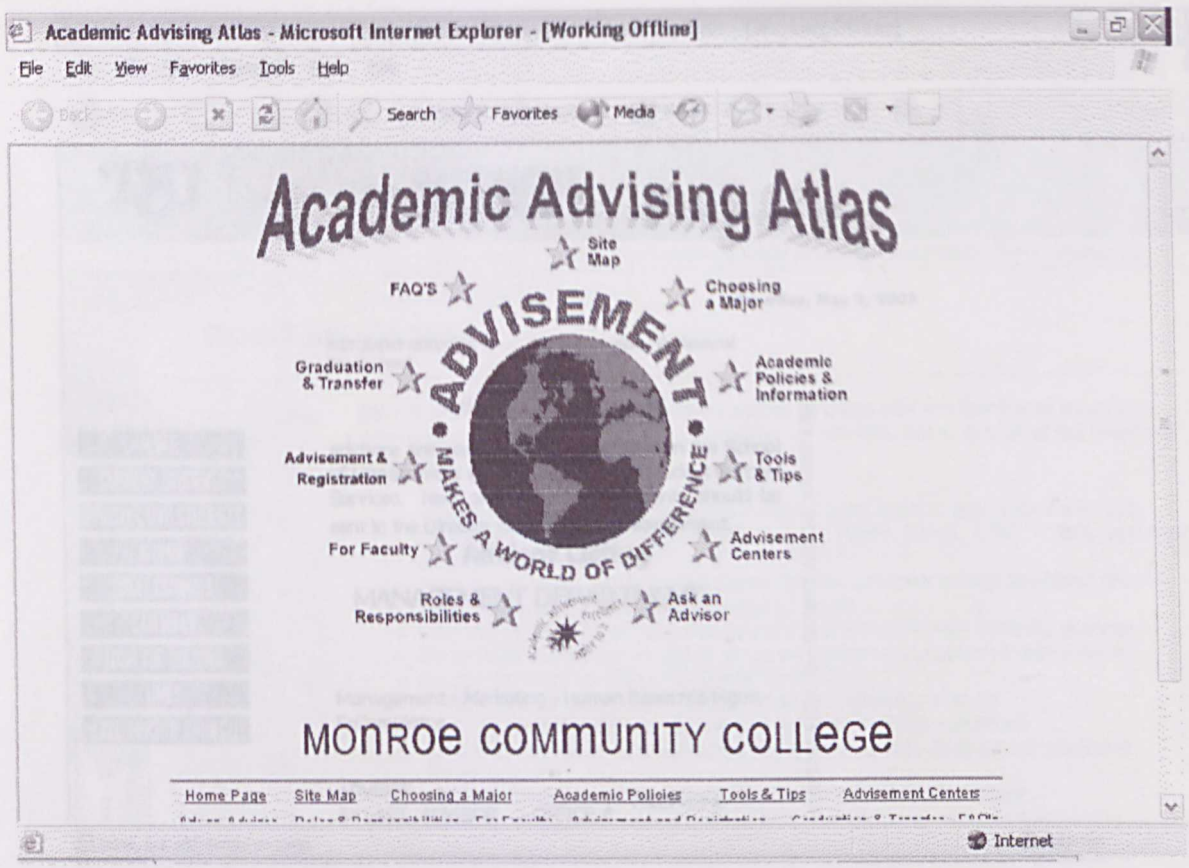


Figure 2.3 : Monroe Community College- Academic Advising System

This we site is located at http://www.monroecc.edu/depts.. This system contains quite a number of modules which are considered important in Advisory system such as advisement & Registration; Ask an Advisor, and Advisement Center. These modules are not accessible as they are also protected with password. However it is believed that this module runs the function of registering system users , advisement center as the meeting medium for the students and FAQ for the students to ask doubts on their academic plantings.

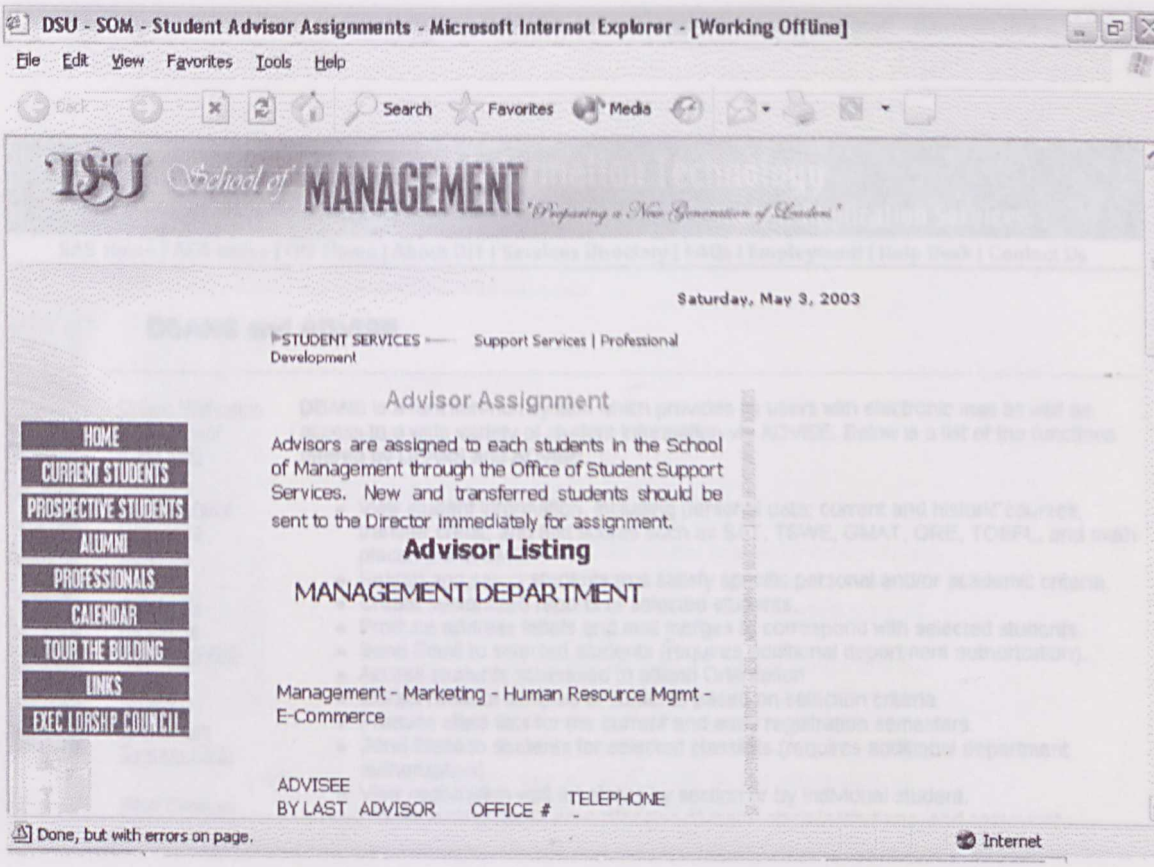


Figure 2.4 : DSU School Of Management- Advisor System

This web-site is located at http://www.dsc.edu/som/.

This web-site doesn't seem to have specific modules for the advisory management system. However it contains the advisor list with the advisee's names together. It also contains a bit of general notice on the advisory system.

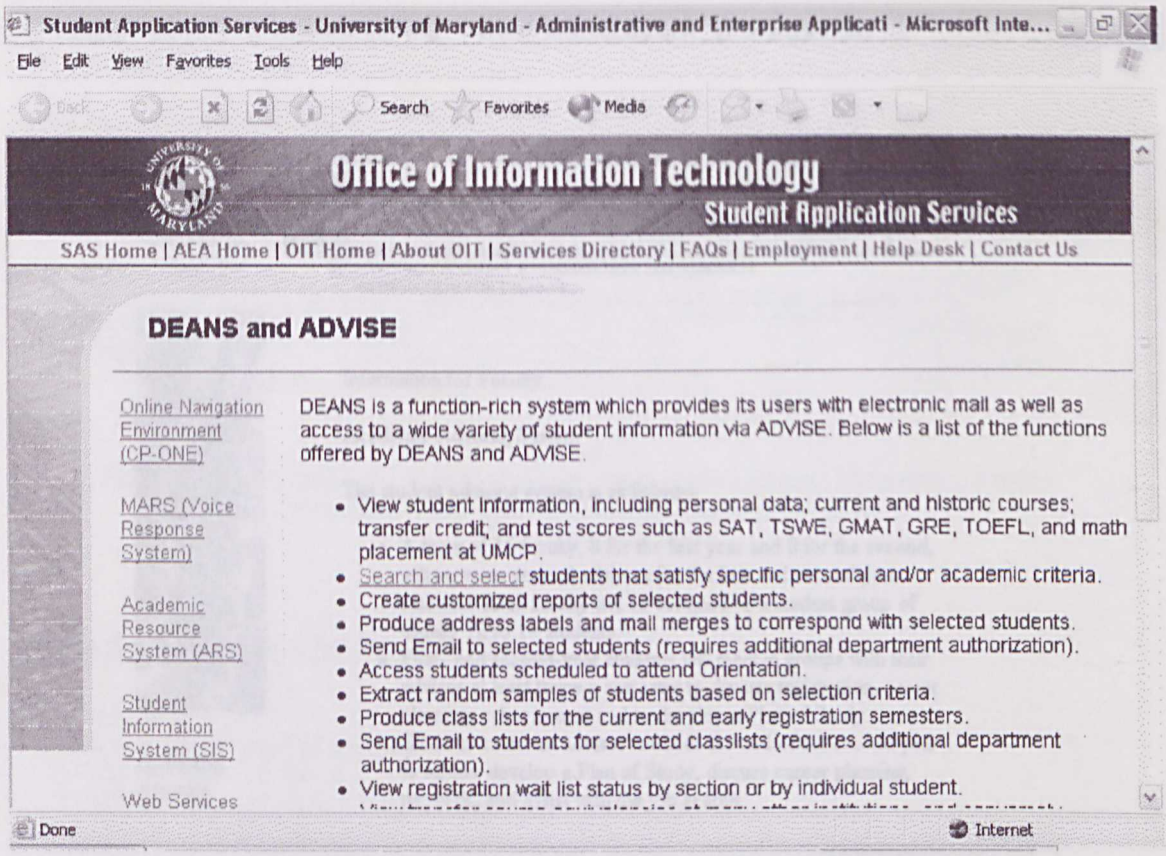


Figure 2.5 : University Of Maryland- Advisory System.

This web-site located at http://www.oit.umd.edu/units. This web site functions more like a student Information Management System and not Advisory System. But the system enable authorized users to access information on students personal data, current and historic courses, transfer credits and so on. These are considered relevant information for SAMS too.

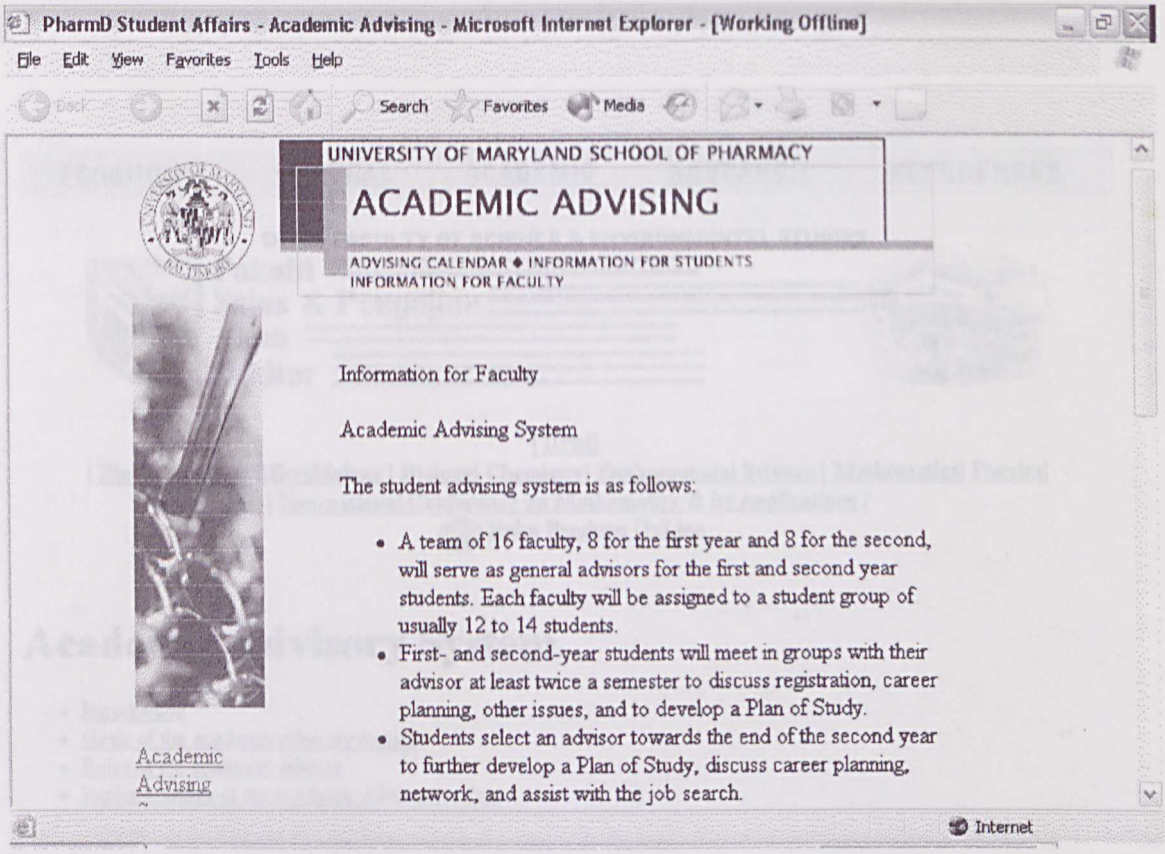


Figure 2.6 : : University Of Maryland- school of pharmacy

However there is some general information on the universities academic advising system given as it is accessible to unauthorized users.

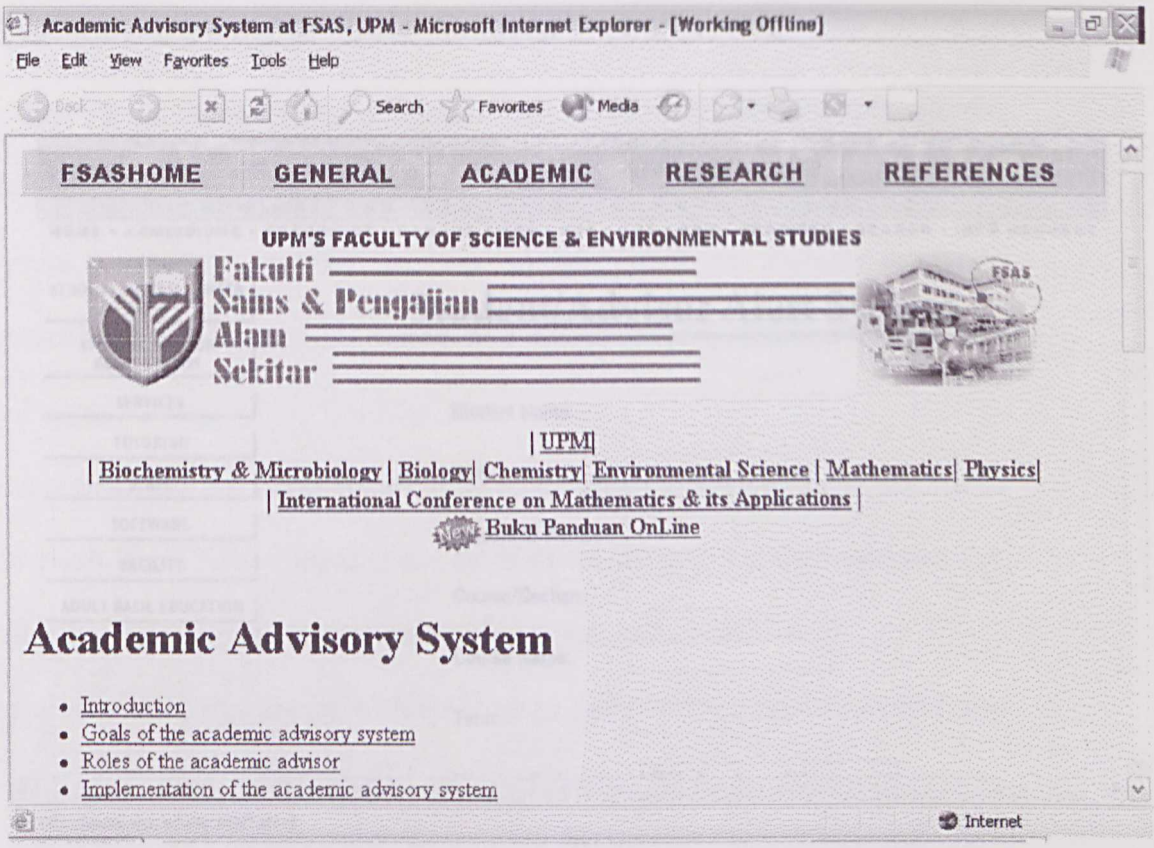


Figure 2.7 : University Putra Malaysia-Faculty of Science and Environment Studies

This web-site is located at http://www.fsas.upm.edu.my/ this is another example of academic advisory system which function as a general advising system. It does not have function to manage the student's information. It only displays the information on academic advisory systems goals, role of the academic advisor, and the important of academic advising system implementation and so on.

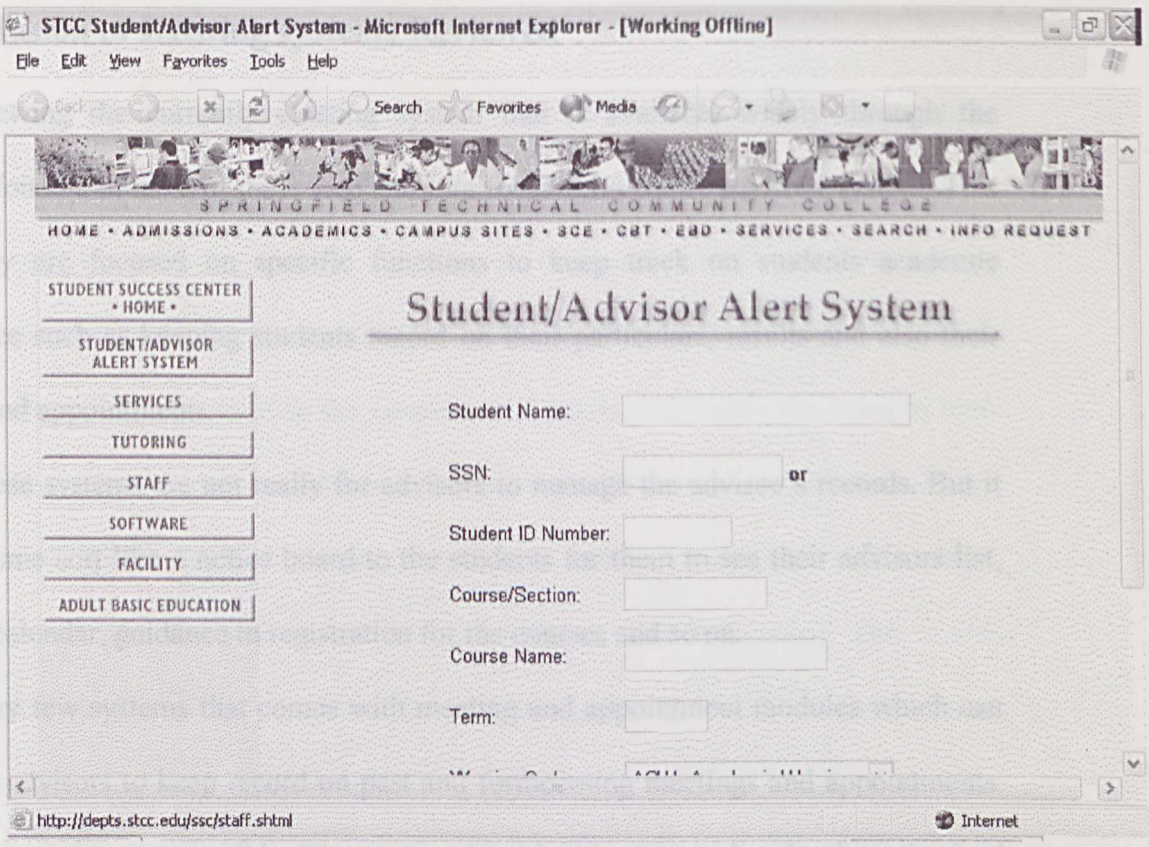


Figure 2.8: Springfield Technical Community College- Advisor Alert System

This web-site is located at http://depts.stcc.edu/ssc/staff.shtnl .This web-site is not an advisory system exactly. However it contains a module called Student/Advisor alert System where this module will detect student who are under observation and send them warning on their result.

2.4 Conclusion of Existing systems Reviewed

After reviewing the currently existing system that is available widely through the internet, I found that most of these web sites are focused on centre advisory system. This means they are focused on specific functions to keep track on students academic performance such as keeping students record on their particulars, results and also their meetings and appointments.

These systems are not really for advisors to manage the advisee's records. But it function some sort like a notice board to the students for them to see their advisors list, academic calendar, guidance in registration for the courses and so on.

Very few systems that comes with meeting and appointment modules which can enable the advisors to keep record on past and forthcoming meetings and appointments. Some systems are not accessible. They are protected with password and only authorized users are allowed to access. These are the web-site considered relevant to SAMS because unauthorized users are not allowed to access into the system as the system contain record on students personal, private and confidential data.

2.5 Relationship to the Proposed Project.

These Existing systems reviewed, are not exactly related to SAMS but certain modules are considered had some similarity to SAMS. The most relevant function that some of the existing system has is the Login Page. This module is very important in SAMS because SAMS keeps confidential records on student's particulars. Some systems enable authorized users (advisors) to keep the advisees particulars and enable the users to view them as needed. This is very necessary to SAMS as the advisor needs a system which can keep the advisees particular for him to keep track on the advisee's academic performance. Some system contains the advisor list with the advisee's names together. This is also something similar to SAMS where it is necessary for the advisees to know their advisor and for the advisor to know their advisee list.

One of the systems even contains a module called Student/Advisor alert System where this module will detect student who are under observation and send them warning on their result. This is slightly similar to SAMS where in SAMS the advisor will detect the student who are under observation through the result module and call them for advice via appointment.

Chapter 3: Methodology and System Analysis

1.1 Project Objectives

The objective of SAMS is as follows:

- **To develop a system which can keep students particular, result, appointment, meeting, student's attendance and their academic plan.**

  The main purpose of this project is to develop a system which can keep student particulars name , matric number, e-mail address, majoring and other, student's result each semester, appointment detail, meeting detail, student attendance in every meeting or appointment and student's academic plan for the forthcoming semester.

- **To develop a secured system whereby only authorized personal can access**

  This project is also to develop a secured system protected with authorized user ID and password so that only authorized personal can access to the system. This is ti avoid unnecessary modification by unauthorized users as the record has to be accurate for the advisors reference.

- **To come with a system which is able to generate report on meetings and appointments?**

  Next objective would be to develop a system which is able to generate report on meetings and appointment. The advisor sometimes may want to know the number of meetings and appointments held with particular student. Thus there should be a module which sorts the past and forthcoming meetings and appointments according to name and time.

- **To create a system which enable the advisors to monitor students academic performance**

The projects aim is also to create a system which enables the advisors to monitor student's academic performance. These can be done via the result module where the advisor can monitor students result and categorize them according to their CGPA.

- **To create a system which can search information fast and easily**?

  Finally the project is to create a system which can search information fast and easily by entering certain keys like matric number, advisor's name and user id. The advisor does not have to go through the whole list to find information for one particular student. He just has to key in the necessary keys to find for that particular information.

3.2 Development Methodology

3.2.1Software Process Model

A process model for software is chosen based on the nature of the project and the application, the methods and the tools to be used and the controls and deliverables that are required. Building a process model and discussing the sub processes help the team to understand the gap between what should be and what is.

Prototyping

Prototyping is a partially developed product and involved in the early stages of the development where there was a high degree of uncertainty in the several areas of the system requirements. It enables the users and developer to examine some aspect of the proposed system and decide if it is suitable or appropriate for the finished product. Prototyping model allow all or part of the system to be constructed quickly to understand and clarify issues. The requirement or design requires repeated investigation to ensure that the developer, user and customer have a common understanding both of what is needed and what is proposed.

A prototype is a development model of a system for the test purpose. The prototype is reviewed by the end user and repeatedly revised to create a final acceptable model. Through prototyping, developer can revise form, input screens, databases, and processing methods, submit them to a limited number of system and users for testing, and revise them again if necessary for the final design.

Prototyping consist of several steps.

- Identify known requirements
- Develop/ design working model
- User/ system prototype
- Prototype revision
- Repeated as needed

Advantage of prototyping

i. User orientation – one major objective of prototyping is to develop system that meets user needs to a greater extend.

ii. Fast development time – it can take few weeks or months to obtain the result, compared to traditional approach, which can take years for the complete system to be in operation.

iii. Fewer errors – prototyping allows errors to be detected earlier.

iv. More opportunity for changes – with prototyping, the user can see and work with the outputs from each subsystem or component as it is being developed, enabling the user to suggest changes during the development process.

v. Changing the system early in its development

Disadvantages of prototyping

i. Managing the project – although several iterations of the prototype may be necessary, extending the prototype indefinitely also creates

problems. It is important that the systems analysis team devises and then carries out a plan regarding how feedback on the prototyped will be collected, analyzed, and interpreted. Set up specific time period during which you and management decision-makers will use feedback to evaluate how well the prototype is performing.

ii. Adopting an incomplete system as complete – a second major disadvantage of prototyping is that if a system is needed badly and welcomed readily, the prototype may be accepted in its unfinished state, and pressed into services without necessary refinement. While superficially this may seem an appealing way to short circuit a lot of development effort, it works the business's and teams disadvantage.

Since it is difficult to manage prototyping as a project within the larger systems effort, Waterfall with prototyping is used to cover the disadvantages of the prototyping.

Waterfall model

The waterfall model is serving as a base for the whole development. It presents a very high- level view of what event goes on while development, and suggest to developers the sequence of event they should expect to encounter. It also provides a template into which methods for analysis, design, coding, testing and maintenance can be placed.

The waterfall model can be very useful in helping developers lay out what they need to do. Its simplicity makes it easy to explain to customers who are not familiar with software development and it makes explicit which intermediate products are necessary in order to begin the next stage of development. Major kind in the requirements are addressed and fixed well before the requirements are officially validated during system testing. Validation ensures that the system has implemented all of the requirements so that each system function can be traced back to particular requirement in the specification. Validation ensures that each function works correctly.

Waterfall with Prototyping

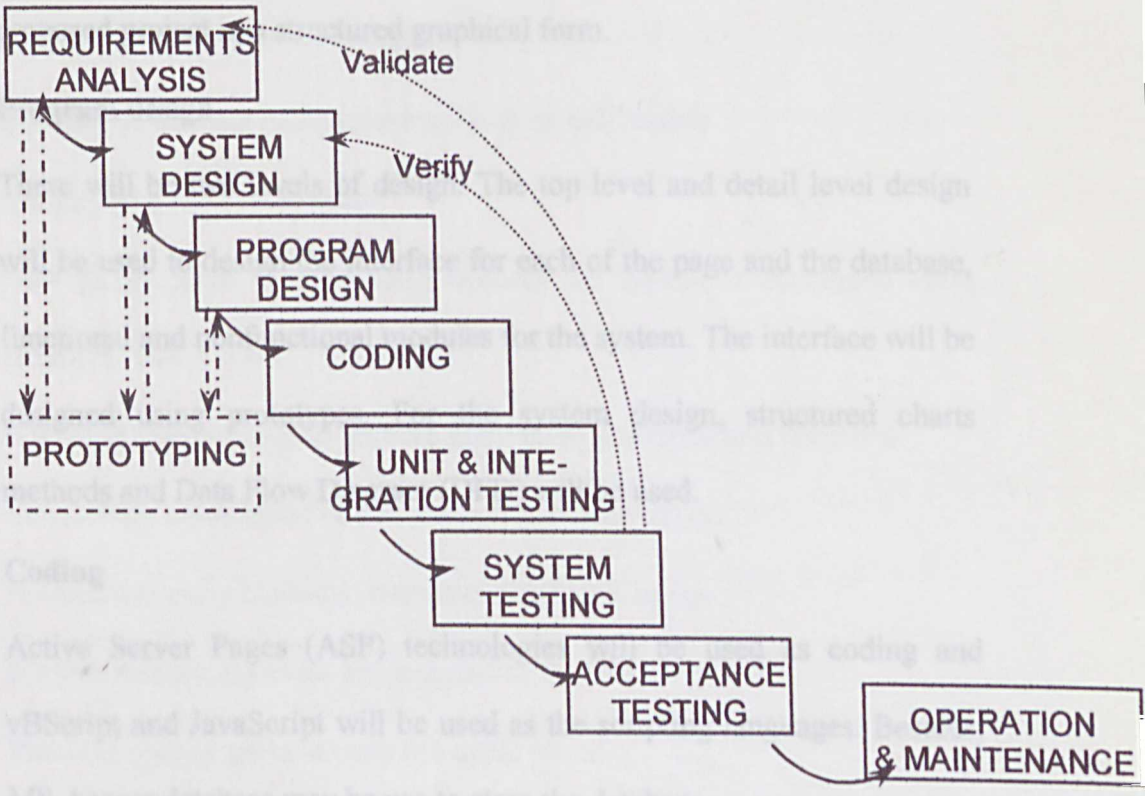


Figure 3.1 : Waterfall with Prototyping

2.2 Steps on Waterfall Model with Prototyping

- **Requirement Analysis**

  Relevant information will be gathered from the internet through various search engines and from the user. Besides, printed material such as book, newspaper and magazines will be referred. Preliminary research will be focused on the hand phone information and E- commerce. By the end of this phase, the system methodology has to be determined.

- **System analysis and Design**

  Feasibility and investigation can carry out the research. In this phase, the system development tool has to be determined. Besides Data Flow Diagram (DFD) will be used to chart the input, processes and output of the proposed project in a structured graphical form.

- **Program design**

  There will be two levels of design. The top level and detail level design will be used to design the interface for each of the page and the database, functional and nonfunctional modules for the system. The interface will be designed using prototypes. For the system design, structured charts methods and Data Flow Diagram (DFD) will be used.

- **Coding**

  Active Server Pages (ASP) technologies will be used as coding and vBScript and JavaScript will be used as the scripting languages. Besides, MS Access database may be use to store the database.

- **Unit and integration testing**

Each module of the proposed project will be tested separately. Testing will also be carried out after the modules have been integrated.

- **System and acceptance testing**

  Three type of testing will be used – module testing, integration testing and the whole system testing. Modification will be made if faulty occurs.

- **Operation and maintenance**

  After the project has been tested, maintenance will be carried out. Modification will be made if faulty occurs. The proposed project will be kept up to date as well.

3.3 Rational for proposed methodology

- It is easy to allocate each milestone with its deliverable
- Layout tasks need to be done
- User involvement in early stage ensures the system is developed more closely to user's need
- It provides opportunity to explore alternative strategies and revisions
- Emphasizes completion of one phase before moving on.
- Emphasizes early planning, customer input and design
- Emphasizes testing as an integral part of the life cycle
- Provides quality gates at each life cycle phase.

3.4 Requirement Analysis

3.4.1 Functional Requirements

Authentication and authorization function

This function is used to protect the system database from any unauthorized users. Authorized users will be provided with specific user identification and a password to access the system and the data stored in the database. This fuction is the default startup before user's can access other functions in all three modules.

A. Admin Module

User registration function

Administrator will be in charged of the user's registration process. They are responsible in creating and assign users with ban authorized user login and password. Each user will be given a user id and users will be required to give a default password.

B. Advisor Module

Adding function

In this function, advisors are able to add new records in appointment, meeting, attendance and also student particulars and result if the the details are available in the system. Advisors are also able to add meeting and appointment dates fixed by considering free time between both student and advisor for them to refer the meeting and appointment dates and time. Advisor are required to keep track on the student's academic performance each semester by keeping record the CGP and CGPA of each student in the result sub module.

Browsing function

This function allows the advisors to browse, edit, update or delete the existing records in the system on student's particular, results and meeting and appointments. Advisors can generate report on the meetings and the appointments to name and time. Also able to generate report on the students result for every semester according to grades and course code.

Searching function

Advisors are able search on students particular or student result record using this function by entering keys such as matric number, name, session and semester.

C. Student Module

Adding Function

Students are allowed to add their academic plan for the following semester to be approved by lectures (advisor) before the student can register for the courses.

Browsing function

Student is allowed to view information on students particular, their result, meeting and appointment. They may browse through the system to assure that information is recorded accurately.

3.4.2 Non-Functional Requirement

Non-functional requirement are essential definition of the system properties and constrains under which a system must operate. The following states the non-functional requirement for SAMS.

- ***Reliable, accurate and robust***

  The system should be able to perform accurately the search function as requested by the users and able to eliminate duplicates records, which always maintain and accurate database. Besides the reliability of a system such as does not produce dangerous and costly failures when it is being used is important to reliable the users while using the system. Robustness is refers to the quality that causes the system to be able to handle, or at least avoid disaster in face of unexpected data.

- ***Usability***

  The application system shall be easy to use. There should be no complex and unnecessary step to perform. They shall enhance and support rather than limit or restrict business process

- ***User-Friendly***

  The design of the system interface should be user-friendly and easily understood. The design of interfaces should:

  i. Consistent, in term of screen design and error messages displayed

  ii. Accommodation of any level of user

  iii. Appropriate error handling with associated error messages

  iv. High degree of understandability and avoid to much of memorization of even commands for the users.

- ***Response time***

The response time should be within a reasonable interval time in retrieving any data or information. Good application system should have a shorter response time.

- ***Maintainability and expandability***

  The architecture and database design should be able to maintain and can be extended if necessary amendment is required in the future.

- ***Security***

  The application system shall be able to prevent unauthorized users access for the system.

- ***Manageability***

  The application system. Hardware and software shall be capable of being manage and easy to operate.

3.5 Feasibility Studies

A feasibility study is a short, focused study, which aims to answer a number of question: does the system contribute to the overall objectives of the organization ? Can the system be implemented using current technologies and within given short and schedule constraints? Can the system be integrated with the other systems which are already in place?

Generally, the current advising system does not seem to meet its aim to build a successful relationship between the academic advisors and their students. Therefore, due to this current advising system, something systematic should be

done as a proper method to overcome as well as enhance the relationship between them. As the SAMS contain three main modules, are considered as a simple and friendlier method can carried out to support current advising system. It does not require much effort to keep track the student (advisee) details to the system. The advisors just have to spend some time at the early of the semester to meet the students and fix appointments with them. After that the advisees will meet the advisor according to the advising schedule prepared by the advisor in the system without further workload for the advisors to develop and enhance the quality of the responsibility foe the overseeing the advisee's academic progress in the faculty.

Besides that, by existence of the Student Information System (SIS) FSKTM, it is predictable that SAMS can be implemented in FSKTM without any major constraints. Especially, the information for the student particular and result can be obtained from the SIS in FSKTM and this lessens the burden of the advisors to record into the system. Furthermore, the system requirement for SAMS care more or less does not seem to require any complicated technology, which has not been used in faculty. It is expected to be user- friendly precise and efficient system, so that it really assists the needs of the faculty advisors. It is also believed possible to be developed as similar systems has been developed before for the final year project WXES 3182.

3.6 System Requirement

system requirement consist of two components, which are software and hardware requirements

Hardware requirement

- PC with at least Pentium II processor
- 128 MB of RAM
- 4 GB of Hard Disk

Software Requirement

- Windows XP
- Microsoft Access
- Dreamweaver MX
- Internet Information Service

Chapter 4: System Design

4.1 System Design

Introduction

System design is a stage of system development where the requirements for the system are translated into the system characteristic to meet the user requirement and satisfaction. System design is a very important phase in the system development, which determines the successfulness and accomplishes of a system.

System design is composed of three phases:

- Select a design target from a candidate solution (Selection Phase)
- Acquire necessary hardware and software (Acquisition Phase)
- Design and integrate the new system (Design and Integration Phase)

System design is driven by the technical concerns of system designers. Therefore with respect to the information systems block building, system design address the data process and interface building blocks from the system designer's perspective.

The design of SAMS can be viewed from the following aspects:

- System functionality design
- Database design
- User interface design

4.2 Program Design

SAMS consist of three modules:

- Admin Module
- Advisor Module
- Student Module

Admin Module

The admin module is design for the administrator to manage user's registration and assign them to authorize user id and password. It is also to manage student information and result. Administrator is enabling to add system users record and assign them to authorized user id and password in this module. This module also allows the administrator to manage student particular and result, where administrator will be able to add, browse, edit, delete and search student particulars, result and user information in this module. Thus, the administrator is required to logon to the system first using the authorized user id and password.

Advisor Module

This module is meant for the advisor to manage the appointment and meeting held with his advisees and also manages the student's particulars, result and every meeting or appointment attendance. This module allow advisor to add in data on student particular, result , appointment, meeting, attendance of students for every meeting or appointment and allow the advisor to browse through these data and generate report on the record as the advisor wanted. Advisors can also edit or delete these data and search for them using

certain keys. The academic plan submodule in this module enables the advisor to browse through student's forthcoming academic plan and approved either through meeting.

- ***Student Module***

This module is design for the students to browse through the information on their own particulars, result, appointment, and meeting schedules. They are also able to add their academic plan for the following semester to let the advisors to approve.

The following will show all the features and functions involved in SAMS according to the user.

Administrator

- Able to add new user to the system and verify the password for the new user, students particular and assign the advisors and student's result every semester.
- Able to update user's information, student particular and result if these any changes in these records.
- Able to search for user information by status and user id, student particular by matric number and advisor's name and search result by entering matric number, session and semester.

Advisor

- Able to add student particular and result if these data are not available in the system. The advisor is also able to add appointment and meeting schedule, add student attendance for every appointment and meeting.
- Able to browse through students particular, result, appointment, meeting, and attendance and generate report.

- Able to edit, update, and delete records on student particulars, result, appointment, meeting, and attendance.
- Able to view students forthcoming academic plan
- Able to delete unwanted student academic plan.

Student

- Able to add forthcoming academic plan for the advisors reference.
- Able to view their own particular, result, appointment and meeting.

4.3 System Functionality Design

4.3.1 Data Flow Diagram (DFD)

General information

Data Flow Diagram (DFD) is diagrams which show the flow of the data from one place to another. DFDs describe the process of a system, showing how these processes link together through data stores and how the processes relate to the users – the outside world. They used to record the system analysis as a part of the design documentation. At their lowest level of detail, as we shall see, DFDs are often included in a programmer working specification when the system analysis is complete and the system is being programmed.

Importance of DFD

It is difficult, if not possible to describe a model in words and still being clear and complex. This was one of the main reasons to develop a graphical modeling technique like DFD.

The system design is base on data flow oriented or structured design. In the DFD, functional transformation changes a process to another process; it is transformed as it moves. The symbols used in the DFD are shown as below:

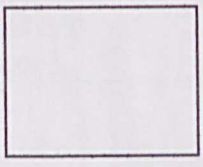
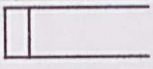
Name	Symbol	Description
Data Flow		Data transfer in the direction indicated by the arrow. Each arrow should be labeled to indicate what data is being transferred
Process		Manual or computer process that changes date
External Entity		Source or destination of data that is external to the system
Database		Manual or computer storage of data

Table 4.1 DFD Symbols

DFD of functionalities

SAMS has three main modules and from those modules, we can get different functionalities. The DFD of each module is shown next.

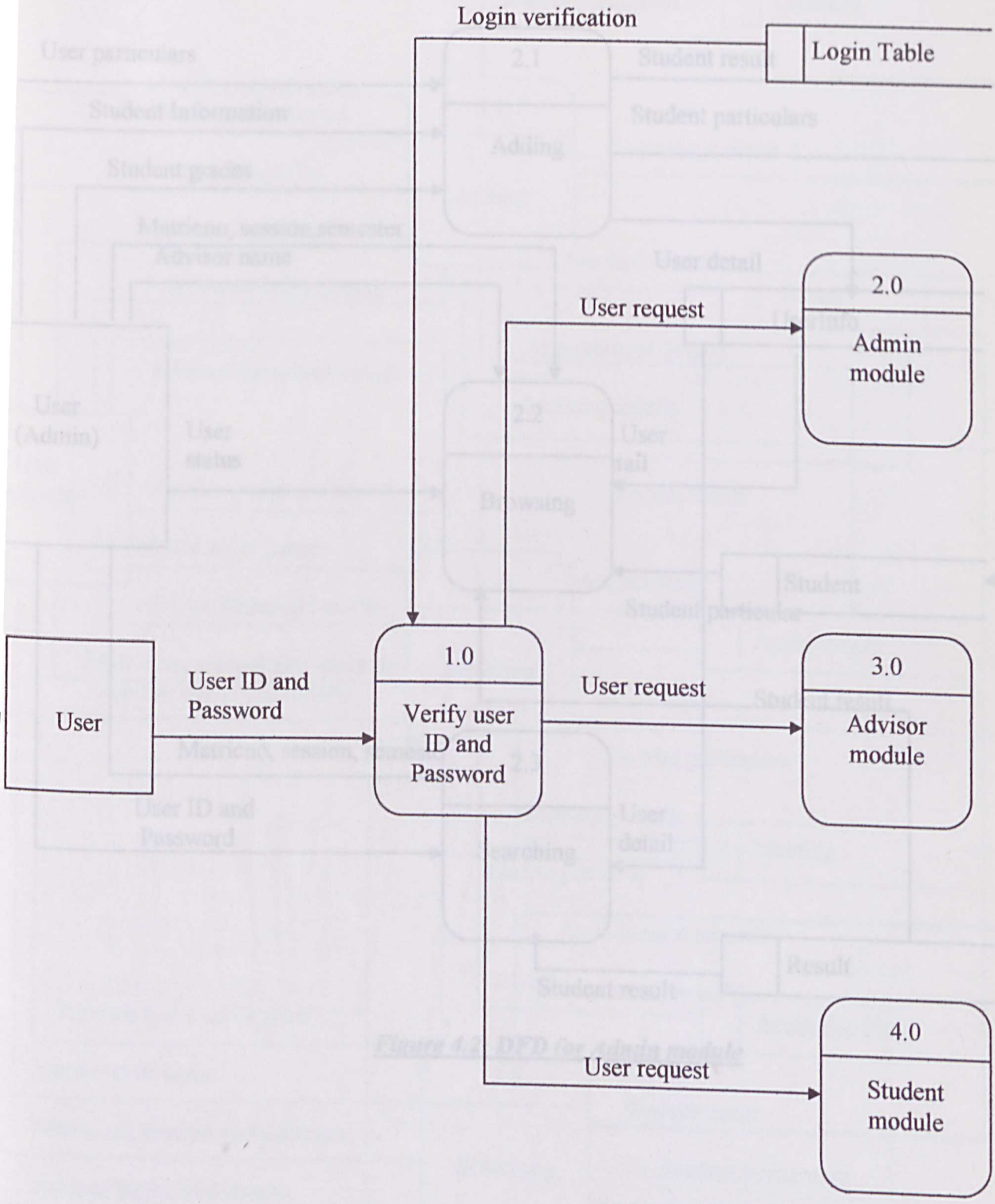


Figure 4.1: DFD for User Login

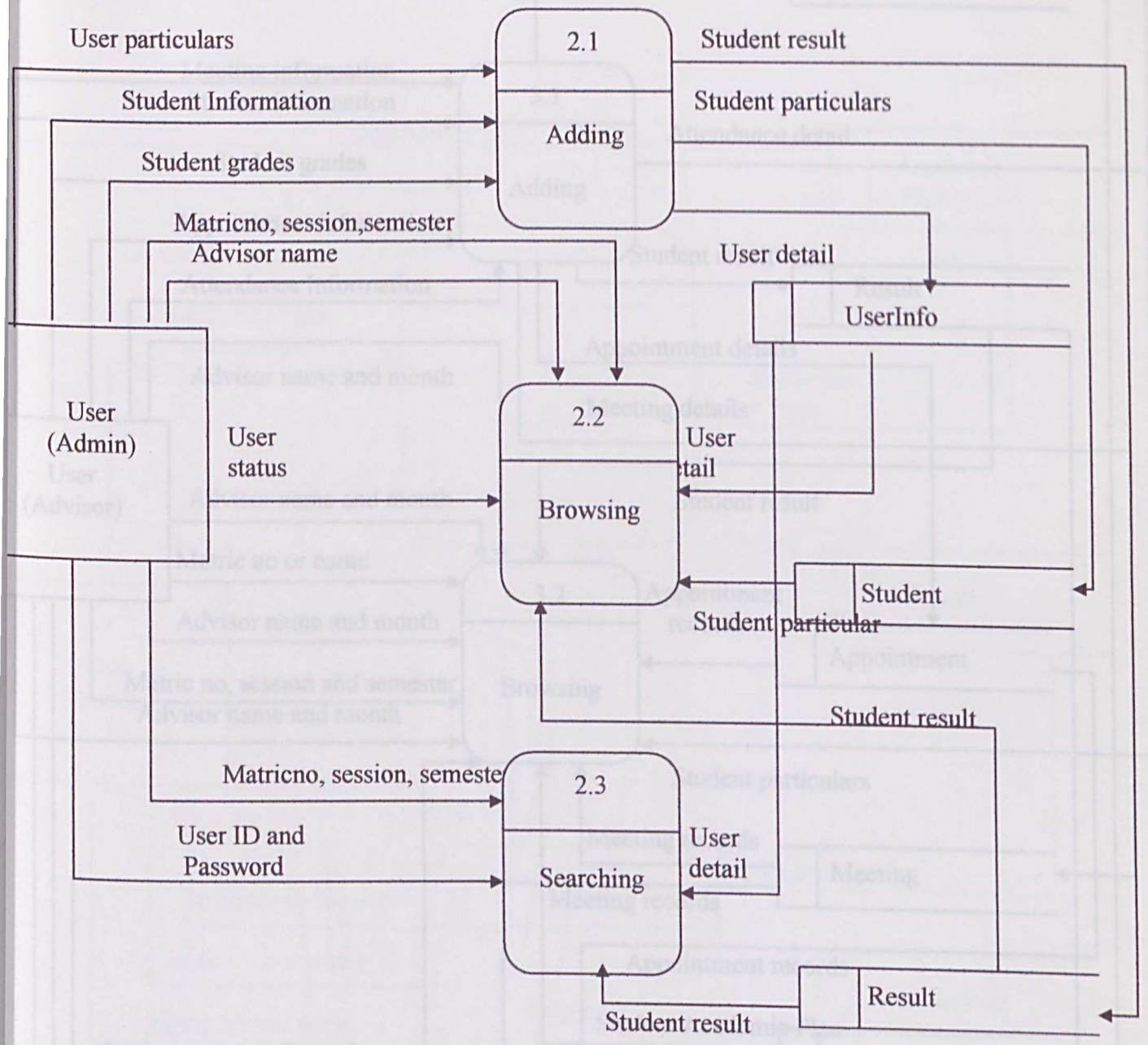


Figure 4.2: DFD for Admin module

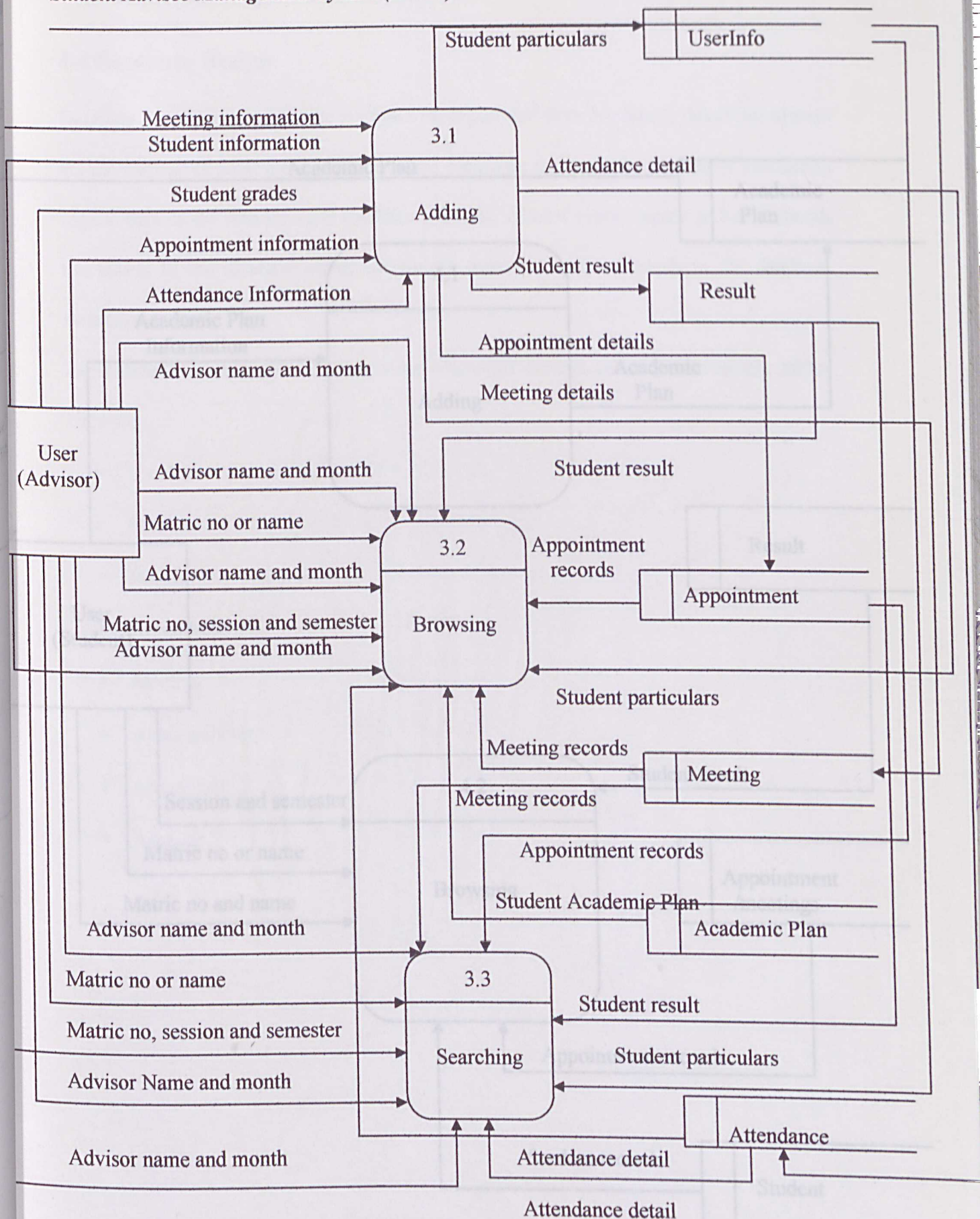


Figure 4.3: DFD for Advisor Module

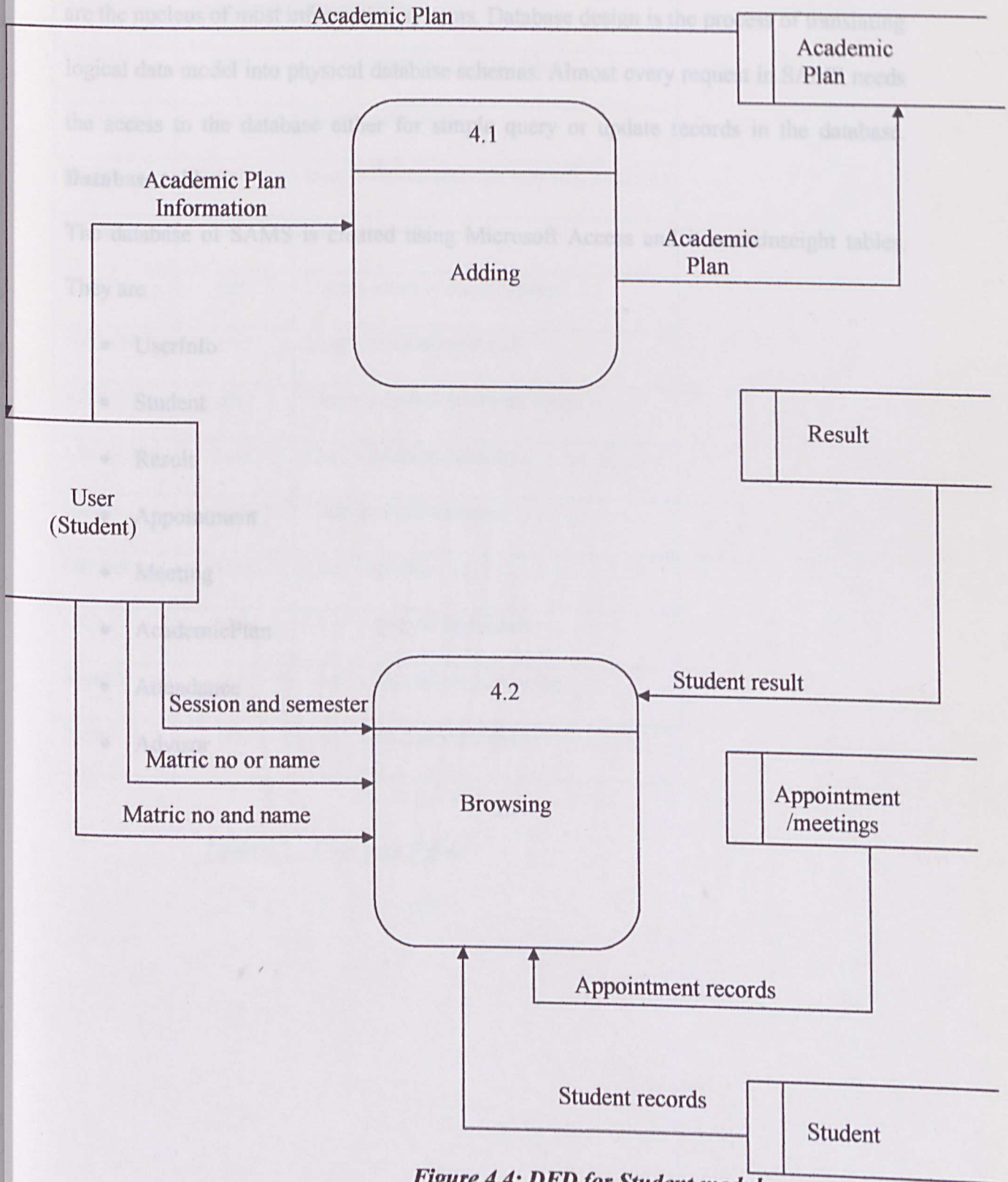


Figure 4.4: DFD for Student module

4.4 Database Design

Database is collection of a large storage of computerize data. No doubt, databases always are the nucleus of most information systems. Database design is the process of translating logical data model into physical database schemas. Almost every request in SAMS needs the access to the database either for simple query or update records in the database.

Database tables

The database of SAMS is created using Microsoft Access and it containseight tables. They are :

- UserInfo
- Student
- Result
- Appointment
- Meeting
- AcademicPlan
- Attendance
- Advisor

UserInfo Table

The table "UserInfo" is created to store user's information

Field Nme	Data type	Description
UserID	text	User's identity card number.
Password	text	User's password
Status	text	User's Status (admin, advisor, student)
Name	text	User's name
ICNO	text	User's identity card number
Address	text	User's mailing address
TelNo	text	User's contact number (house)
MobileNo	text	User's Mobile number
Email	text	User's email address
Gender	text	User's gender
Day	text	User's date of birth(date)
Month	text	User's date of birth(month)
Year	text	User's date of birth (year)

Table 4.2 : User Info Table

Student Table

To store student's particulars:

Field Name	Data Type	Description
Advisor	Text	Student's advisor's name
Batch	Text	Student's batch
Matric number	Text	Student's matric number
Name	Text	Student's name
Majoring	Text	Students' majoring
Icno	Text	Student's IC number
Address	Text	Student' mailing address
Telno	Text	Student's contact number (home)
Mobileno	Text	Student's mobile number
Email	Text	Student's email address
Gender	Text	Student's gender
Day	Text	Student date of birth (date)
Month	Text	Student's date of birth (month)
Year	Text	Student's date of birth (year)

Table 4.3 : Student Table

Result Table

To store student's result each semester

Field Name	Data Type	Description
Resultsiri	Text	Unique key to identify the row of data to process
Matricno	Text	Student's matric number
Session	Text	Session of exam taken
Semester	Text	Semester of the exam taken
Code1.....code7	Text	Course code 1-7 (each code one field)
Grade1....grade7	Text	Students grade for each code
Point1.....point7	Text	Students point for each code
Cgp	Text	Students cgp for the semester
Cgpa	Text	Student cgpa till that semester
cgpaID	Text	Unique id to categorize the cgpa

Table 4.4: Result Table

Appointment Table

To store the appointment's details

Field Name	Data Type	Description
Appsiri	Text	Unique key to identify the row to select
Advisor	Text	Advisor's name
Day	Text	Date of the appointment
Month	Text	Month of the appointment
Year	Text	Year of the appointment
Days	Text	Day of the appointment
Student	Text	Student involve
Matricno	Text	Student's matric number
Remark	Text	Advisor's reminder to the student

Table 4.5: Appointment Table

Meeting Table

To store meeting detail

Meetsiri	Text	Unique key to selest row
Advisor	Text	Advisor's name
Day	Text	Date of the meeting
Month	Text	Month of the meeting
Year	Text	Year of the meeting
Days	Text	Day of the meeting
Students	Text	Group of students involve
remark	Text	Advisor's reminder

Table 4.6 : Meeting Table

Attendance Table

To store student's attendance of each appointment and meeting

Field Name	Data Type	Description
Day	Text	Appointment/meeting date
Month	Text	Appointment/meeting month
Year	Text	Appointment/meeting year
Advisor	Text	Advisor's name
Matricno	Text	Student's matric number
Name	Text	Students name
Type	Text	Attendance type (Absent or present)

Table 4.7: Attendance Table

AcademicPlan Table

To store students forthcoming academic plan

Field Name	Data Type	Description
Advisor	Text	Advisor' name
Matricno	Text	Student' matric number
Session	Text	Forthcoming session
Semester	Text	Forthcoming semester
Code1....code7	Text	Course code the student plan to take
Credit1...credit7	Text	Credit hours of each course code
Email	Text	Student's email address
previouscgpa	Text	Student's previous CGPA

Table 4.8: Academic Plan Table

4.5 User interface

The user interface design of a system is often the yardstick by which that system is judged. An interface, which is difficult to use will at best, result in a high level of user errors. At worst, it will cause the software system to be discarded, irrespective of its functionality.

In SAMS, the goal of user interface design is to provide an easier and faster way for the user to interact with the computer, or what is commonly known as human-computer interaction (HCI).

Screen Design of SAMS

As known, SAMS is a web- based application. So, the screen design of SAMS is presented in the form of Web pages. To generate a better and user- friendly interface, SAMS's screen designs are formatted in a standard layout so that various types of information, instructions and messages always appear in the same general display area. The standard layout will guide the users to use the system effectively. Besides that, the hyperlinks in this system provide quick and easy reference for the users.

Examples of user interfaces for SAMS can be found in the User Manual Section.

Chapter 5:
System Implementation

5.1 Introduction

System implementation is a process that takes place after system design phase. It is a process to convert the system requirements into program codes. This phase describes how the initial and revised design was put into the real work.

Under this stage, we transform the design model of the SAMS into workable software. The system implementation of SAMS will be divided into two component, platform implementation and module implementation.

5.2 Platform implementation

The platform implementation includes setting up the operating system which is Microsoft Windows XP. It is very important to have suitable hardware and software in speeding up the system development and make a success to this project.

Software tools needed.

Software	Usage	Description
Microsoft Windows XP	System Requirement	Operating System
Internet Information Service	System Requirement	Web Server
Microsoft Access 2000	System Requirement	Database
Internet Explorer 5.0	System Requirement	Web Browser
Adobe Photoshop 7.0	System Development	Graphic Editing
Dreamweaver MX	System Development	Coding the Web pages
Microsoft Word 2000	System Development	Documentation

Table 5.1: Software Tools Needed

5.3 Functions Implementation

Add Function

- Implement in the registration unit as Add New User function, student particular unit as Add Student Information function, result unit as Add Student Result function, meeting unit as Add Meeting function, appointment unit as Add Appointment function, academic plan unit as Add Academic Plan function and attendance unit as Add Attendance function.
- Begin with getting values from the form and submit the form
- Records are added to the database
- Notify message about the record added successfully

Browse/ Edit/ Update/ Delete function

- Implemented in the registration unit as Browse User function, student unit as Browse student Information function, result unit as Browse Result function, Appointment unit as View appointment function, meeting unit as View Meeting function, academic plan unit as View Academic Plan function, and attendance unit as Browse Attendance function.
- Begin by getting the corresponding records from database by entering keyword and display it.
- Select which record is preferred to be edited or deleted
- Choose 'Edit' or 'Delete' function from the right hand side of the record.
- Insert records to be updated in the updating form displayed and press 'Update"
- The update information will be displayed in the edit page.
- Also can run the print function from here.

Search function

- Implement in registration unit as Search User function, student particular unit as Search Student function, result unit as search Result function, appointment unit as Search appointment function, meeting unit as search Meeting function, attendance unit as Search Attendant function.
- Get the keyword/ keywords from the form as the condition to search for the record in the database.
- If exist, then all the corresponding records will be displayed.
- Otherwise the system notify the user that the 'record not found'
- The function print also implemented here.

5.4 Module Implementation

Student Advisee Management System has three main modules:

- Admin Module
- Advisor Module
- Student Module

Each module is implemented using Active Server Pages (ASP) with the help of Dreamweaver MX. The function under each module was implemented by SAMS main three users.

- Administrator
- Advisor
- Student

The implementation of each module will be explained according to the users.

Administrator

Administrators are in charge in maintaining the data of user information, student particular and result. They can add, edit or delete and search for the information on these three units.

Advisor

Advisors involve in maintaining the appointment, meeting and attendance together with academic plan units. With this module, advisor can add, edit, delete and search for the information on all these records mention above together with student particulars and their results to monitor student academic performance every semester.

Students

Student can add their academic plan for the advisor's reference in student's module. Other than that they can view if all their information updated in the system is correct. They may refer to their advisor for further information if there is any error occurred in the system.

5.5 Coding of SAMS

Server Side Scripting

ASP is a server side scripting that is embedded in the HTM scripts. ASP codes are located within the delimiter <%--------%> in the HTM scripts. It is invisible to the client and only can be executed in the server side; hence it is called server side scripting. It is suitable to be employed in SAMS, which provides the capability for the web server to process application logic and then deliver standard HTM to the client browser.

Client Side Scripting

Beside server side scripting, client side scripting such as VBScript and JavaScript are also embedded in the code for SAMS development. Client side scripting is a type of scripting that does not need to be sent to server side for processing but only interpret by user browser. As a result, it helps to reduce the network traffic problem since it reduces user request that need to be sent to server and get response from the server. Another advantage of client side scripting is that it provides a better and quicker response to the user.

For SAMS, the client side scripting is use to do simple interactive task such as validate user's input.

Coding Approach

Database connection

The database connection is important that must be done before we start the coding of web pages. Information such as database name must be specified correctly.

After configuration, the codes can directly connect to the server and communicate with the database. Figure 5.1 illustrates example that shows the database connectivity

```
<%
  Dim objConn

  Set objConn = Server.CreateObject("ADODB.Connection")
  objConn.ConnectionString = "DSN=SAMS.dsn"
  objConn.Open
 %>
```

Figure 5.1: Codes on Databese Connectivity

Open Table

After connecting to the database, the data the data from the database table needs to be kept somewhere. Example of code to open table is shown in Figure 5.2.

```
<%
Dim objRS
  Set objRS = Server.CreateObject("ADODB.Recordset")
  objRS.Open "student", objConn,,adlockOptimistic, adCmdTabl

 %>
```

Figure 5.2 Codes on Open Table.

Retrieve data

Sample code to set the SQL command to retrieve data is shown in Figure 5.3.

```
<%
Set Con = Server.CreateObject("ADODB.Connection")
Set rs = Server.CreateObject("ADODB.Recordset")

Con.Open strCon

SQL = "SELECT matricno, student, day, month, year, days, remark FROM
appointment WHERE matricno like '%" & Query & "%'"
rs.Open SQL, strCon

IF NOT rs.EOF then


%>
```

Figure 5.3 : Sample code to retrieve data

Chapter 6: System Testing

6.1 Introduction

System testing is the analysis and the validation of the product as a whole. System testing encompasses all the product components, including both hardware and software. Its purpose is to verify that all the essential functions and features are present and working properly. System testing often includes testing the system's performance, stability and response time, besides validating that all system components working as intended. System testing can also includes a wide range of industry standard tests. These may be performed separately on each system component, jointly on multiple system components or both.

The goal of testing is to find the errors and faults in the coding. Therefore, a systematically test procedure is needed to make sure that the system is tested thoroughly and completely.

6.2 Unit testing

Unit test is the test of the software element at the lowest level of development. Units may be aggregates of software elements. Panning for unit test should occur concurrently with the software design activity. Reused software will probably not undergo unit test, unless changes were made to these unit. Then, appropriate testing is performed as in regression testing.

The steps for unit test are:

- Test planning – establish the objectives of the unit test, the strategies to be employed, the coverage requirements, reporting and analysis and closeout of anomalies.

- Generate, monitor and update the unit test plan to accomplish objectives.
- Trace test design, cases, procedures and execution results to the unit designs.
- Confirm the anomalies during test are software anomalies and not probes detected for other reasons.
- Generate test case and procedures – develop test cases and procedures for unit test and continue tracing as required by software units for typographical, syntactic and logic errors to ensure that each correctly implements the software design and satisfies the software requirements; execute the test cases; analyze results to verify anomalies; recommend changes to software design or code and conduct retesting as necessary.
- Document test activity and result.

Test case 1:

Before a user can access certain sites of SAMS such as the administrator section, advisor section and student section, one must have a valid used id and password. The following table shows the testing activities to check the user id and its corresponding password.

No	Test Procedures	Output	Analysis of Test Result and Solution
1	Insert a valid user id and password into the login page	Able to login to the system successfully	Successfully login to the system. Objectives is to be able to login to the system
2	Insert a valid user id and invalid password	Login denied	Login is denied. User is redirected back to the login page to try again. Objective is to prevent any unregistered users from login to the system.
3	Insert and invalid user id	Login denied	Login is denied. User is redirected back to the login page to try again. Objective to prevent any unregistered users from login to the system.
4	Case 2 or 3 is repeated more than once.	Login denied	Login is denied until the correct user id and password is entered. Objective to prevent any unregistered users from login to the system.

Table 6.1: Test Case for SAMS Login Function

Test case 2:

One of the sections in SAMS is the search function.

This is the test for searching student's particular.

No	Test procedures	Output	Analysis of test result and solution
1	Click on the "Search Result" link on the left hand side of the advisor menu.	Page displayed	The page is displayed correctly. Objective is to test if the hyperlink is working correctly
2	Enter the specific students matric number, session and semester according which exist in the database SAMS.mdb	The particular student's result is displayed	The students result is displayed. The objective is to see if the function searches in working correctly.
3	Enter the matric number or session or semester which is not in the SAMS database.	A message displayed stated the record not found.	No records are displayed. It means the searching function is functioning correctly.

6.4 Software Intergration Test

The software integration test activity is performed to examine how units interface and interact with each other.

General step in software integration test:

- Test planning- establish the objective of the software integration test, the strategies to be employed, the coverage requirement, reporting, and analysis and close out of anomalies.
- Generate, monitor, and update a software integration test plan to accomplish identification objectives.
- Trace test design, cases, procedures, and execution result to software requirement
- Generate test cases and procedures

- Perform software integration test
- Document test activity and results.

Test case 1:

The first integration test is done to the admin module.

No	Test procedures	Output	Analysis of test result and solution
1	Login as a valid user	Users are redirected to the admin menu	Users are redirected to the admin menu.
2	Add new user	Adding new user form is displayed.	The form is displayed correctly
3	Fill in all the field and click the submit button	"Thank you for registering" note prompt	The adding function is done successfully
4	Browse user link was click from the menu at the left hand side.	A form requesting status displayed	Browsing function is linked to the right side.
5	Status "administrator" is clicked	List of administrator were displayed.	The right record were retrieved from the database
6	Click on the edit button on the right hand side of the record	The update user information form displayed with the record of the selected row	A form that contains the sleeted information is displayed correctly
7	Do some changes to the data and click "update"	"Record has been updated" prompt	The changes have been done successfully.

6.5 System Test

System test involves the conduct of tests to execute the complete integrated systems. Software test is the validation that the software meets its requirement. The steps on system test.

- Test planning – establish the objective of the software system test, the strategies to be employed, the coverage requirements, reporting and analysis and close out of anomalies.
- Generate, monitor, and update a software system test to accomplish objectives.

- Trace system and software requirement to test software design, case, procedures, and execution result.
- General test case and procedures
- Test the operation of the software as an entity. Confirm the anomalies during test are software anomalies, not problems detected for other reasons: ensure any changes to software have been made; and conduct retesting as needed.
- Document test activities and result

End user evaluation

SAMS could not tested by the real users of the system, administrator, advisor and student. However three end users were selected to test the system and were ask some question to gather some feedback.

From the system testing all the users agreed that the system is user friendly because all the links and buttons are in a simple languages and easy to locate. Also when particular function is successfully performed, the notification is clearly stated.

They also mention that the interface is simple at the same time attractive and suitable as a formal management system.

However they think that the system is still lack of "forgot password" function.

Also they feel that there should have a function which can identify students who don't come for meeting for a number of time and send their names to the administrator upload in the faculties notice board. But SAMS has attendance sub module to identify students who are absent for meeting in selected month. And the advisor has to print the document and hand it over to the administrators to put up a notice.

Overall users are satisfied with the system's performance. However the system testing is considered incomplete without the real end users involvement.

Chapter 7: System Evaluation

Chapter 7: System Evaluation

7.1 Introduction

After system testing for the SAMS, the end product was brought up for system evaluation. The purpose of system evaluation is to highlight the strength, limitation, constraints and possible future enhancements of the developed and completed system. The following section will explain in detail about the system strength and its limitations,

7.2 System Strengths

- **User friendly**

  The graphic interface design of the system was designed to let the users fell comfortable and easy to use. The system will return error message if it detect inconsistencies.

- **Search capability**

  Searching plays an important role in database management. It helps the user to store and retrieve data sufficiently and effectively.

- **Easy accessibility**

  This system could be access easily using web browser where it could be downloaded from any authorized web site such as internet explorer.

- **Database transparency**

  Database transparency refers to the condition where the users do not need to know where the database resides, the system structure, the database management system (DBMS) or anything related to the system. They can use the system easily without spending time to study how it works.

7.3 System Limitations

- **Limited target users**

  The target users for the system are administrator, advisors and students from FSKTM. Due to the limitation of time and human resources, this system will be used in FSKTM only with no integration or link with other faculties.

- **Non paper-less**

  With the implementation of SAMS, forms such as Borang Biodata still need to be filled by the student during first year registration. The administrator can only get these information using this method and then key in these data into the system.

- **Only for FSKTM**

  SAMS is also limited to FSKTM advisors. Other faculty advisors are not allowed to access or download this system.

- **Forgot password**

  In SAMS, there isn't any function to retrieve your password if the user happens to forget his password. May be in future if the user happens to forget the password then the system can identify the right password and sent it to the users emal address.

- **Logout link**

  In SAMS there isn't any logout button.

7.4 Future Enhancement

Some functionality of the system can be enhancing in order to improve this system.

- **View student result according to course code**

  SAMS allows the advisor to view individual students result by selecting the session and semester. Also view the list of student by CGPA. However SAMS not able to generate report on students result listed by course code. It should be considered in the future enhancement.

- **Notify student who don't attend meeting.**

  SAMS enable the advisors to view the students attendance but can't generate report on sorting the list by those who are absent for more than a period of time. This also should be considered in future enhancement

7.5 Problems Encountered and Solution.

Through out the development of SAMS, a number of problem encountered.

- **Problem in development tool and language selection**

  After the system analysis was done, I had the difficulties to select the most appropriate tools and language in the development. To overcome this problem I had tried to gain more information of web based programming and identified the most appropriate approach to develop SAMS.

- **Lack of knowledge in languages**

  Without a strong base of the languages such as ASP scripting, Javasript and VBSript, I had to spend more time looking for solution of the problem occurred during the system development.

- **Difficulty in designing the user interface**

  It is difficult to develop a suitable, standard and systematic user interface because of lack of experience in designing.

Conclusion

SAMS is design as a web based system with three different modules each with different target users. The three modules are Admin Module, Advisor Module and Student Module.

SAMS is a very effective system to be implemented in FSKTM. Since its main objective is lessen the faculty advisor's burden in the advisory system of FSKTM, it would be preferred by advisors to have the system for the faculty use.

SAMS is able to keep every student's information and their result. These in formations are very useful for advisor's to know their advisee more closely and to monitor these students academic performance as ensuring a better performance every semester is the main responsibility to advisors. SAMS also can keep records on appointment and meeting schedule, where with this the advisor and student can always refer to the schedule of past meetings and forth coming meetings. It also allows the advisors to record the student attendance in every meeting so that they can detect students who always meet them and students who are not. This system also provide a search function which is very useful to the advisor since he does not have to waste time browsing through the entire record to find for one particular. This system has adding, browsing, editing, deleting and searching function which are very easy to be used. These functions can ensure a better, systematic, effective and efficient management of student advisee system in FSKTM.

Reference

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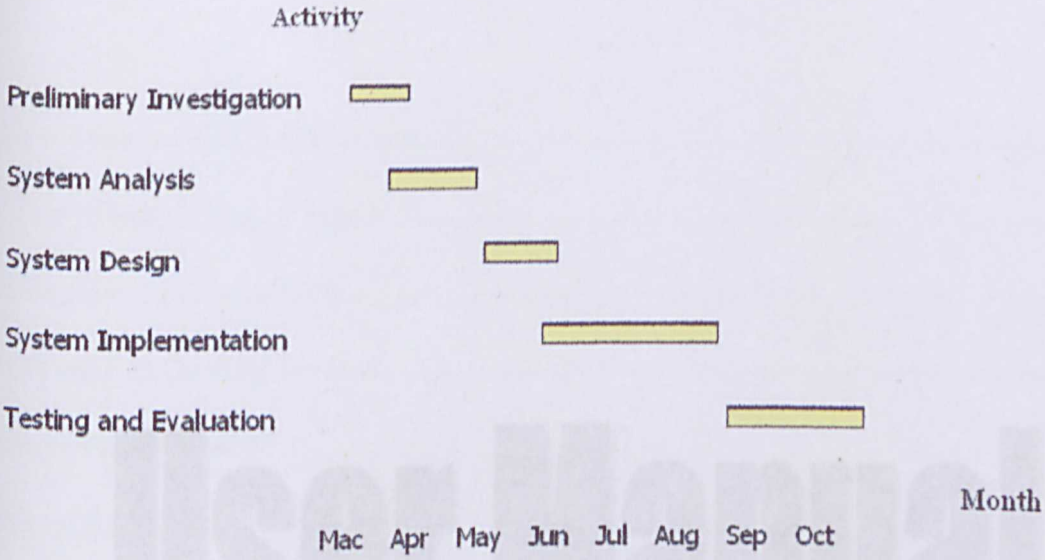
10. http://www.cwru.edu.its/itac/pdf/Dreamweaver.pdf
11. http://wap.kuittho.edu.my/
12. http://orion.whitman.edu/
13. http://depts.stcc.edu/ssc.staff.shtml

Appendix

Project Schedule



User Manual

User Manual: Table of Content

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User Manual Of Student Advisee Management System

Chapter 1: Introduction

Student Advisee Management System (SAMS) is an easy to use database driven web application that support advisors in maintaining student's personal information, result, appointment and meeting record , student's attendance and student's forthcoming academic plan. Basically, it consists of three different users (module) which will be explained in detail in the following chapters.

SAMS gives the opportunity to the administrator to maintain the user's registration, student information and student result. On the other hand advisors are able to maintain all the records on appointment and meeting, and student's attendance in every appointment or meeting. They are also allowed to maintain student's particulars and result. Students are able to browse and view their personal information, result, appointment and meeting schedules.

For security reason and management use, SAMS will only allows administrators, advisors and students who have registered with the system.

The main purpose of this User Manual is to serve the users of SAMS with a tour guide through all the functions available in the system. User manual consist of four different section different sections to provide a complete guide for all categories of users :

- Getting started
- Admin Section
- Advisor Section
- Student Section

Chapter 2: Getting Started

Home Page of SAMS

SAMS is a web application that provides services to the users. Therefore, user can simply access the internet to reach the home page of the system. All the task or functions can then be performing through the web browser. Advisors and Administrator uses http://localhost/sams2/sams2/sams_home.htm to access the system .Figure 2.1: illustrates the home page of SAMS for Administrators and Advisors only.

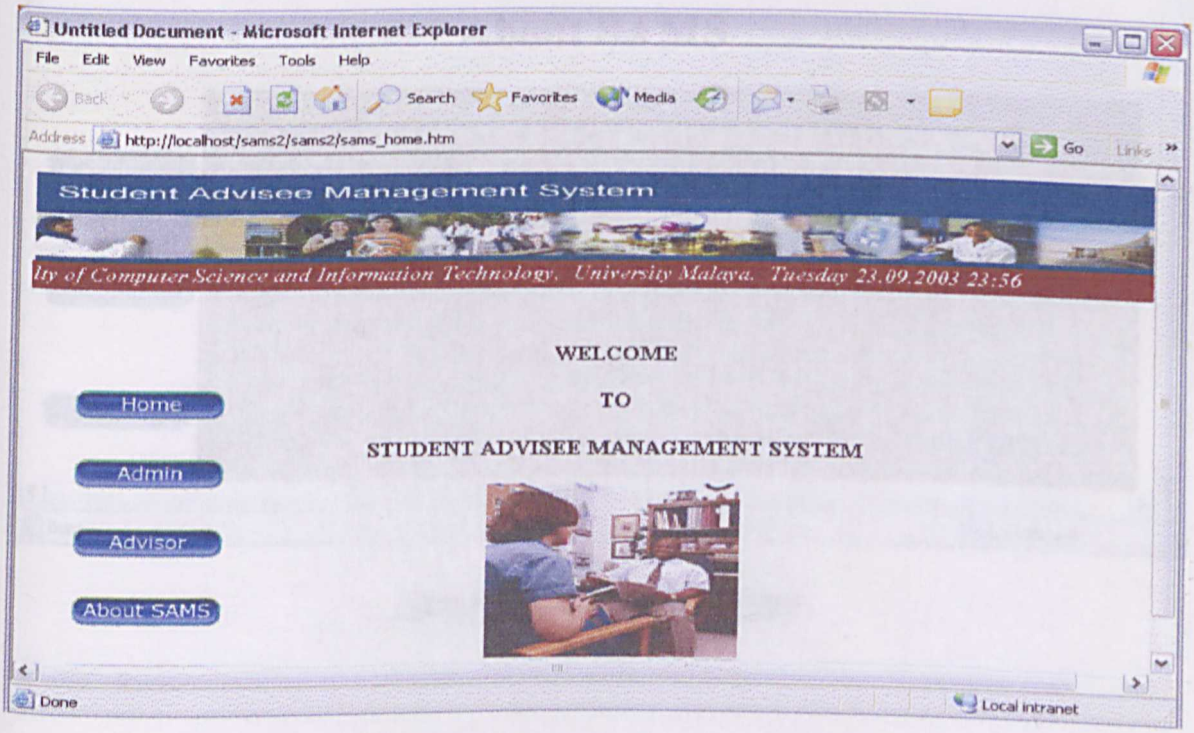

Figure 2.1: Home Page of SAMS of Administrators and Advisors

Students are required to access to a different URL for the home page, in order to login to the system. This is to prevent students from accessing to the administrator and advisor section.

The home page of SAMS has link to a brief description about the system. The button About SAMS links to this page. Figure 2.2 shows the page About SAMS

About SAMS Page

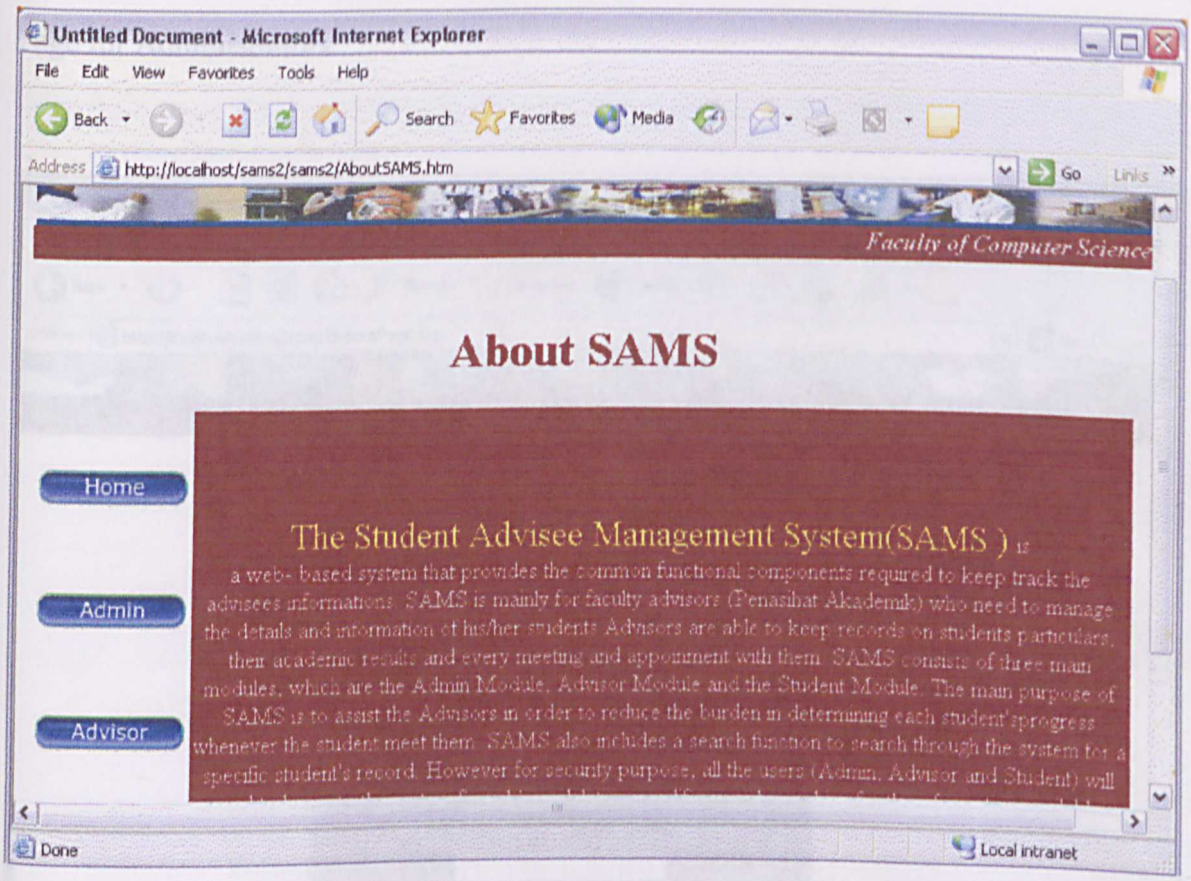

Figure 2.2: About SAMS Page

Chapter 3: Administrator Section

Admin Login Page

From the Home page, Administrator has to click on the button labeled "Admin". This button links the administrator to the administrator login page. Figure 3.1 shows the Login Page for Administrators.

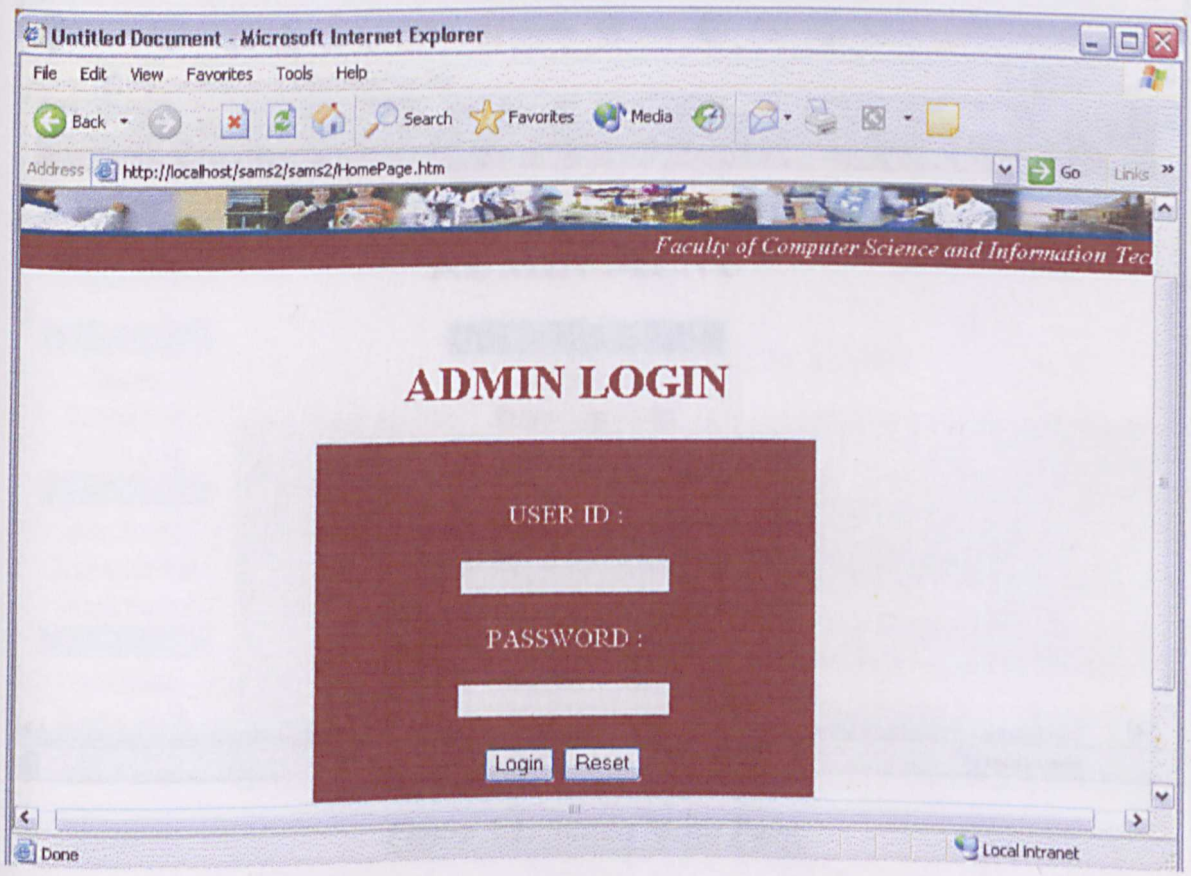

Figure 3.1: Login Page of SAMS for Administrators.

Administrator has to enter valid User ID and Password in order to login the system. Click the button "login" once User ID and password has been entered. The system will verify the User ID and password and if the User Id and Password entered are not valid then a message asking for the valid user ID and password will be displayed in the login page .

user has to entered the right user ID and password again. Otherwise the system will verify the user ID and password and lead the administrator to the next page, the Admin Menu Page. Admin Menu page displays the links of all the function in admin module. Figure 3.2 shows the Admin Menu Page.

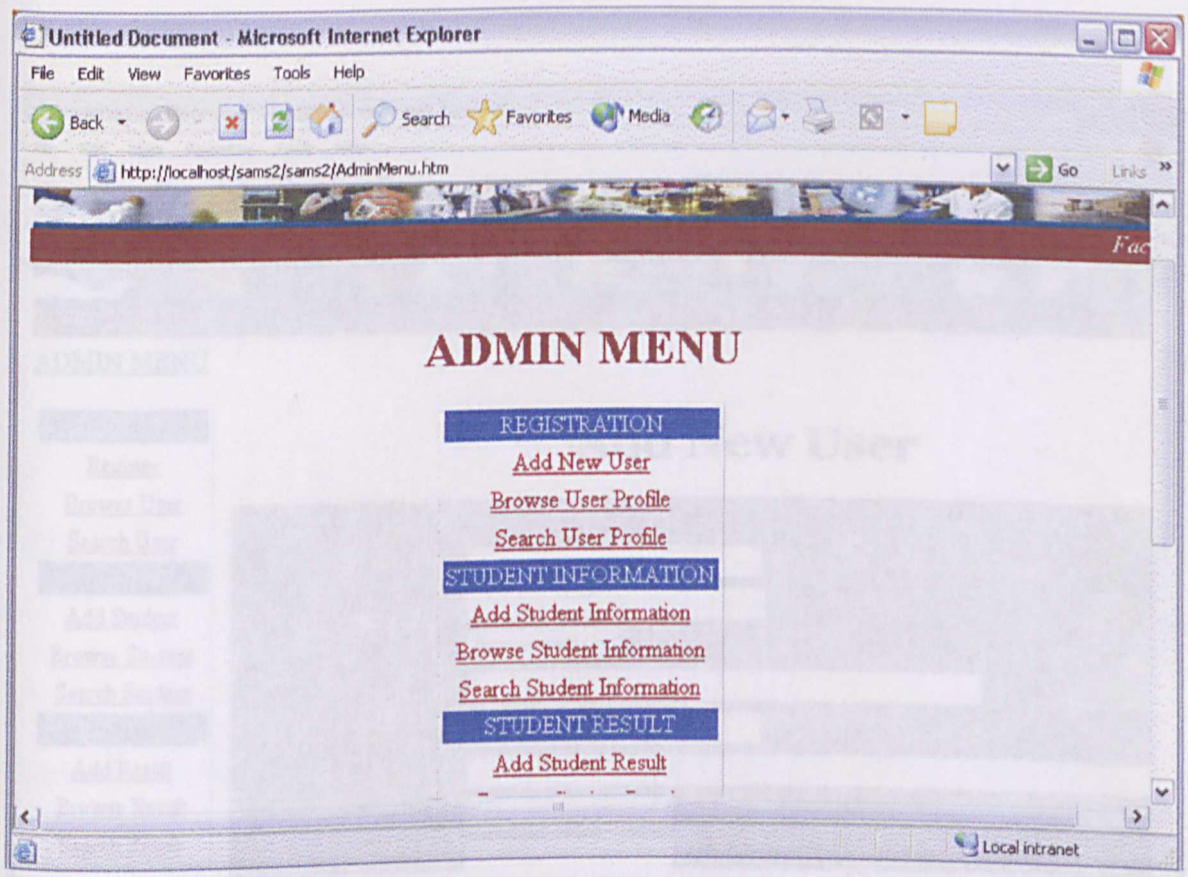

Figure 3.2: Admin Menu Page.

Admin menu is divided to three sub modules; Registration, Student Information and Student Result.

Registration sub–module

As shown in Figure 3.2, the registration sub- module consists of three functions; Add New User function, Browse User Profile and Search User Profile. Add New User displays the form to register a new user to the system. Figure 3.3 illustrates the Add New User page.

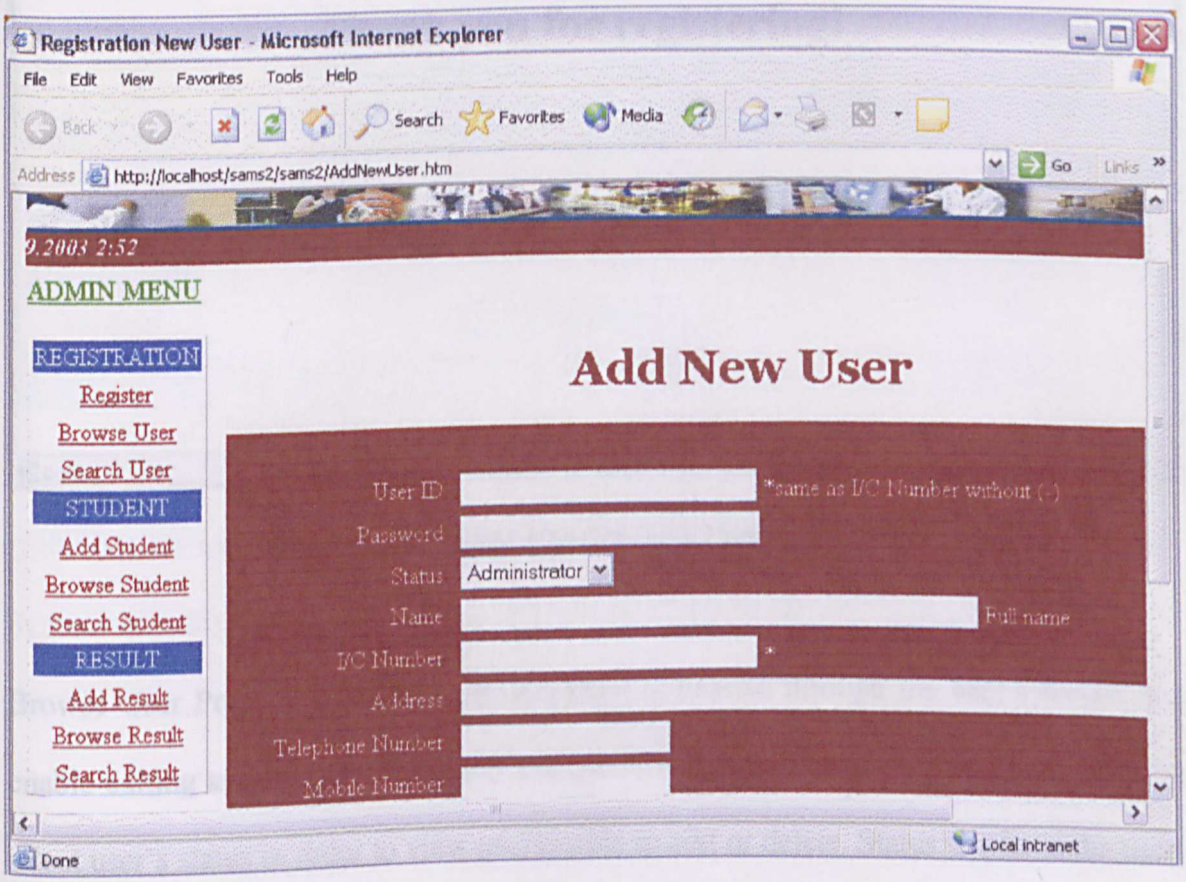

Figure 3.3: Add New User Page

Once all the fields are entered with value click at the button "submit" at the bottom of the form. The menu table on the left hand side on the page is the admin menu. Users do no have to go to Admin Menu page to move on to other function. A page notifying that the new user has already register will appear. Figure 3.4 show the notification page.

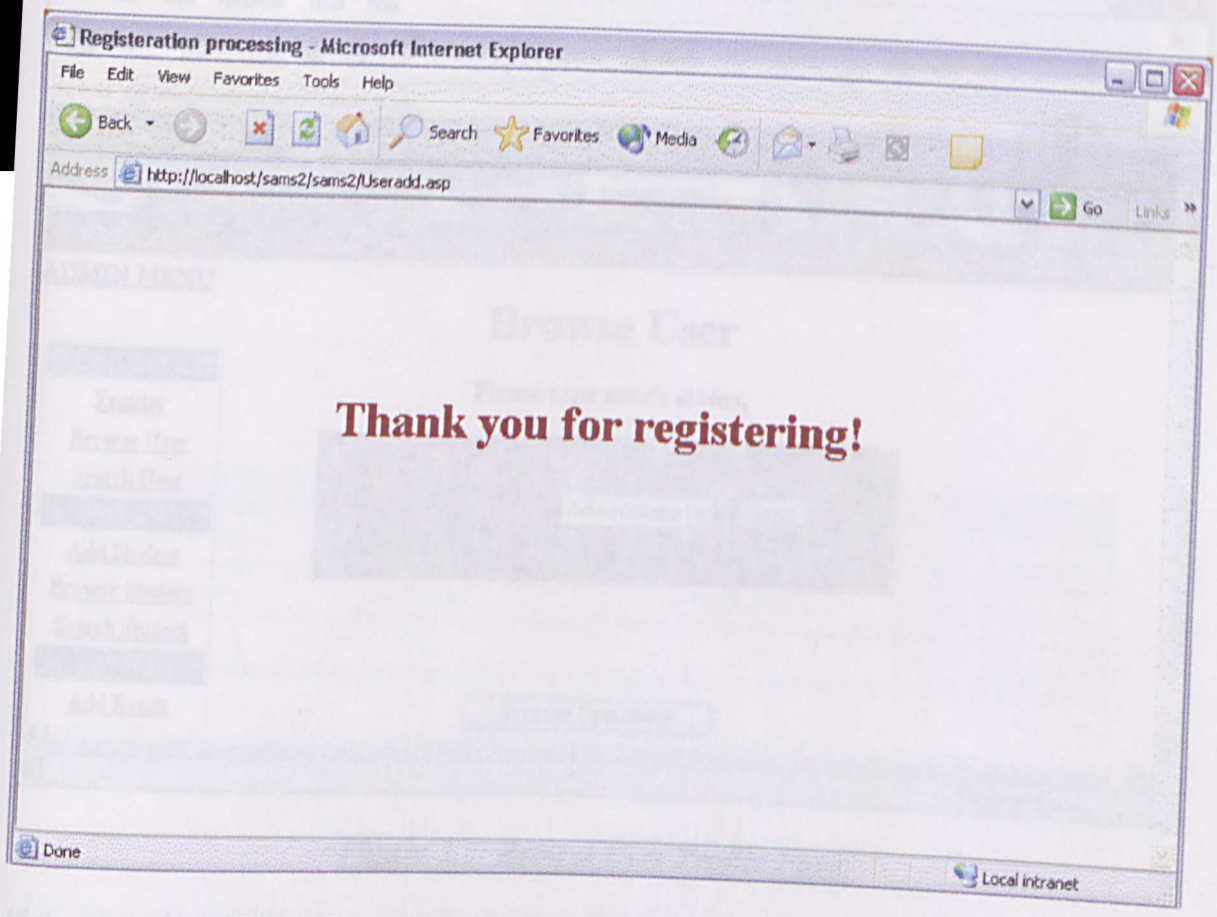

Figure 3.4: Notifying Page of New User's Registration

Browse User Profile allows the Administrator to browse through the user's record and enable editing and deleting. Figure 3.5 shows Browse User Profile page. Admin has to select user's status in order to view user profile to edit or delete. Status is who is the user; administrator, Advisor or student? Once status has been selected click on the "send" button.

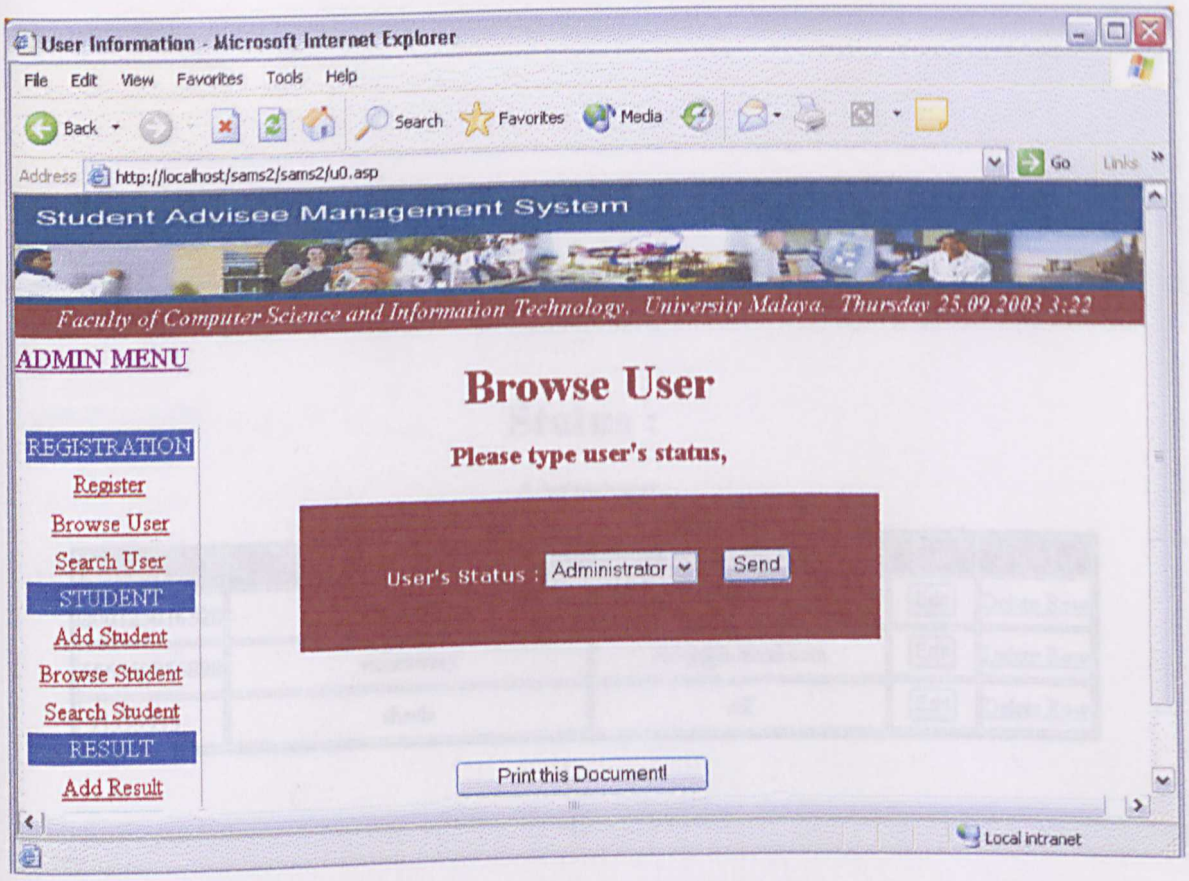

Figure 3.5: Browse User Profile Page.

If the records exist on the requested key then the system will proceed to the next screen. System will display entire user under the status chosen to be browsed. Figure 3.6: shows the displays.

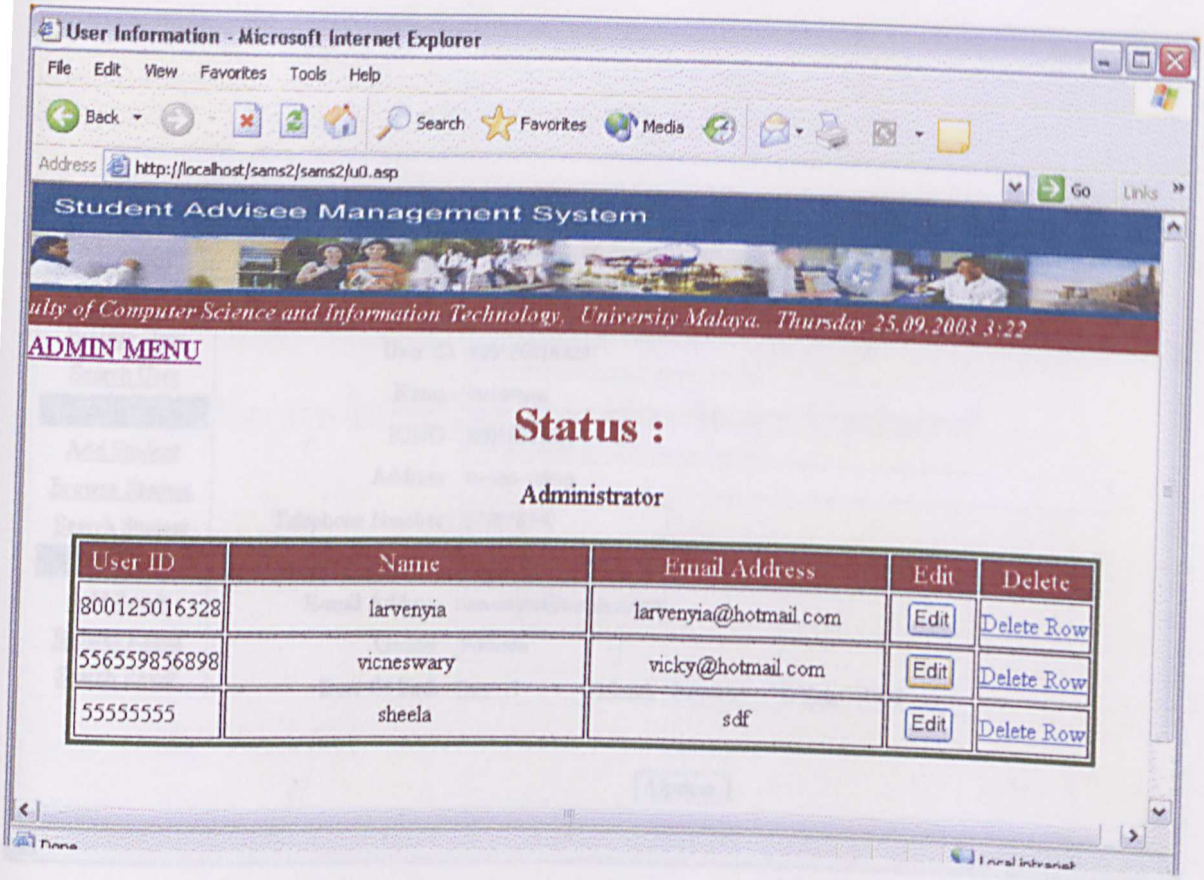

Figure 3.6: Browse / Edit User Profile Page.

User then can choose the row to be updated or deleted and click the edit button or delete linked on the right hand side of the record table. If the Edit button is clicked the page will redirect to the following page with the update form. Figure 3.7 illustrates this.

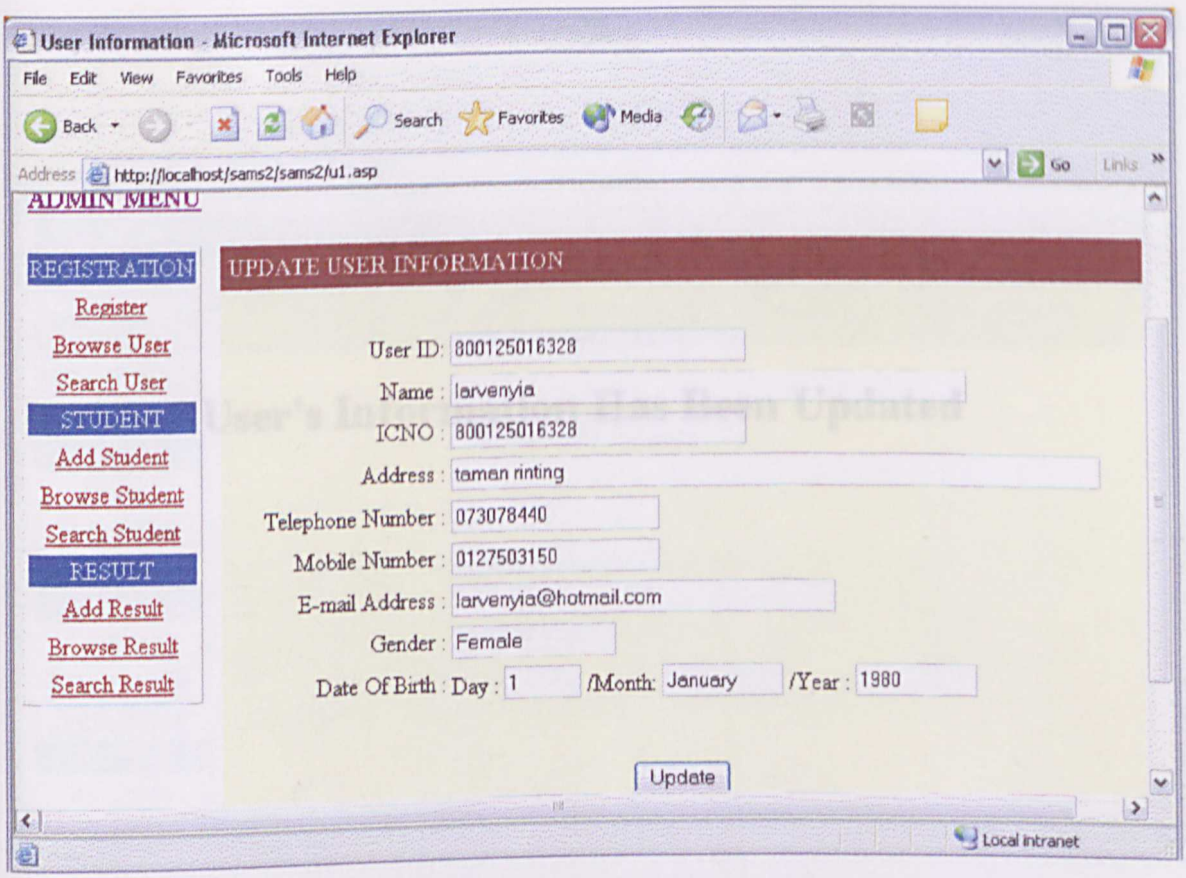

Figure 3.7: Update Form for User Information Page.

The existing record will be display together changes can be made if necessary. Then click "update" button.

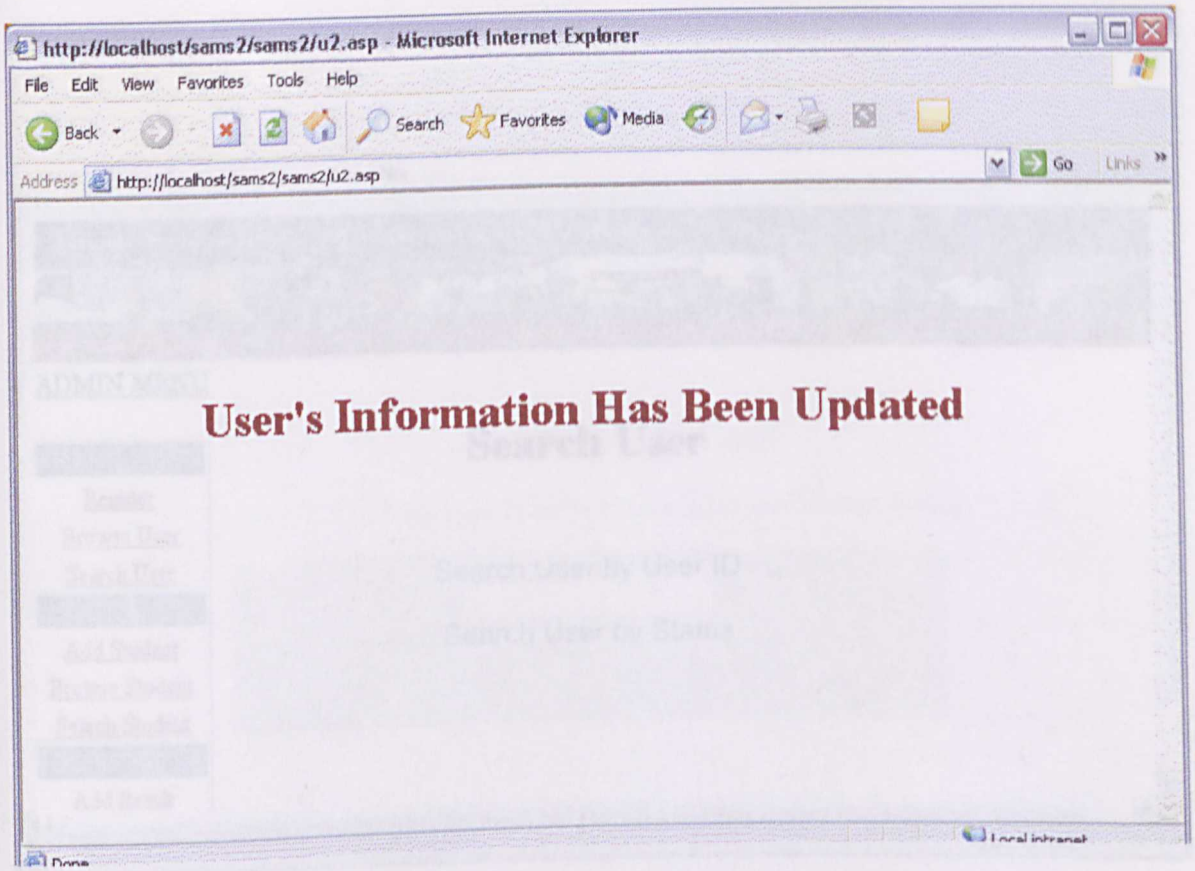

Figure 3.8: Notification on Record Update.

Once the updating process is done, a notification page saying the records have been updated will appear. The next function in registration sub- module is the sear user profile function. Search User registration leads to the Search User page. As shown in Figure 3.9.

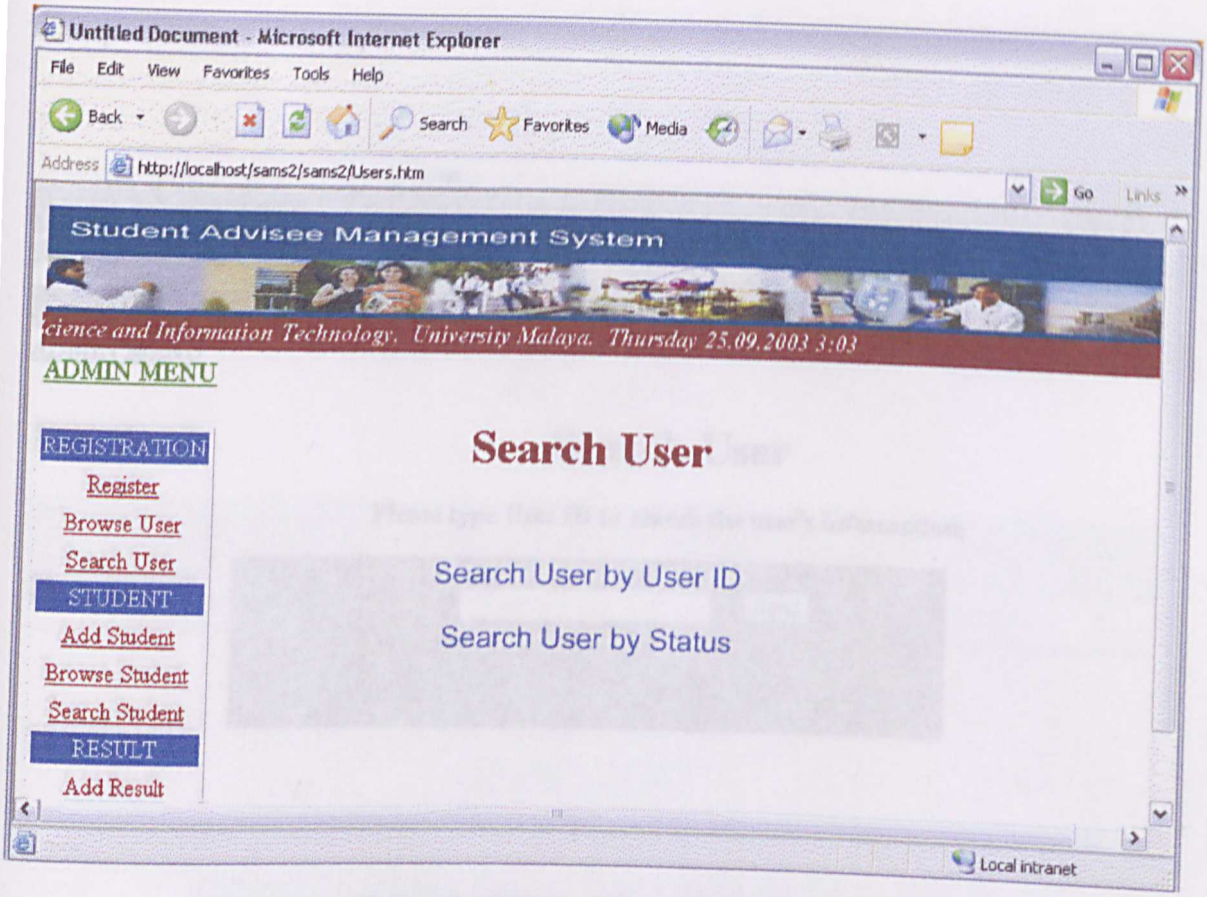

Figure 3.9: Search User Page

User can choose either to search on users profile by User ID or Status.

Search user by User ID redirect to the following page. Figure 3.10 Search User by User ID.

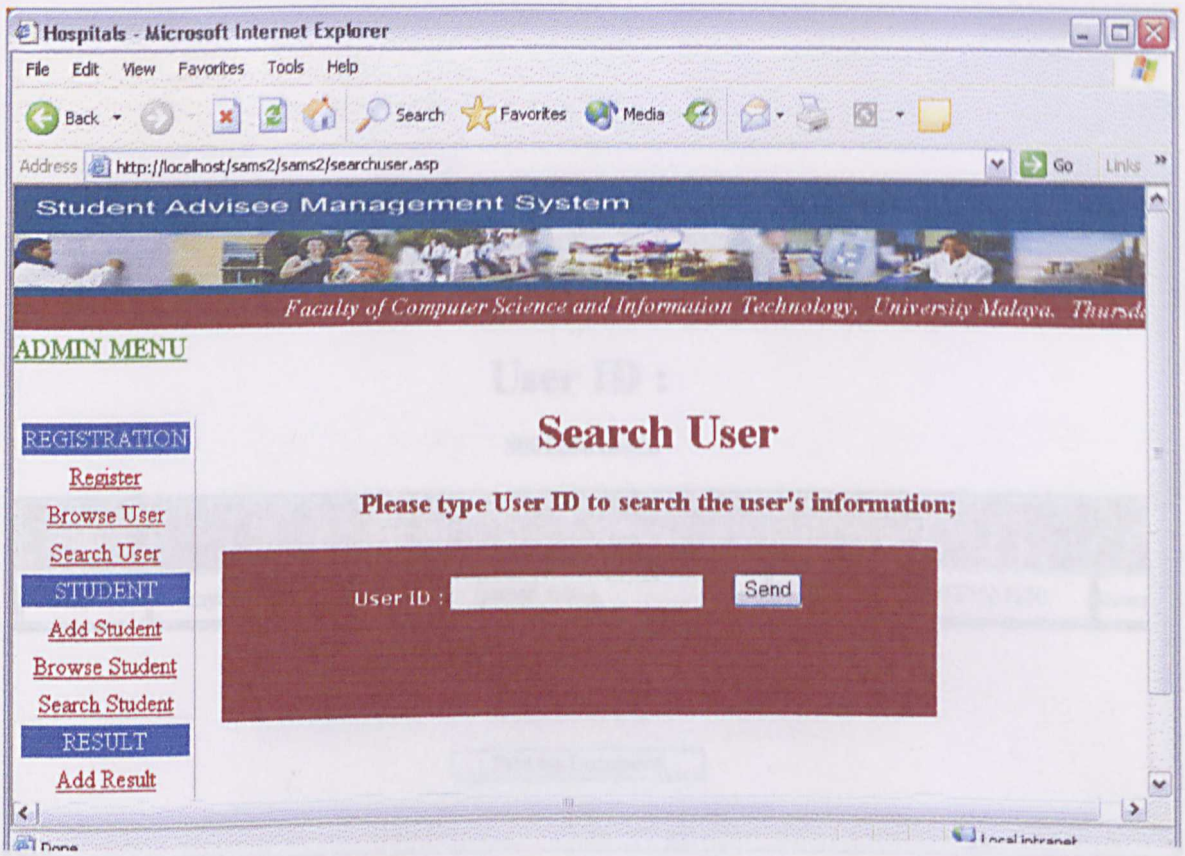

Figure 3.10 Search User by User ID.

User has to enter user Id to be searched in the text field the click send. The detail on that particular user will be shown as in figure 3.11.

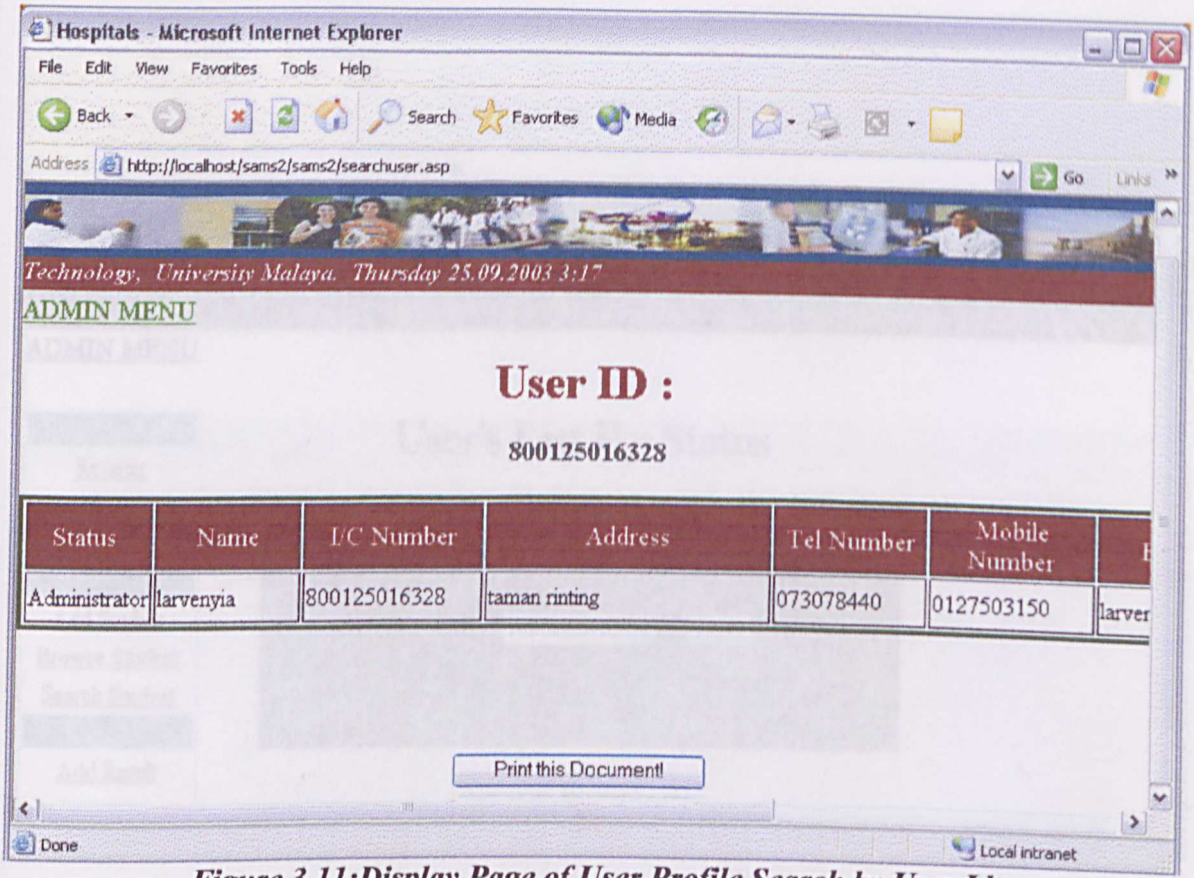

Figure 3.11:Display Page of User Profile Search by User Id

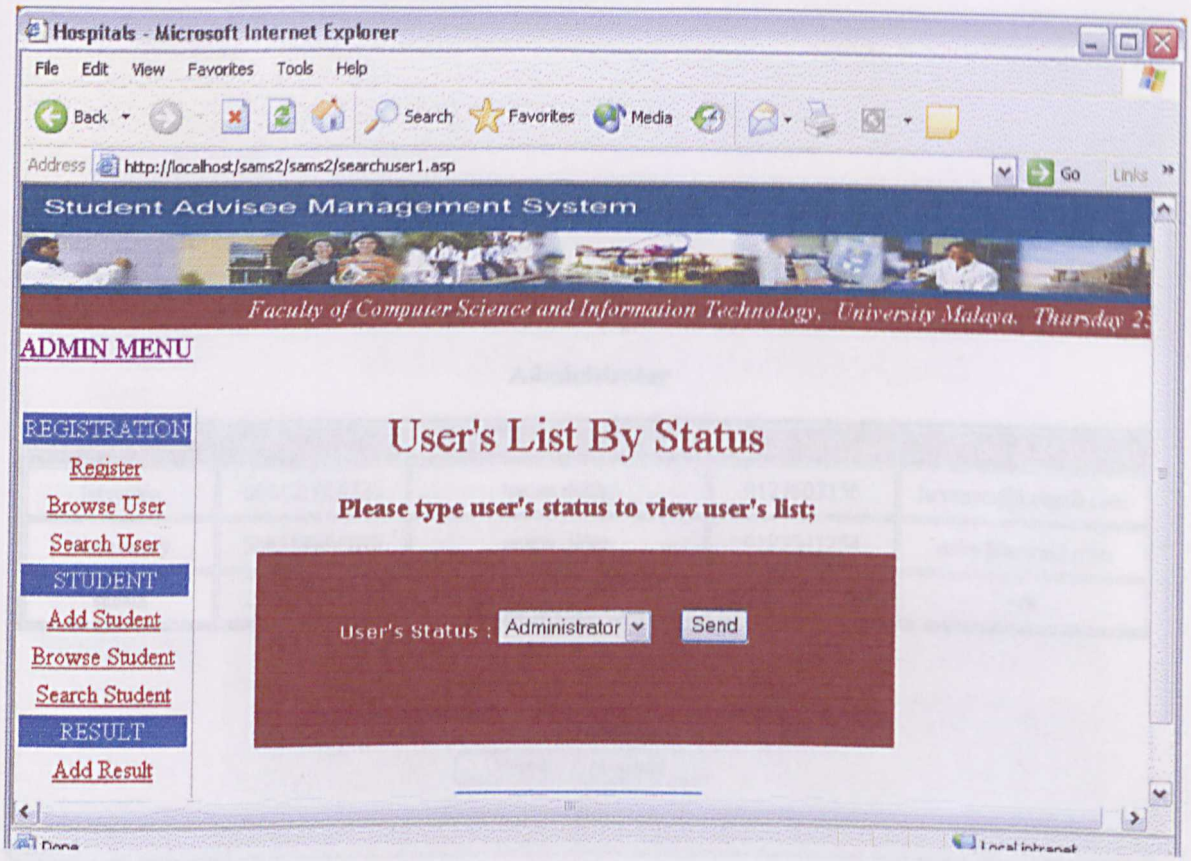

Figure 3.12: Search User by Status.

Figure 3.12 shows the search page by user's status. Select the status of users to be view and the list of user in the corresponding status will be displayed as in figure 3.13

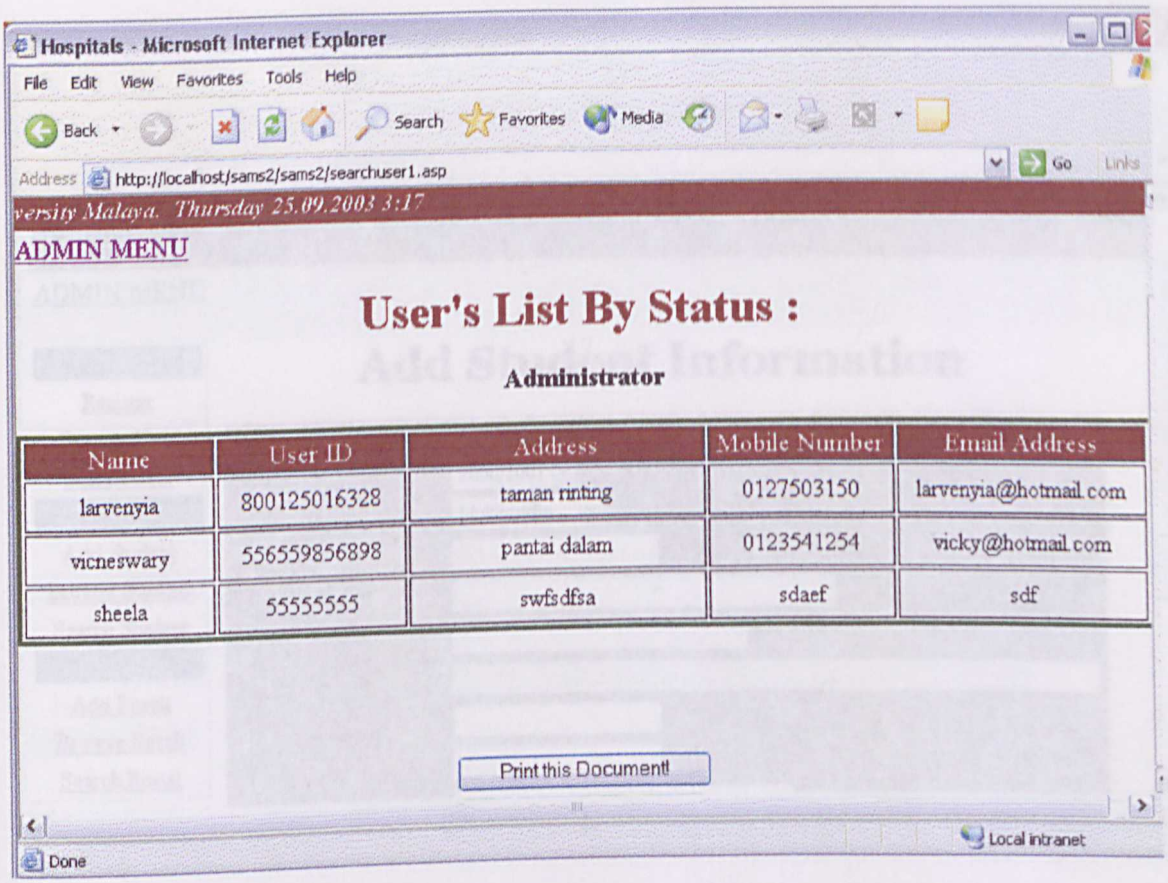

Figure 3.13: Page Displaying the List of User by Status.

Student Information Sub-Module

The sub module also consist the same three functions as in registration. Add Student Information, Browse Student Information and Search Student Information is the three functions in this sub module. These function the same way as in registration sub module. Figure 3.14 shows the add Student Information page.

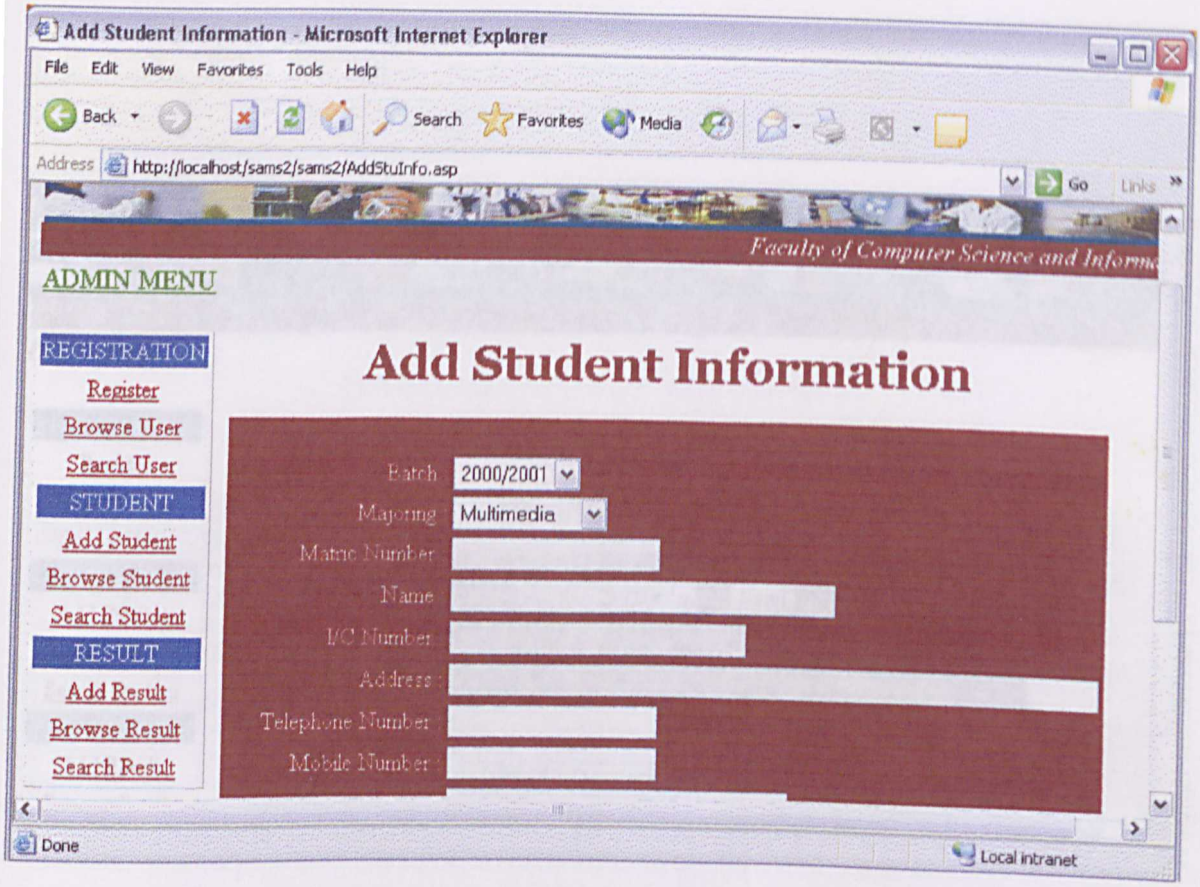

Figure 3.14: Add Student Information Page.

Next figure 3.15 is the browsing page which requests the advisor's name to view the student list and their details.

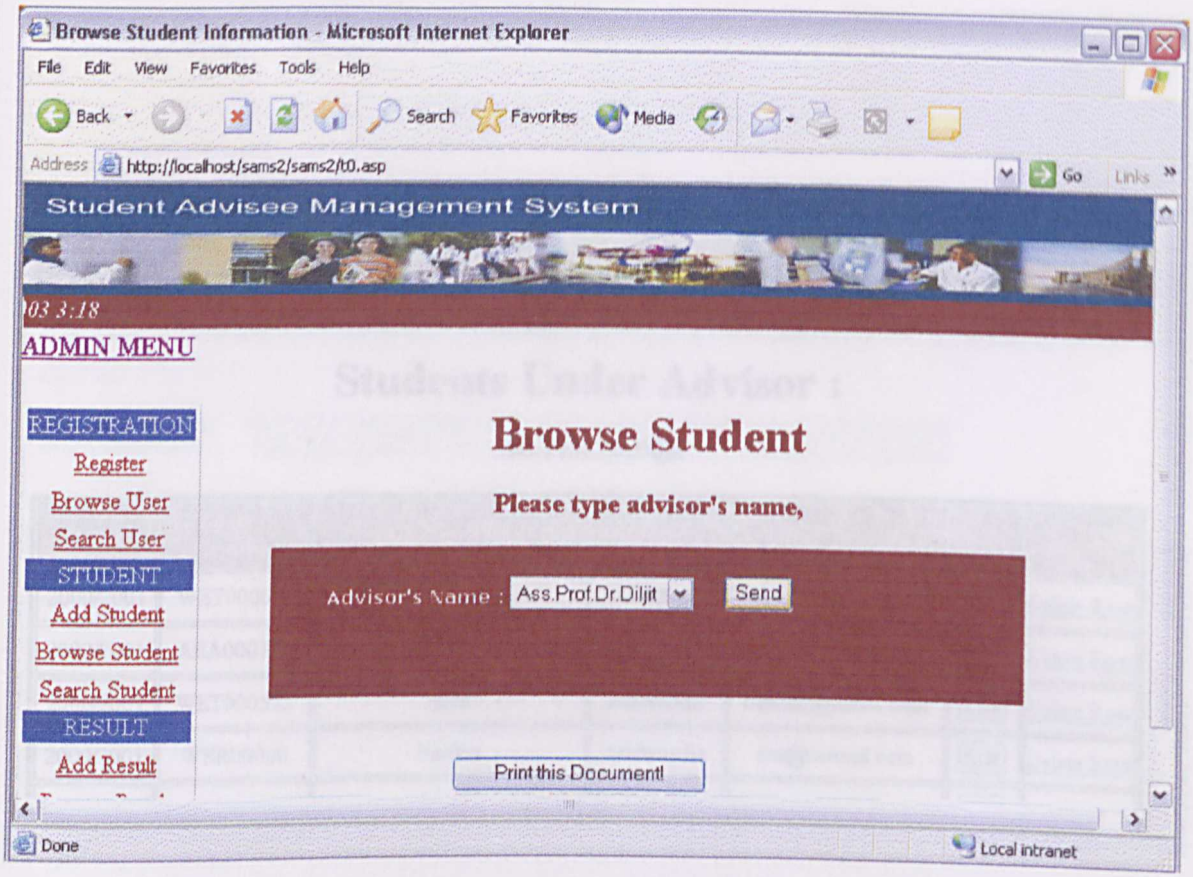

Figure 3.15: Browse Student Information page.

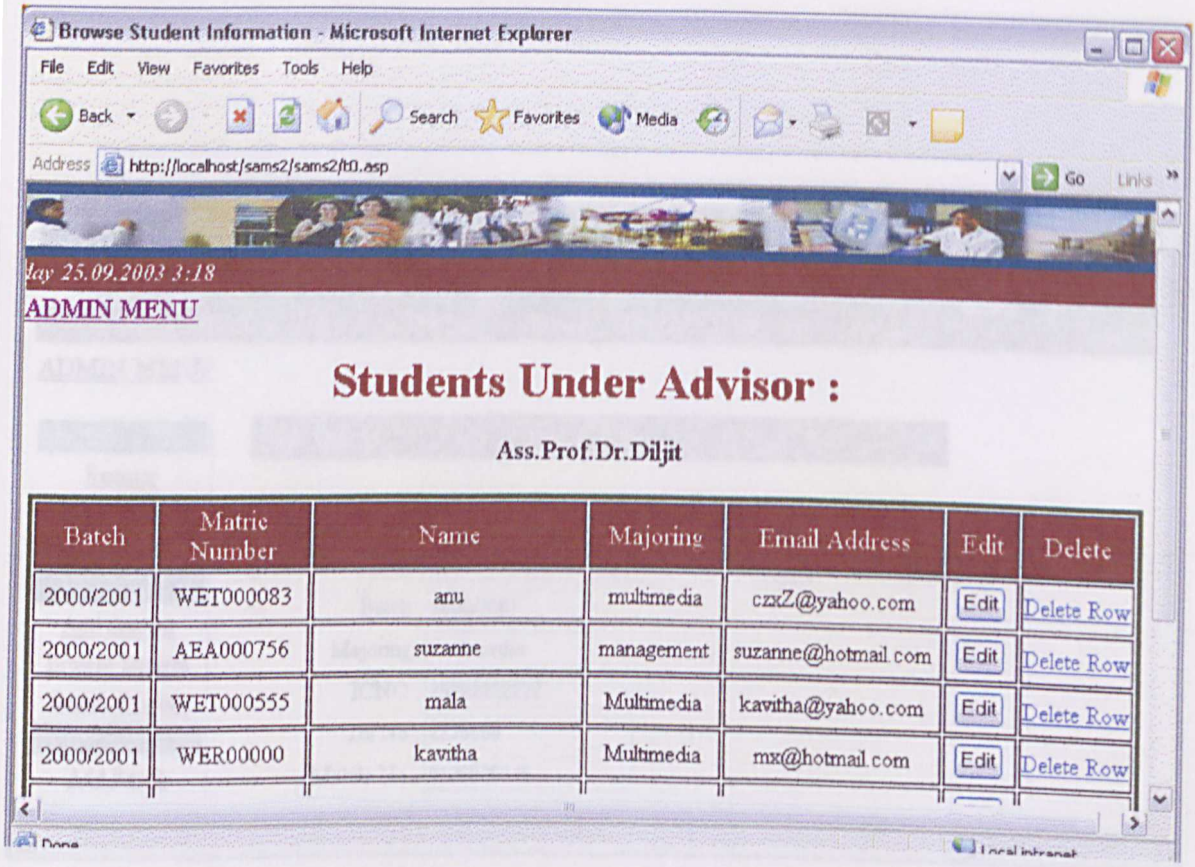

Figure 3.16: Student List and Their Information

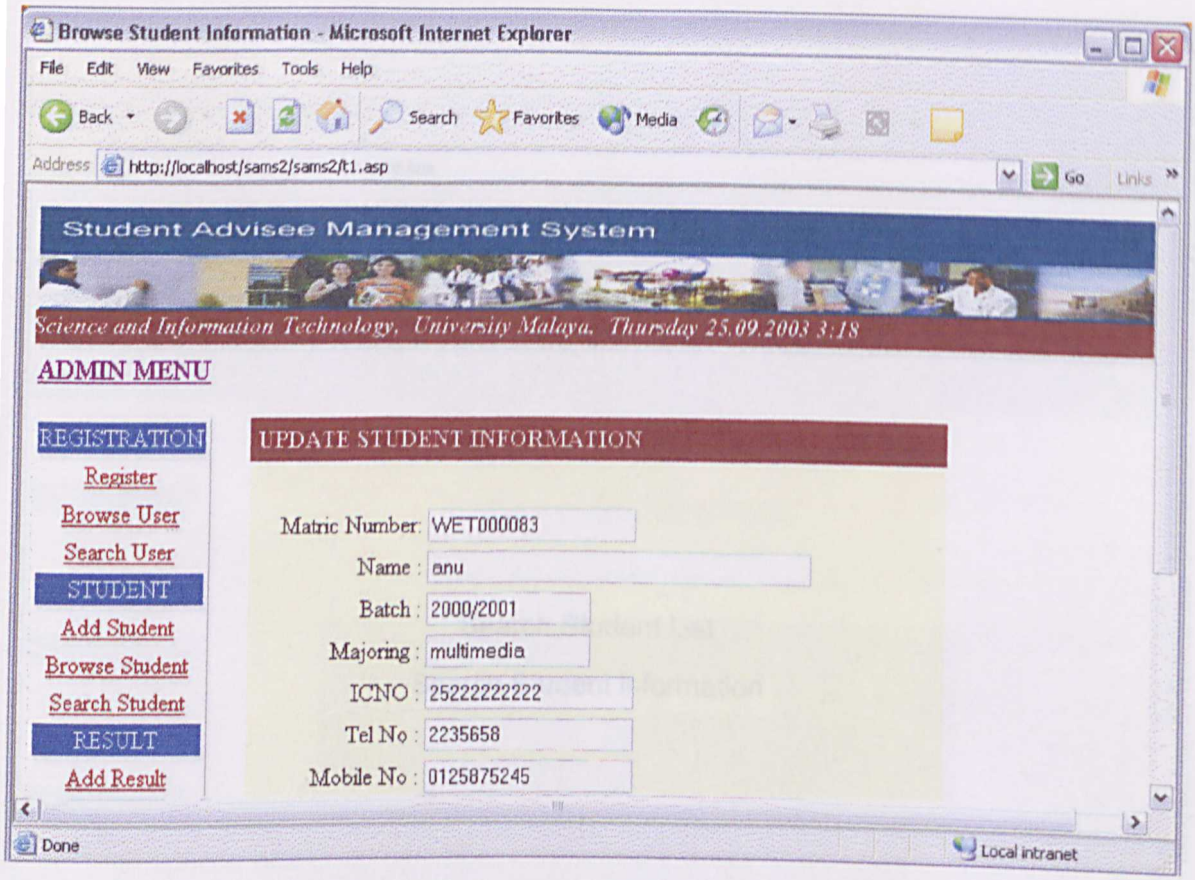

Figure 3.17: Edit Student Information page

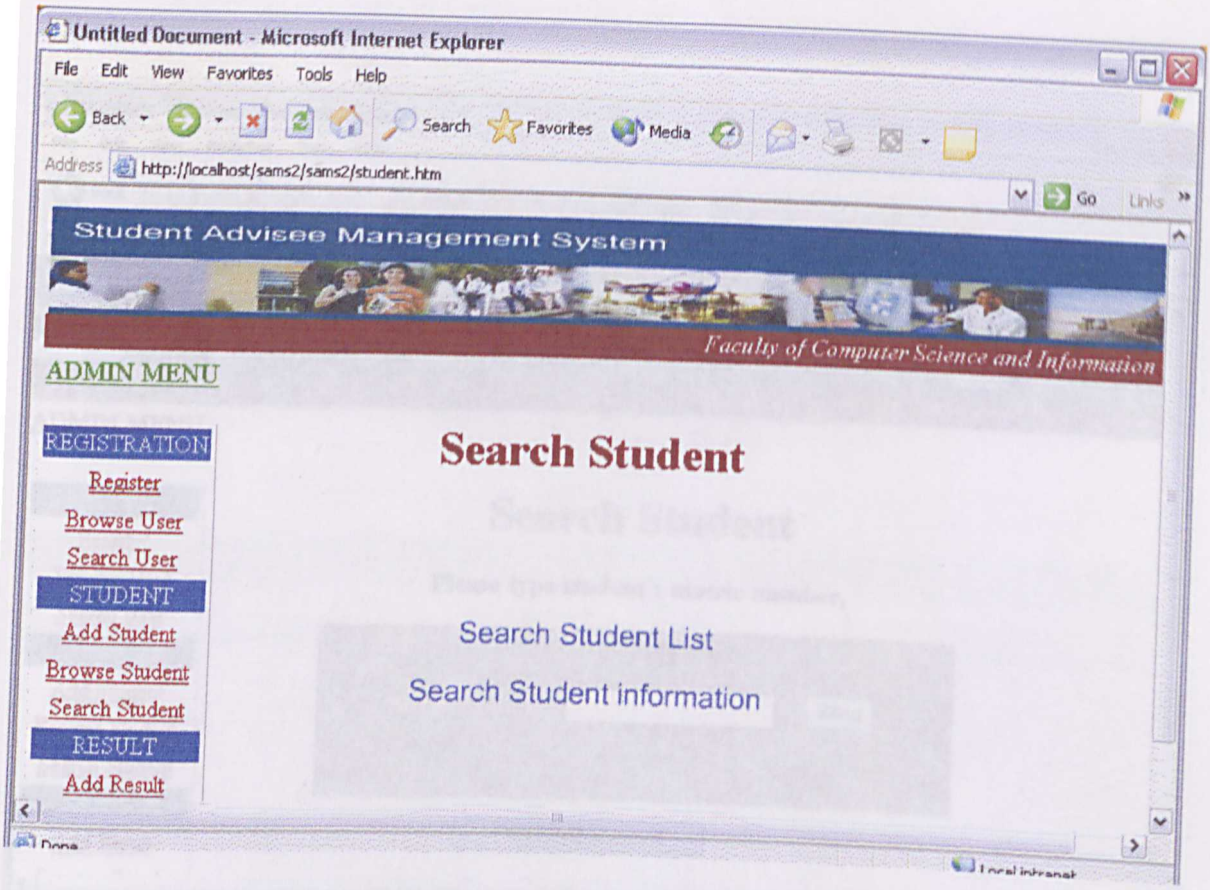

Figure 3.18 Search Student Information Page

In figure 3.18, search Student List link to Searching by advisor' name as in figure 3.15 where else Search Student Information request students matric number to search that particular student information as in figure 3.19 and 3.20

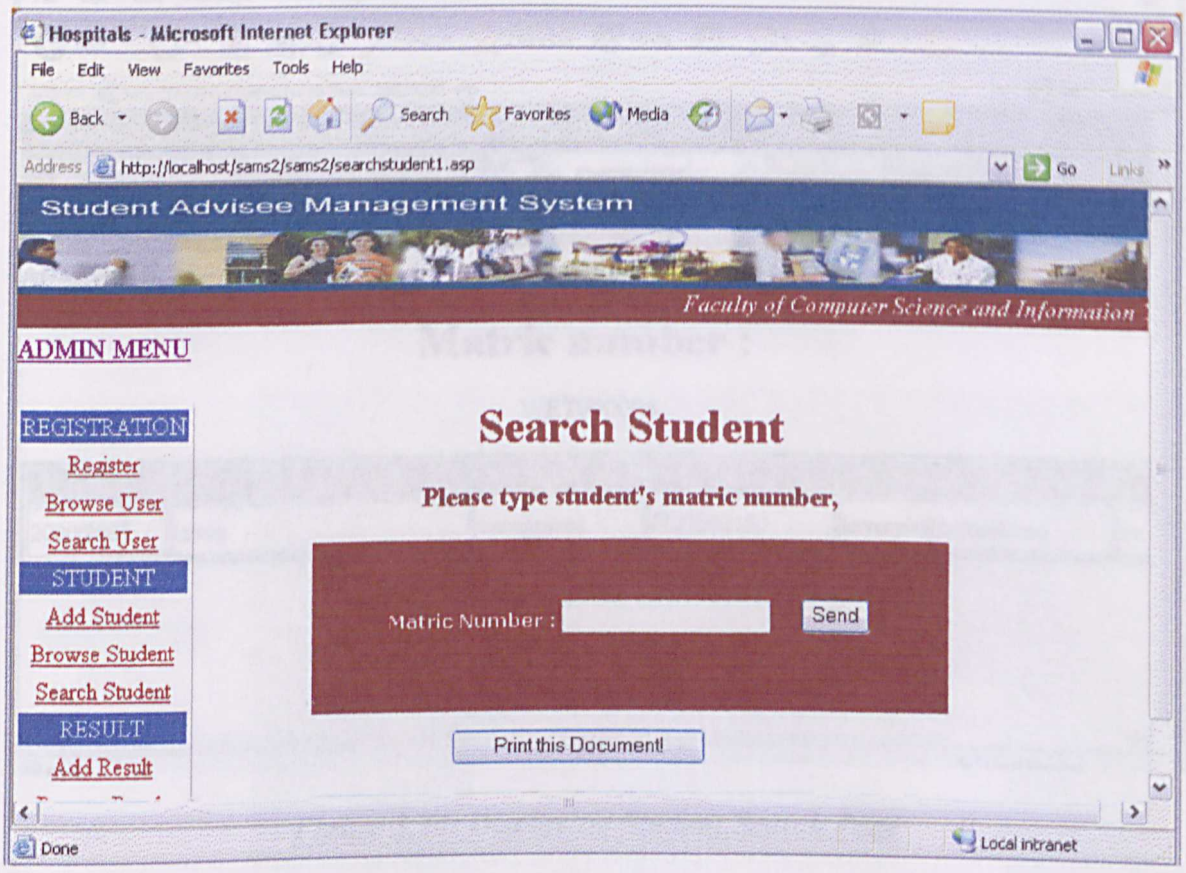

Figure 3.19: Search Student by Matric Number

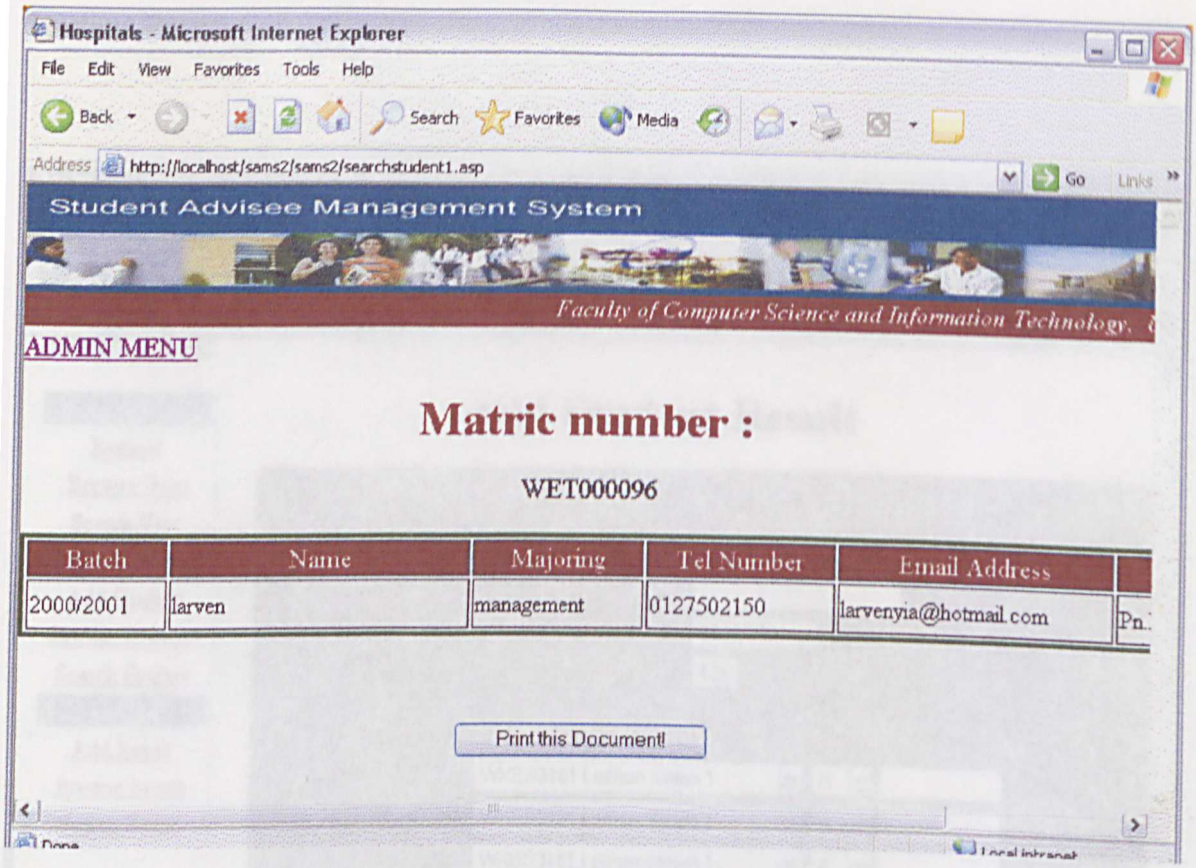

Figure 3.20: Displaying Student Search Page

Student Result Sub-Module

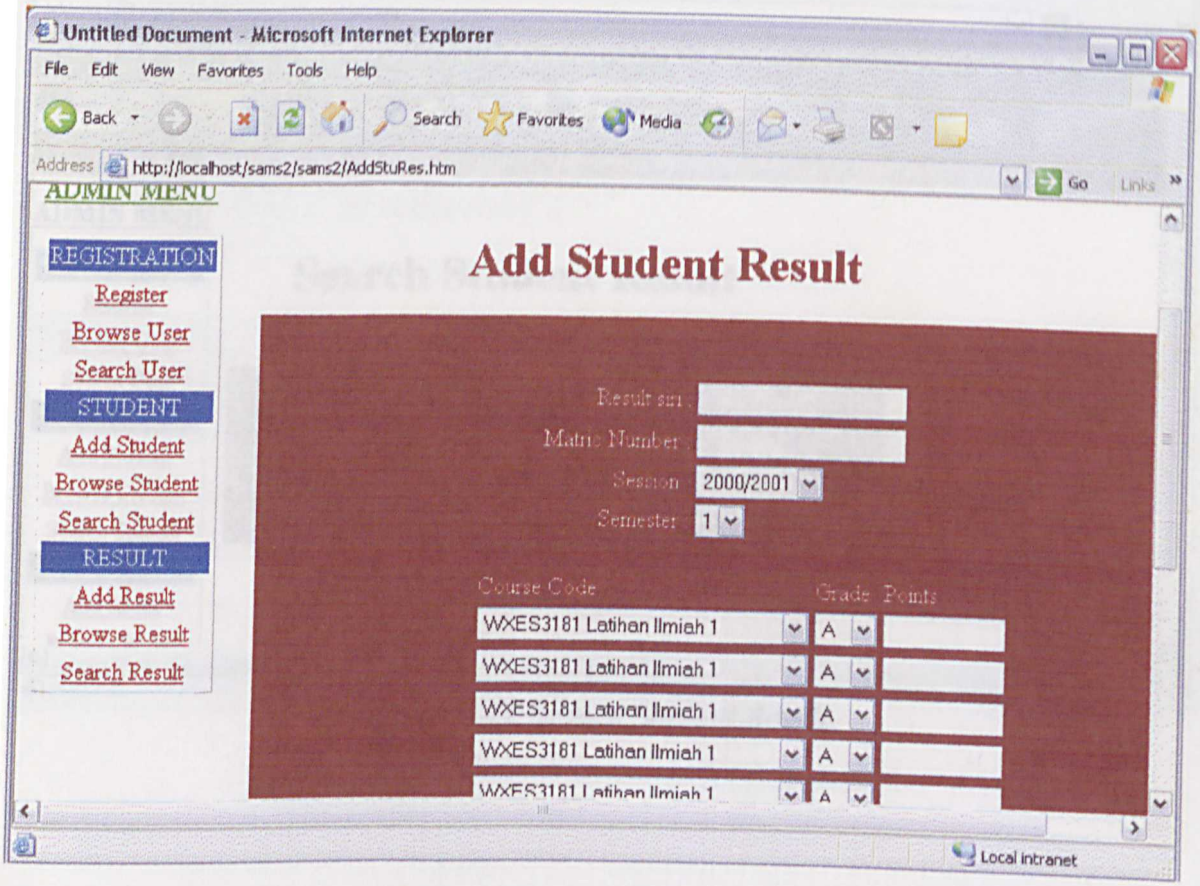

Figure 3.21: Add Student Result.

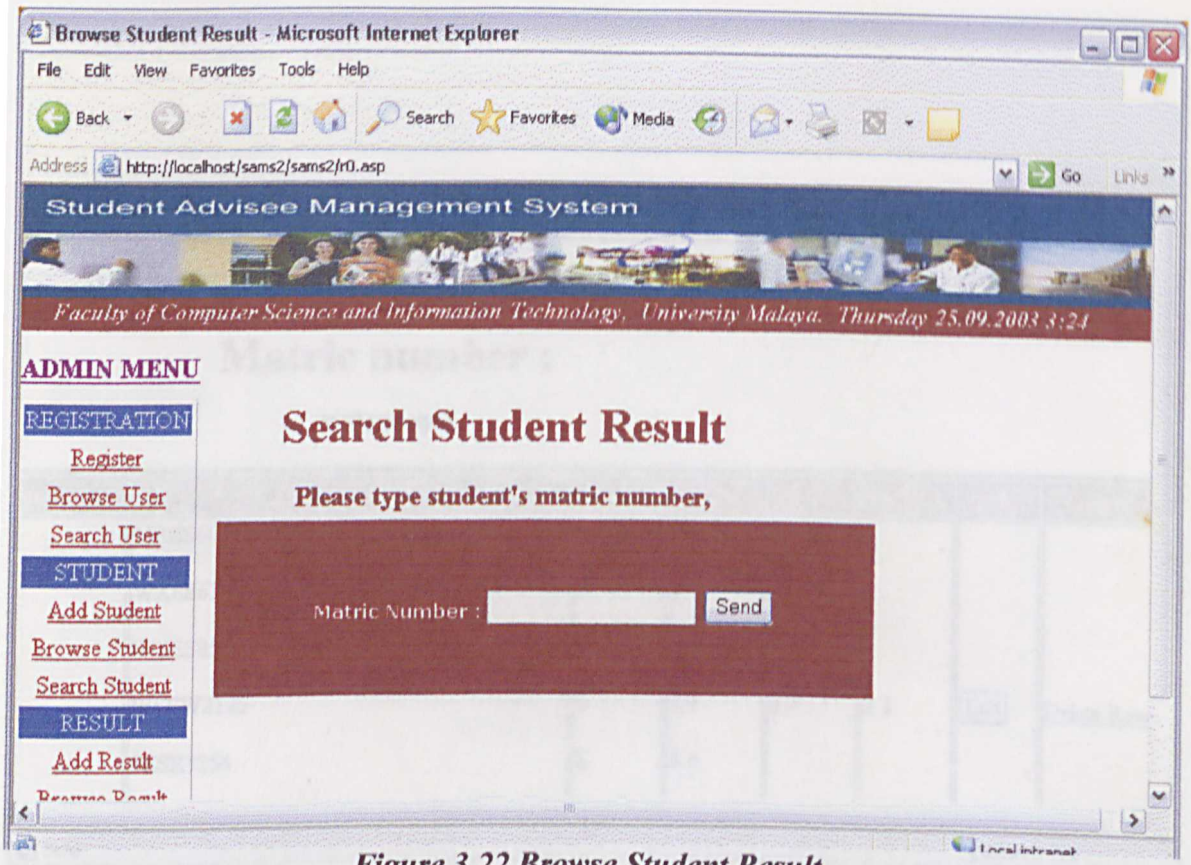

Figure 3.22 Browse Student Result.

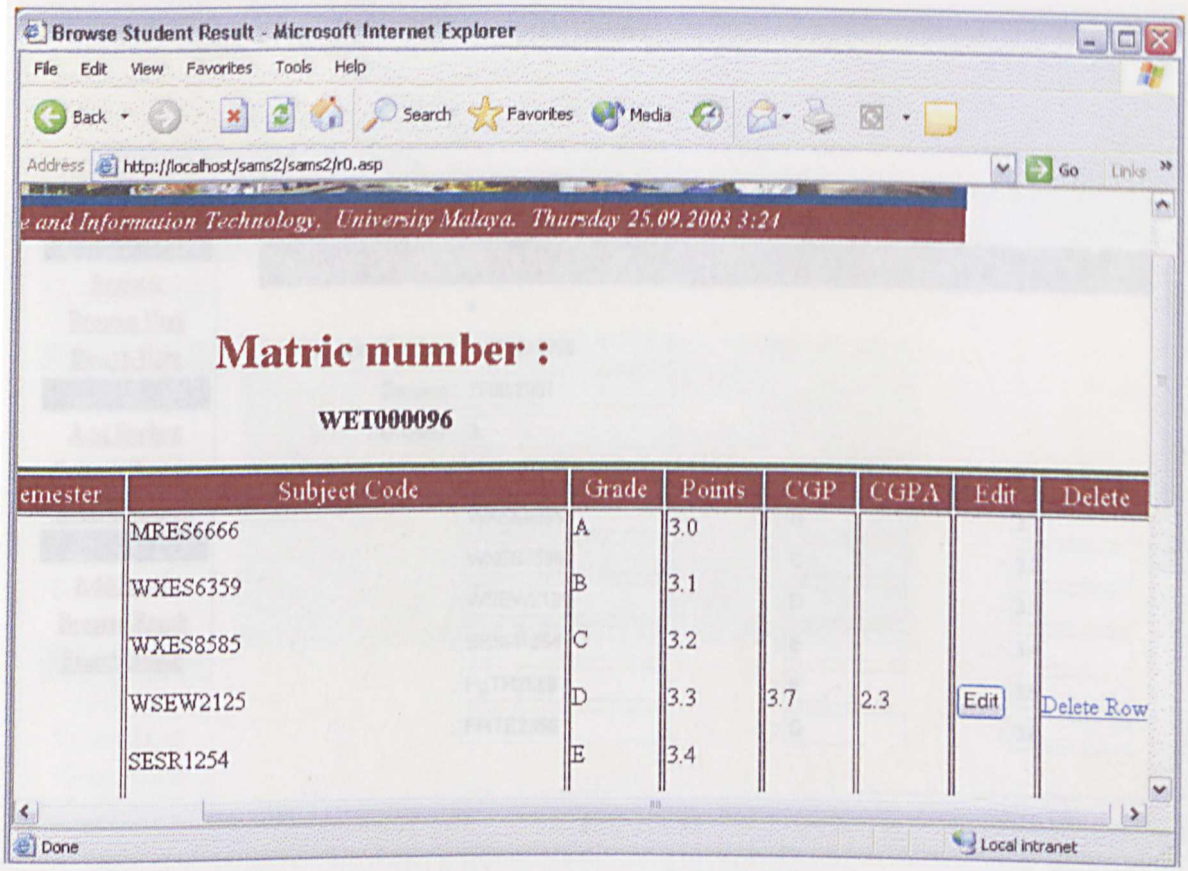

Figure 3.23: Page Displaying Student Result

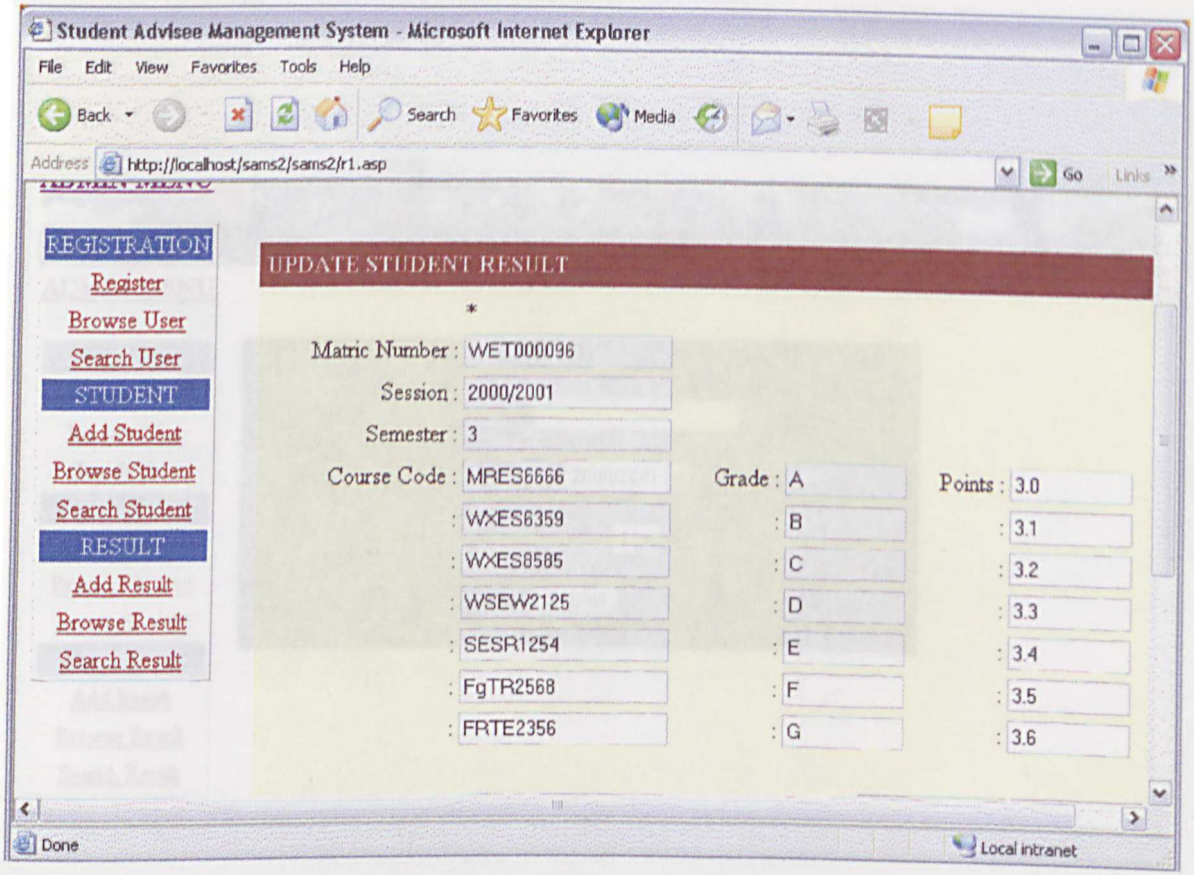

Figure 3.24: Update Student Result Page

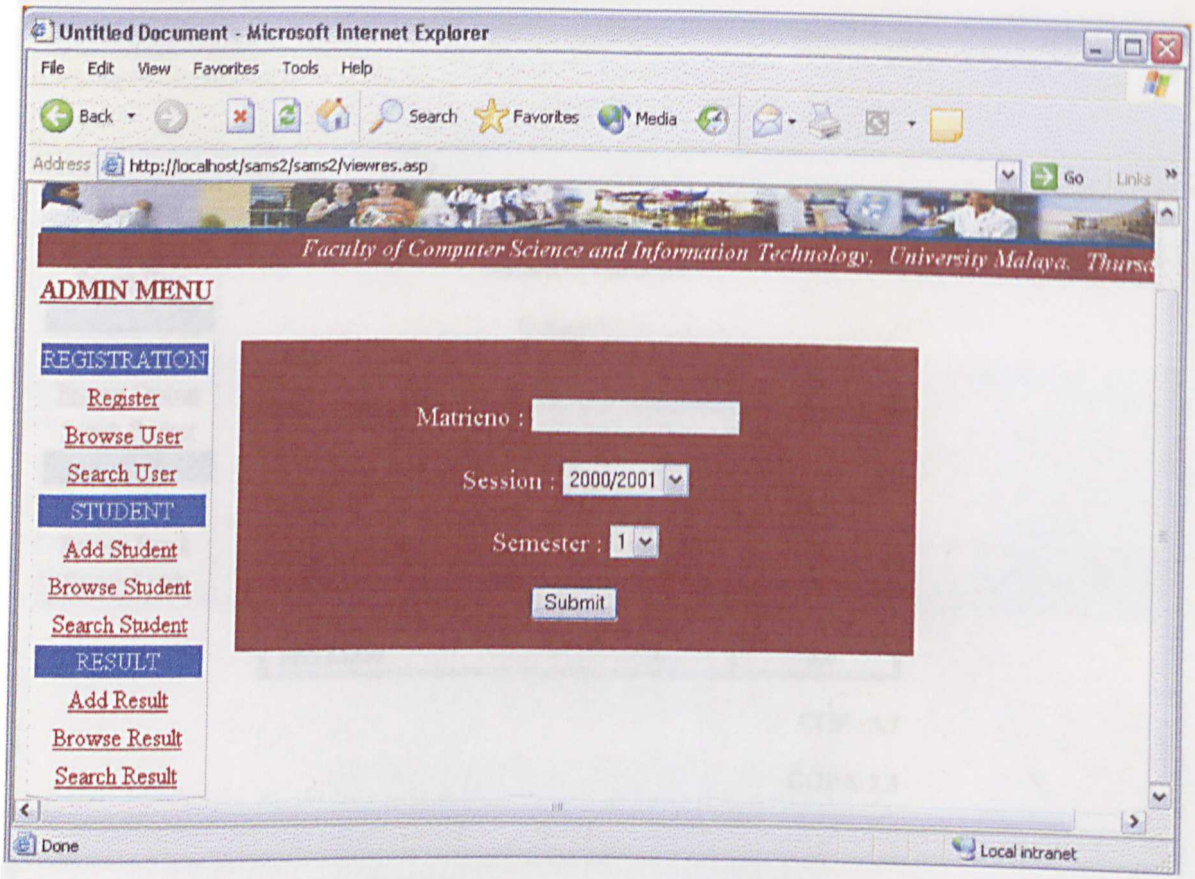

Figure 3.25: Search Student Result

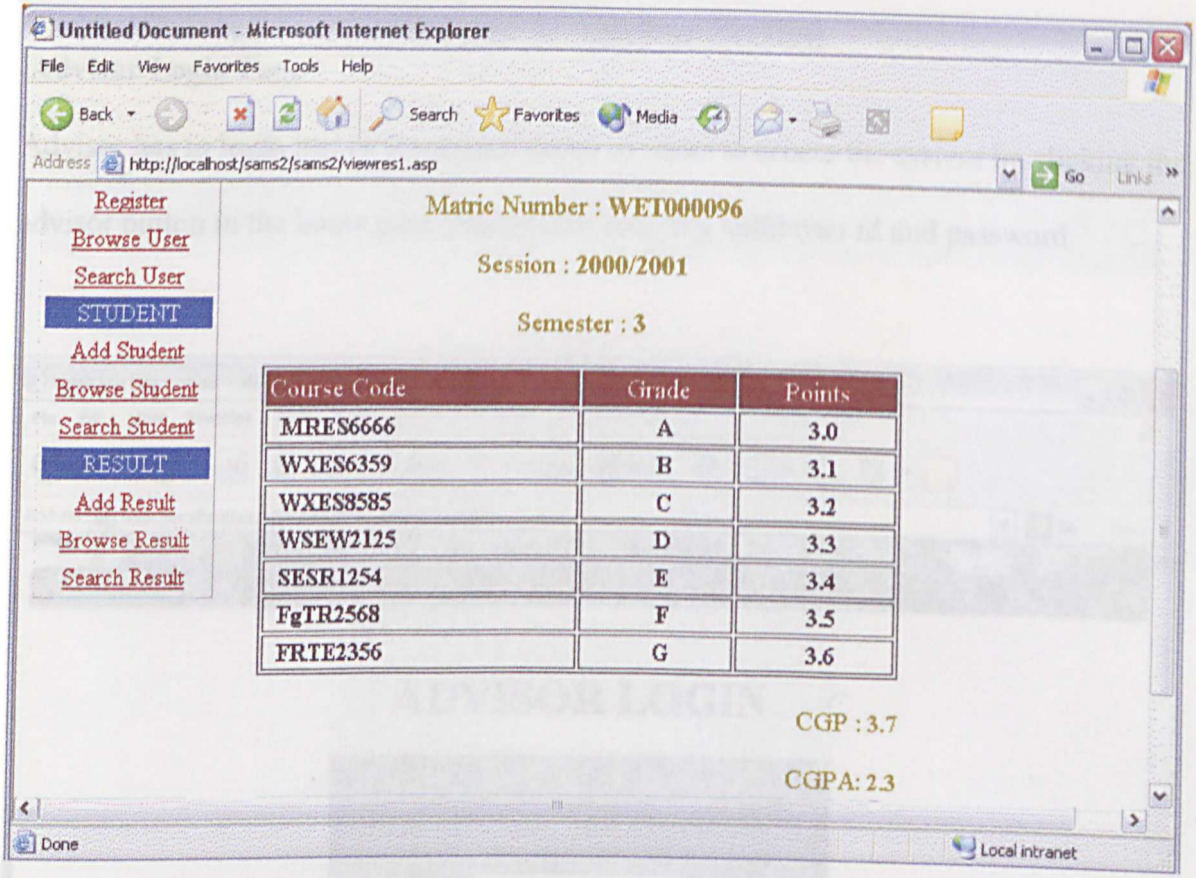

Figure 3.26 : View Search Result Page.

Chapter 4: Advisor Section

Advisor Login Page

Advisor has to login just as the administrator in order to access the system by clicking the advisor button in the home page followed by entering valid user id and password.

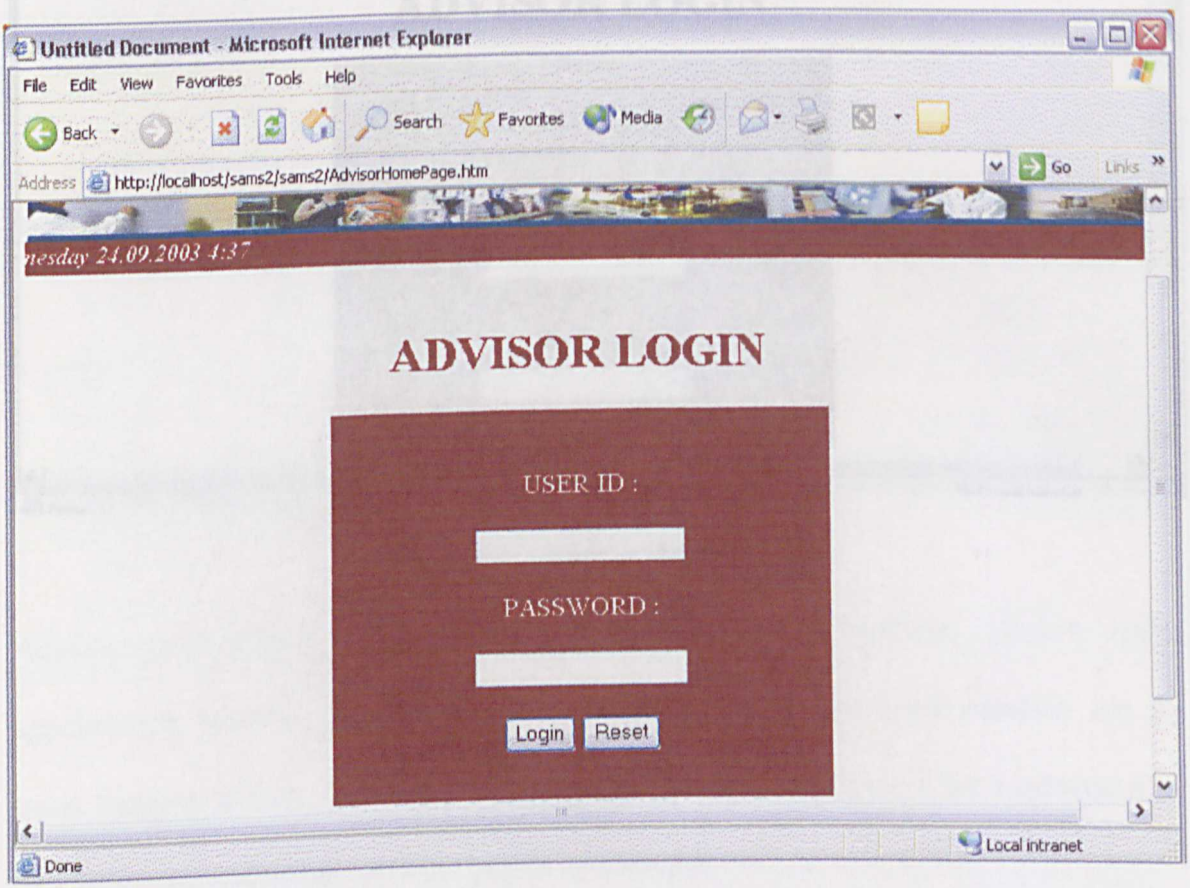

Figure 4.1: Advisor Login Page.

If invalid User Id and password were entered advisor will be redirected to the following page, figure 4.2.

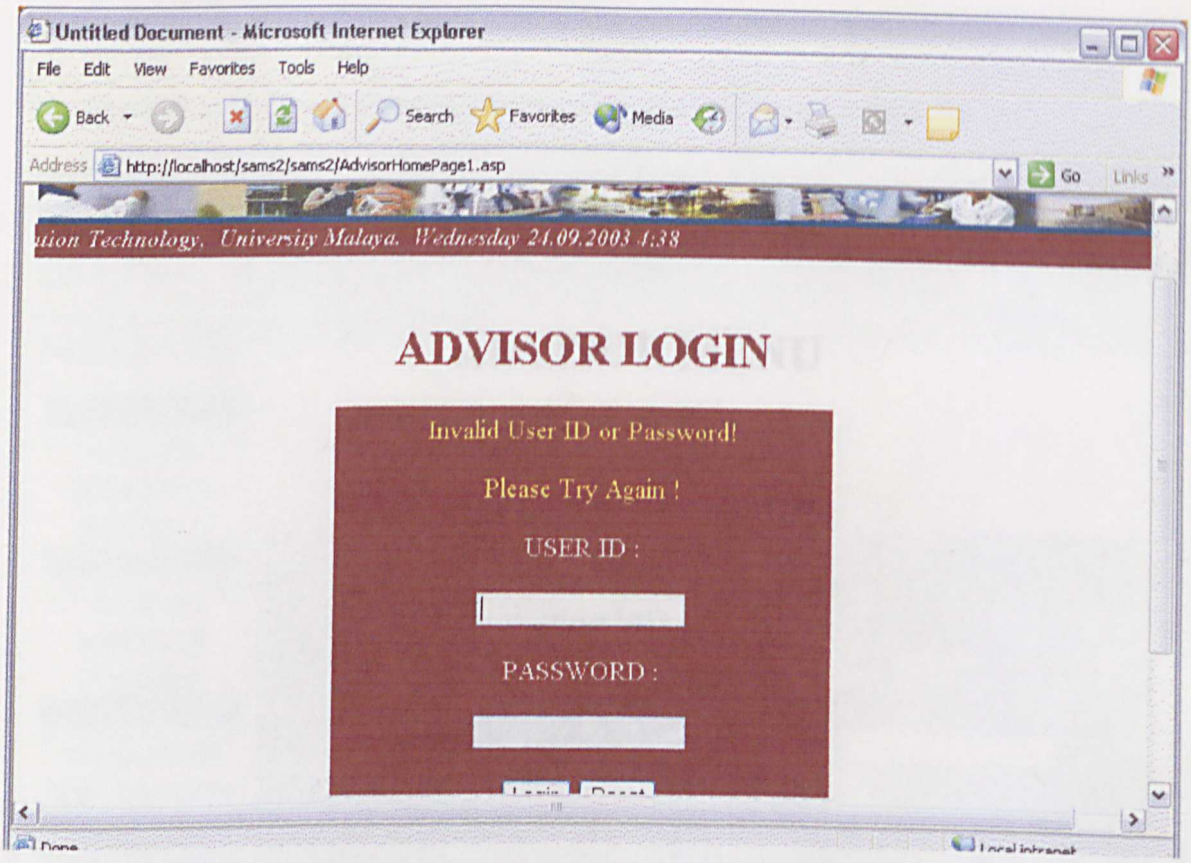

Figure 4.2: Advisor Relogin Page

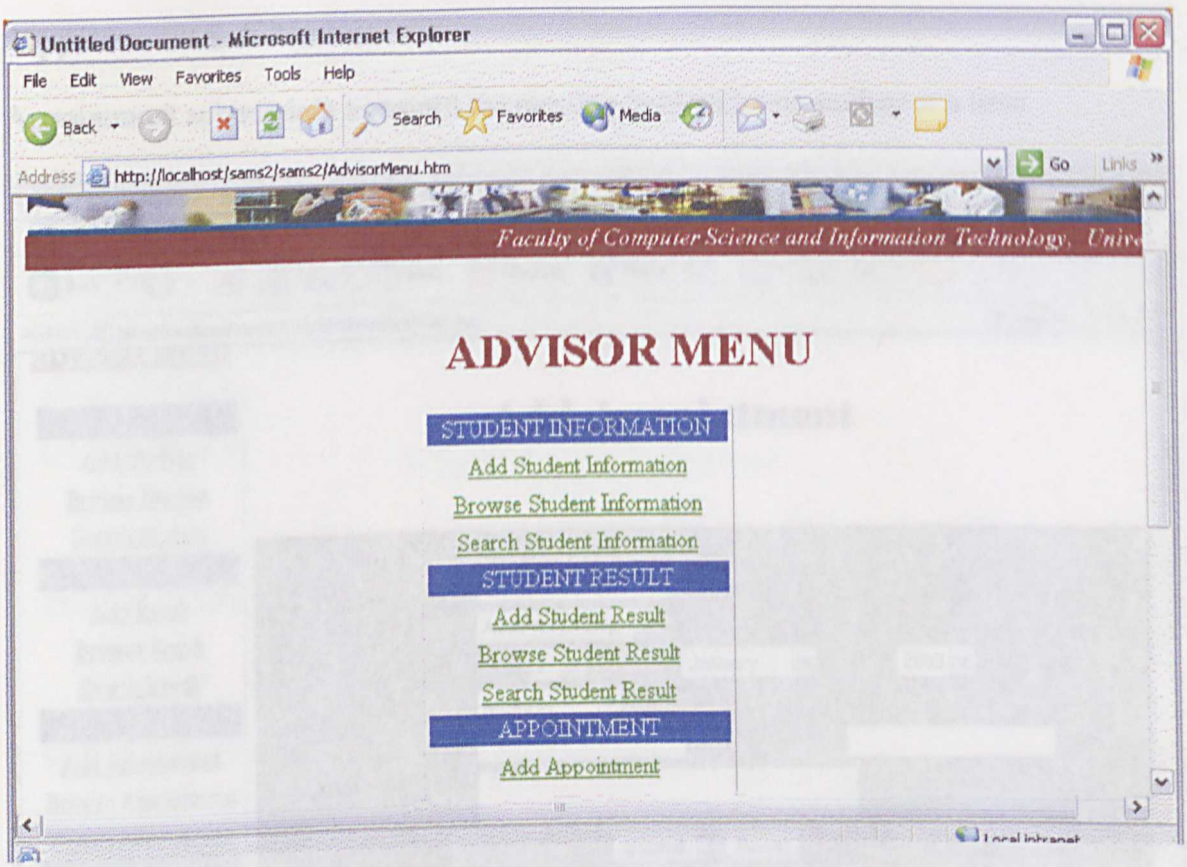

Figure 4.3: Advisor Menu Page

Advisor menu divided into six sub module: student information, student result, appointment, meeting, attendance and academic plan. The entire sub modules has the same function adding, browsing, editing, deleting and search except for academic plan, only browsing and delete function in this sub module.

Appointment Sub-Module

Appointment sub module to record the meeting held with one student at a time.

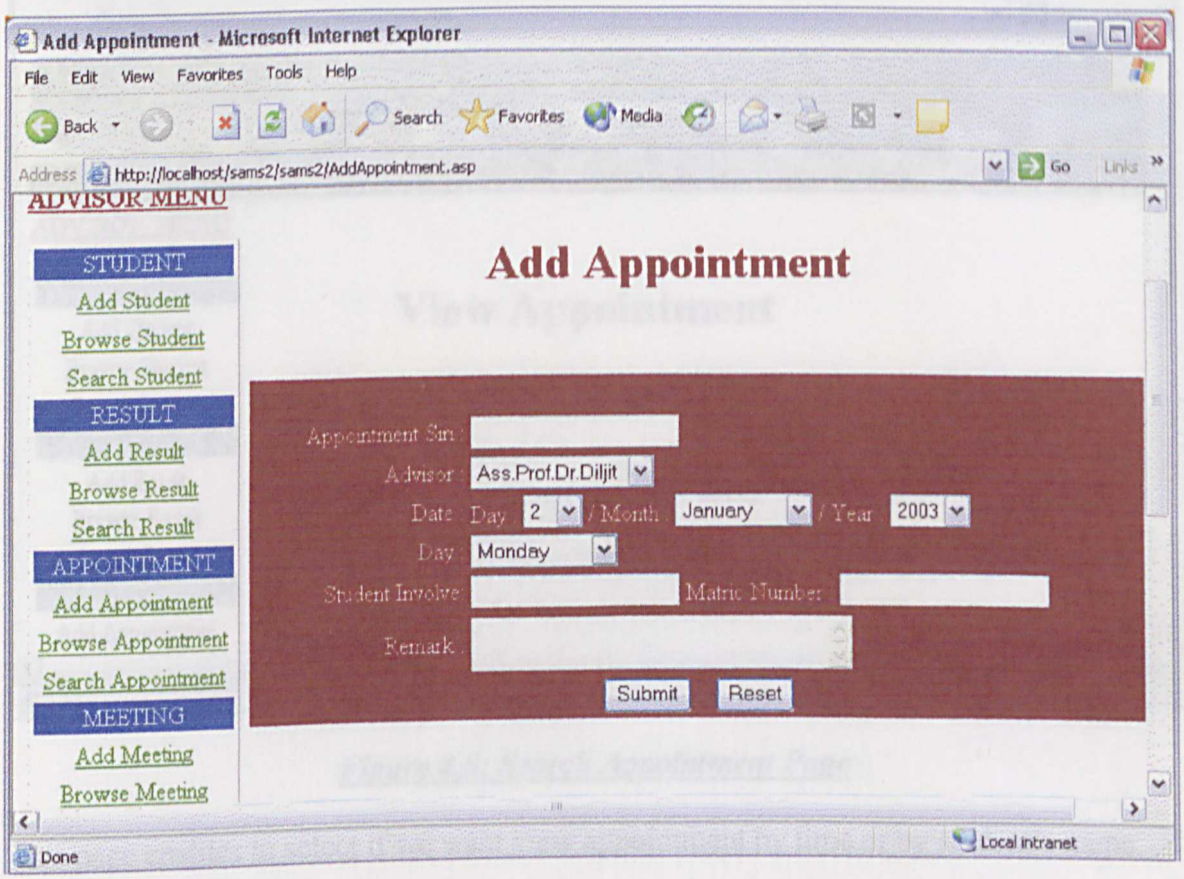

Figure 4.4: Add Appointment Page.

Appointment siri field in the form require an sirial number in the format of first three letter of advisor's name, followed by date, month, and year for e.g. Advisor's Name is Pn.Rafidah, Date is 2nd January 2003 is written as (raf020103) . This appointment siri act as a hidden value to select the row while processing

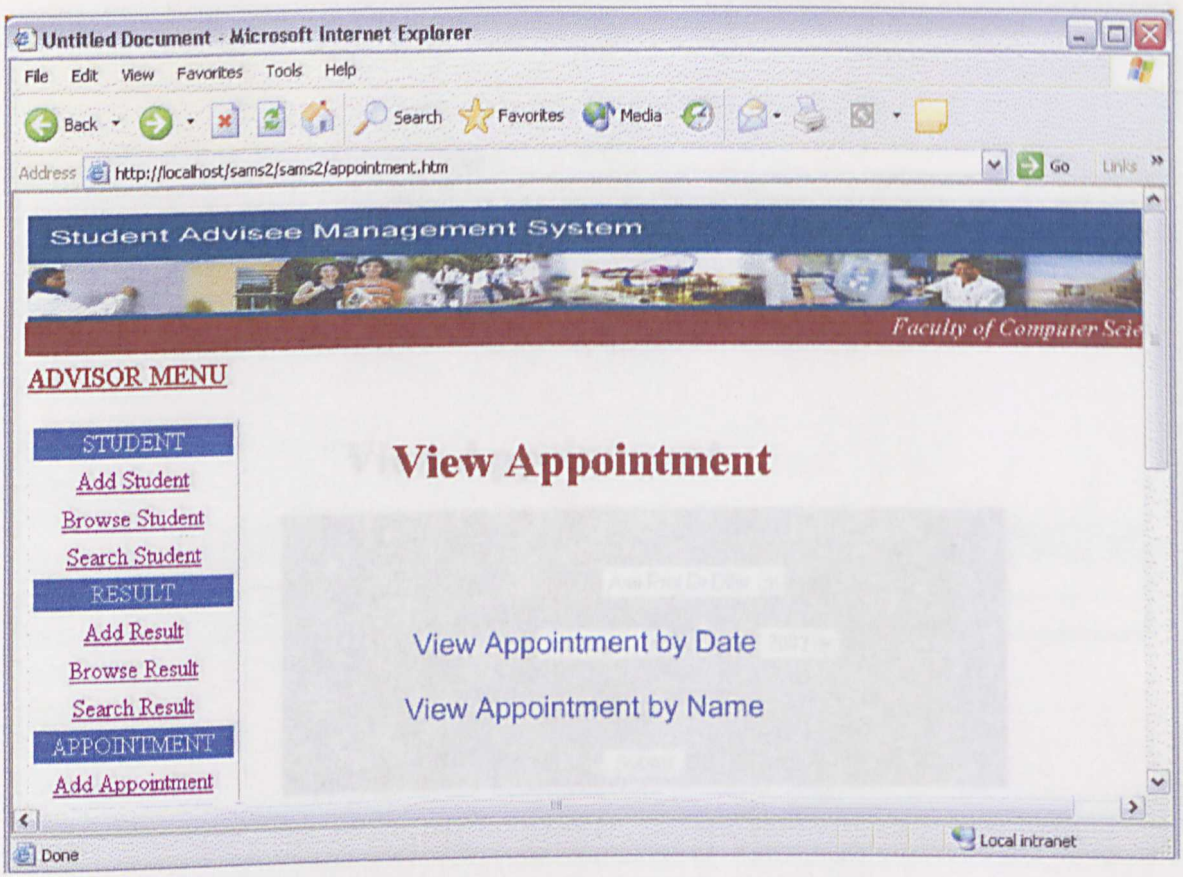

Figure 4.5: Search Appointment Page

This page enables to select if we want view appointment by time or by student's name.

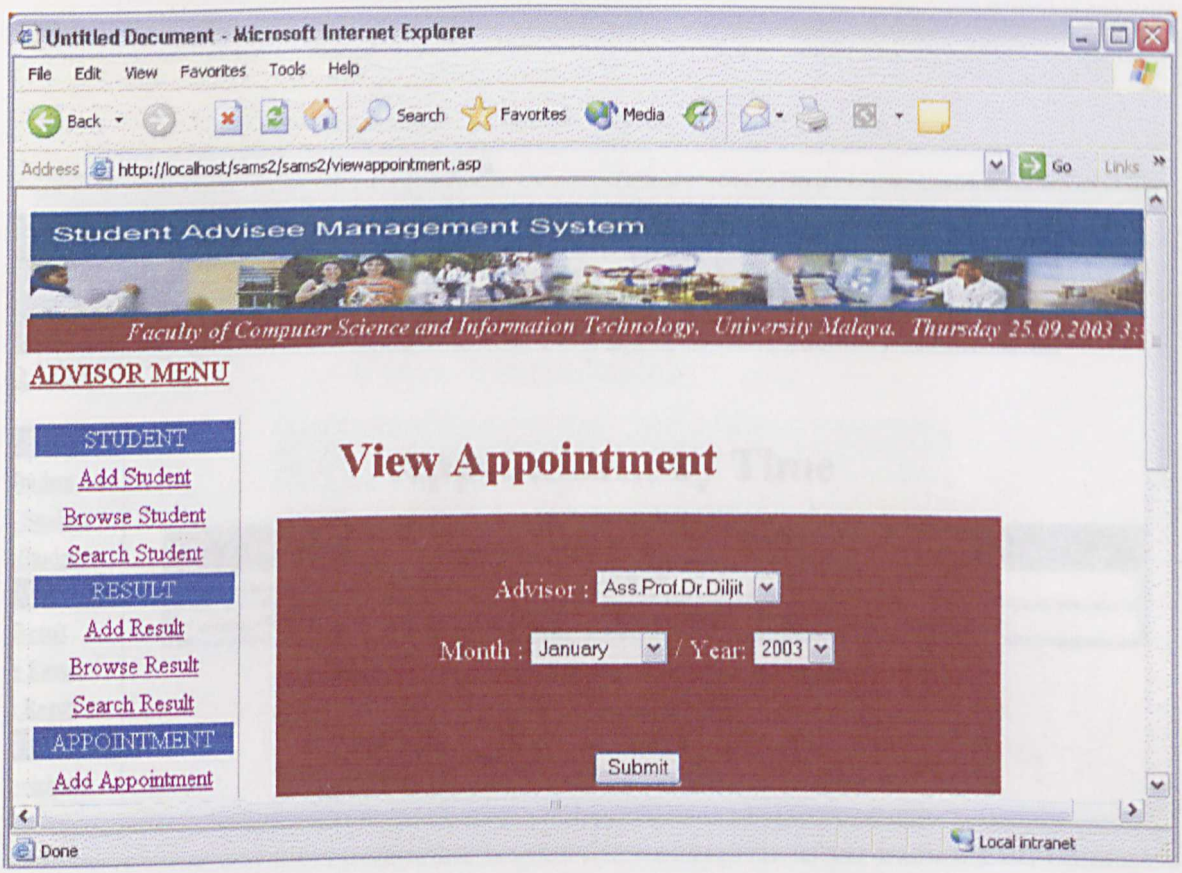

Figure 4.6 : View Appointment by Time.

This page enables the advisor to select the range of time by month to view the appointment record. Via this he can actually view the past meeting by selecting the past months and the upcoming appointment by selecting the forthcoming months.

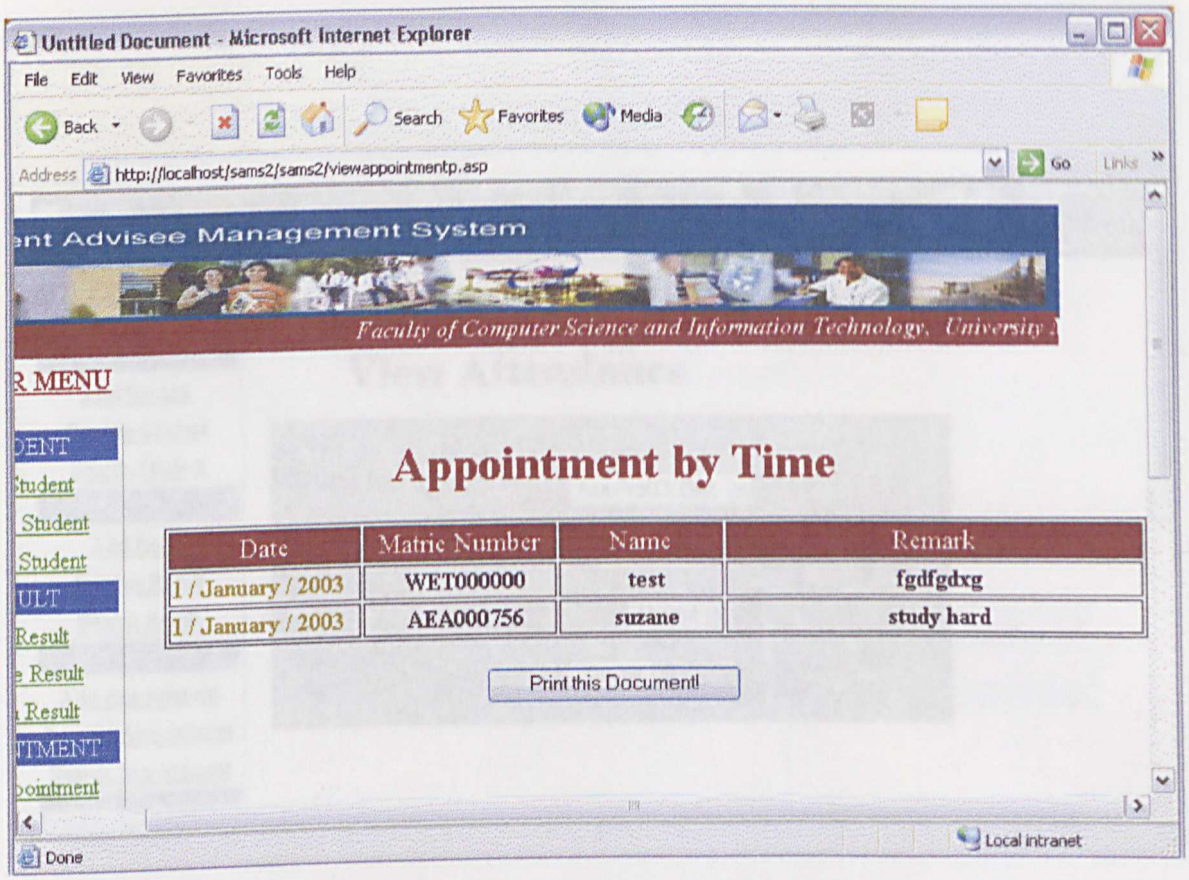

Figure 4.7: Appointment by Time

The Meeting sub module functions are exactly works same way as the appointment sub module functions.

Attendance sub module

The functions in this sub module are the same as the other sub modules. Advisors have to add every student's attendance of every appointment or meeting through the Add attendance function.

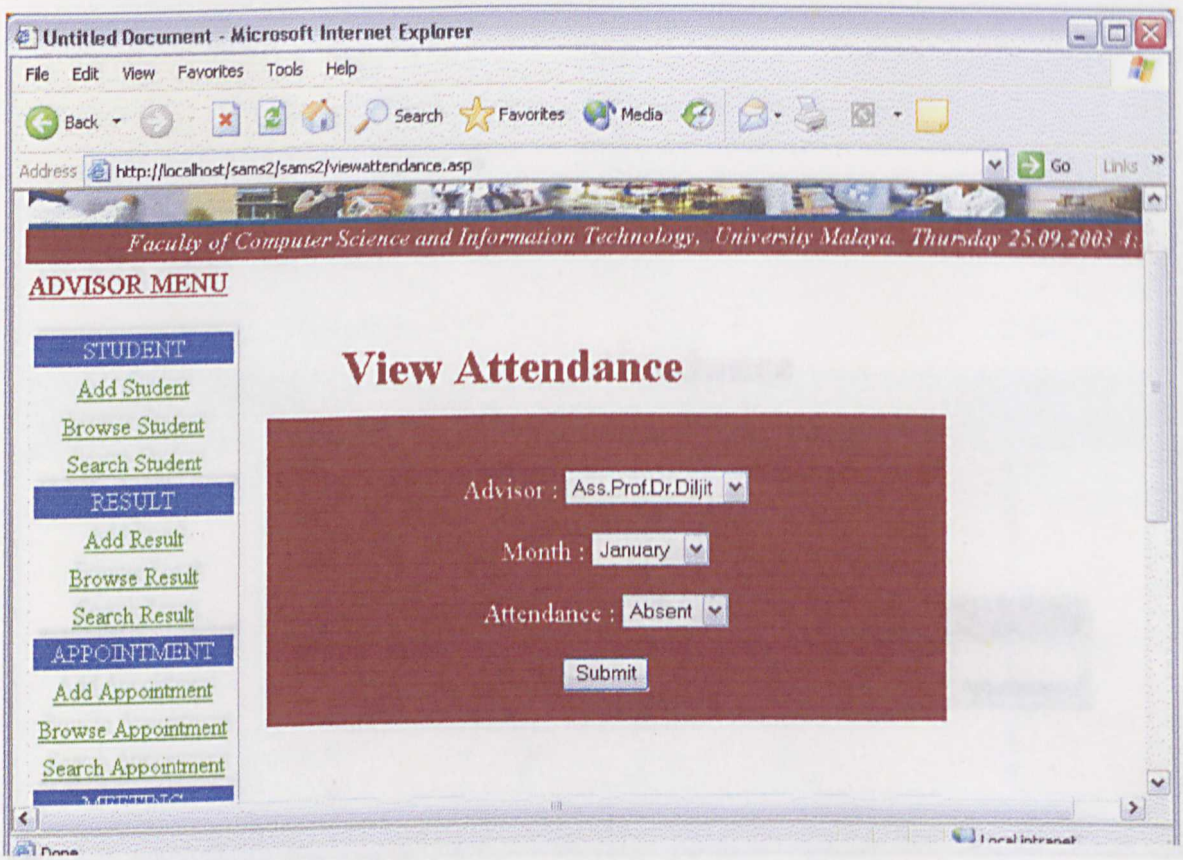

Figure 4.8 View Student' Attendance Page

View Student list by selecting the type of attendance either absent or present in selected month.

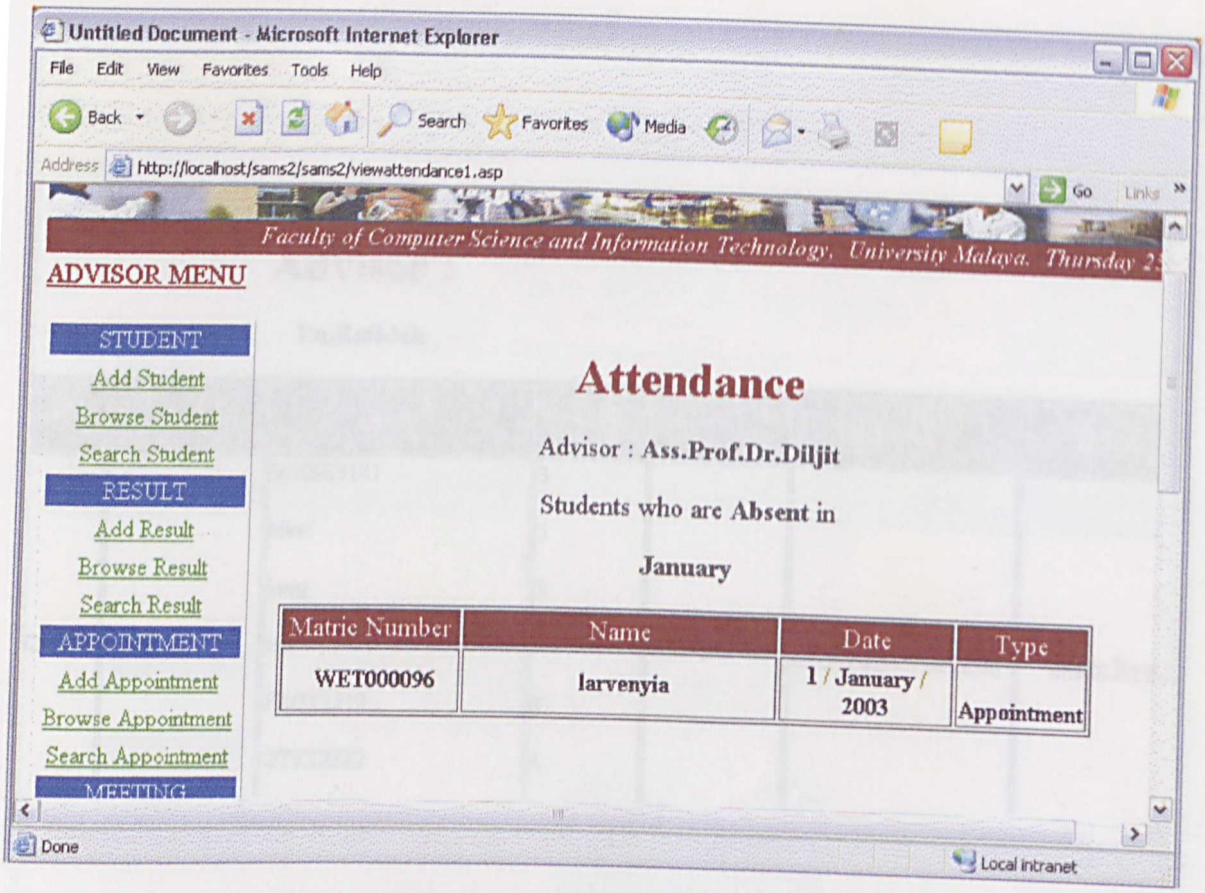

Figure 4.9 : List of Student Attendance.

Student Academic Plan Sub-mModule

Advisors can view student's academic plan by clicking at the view academic plan link and enter his name to view all his advisee's academic plan.

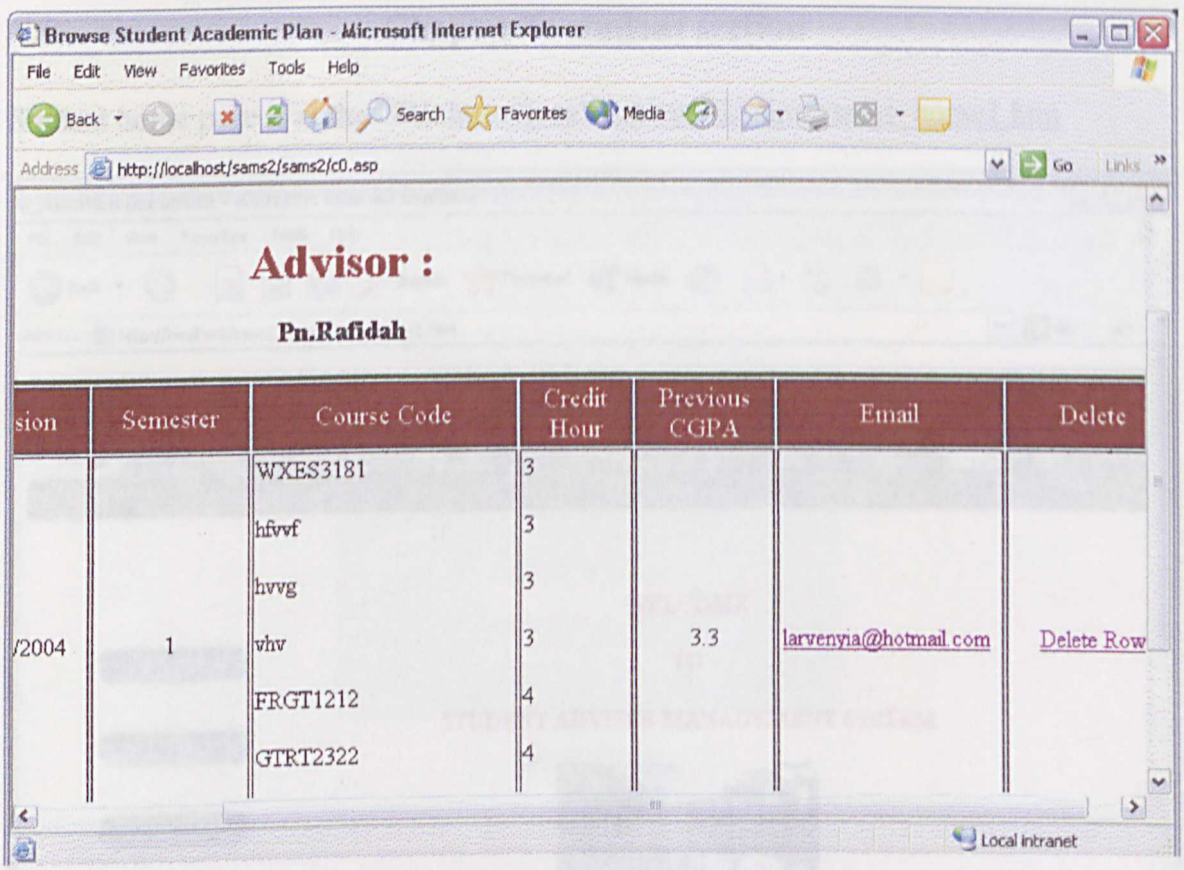

Figure 4.10: Page Showing the Students Academic Plan.

Here the advisor can click send an email to the student from the same page by just clicking to the email address available in the same page to fix a meeting or give any commend on the students academic plan.

Chapter 5: student section

Student home page is at the URL http://localhost/sams2/sams2/sams_home1.htm

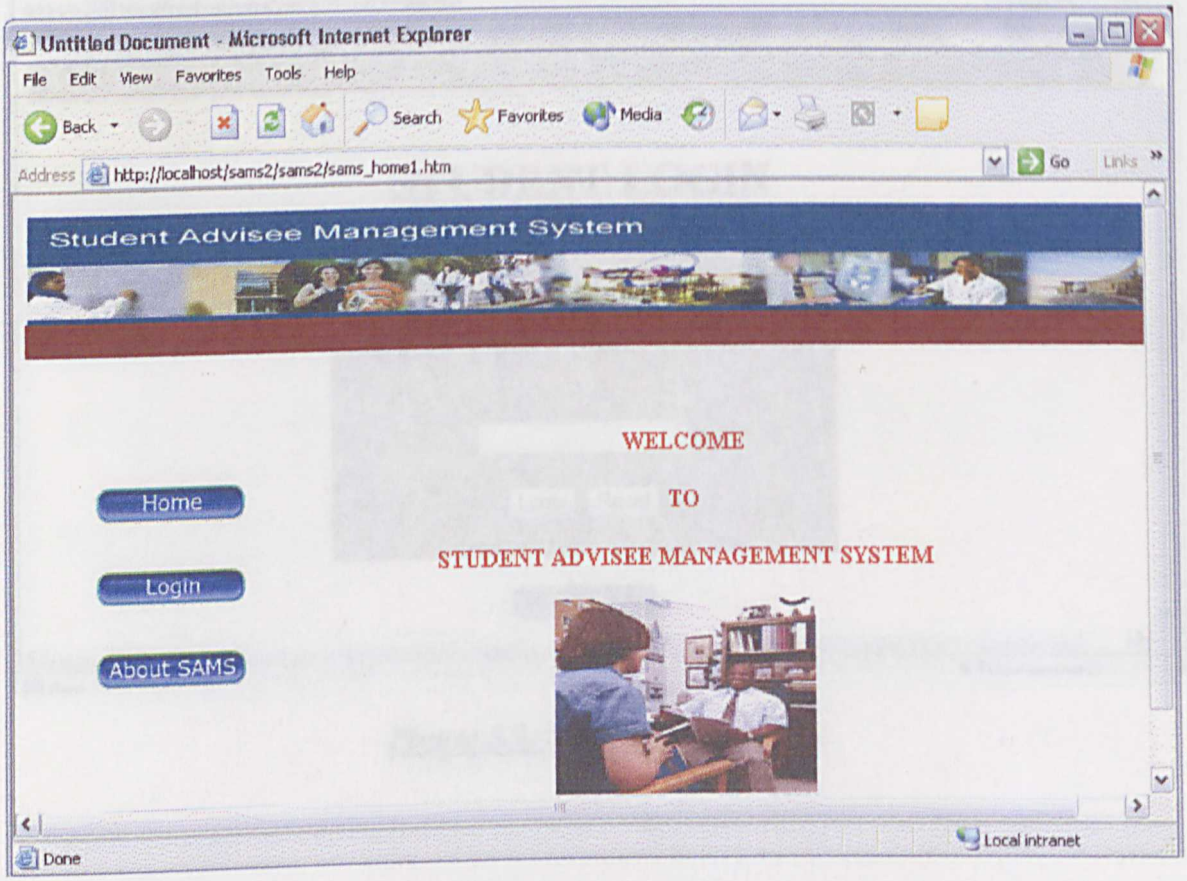

Figure 5.1: Student Home Page

Students can straight proceed to the login page by clicking the login button.

The login processes again the same.

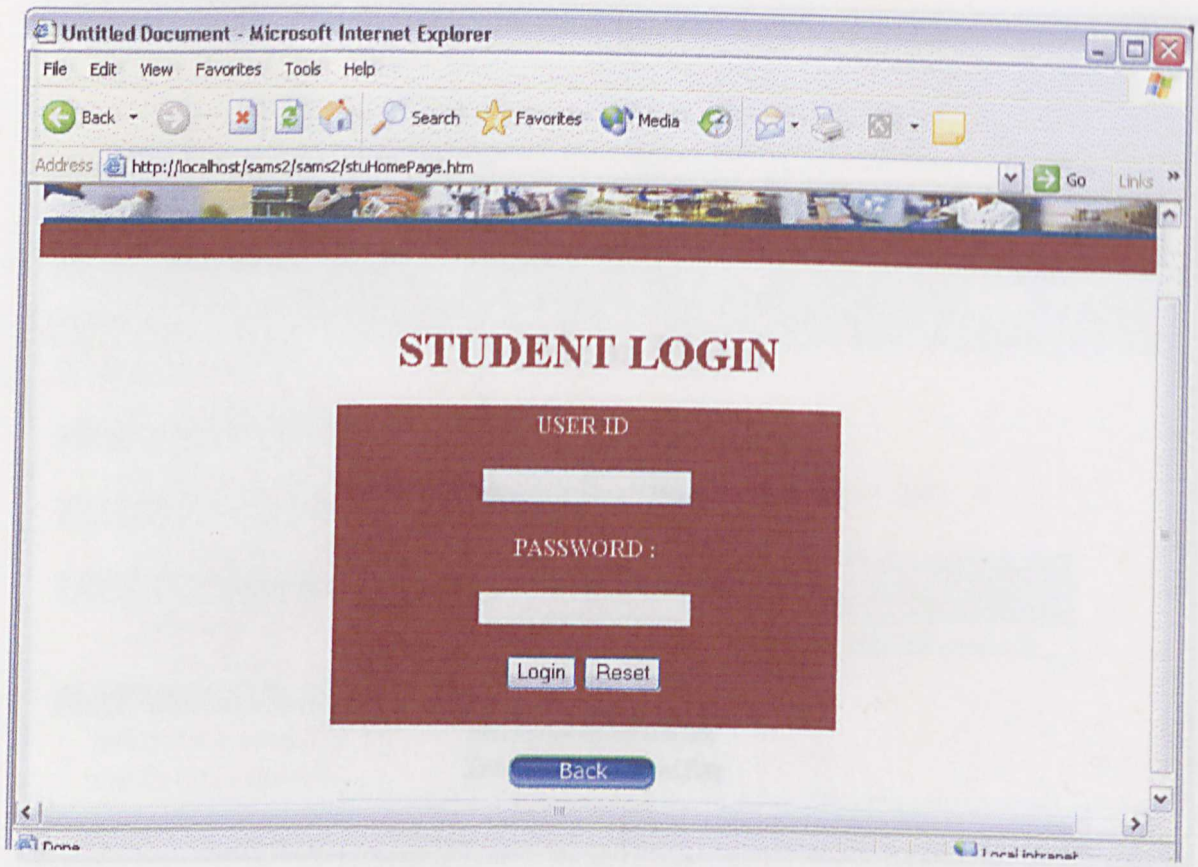

Figure 5.2: Student Login Page

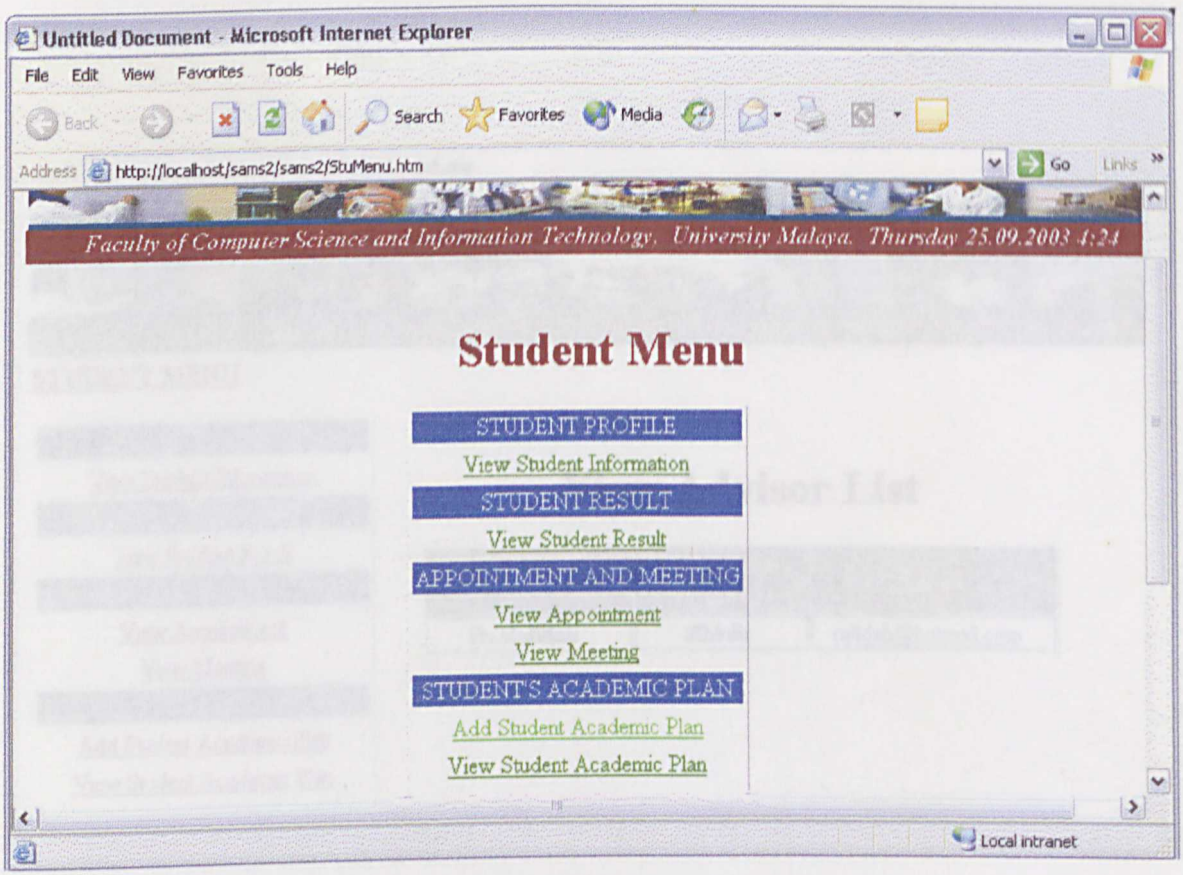

Figure 5.3: Student Menu Page

Student section is divided into four sub modules; student profile, student result, appointment/meeting and student academic plan and advisor list. Student can view their particulars by clicking to the links and entered the necessary keys. In student academic plan. Student has to fill the form. Finally student can view the advisor list and contact number and email address. They can email their advisor from there if they would kike to contact their advisor. Figure 5.4 shows the page of the list of advisor and their contact number with activated email address.

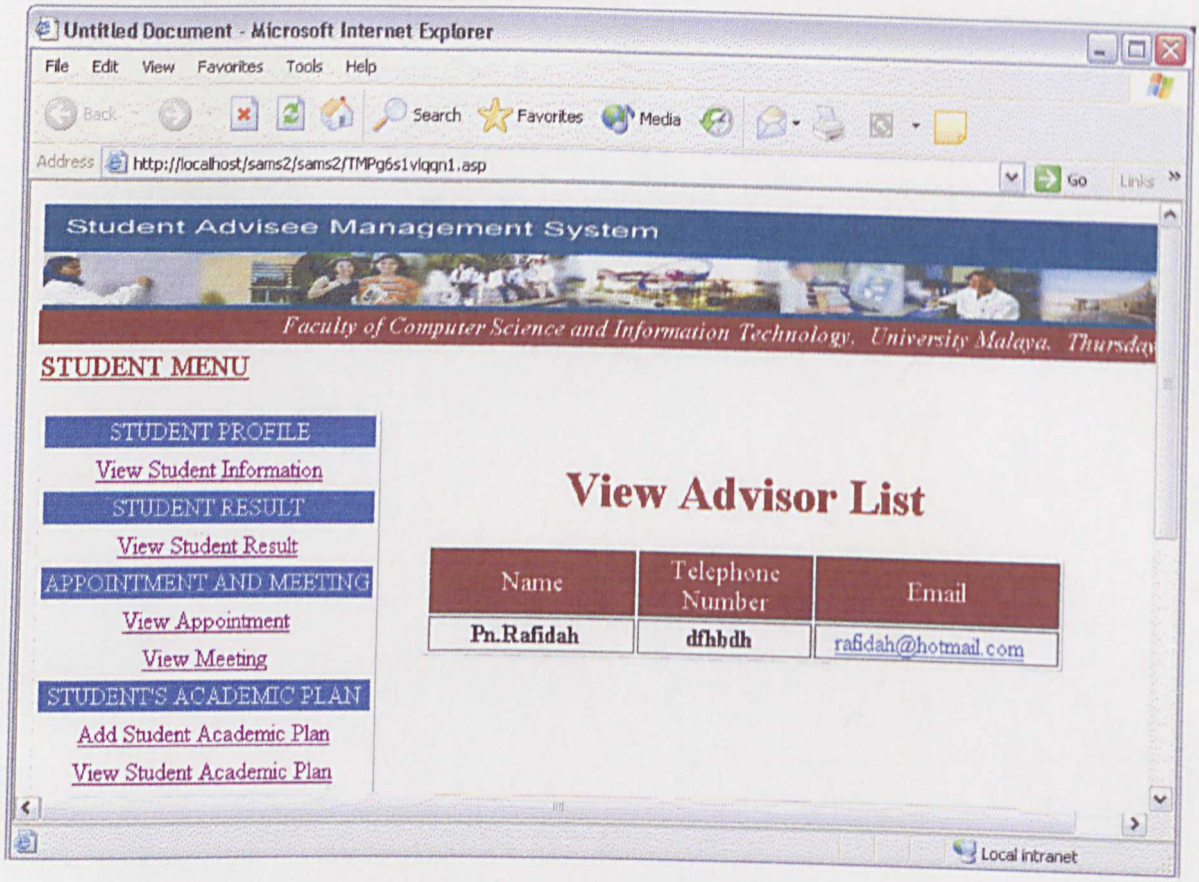

Figure 5.4 Advisor List Page.