Palestine Polytechnic University

College of Engineering & Technology
Electrical & Computer Engineering Department

Software Graduation Project

Faculty Advising system

Project Team
Suha Abu Al-jadayel
Asma Shehadeh

Project Supervisor
Dr.Salman Talahmeh

Hebron-Palestine

June- 2005

Palestine Polytechnic University
Hebron-Palestine

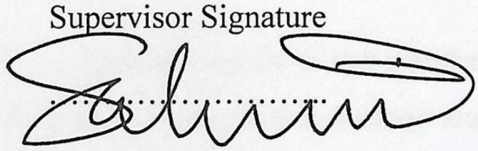
College of Engineering & Technology
Electrical & Computer Engineering Department

Faculty Advising system

Project Team
Suha Abu Al-jadayel
Asma Shehadeh

Upon the direction of the supervisor of the approval of discussion committee members, this project is submitted of the electrical and computer Department at Palestine Polytechnic University as a partial fulfillment for B.Sc Degree in Computer System Engineering.

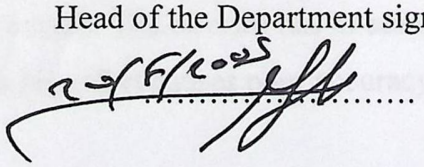
Supervisor Signature



Discussion committee member's signatures

....

Head of the Department signature



Abstract

Palestine Polytechnic University "PPU" is one of the most popular universities in Palestine. The college of Engineering and Technology at PPU consist of three departments: The Department of Civil and Architecture Engineering, The Department of Mechanical Engineering, and The Department of Electrical and Computer Engineering.

Each program in these Department has a number of sections; each one has been managed and recognized by a faculty adviser who is responsible for each student on his section; the adviser provides students with information about the faculty or the departments curriculum structure that can help students to decide courses the need and to assist them in choosing various courses.

During each semester, the faculty advisers ask students to fill out a pre-registration card. Faculty advisers according to this card obtain a report with statistical results that the courses and the number of students needed.

Faculty advisers review students' academic status to see whether they have taken all prerequisite courses and to check their accumulative average and specialized average in order to determine their legal range.

Faculty advisers at PPU perform their tasks manually. They face a huge problem caused by comparison process of course identification to confirm that the student has registered the suitable course. The advisor has to search among of cards which wastes his/her time, consumes big effort causes poor accuracy, and lakes efficiency.

A computer system may solve most of problems that faculty advisers face in tracing students academic status. Faculty Advisory System (FAS) is s web-based application that helps both students and advisers to accomplish their works in efficient manner.

الإهداء

إلى الذين بذلوا من أجلي الكثير
إلى الذين ضحوا براحتهم من أجل أن أكون
إلى الذين حملوا على راحتيهم الشموع وفي مقلتيهم الدموع دموع الفرح وشموع المستقبل
أمي وأبي
إلى من هم سندي وذخري ماضيا وحاضرا ومستقبلا
إلى أساتذتي الأفاضل

أهديهم جميعا هذا العمل المتواضع

سها أبو الجدايل
أسماء شحادة

شكر وتقدير

نتقدم بجزيل الشكر وعظيم الامتنان إلى الصرح العلمي الشامخ جامعة بوليتكنيك فلسطين والى الهيئة التدريسية في دائرة الهندسة الكهربائية والحاسوب ونخص بالذكر رئيس الدائرة الدكتور غاندي المناصرة ومشرف المشروع الدكتور سلمان التلاحمة ونشكر المهندسة إيمان التميمي ونشكر كل من مد يد العون لإنجاز هذا العمل.

الشكر أولا وأخيرا لله عز وجل على إتمام هذا المشروع

شكر وتقدير

نتقدم بجزيل الشكر وعظيم الامتنان إلى الصرح العلمي الشامخ جامعة بوليتكنيك فلسطين والى الهيئة التدريسية في دائرة الهندسة الكهربائية والحاسوب ونخص بالذكر رئيس الدائرة الدكتور غاندي المناصرة ومشرف المشروع الدكتور سلمان التلاحمة ونشكر المهندسة إيمان التميمي ونشكر كل من مد يد العون لإنجاز هذا العمل.

الشكر أولا وأخيرا لله عز وجل على إتمام هذا المشروع

Contents

Introduction

System Specification

Software Requirement Specification

FAS Design

Coding and Implementation

Testing

Maintenance

List of Figures

List of Tables

Project Initiation

Every faculty has student advisers; their role is to provide information and guidance for students. Dr. Talahmeh is a faculty advisor who is responsible for section six in the computer system engineering department at Palestine polytechnic university this section contains forty five students.

During each semester Dr.Talahmeh asks his students to fill an elementary registration from to determine which courses they wish to take in next semester, then Dr.Talahmeh makes a study on these forms that students filled, this study was described with the separation of votes in the elections.

The study made by faculty advisor causes him to determine the courses that students wish to finish and the total number of these students needs it. As a result of the study, the needed courses with largest number of student are chosen. Then faculty adviser will attempt to put a schedule contain that chosen courses. This processes many hours since adviser will look at each student status to determine if he finished all presentation form, and if his summative average and specialized average allow him to take the load he suggested.

Dr.Talahmeh manually traces each student academic status in order to make sure that the finished all prerequisites courses to the one he needed. And he suggested the idea of the project as he falls in many troubles in advising process.

Dr. Talahmeh is in great need for a web-based system that enables students to register over the internet and enables him to check academic status of each student and generate several reports.

1

Introduction

Chapter one

Introduction

Every student at Palestine Polytechnic University will be assigned to a faculty advisor who is a full-time member of the department's faculty. Faculty advisor can help student understands the university rules, helps students with any problems they might experience within the university. And discuss the academic status with students in order to keep them in appropriate progress of taking courses. Each advisor can provide students with a wealth of information regarding his/her academic status progress.

1.1 Faculty Advisor

The university provides high quality, timely service on general academic curricular questions and encourages all students to become more knowledgeable and involved in planning their academic programs. Support students with information about the faculty or department's curriculum structure. Provide the base that allows the student to take what courses they need. Provide support during registration times and assist the student in choosing courses. Develop plans for achieving best academic status for each student. Familiarize students with the general education requirements and graduation requirements.

The faculty advisor monitors student's academic progress toward their degree. Each advisor is familiar with the departmental and university degree requirements, and is prepared to counsel student regarding all academic matters, including selection of elective courses appropriate for the student program of study. Prior to graduation each semester, you are required to meet with your advisor, thus ensuring that courses

are scheduled in the appropriate order, all academic policies are met and that the schedule is in accordance with the student's academic status.
Faculty Advisers can be useful in a number of ways. They can answer questions regarding course selection, or about the choice of major field. Faculty Advisers will review student's academic status and their choice of courses for the determined semester to be sure that they are appropriate and manageable. Faculty advisor describes course offerings and requirements. Use it to make a preliminary choice of courses for the student's determined courses semester.

Student's faculty advisor is one of the most important people for students to serving as the student's academic program counselor; Student's advisor can offer advice on any academic matter, including study methods, research opportunities, summer programs and career opportunities. By knowing student's academic record, which represents student's interests and abilities, faculty advisor represents one of the best sources for supervising and may be help to make a right decision for the student's specializing.

Periodically, curricula are reviewed and changes are made .When student visit his/her advisor for registration counseling, the advisor will inform students of those changes and make the appropriate substitutions on there program progress academic status. The academic status lists all the courses required for student degree. A copy of this academic status will be given to student when he/she register during semester. The original is maintained with student's faculty advisor in departmental file, and is updated each semester.

1.2 Faculty advisor importance

The principal responsibilities of advisors of faculties are: (1) informed on rules and regulations in the academic plans (2) thoroughly acquainted with departmental curricula (3) aware of developments and opportunities in their own fields that would

have a bearing on the student's choice of options and elective courses and (4) patient and to offer advice in a pleasant, considerate, and professional manner.

1.3 Faculty advisor activities

Student advising process consists of three phases: pre-registration advising, curriculum advising and planning.

1. Pre-registration Advising: Pre-registration advising is done by faculty advisors during the scheduled pre-registration periods. The purposes are: (1) to see that students enroll the courses that they should be taking in a determined semester as mentioned in the standard curriculum as published in academic plans. Matter area or by individual programs worked out during the pre-registration period or during curriculum advising sessions at some other time and (2) to see that the elementary registration forms are filled out properly.
2. Curriculum Advising: Curriculum advising is done by faculty advisors at a convenient time. The purposes are: (1) to provide students with information to assist in determining goals within the framework of a particular curriculum (2) to assist students in choosing among the various options available within a given curriculum with a view to student's academic plans and (3) to assist students in selecting the elective courses best suited to support the basic curriculum and their other educational goals.

1.4 The Current Faculty Advising System

The current faculty advising system is completely manual. At the beginning of each semester the registration department sends the student's academic status to their faculty advisor whose will review these academic statuses and update them by tracing each course and its perquisites courses, faculty advisor will manually put

marks in each course in the status to assign if it is taken and passed, registered now, withdraw, or failed. At the determined period for elementary registration faculty advisors ask students to fill elementary registration form in order to know the selected courses and attempt to schedule them.

Elementary registration form consists of student's name and the courses he/she needs or suggests to take. Faculty advisor will review each student academic status according to his/her elementary registration form. Then he/she will reach to a statistical report display the election courses and the numbers of students need it. At this time faculty adviser may face several problems such as some student's academic status are missing, in this case the advisor will call the registration department and asks it to send that missing academic status cross fax or by a messenger. Another type of problem the advisor faced is there is some students did not present the elementary registration form to their advisor then he will announce them to complete the pre-registration.

Faculty adviser then sends the statistical results to the faculty head in order to have the allowance to offer the selective courses. Then the faculty head produces schedules each concerned with a specific department, these schedules display the offered course, its number, section number, credit hours, the lecturer appointment and the hall.

1.5 The Computer System Importance

Using computers in academic advising though the programs vary from university to university, most have the following features:

- All courses required for program completion are listed in a computerized database.

- Prerequisites needed to enroll in courses are specified, in some cases prohibiting students from enrolling in classes for which they have not completed the required work.
- Information on which requirements a student has completed is recorded in a student's data file.
- Unique circumstances (such as course waivers, substitutions, and transfer credit) are also recorded.
- Individual messages to students regarding their progress toward degree achievement or their failure to meet academic standards are generated automatically; access to information on student progress is afforded to students and counselors.
- The most successfully fulfilled aspect of counseling was the provision of accurate information about institutional policies and procedures, while the least successful was the development of students' decision-making skills.
- Greater administrative recognition of the importance of advising, expanded advisor training, and better advisee Outreach were needed,
- The benefits of computer assisted advising also include reduced time in evaluating student transcripts, improved accuracy in advisement, ease in obtaining information, reduction in costs "comes from reduce the used paper ", and more efficient use of advisor time.
- Implementing a developmental model of advising requires that a written plan detailing the goals and functions of academic advising be prepared, reviewed, and revised as needed, so that a plan exists its objectives are familiar. The college's plan for advising should also implement processes to assist students in planning coherent academic programs and in integrating their educational pursuits with their life goals and career aspirations.

Advisors must be willing to do more than help students schedule classes. Potential advisors should be screened to ensure that they are willing to talk to students about educational goals, and about academic progress and problems. At minimum, the

- Prerequisites needed to enroll in courses are specified, in some cases prohibiting students from enrolling in classes for which they have not completed the required work.
- Information on which requirements a student has completed is recorded in a student's data file.
- Unique circumstances (such as course waivers, substitutions, and transfer credit) are also recorded.
- Individual messages to students regarding their progress toward degree achievement or their failure to meet academic standards are generated automatically; access to information on student progress is afforded to students and counselors.
- The most successfully fulfilled aspect of counseling was the provision of accurate information about institutional policies and procedures, while the least successful was the development of students' decision-making skills.
- Greater administrative recognition of the importance of advising, expanded advisor training, and better advisee Outreach were needed,
- The benefits of computer assisted advising also include reduced time in evaluating student transcripts, improved accuracy in advisement, ease in obtaining information, reduction in costs "comes from reduce the used paper ", and more efficient use of advisor time.
- Implementing a developmental model of advising requires that a written plan detailing the goals and functions of academic advising be prepared, reviewed, and revised as needed, so that a plan exists its objectives are familiar. The college's plan for advising should also implement processes to assist students in planning coherent academic programs and in integrating their educational pursuits with their life goals and career aspirations.

Advisors must be willing to do more than help students schedule classes. Potential advisors should be screened to ensure that they are willing to talk to students about educational goals, and about academic progress and problems. At minimum, the

advisor should (1) be a specialist in the student's discipline and be familiar with the field's academic requirements and career opportunities; (2) be knowledgeable about the college's regulations and its resources; (3) know when to make referrals; and (4) have a basic understanding of human behavior and communication.

2

System Specification

Chapter Two

System Specification

2.1 Introduction

Chapter two covers a group of subjects that is listed below:

- Goals: contains the general goals that FAS system will satisfy.
- Objective: these sections cover the fundamental goals and objectives that the system may verify.
- Benefits: benefits for faculty advisors and students, for team and for university and society benefits; and what is the effect that would return to each of the previous.
- Functional requirements: here is an explanation for how the system react with particular inputs and how should behave on particular situations. Also what the system should not do. With brief description of each.
- Non-Functional requirements: these requirements are related to the emergent properties on the system.
- Project constrains: faculty advisors put her/his own constraints, that the system (FAS) must avoided.
- Allocation and trade offs: this part will divide the system requirements into software, hardware and manual functions.
- Development requirements and cost, cost-benefits analysis: a study for the system budget is done here and justification for tangible and non-tangible benefits.
- Feasibility study: a description of the system and how it will be used at Palestine Polytechnic University s done in this section.
- Risk evaluation: cover the predictable risk that may occur and suggestive solutions.
- Project plan and scheduling: build a schedule shows how system tasks are distributed during the semester period.

- Summary and recommendation.

2.2 System Goals

Faculty Advising System (FAS) aims to satisfy the following main goals:

1. To enhance current faculty advising system at Palestine Polytechnic University.
2. Avoiding a probable error during registration process.
3. Provide both students and faculty advisors a helpful system to recognize their tasks.
4. Make Internet the basic method for communication between students and faculty advisors.

2.3 System Objectives

The project will satisfy a number of objectives:

- Keep track of the academic status for each student.
- Make the tracing of the student's academic status easier by using different signals, such as using different colors to differentiate between passed courses, failed, register, and withdraw courses.
- Enable students to do the pre-registration process over the internet.
- Provide a search engine based on students or courses information.
- Computerize the pre-registration process through building databases for courses and students.
- Reduce the efforts that the faculty advisor faced in tracing each student's academic status to be sure that he/she finished all pre-requisites courses.
- Generate different reports, such as a report with statistical result displays the course name and number of students those who need it.
- Update the elementary registration.

- Send announcement for each student, and informs students who are in critical status through the internet.
- FAS may save time and efforts faced faculty advisors.
- Make the registration process faster than manual registration.

2.4 System Benefits

FAS benefits reflect for faculty advisors and students, for team and for university a group of benefits we try to summarize them in the following points:

2.4.1 Benefits for faculty advisors

- FAS provides a helpful and comfortable method for faculty advisors to accomplish the elementary registration.
- FAS reduces the time and efforts fall on the faculty advisors.
- FAS is a quickly way to inform students about announcements and recommendations.
- FAS provides an easy way for searching students or sections.
- Academic status for each student is easier to be obtained and tracked in comfortable manner.
- Fastness in obtaining different reports.
- The election courses during semester are determined in a fast way.

2.4.2 Benefits for development team

- Strengthen our knowledge in programming, this involve analysis and design for whole system.
- This project will be the first effective product for our whole study period.
- This project is one of conditions to obtain the Bachelor degree in computer system engineering.

2.4.3 Benefits for society

- Make Internet the common way for communication and exchange information online.
- Provide a fast faculty advising system in Palestine Polytechnic University.
- Encourage students to be justified in registration duration because they will not stay at queues.
- FAS provides a preliminary idea to make the final registration across internet
- FAS idea will be improved at later graduation projects.

2.5 Functional Requirements

FAS provides several services for the academic advisors and several services for students. The following table shows the academic advisor functions.

Ttable2.1: Academic advisor functions

Function	Description
Send a message	Messages reach to each student's main page informs him/her of the registration period or any message academic advisor needs to inform specific student.
Track the academic status	In elementary registration form students select courses they are needed, FAS will review student's academic status in order to determine the possibility.
Search	Academic advisor needs specific student or section.
Generate statistical report	According to the elementary registration there will be statistical results that represent the needed course and number of student need it.

Table2.1: Academic advisor functions (cont.)

Function	Description
Display the students' academic status.	FAS will display a reports show each student academic status with ability to update it.
Update elementary registration.	Student's elementary registration card will be updated with what is proportional with his/her status.
Tracing students' academic status.	Student's academic status displays courses in helpful manner to differentiate between them: failed, registered, passed, and withdraw "using colors different for each case."
Authentications	Academic advisor has a constant administrator Authentication. "username, password"
Produce different reports	FAS will generate different reports such as, the offered courses and registration reports.
Update the requisites sources	The advisor has the capability to update the requisites courses

Table 2.2 shows the student's functions

Table2.2: Students functions

Function	Description
Display academic status	Students have ability to look at their academic status only without update on it.
Elementary registration	Students determine the courses they needed.

table2.2: Students functions (cont.)

Authentications	Students have special authentication. "login ID, password" that prevent others accessing. if there is attempt to unauthorized access the student's account is frozen

2.6 Non-Functional Requirements

These requirements are not directly concerned with the specific functions delivered by the system. They are related to the emergent system properties such as reliability and response time. Failure to meet the non-functional requirements may make the whole system unusable.

2.6.1 Product requirements

- Fast: the system will replace the manual ways that faculty advisors follow so it will be relatively faster than those ways. Since FAS is a web-based application the process will be done in few minutes.
- Reliability: the system should set out the acceptable failure and should give accurate and updated results. By current system academic advisor may fall in mistakes in registration process that FAS will not fall in.
- Usability: the system must be easy to use in order to facilitate registration process and this come from by providing it with user-friendly interfaces.
- Portability: this system may be applied at any similar organization.
- Robustness: the system should be strong enough to restart after an error occurs, the events causes an error or probability of data corruption on failure.
- Simple: this system is understandable for a simple user.
- Accuracy: this system will provide high accuracy than that faculty advisors will satisfy since the manual work has probable mistakes.
- Integrity: the system should be integrated with the existing systems and databases.

- Trapping error: messages will be displayed if there are any error occurred.
- Security: the system will not accept unauthorized administrators, the student's login must be encrypted and freeze the account in situation to enter a password more than three times.
- Safety: the system should have a backup data and methods.

2.6.2 Organizational requirements

- **Implementation requirements**

  FAS system will be programmed by using ASP.Net, which is used to create and run dynamic, interactive, high-performance web application.

- **Delivery requirements**

  The system will be delivered at the semester-end.

2.6.3 External requirements

- **Legislative requirements**

  The system must be operating within the Palestine Polytechnic University rules.

- **Ethical requirements**

  FAS system will be acceptable to its users and the general public, and it should not violate any of the ethical at Palestine society.

2.7 Project Constraints

The main constrains that the academic advisor suggests for the system are listed below:

- Faculty advisors have special authentication than students allow advisor to update academic status while student authentication will not.
- Each student has its own login ID and password in order to increase system security.

2.9 Development Requirements and Cost

This section includes the development Requirements and their costs that can be summarized as follows:

- Hardware system development.
- Software system development.
- Human development Resource.
- Other resources.

1. Hardware System Development

Table2.4: development hardware costs

Hardware Component	Cost
Pentium4 (2.8GHZ), HD 80G, 512MB RAM	$1800
Printer	$250
Internet Connection	$300

The total costs are equal to $2350, all these components are available. Because these are available we will apply the depreciation of using the above equipment. Consider the depreciation is 10% the total costs from hardware component is $235.

2. Software System Development

Table2.4: development software costs

Software Component	Cost
Windows XP Professional version 2002	$1000
Microsoft Office XP	$200

Table2.4: development software costs (cont.)

ASP. Net	$1500
PowerPoint	$200

The total costs of software components are equal to $2300, and all these components are also available. So the cost is $230 after take the deprecation percentage.

3. Human System Development

Table2.5: Development Human Cost

Member	Number	Cost $
developers	2	*
Supervisor	1	*

Where: * means the availability.

There are no additional costs for development humane costs since all are available.

4. Other

There are other resources for costs come from covering and finding required number of copies , is estimated to be $300.

Table2.6: Total costs 1

Components	Total
HW	$235
SW	$230
Humans	*
Others	$300
Total	$4950

2.10 Cost Benefit Analysis

FAS system has a intangible benefits, since FAS system converts all manual works into computerized tasks.

This project satisfy non-tangible benefits for advisor such as saving time and efforts and make the registration process more accurate but does not satisfy any tangible Benefit for the society.

2.11 Feasibility Study

Faculty advisors at Palestine polytechnic university face huge problems if the faculty advising system was not implemented, since they will return to their manual methods in registration process.

The current processes that faculty advisers follow to accept student's registration are tiresome and need a lot of time to accomplish the tasks. With faculty advising system faculty advisors will obtain the same results they want with a little time and more comfortable ways.

2.11.1 Economic Feasibility

Faculty advising system does not need a special budget, but only what is mentioned at development requirement cost.

2.11.2 Technical Feasibility

Faculty advising system needs not a special technology to be applied at Palestine polytechnic university. It will support the web-based application technology.

2.11.3 Legal Feasibility

Faculty advising system considered to be a graduation project at Palestine polytechnic university so there is no need to search on licensee to make it legal, just graduation licensee are required from the university.

2.12 Risk Evaluation:

This part of project lists all possible risks and solution for each possible risk.

Table2.7: risk evaluation

Risk	Solution
Hardware Failure	Make a continuous daily backup of the project on flashes and other hard disks.
Staff illness	Recognize the team, therefore understand each other's job
Defective Components	Replace the defective components with bought-in-components of known reliability.
Requirements Changes	Making a continuous feedback and review with the users during the development time
Database Performance	Using a higher-performance database.
Underestimated development time	Investigate the time schedule in order to prevent falling in such risk.

2.13 Project Plan and Scheduling

The project is to be developed after 14 weeks. We divide this period into tasks according to the following.

Task 1: gathering information and understanding.

Task 2: requirement analysis

Task 3: system design.

Task 4: Implementation.

Task 5: testing.

Task 6: documentation.

Table2.8: time Plan for FAS

Time / week / Task	1	2	3	4	5	6	7	8	9	10	11	12	13	14
T1														
T2														
T3														
T4														
T5														
T6														

2. 14 Summary and Recommendation:

FAS system is an important step in developing web based information system and introduces many benefits for the student and advisor in Palestine polytechnic university. You can improve this system in many ways such as:

1. Dealing with more specific details of process related information.
2. Improve security.
3. Add another process such as final registration.

The objectives of the project , benefits and all requirements of FAS (functional and non-functional requirements) are covered in this chapter in addition studied the cost for each system (old system and new system),also studied the problems that faced the advisor in its work and suggest software system solution to solve these problems.

3

Software Requirements Specification

Chapter three

Software Requirements Specification

3.1 Introduction

This chapter covers what is required of the system developers. Chapter three will include both the faculty advisor requirements for the system and detailed specification of the system requirements.

The requirement specification will satisfy a group of specifications and those are: the system behavior, easy to change, it should be a reference tool for system maintainer, it characterizes acceptable responses to undesired events, the constraints details and details for each validation, it specifies logical database requirements and database data dictionary, system flow diagram, and data dictionary.

3.2 Functional Details Description

This section includes each function and describes it in details.

Function Sending message

Description faculty advisor can send a message to all students through the Internet informing them about the elementary registration period, informs students who are in critical situation academically.

Inputs text message is entered through the keyboard.

Source keyboard

Output a message displayed on students computer screen

Destination student's number

Require student academic status, and the faculty majority announcement for elementary registration.

Pre-condition existence FAS web page, a registers student.

Post-condition students will start the elementary registration

Side-effects none

Procedure this function needs to write a text in text box and send it to the student page.

Validation the message is sent as a report.

Figure3.1: Sending message

Function Tracking student's academic status
Description each faculty advisor has the ability to enter his/her section in order to keep track for each student educational progress, change there progress in courses by inserting courses scores, and update summative and specialized averages
Inputs enter student's identifier either name or number or enter his/her section number.
Source through the search engine a determined one is found.
Output an updated academic status
Destination displayed on the faculty advisor web page.
Require the selected courses in the elementary registration
Pre-condition student's educational progress from the registration department.
Post-condition students could not update their academic status.
Side-effects none
Procedure the student enter his/her login ID and password then his/her academic status is displayed
Validations verify each student's login ID and password.

Figure3.2: tracing the academic status

Function Search

Description to facilitate searching process for specific student, this web form provides with this facility.

Inputs data items such as student's name, number or section number, faculty advisor determines it.

Source through the web form.

Outputs go to a specific web form concerned either with one student or with section.

Destination web form.

Require a determined item will be detected.

Pre-condition determine the items that the engine accepts.

Post-condition satisfy what is searched for on a new web page.

Side-effects none

Procedure this function enables the advisor to begin his/her search after writing the proper item

Figure3.3: Search Engine

Function statistical reports
Description as a result for the elementary registration process the system will summarize this process with a report informs the course name and the number of students who want to take it.
Inputs the elementary registration forms.
Source pre-registration form.
Outputs reports web form.
Destination a results web form.
Require the inserted courses by the advisor.
Pre-condition the student's elementary registration should be completed for all students at the determined period.
Post-condition the selected courses will be those with a higher rate of students register them in the elementary registration form.
Side-effects none
Procedure this function review all courses register in the elementary registration. A statistical report will view the name of courses and number of students they

Figure3.4: statistical reports

Function display the academic status

Description faculty advisor and students have the authority to display the academic status. Student can enter to his/her academic status page in order to see it, and notice his/her educational progress only without the ability to update on it while the faculty advisor can enter to each academic status page and update students progress according to the registration department information.

Inputs to display the academic status for the students they will enter correct authentication information such as login ID, the correct password and confirms password.

Source in the web form students enter their authentication information.

Outputs a web form displays the semesters and the courses progression.

Destination students or faculty advisor screen.

Require each student can display his/her academic status and looking at it only while the faculty advisor can update on it.

Pre-condition the correct password to allow students to enter their academic status

Post-condition student could not update there academic status, and this is the faculty advisors task only.

Side-effects none

Procedure after the students and the advisors their login ID and password are verified each of them select this function.

Validations verify both of password and the login ID through the expressions evaluator.

Figure3.5: display the academic status

Function Update the academic status

Description the faculty advisor will update the student's academic status according to the information the registration department sent to him/her such as the student's scores of the previous semester of the one register.

Inputs text file send by the registration department

Source registration department database.

Outputs an updated academic status displays the courses that is passed, failed, register, and withdraw

Destination displayed at each student web form.

Require an updated academic status for each student with helpful signals

Pre-condition faculty advisor authentication" login ID and password" and information to be added and the previous copy of academic status from a text file from registration department.

Post-condition student could not change this information.

Side-effects none

Procedures advisors ask the registration department to sent a text file (database) with student

Validation verify the ability of the advisor to update from verify his/her login ID and password.

Figure3.6: Update the academic status

Function Produce statistical report

Description A report with all possible courses to be offered and a the number of student register to this course.

Inputs the courses registered in the elementary registration

Source course name and number according to registration database.

Outputs a report with the offered courses, and registration.

Destination results web form

Require students can update their elementary registration according to these reports, the final registration reports.

Pre-condition each student completes the elementary registration.

Post-condition none

Side-effects none

Procedure this function will produce different reports such as: A report with all possible courses to be offered and a registration reports.

Validations verify that each student complete the elementary registration within the determined period.

Figure3.7: Produce different reports

Function students login

Description verifies students login ID and the password.

Inputs login term and the password.

Source from keyboard.

Outputs students can enter to their specific information "academic status"

Destination none

Require display all information related to the student who is login.

Pre-condition Registered student.

Post-condition students cannot change anything in their information.

Side-effects none

Procedure This function will request login name and password, then the expression validation will be applied on the inputs, if the validation does not succeed, an error message will be displayed. Else the function will use the inputs to authenticate the student again. If the authentication does not succeed, an error message will be displayed. Else student's web pages will display.

Validations Login and password are given.

Figure3.8: students login

Function Produce pre-registration report

Description A report with all courses that the student has been registered.

Inputs the course name

Source course name and number according to registration database.

Outputs a report with the offered courses, and registration.

Destination results web form

Require students can update the selected courses according to the message that indicate the perquisites courses and each course with its marks.

Pre-condition student has login.

Post-condition none

Side-effects none

Procedure this function will produce pre-registration form

Validations verify that each student complete the elementary registration within the determined period.

Figure3.9: Registration Form

Function Produce academic status report

Description A report shows all coursed the student ends with their marks and all the reset courses.

Inputs student number and course ID from the web form

Source advisor web form.

Outputs a report with the offered courses and their scores.

Destination results web form

Require students can select what he/she wants of courses.

Pre-condition each student completes the elementary registration.

Post-condition none

Side-effects none

Procedure this function will produce different reports such as: A report with all possible courses to be offered and a registration reports.

Validations verify that each student login

Figure3.10: academic status form

Function advisor login

Description verifies advisor login ID and the password.

Inputs login term and the password are constant to the advisor

Source from keyboard.

Outputs enter the faculty advisor tasks page.

Destination none

Require display all information related to the advisor login.

Pre-condition Registered student.

Post-condition advisor has ability to add, delete, update in different web forms.

Side-effects none

Procedure This function will request login name and password, then the expression validation will be applied on the inputs, if the validation does not succeed, an error message will be displayed. Else the function will use the inputs to authenticate the student again. If the authentication does not succeed, an error message will be displayed. Else student's web pages will display.

Validations Login and password are given.

Figure3.11: advisor login

3.3 Project Constraints

This part of project details the project constraints and a brief description for each one:

- FAS system pages are web applications using ASP.NET.
- Each student has its own login ID password that allows him to enter to particular information concerned with his/her academic status and this increase the security.
- Each faculty advisor has the ability to enter to his/her specific section with login ID and password.
- The password should be compounded by 10 characters; and the one with less 10-character FAS system will show an alert message in order to increase security.
- FAS system will frees the accounts, which try to enter with a guessed password and this comes after three times of trying or being out of limited time.
- Student's and advisor's passwords should be different from there login ID's.
- The system will interact and not conflict with other existing systems.
- Project team should review the Faculty advisor (system user) periodically to have his agreement step by step.
- The system should be completed during semester and discussed at semester end.
- FAS system should include comfortable pages i.e. pages should be with a suitable colors and each page consists a helpful marks.

3.4 FAS System Data Flow Diagram

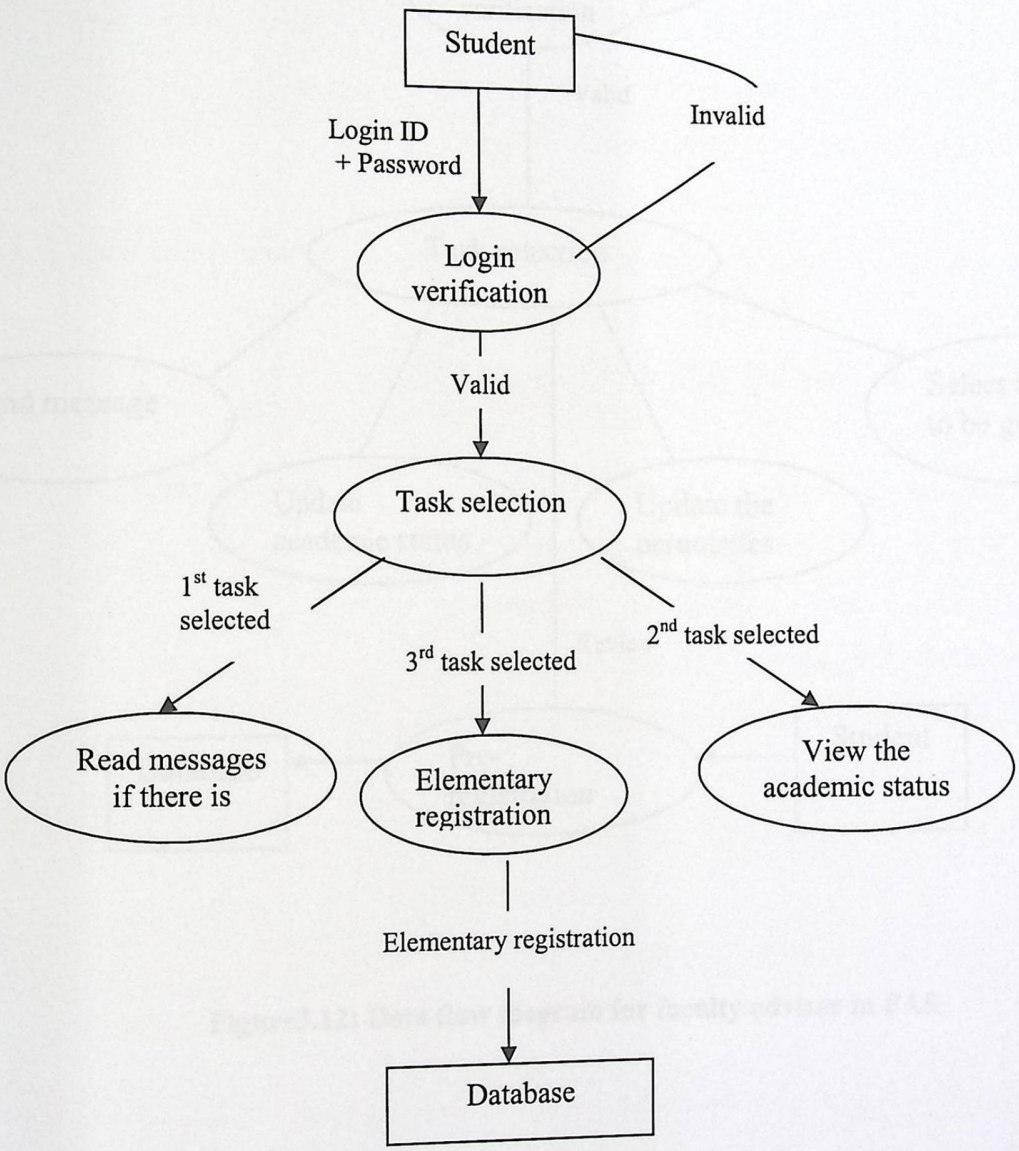


Figure3.11: Data flow diagram for students in FAS system

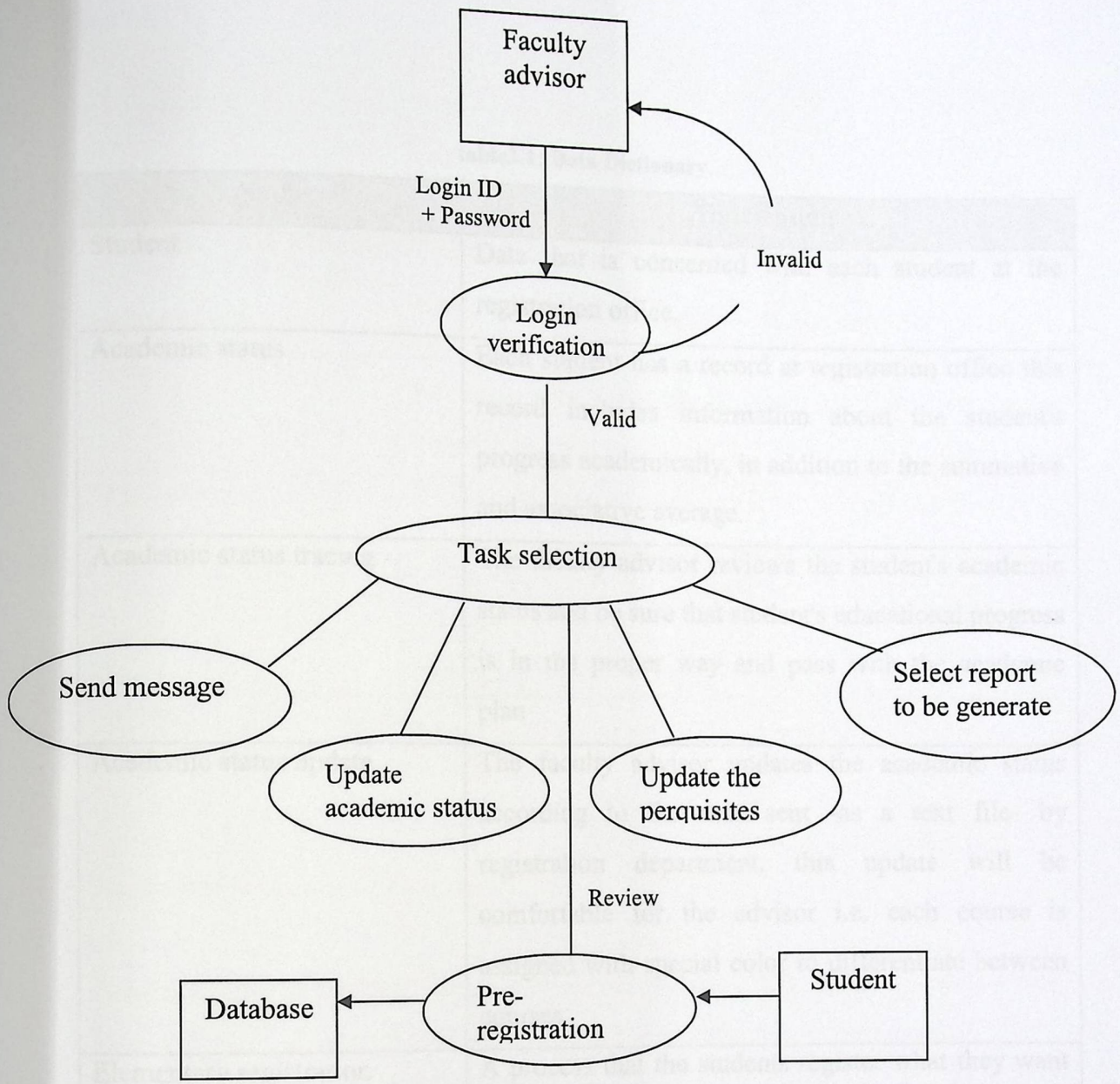


Figure3.12: Data flow diagram for faculty advisor in FAS

3.5 Data Dictionary

In this section a group of terms are explained in order to be more easer for the public user to understand. Data dictionary should include an associated description of the named entity it is useful at case of developing the system.

table3.1: Data Dictionary

Name	Description
Student	Data that is concerned with each student at the registration office.
Academic status	Each student has a record at registration office this record includes information about the student's progress academically, in addition to the summative and associative average.
Academic status tracing	The faculty advisor reviews the student's academic status and be sure that student's educational progress is in the proper way and pass with the academic plan
Academic status update	The faculty advisor updates the academic status according to the data sent -as a text file- by registration department. this update will be comfortable for the advisor i.e. each course is assigned with special color to differentiate between courses.
Elementary registration	A process that the students register what they want of courses.
Faculty advisor	A person at university who is responsible for one particular section, he/she organize and manage the section

table3.1: Data Dictionary (cont.)

Name	Description
Faculty advisor's login and password	Verify faculty advisor's password and login ID.
Help	Provide a help to the faculty advisor so they can use the program in good way.
Registration	At the beginning of each semester the students fixed their register courses at registration department.
Search	This function enables faculty advisors to begin their search after determining data items.
Student's login and password	Verify student's password and login ID.

3.6 Database Requirements

Academic status (student name, student ID, section , date of birth, level, major, faculty, faculty advisor, credit hours, summative average, specialized average Courses names, Courses ID's)

Course (course name, course ID, courses pre-requisite, course type)

Student (student name, login ID, password, address, city, phone number, major, faculty, level, e-mail)

Table3.2: Database Data Dictionary

item	Type
student name	string
student ID	integer
date of birth	string
level	integer
major	string
faculty	string
faculty advisor	string
credit hours	integer
summative average	integer
specialized average	Integer
Courses names	string
Courses ID's	integer
courses pre-requisite ID's	Integer
course type	string
Student's login ID	string
Student's password	encoded
Advisor's login ID	string
Advisor's password	encoded
address	string
city	string
phone number	integer
major	string
faculty	string
level	Integer

3.7 Summary and Recommendations

- Each function described in details: the function name, description, its input and output, source, destination, require, precondition, post condition, and its procedure.
- The section lists the whole possible constraints that may exist, and also describes each one.
- Those constraints represented in login and passwords for both administrator and power user.
- Passwords must at least contain six characters (Alpha Numeric Mixture) but different from login to maintain the security and difficulty to be stolen.
- Regular expressions explained in the help for the pattern section.
- The data dictionary implies the whole entity names of the system with their type and description.
- Starting websites needs the name and number of that websites to be crawled, also the status of a website either active to be crawled or not.
- The database data dictionary table explains the type of each data item in the system either string, integer, or encoded.

4

FAS design

Chapter four

FAS design

4.1 Introduction

This chapter includes a studying the elementary registration process from the academic affairs. And this includes the pre-registration process steps to reach the final form required of registration. This chapter also describes FAS system design by using Entity-Relationships (ER) modules, dataflow diagram, structure chart and the finally FAS system interfaces.

So the subjects that chapter four covers are decomposed as follows:

- Data input and output for both the faculty advisors (administrators) and students (public user).
- Database design: data needed for FAS system are determined and collected.
- Functional design: this section shows the basic design models including the ER model, data flow diagrams, its interface and constraints will be identified.

4.2 Output design

This section keeps attention to all interfaces that are results from FAS system.

4.3 Input design

- **The main interface**

This is the main page in FAS system.

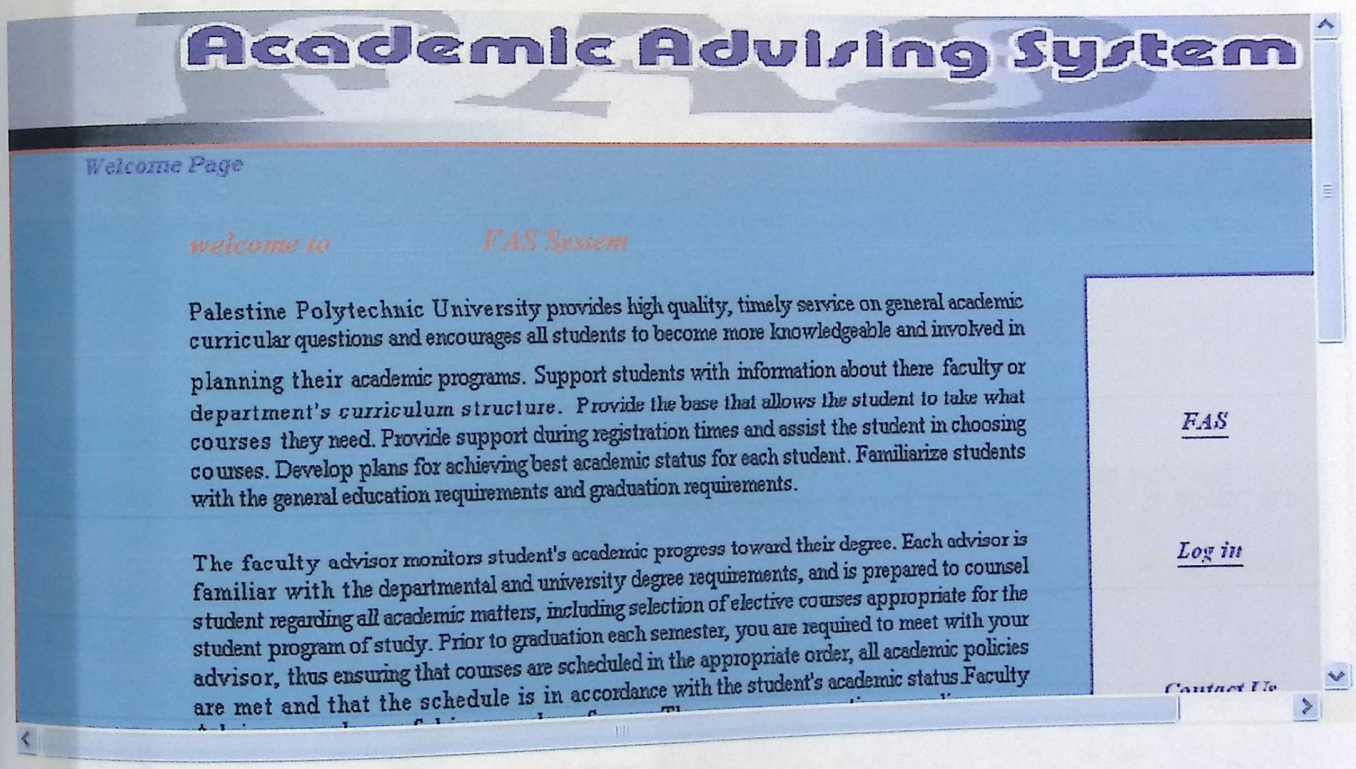


Figure4.1: the main interface

- **Announcement Interface**

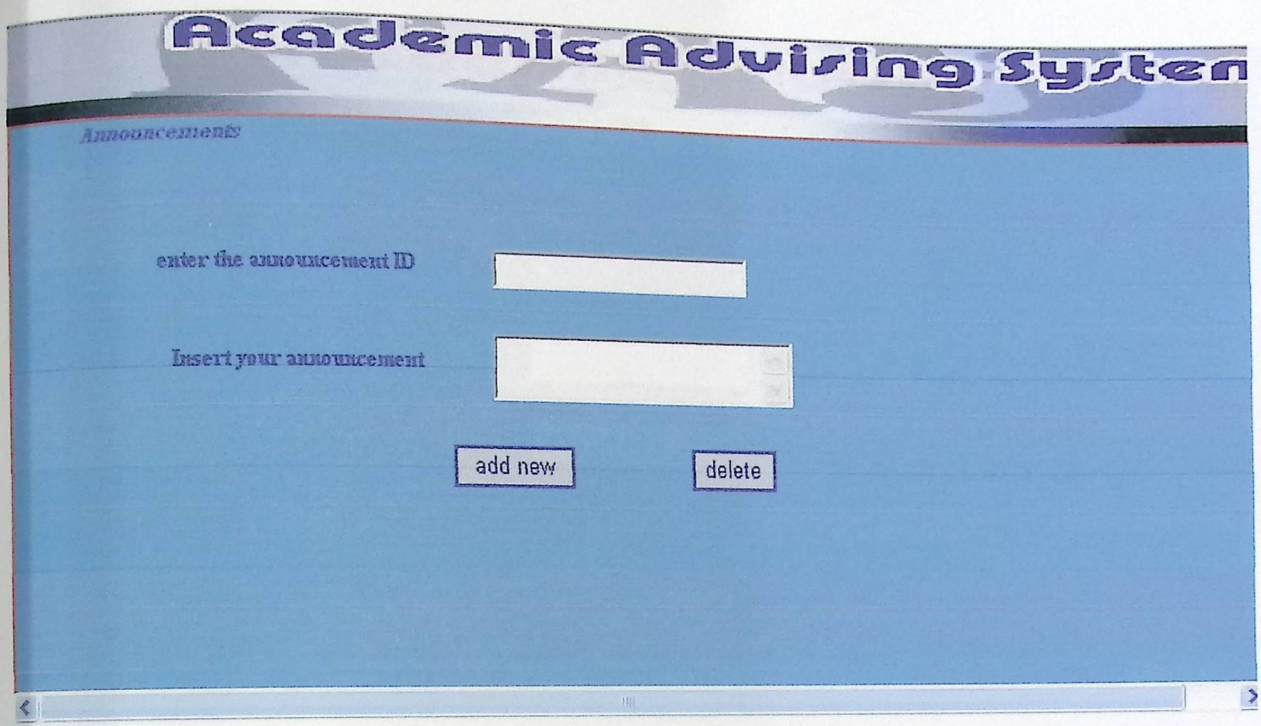


Figure4.2: announcement interface

- **Serach interface**

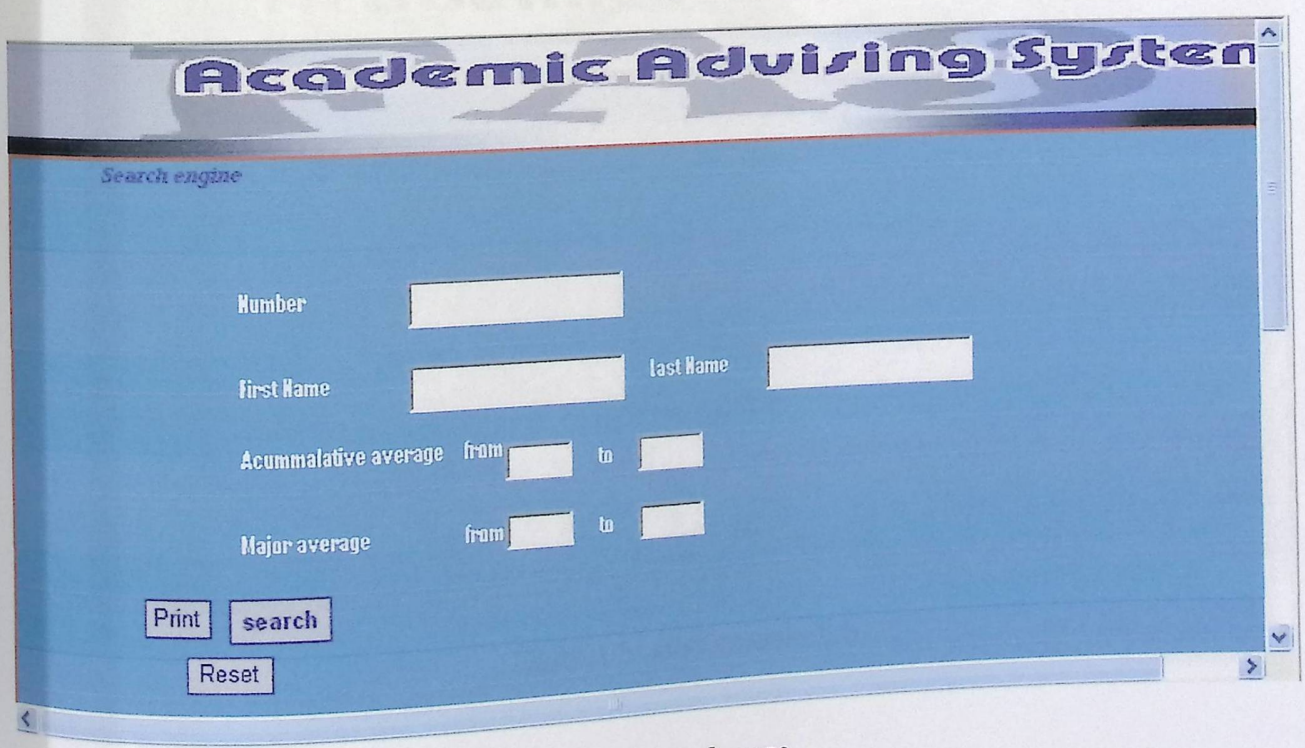


Figure4.3: serrch page

- **Login page**

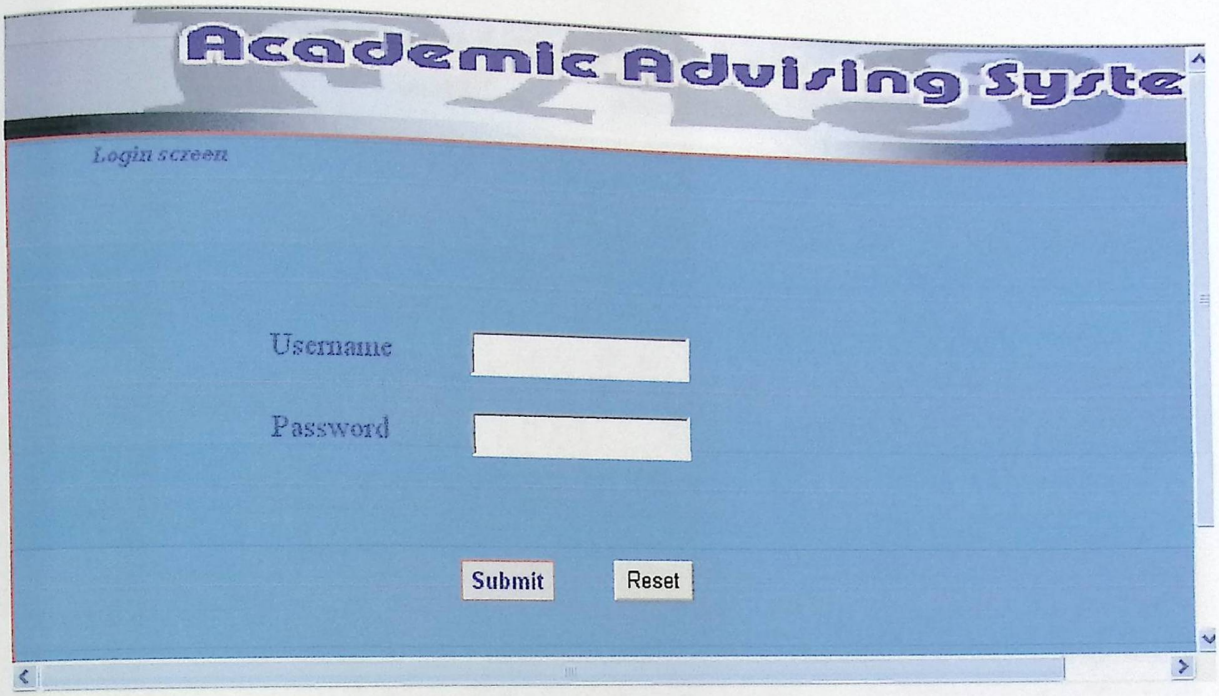


Figure4.4: login page

- **Faculty advisor page**

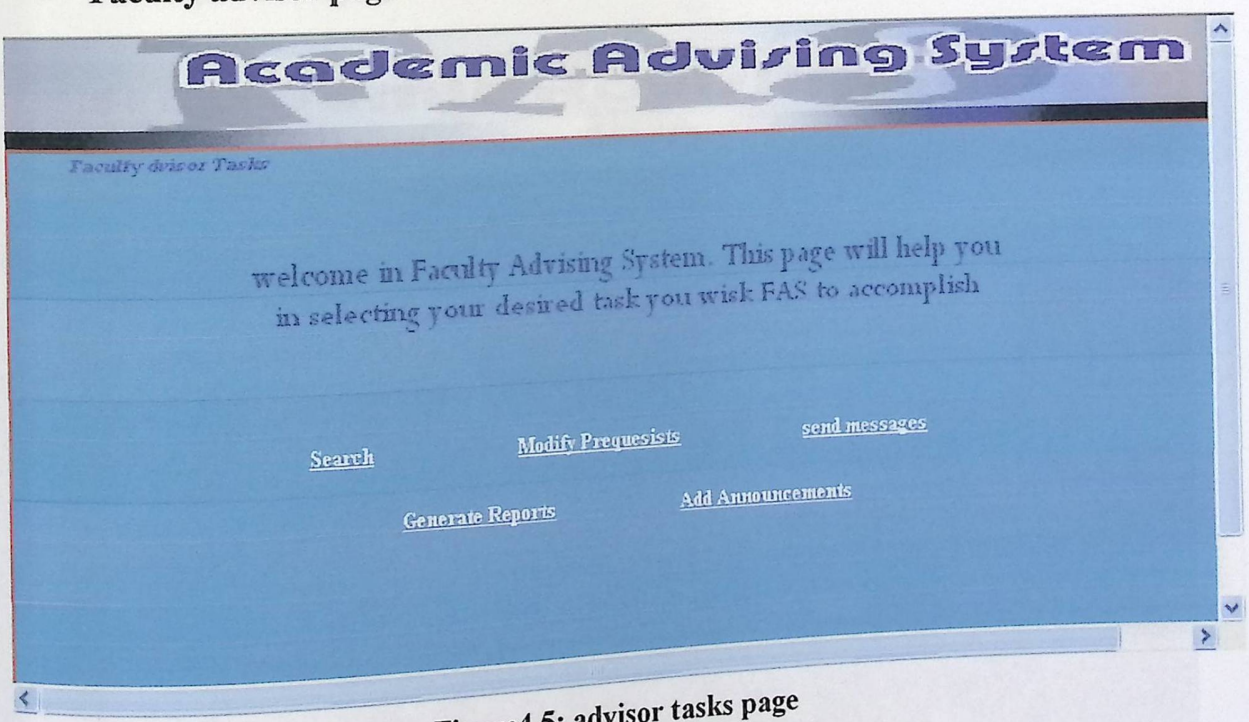


Figure4.5: advisor tasks page

4.4 Database design

This section explains all databases needed in designing FAS, the explanation comes from the ER-model.

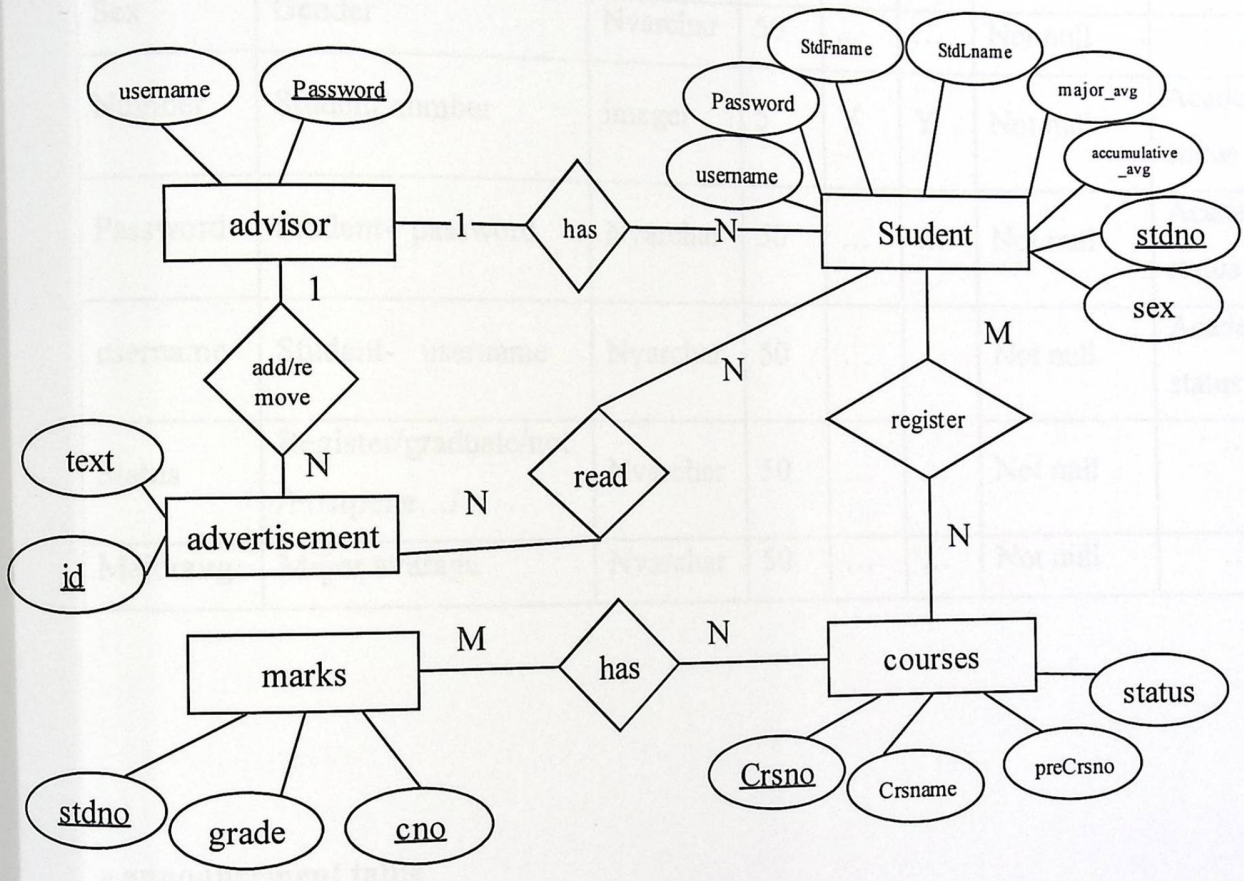


Figure4.8:ER model for FAS

- **Student table**

table4.1: student table

Field Name	Description	Type	Size	Control		Constrains	Related tables
				PK	FK		
stdFName	Student first name	Nvarchar	50	…		Not null	Academic status
Sex	Gender	Nvarchar	50	...	…	Not null	…
Number	Student number	integer	5	Y	Y	Not null	Academic status
Password	Student- password	Nvarchar	50	…	…	Not null	Academic status
username	Student- username	Nvarchar	50	…	…	Not null	Academic status
Status	Register/graduate/not /Postpone…/	Nvarchar	50	…	…	Not null	…
Majoravg	Major avarage	Nvarchar	50	…	…	Not null	…

- **announcement table**

table4.2 announcement table

Field Name	Description	Type	Size	Control		Constrains	Related tables
				PK	FK		
Announcement	Announcement text	Nvarchar	50	…		Not null	…..
ID	Announcement id	integer	4	Y	Y	Not null	Student

- **course table**

table4.3 course table

Field Name	Description	Type	Size	Control		Constrains	Related tables
				PK	FK		
Name	course name	Nvarchar	50	…		Not null	Academic status
Number	Course ID	integer	5	Y	Y	Not null	Academic status
precourses	The prerequisites courses	Nvarchar	50	…		Not null	Academic status
preID	The prerequisites courses ID	integer	5	Y	Y	Not null	Academic status
Status	Register/withdraw/ fail/pass/	Nvarchar	50	…	…	Not null	…

- **pre-registration**

table4.4 pre-registration table

Field Name	Description	Type	Size	Control		Constrains	Related tables
				PK	FK		
SName	Student name	Nvarchar	50	…		Not null	Student
SNumber	Student number	integer	5	Y	Y	Not null	Student
coursename	Course name	Nvarchar	50	…	…	Not null	course
courseNO	Course number	integer	5	Y	Y	Not null	course

- Marks table

table4.5: marks table

Field Name	Description	Type	Size	Control		Constrains	Related tables
				PK	FK		
SNumber	Student number	integer	4	Y	Y	Not null	Student
coursename	Course name	Nvarchar	50	…	…	Not null	course
courseNO	Course number	integer	4	Y	Y	Not null	course
grade	The course grade	integer	4	…	…	Not null	Academic status

- academic status

table4.6: academic status table

Field Name	Description	Type	Size	Control		Constrains	Related tables
				PK	FK		
SNumber	Student number	integer	4	Y	Y	Not null	Student
coursename	Course name	Nvarchar	50	…	…	Not null	course
courseNO	Course number	integer	4	Y	Y	Not null	course
grade	The course grade	integer	4	…	…	Not null	Academic status
crecrdhrs	The course cridet hours	integer	4				
Studentname	Student name	char	10				

4.5 Functional design

This section represents the functions and its details through the flowchart design and progress.

- **Faculty advisor/ student login**

  Interfaces: This function is performed cross the login web page. Login web page is the input interface for logging either advisors or students.

  Constraints: Each of them should use username and the password which allows them to enter other pages. The password should contain more than 6-characters and this password should be verified.

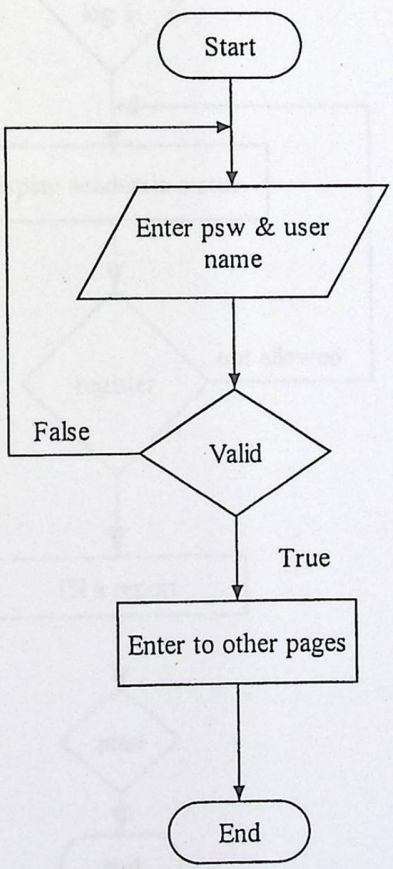


Figure4.1: Faculty advisor/ Student login Flowchart.

- **Pre-registration Report**

Interfaces: This function will enable student to make a pre-registration.

Constraints: To perform this function the student must be register at that semester.

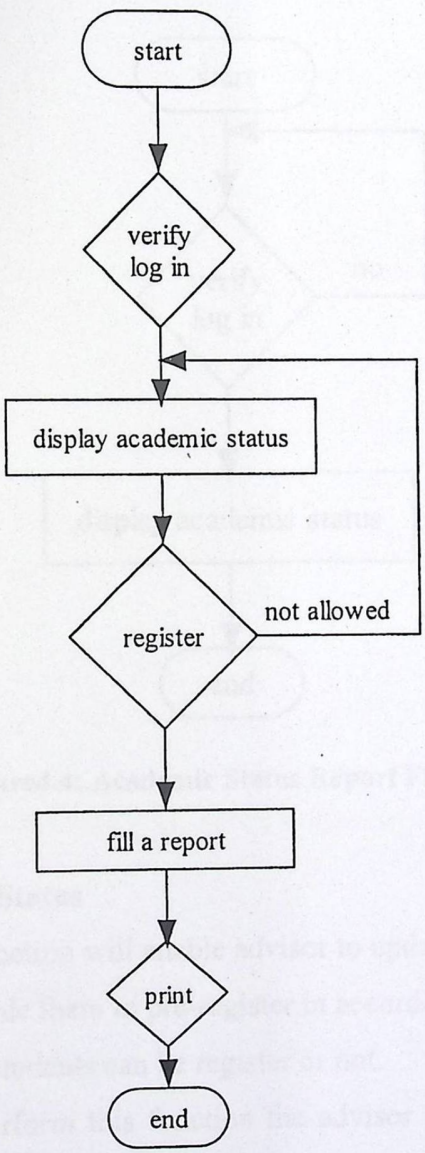


Figure4.3: Pre-registration Report Flowchart.

- **Academic Status Report**

Interfaces: This function will enable student and advisor to display the academic status report and review it by both student and advisor.

Constraints: To perform this function the student must enter the student name and password; the advisor must enter the student name, student number or number of section.

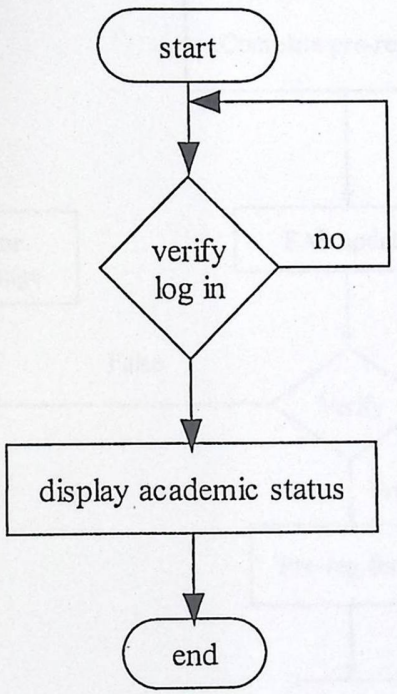


Figure4.4: Academic Status Report Flowchart.

- **Update Academic Status**

Interfaces: This function will enable advisor to update the academic status for each student to enable them to pre-register in according to their academic status, then decide which students can be register or not.

Constraints: To perform this function the advisor must enter the student name and password then make the update by using the FAS.

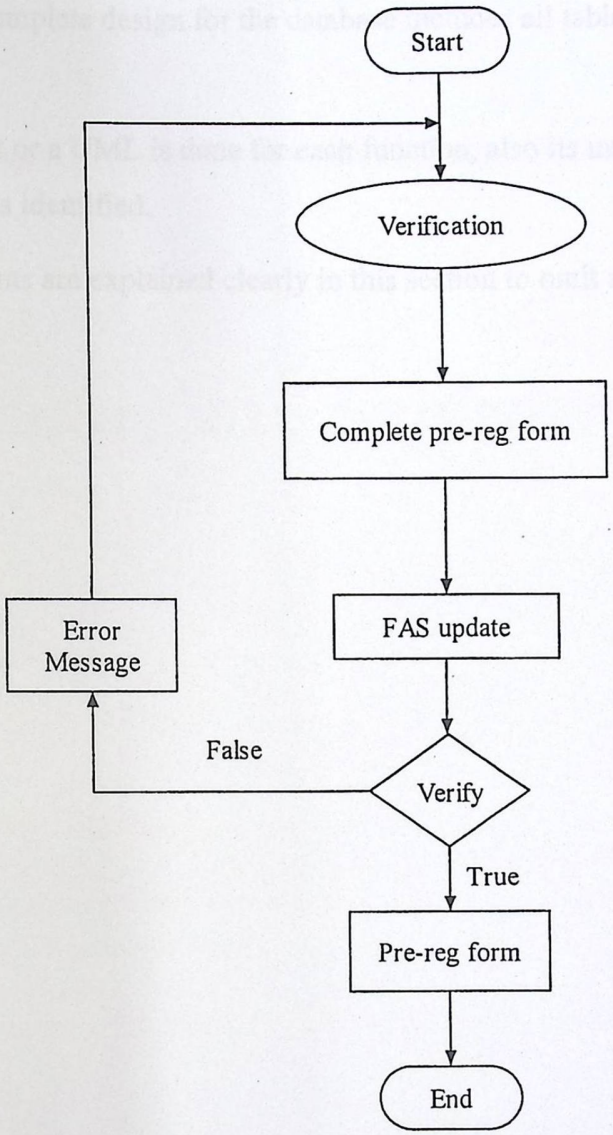


Figure4.5: Update Academic Status Report Flowchart

4.6 summary and recommendations

- Each function is explained and designed accordingly. Using functional oriented methodology.
- Each function is designed for its input /output screens.

- There is a complete design for the database includes all tables and their fields.
- A flow chart or a UML is done for each function, also its interface and constraints is identified.
- All constraints are explained clearly in this section to omit any ambiguity.

5

Coding and Implementation

Chapter Five

Coding and Implementation

5.1 Introduction

This part of the project explains the essential steps to build it, how each step is Implemented and what are the relations between these steps.

The coding and implementing chapter covers the following:

- Coding Programming Language.
- Database System
- Establishment of Development Environment
- Database Creation and Configuring
- Coding and Unit Testing
- Summary and Recommendation

5.2 Coding programming language

There are many technology supports publishing the database on the web, some of these technologies are IIS (Internet Information Services) application and other are database application, each technology has a different properties and running environment from the others.

In building the project it is essential to build the database to be accessed from the internet applications and here we deal with the ASP.Net application.

5.2.1 What is the Microsoft .NET Framework?

The .NET exposes the following:

A new way to expose operating system and other APIs. For years the set of windows functionality that was available to developers and the way that functionality was invoked were dependent on the language environment being used.

This portion of .NET is commonly referred to as the .NET framework class library.

- Anew infrastructure foe managing application execution. To provide a number of sophisticated new operating-system, services: including code-level security, cross-language class inheritance, cross-language type compatibility, and hardware and operating system independent, among others: Microsoft developed a new runtime environment known as the Common Language Runtime (CLR).
- A new web server paradigm. To support high-capacity web sites, Microsoft has replaced it's Active Server Pages (ASP) technology with ASP.NET. While developers who are used to classic ASP will find ASP.NET familiar on the service, the underling engine is different, and fare more features are supported. One difference that is ASP.NET web page code is now compiled rather than interpreted, greatly increasing execution speed.
- A new focus on distributed application architecture. Visual Studio.NET provides top-notch tools for creating and consuming web services: vendor independent software services that can be invoked over the internet.

The .NET framework is designed top to bottom with the internet in mind. For example, ADO.NET, the next step in the evolution of Microsoft vision of" universal data access", assumes that applications will work with disconnected data by default. In addition, the ADO.NET classes provide sophisticated XML capabilities, further increasing there usefulness in a distributed environment.

5.2.2 ASP.NET

ASP.NET is the hosting environment that enables developers to use the .NET Framework to target Web-based applications. However, ASP.NET is more than just a runtime host; it is a complete architecture for developing Web sites and Internet-distributed objects using managed code. Web Forms use IIS and ASP.NET as the publishing mechanism for applications.

ASP.NET is more than the next version of Active Server Pages (ASP); it is a unified Web development platform that provides the services necessary for developers to build enterprise-class Web applications. While ASP.NET is largely syntax compatible with ASP, it also provides a new programming model and infrastructure for more secure, scalable, and stable applications. You can feel free to augment your existing ASP applications by incrementally adding ASP.NET functionality to them. ASP.NET is a compiled, .NET-based environment; you can author applications in any .NET compatible language, including Visual Basic .NET, C#, and JScript .NET. Additionally, the entire .NET Framework is available to any ASP.NET application.

ASP.NET has been designed to work seamlessly with WYSIWYG HTML editors and other programming tools, including Microsoft Visual Studio .NET. Not only does this make Web development easier, but it also provides all the benefits that these tools have to offer, including a GUI that developers can use to drop server controls onto a Web page and fully integrated debugging support.

ASP.NET applications provide the following possibilities:-

- Web Forms allow you to build powerful forms-based Web pages. When building these pages, you can use ASP.NET server controls to create common UI elements, and program them for common tasks.
- Accessing databases from ASP.NET applications is an often-used technique for displaying data to Web site visitors. ASP.NET makes it easier than ever to access

databases for this purpose. It also allows you to manage the database from your code.

- ASP.NET provides easy-to-use application and session-state facilities that are familiar to ASP developers and are readily compatible with all other .NET Framework.
- ASP.NET takes advantage of performance enhancements found in the .NET Framework and common language runtime. Additionally, it has been designed to offer significant performance improvements over ASP and other Web development platforms. All ASP.NET code is compiled, rather than interpreted, which allows early binding, strong typing, and just-in-time (JIT) compilation to native code, to name only a few of its benefits. ASP.NET is also easily factorable, meaning that developers can remove modules (a session module, for instance) that are not relevant to the application they are developing.
- .NET Framework and ASP.NET provide default authorization and authentication schemes for Web applications. You can easily remove, add to, or replace these schemes, depending upon the needs of your application.
- Applications are said to be running side by side when they are installed on the same computer but use different versions of the .NET Framework.

5.3 Database System

A database is a collection of related data. These data are facts that can be recorded and that have implicit meaning. The database consists of a collection of records that contain data and other objects, such as views, indexes, stored procedures, and triggers, defined to support activities performed with the data. The data stored in a database is usually related to a particular subject or process. Database can store either interrelated or unrelated data from other databases.

5.3.1 Microsoft SQL Server 2000

Microsoft SQL Server 2000 extends the performance, reliability, quality, and ease-of-use of Microsoft SQL Server version 7.0. Microsoft SQL Server 2000 includes several new features that make it an excellent database platform for large-scale online transactional processing (OLTP), data warehousing, and e-commerce applications.

The OLTP Services feature available in SQL Server version 7.0 is now called SQL Server 2000 Analysis Services. The term OLAP Services has been replaced with the term Analysis Services. Analysis Services also includes a new data mining component.

The Repository component available in SQL Server version 7.0 is now called Microsoft SQL Server 2000 Meta Data Services. References to the component now use the term Meta Data Services. The term repository is used only in reference to the repository engine within Meta Data Services.

5.3.2 Authentication Mode

There are two types of authentication mode, each one deals in a different way with users account. When SQL Server is running on Windows 2000, a system administrator can specify that it run in one of two authentication modes:

- **Windows Authentication Mode:**
  Allow a user to connect through a Microsoft Windows NT 4.0 or windows 2000 user account. When a user connects through a Windows NT 4.0 or Windows 2000 user account, SQL Server revalidates the account name and password by calling back to Windows NT 4.0 or Windows 2000 for the information.

- **Mixed Mode**

  Mixed mode allows users to connect to an instance of SQL Server using either windows authentication or SQL Server authentication. Users who connect through a NT 4.0 or windows 2000 user account can make use of trusted connections in either windows authentication mode or mixed mode.

Windows authentication has certain benefits over SQL Server authentication, primarily due to its integration with the Windows NT 4.0 and Windows 2000 security system. Windows NT 4.0 and Windows 2000 security provides more features, such as secure validation and encryption of passwords, auditing, password expiration, minimum password length, and account lockout after multiple invalid login requests.

5.4 Establishment of Development Environment

Each project to reach to the desired level it should established on proper, robust software and hardware.

5.4.1 Software Environment

The soft ware development environment consists of the following:

1. windows XP professional version 2002
2. ASP.NET 2003 Designer.
3. Microsoft SQL Server.
4. Internet Information Service (IIS).

5.4.2 Hardware Environment

The basic hardware used was a personal computer (PC) with high quality to be compatible with microsoft.NET. This PC was a P4 2.8 GHz supported with 512 MB of RAM.

5.5 Database Creation and Configuration

5.5.1 Database Creation

Right click on databases, new database then type the name of database, the database name is FAS_SYSTEM.

5.5.2 Tables Creation

Right click on tables, new table then type the name of your table and may create more than table as needed, then type all columns name and it's type if it is integer, char, text. Each with it's limiting length .The last field is very important that used to allowing to this column to be null or not. Before saving it, primary key field have to be chosen and if there is relation with another table must be justify. FAS system has a multiple of tables such as student Table, Course Table, requisites-course Table, marks Table, Password Table, and advertisement Table. Chapter four has mentioned there fields. Table 5.1 shows the tales FAS system requires.

Table5.1: database tables

Table name	Primary key	Foreign key
Student	stdno	Crsno
CourseT	CrsNo	Stdno
Marks	Cno+stdno	Stdno, crno
Advertisement	Id	.....
requisites-course	preNo	crsno

5.5.3 Database Diagram

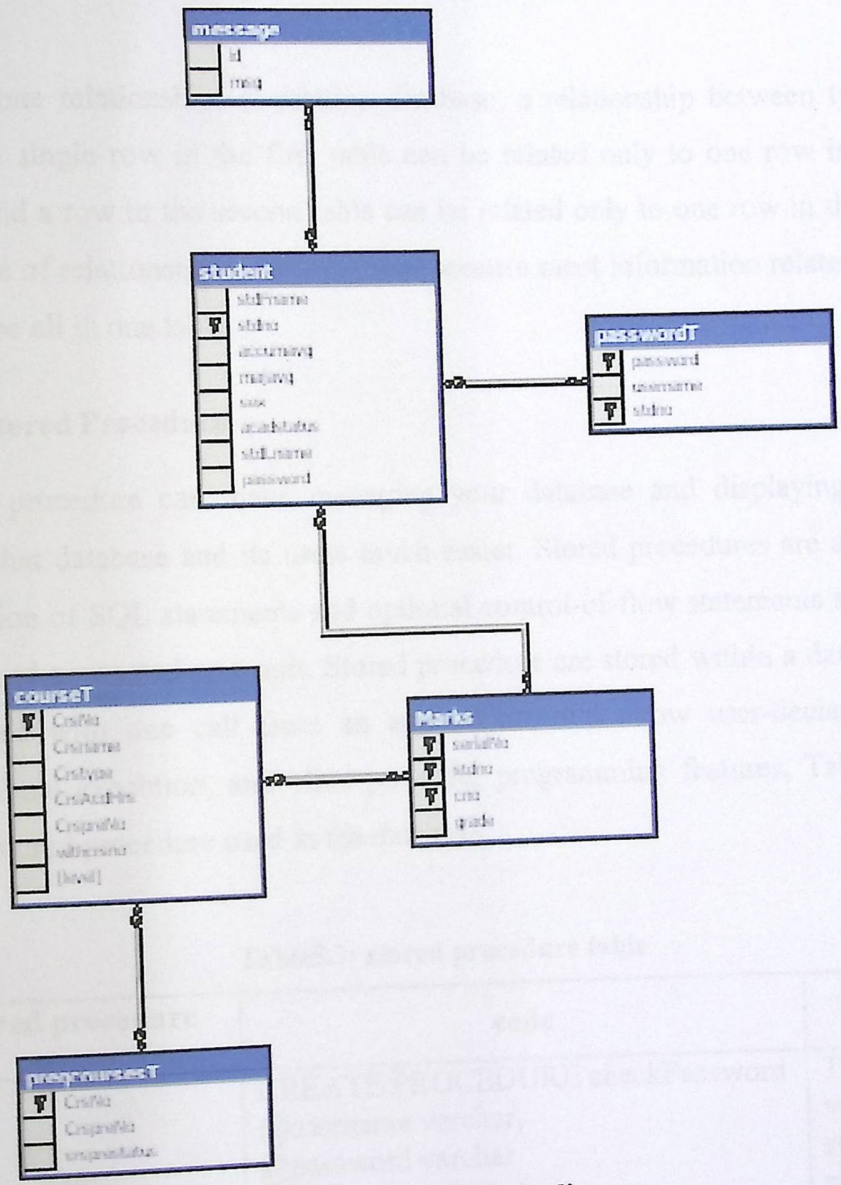


Figure5.1: database diagram

One-to-many relationship: is the most common type of relationship, in relation databases, a relationship between two tables in which a single row in the first table

Many-to-Many relationship: a relationship between two tables in which rows in each table have multiple matching rows in the related table. Many-to-many relationships are maintained by using a third table called a junction table and adding the primary key columns from each of the other two tables to this table.

One-to-one relationship: in relation database, a relationship between two tables in which a single row in the first table can be related only to one row in the second table, and a row in the second table can be related only to one row in the first table, this type of relationship is not common because most information related in this way would be all in one table

5.5.4 Stored Procedure

Stored procedure can make managing your database and displaying information about that database and its users much easier. Stored procedures are a precompiled collection of SQL statements and optional control-of-flow statements stored under a name and processed as a unit. Stored procedure are stored within a database; can be executed with one call from an application; and allow user-declared variables, conditional execution, and other powerful programming features. Table 5.2 shows some stored procedure used in the database

Table5.2: stored procedure table

Stored procedure name	code	description
checkPassword	CREATE PROCEDURE checkPassword @username varchar, @password varchar AS select count(*) from passwordT where username = @username and password = @password GO	To check the validity of student password
Pass	CREATE PROCEDURE Pass @cno int,	Make sure that the student take

Table5.2: stored procedure table (cont.1)

	@stdno int as select count(*) from marks where marks.stdno = @stdno and marks.cno = @cno and marks.grade > 59 GO	one course and pass with it
fail	CREATE PROCEDURE Fail @stdno int, @cno int as select count(*) from marks where cno =@cno and stdno = @stdno and grade<59 GO	Allow re-register the courses that have been failed
FindAvg	CREATE PROCEDURE FindAvg AS select stdno from student where (select sum(grade*CrsAcdHrs)/sum(CrsAcdHrs) from student,marks,courseT where marks.stdno = student.stdno and marks.cno = courseT.CrsNo)>82 group by student.stdno GO	Finding student average
getcourse	CREATE PROCEDURE getCourse @number char(10) AS select cno,grade,CrsAcdHrs from Marks,courseT where stdno = @number and marks.cno = courseT.CrsNo GO	Return all courses the student can register
readCno	CREATE PROCEDURE readCno as select CrsNo,CrsName	Can return the course number

Table5.2: stored procedure table (cont.2)

	from CourseT GO	
showplan	CREATE PROCEDURE showplan @stdno int, @level nvarchar as select * from courseT,marks where level=@level and stdno=@stdno GO	Show the courses an there levels as academic status

5.6 Coding and Unit Testing

All system units and modules were tested against its specifications, the test ensured that the units and modules performed as expected. The following table shows some of screens that had been tested successfully.

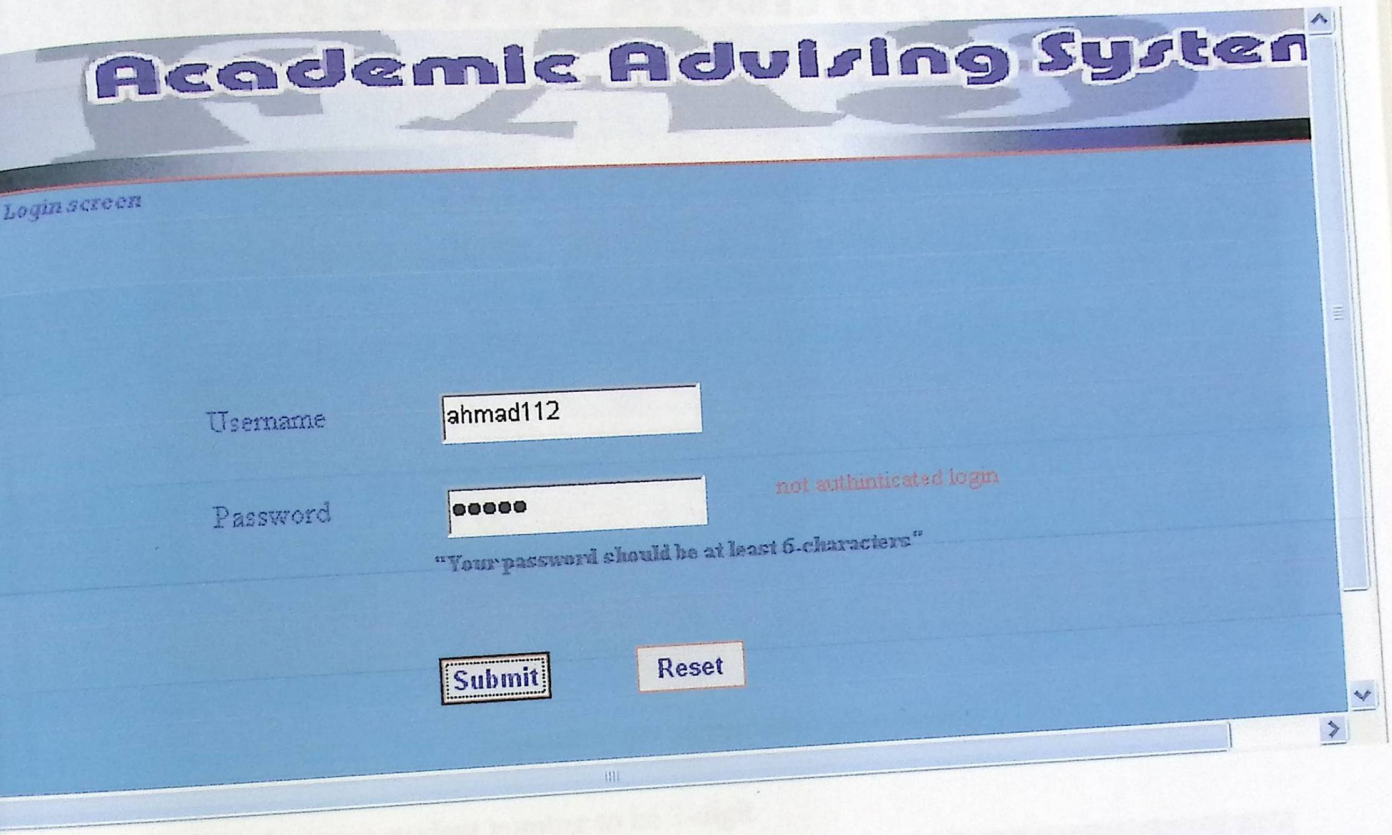
Table5.3: code and unit testing

Screen	Function	Status	Figure
Login.aspx	Student login	Done	5.2
Prereg.aspx	Select courses	Done	5.3
Search.aspx	Search for determined student	Done	5.4

The following are some samples for module testing and its associated results

1. Testing for "login" show that the user name or the password entered is not valid

Figure5.2: login page testing



2. Testing the "pre-registration" validity, here selected a course without end the requisite course.

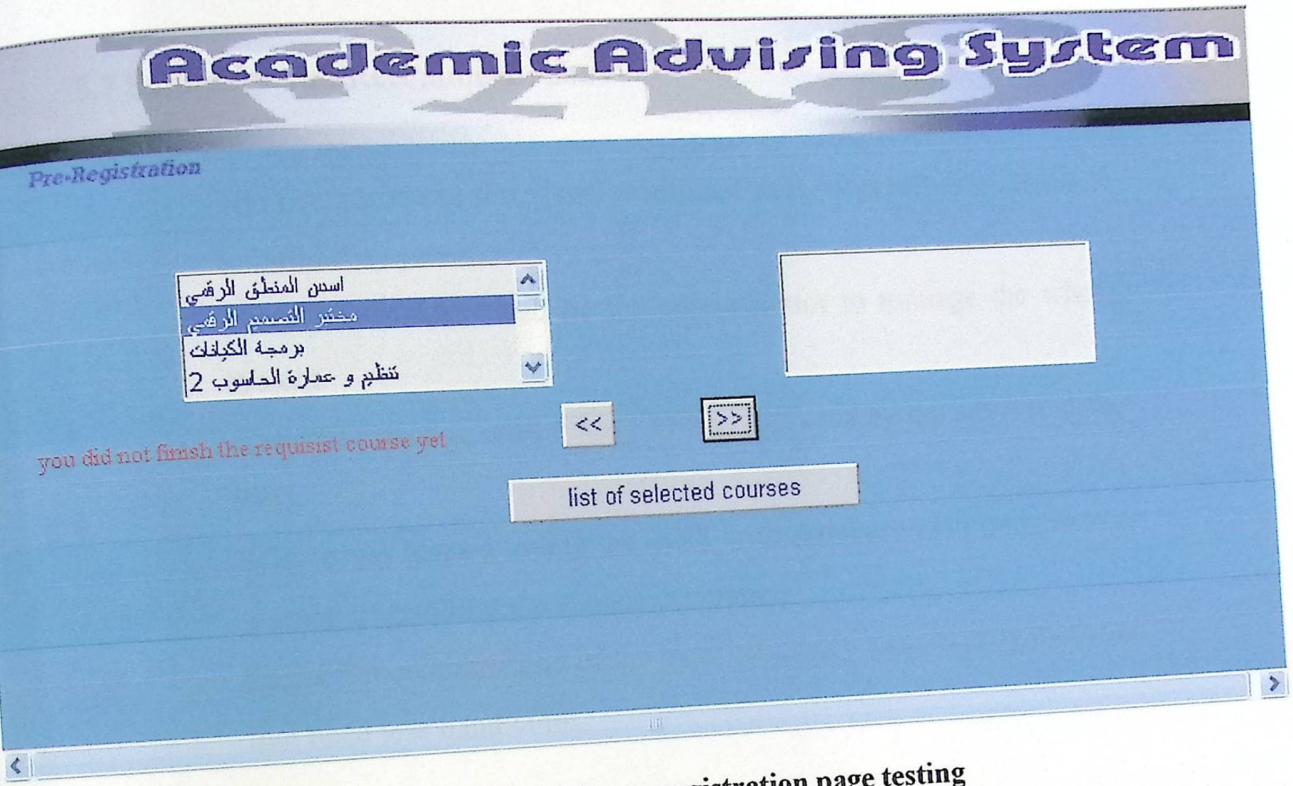


Figure5.3: pre-registration page testing

3. Testing the input student number to be 3-digit.

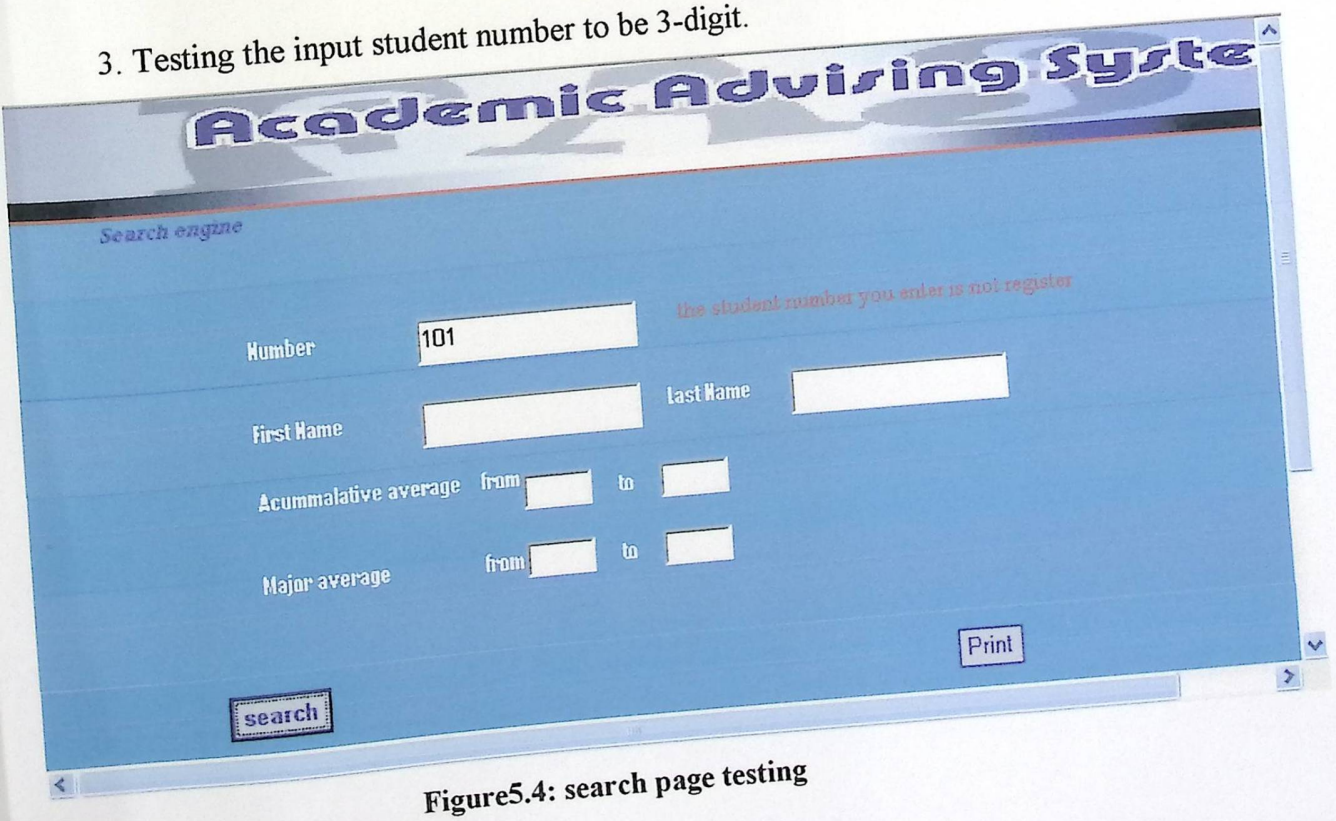


Figure5.4: search page testing

5.7 Summary and Recommendations

- The designers use the visual studio.net as a programming language to build the system.
- Visual Basic.NET used by the administrator to manage the whole system.
- ASP.NET used to built FAS_SYSESTEM used by the advisor at the PPU.
- SQL server is used to link the .NET with Database environment as a method of building a complete program.
- Stored Procedure is one of the most efficiency and security methods that need less bandwidth.

Testing

6.1 Introduction

The FAS system must be tested and evaluated after the coding and implementation stage to ensure that every part of the system performs as expected to be, and to check its functionality works properly.

6.2 Testing Plan

6.2.1 Unit Testing

In this type of testing each module in the system was examined to ensure that it gives the correct result. For example, the search result of the search page gives the following results.

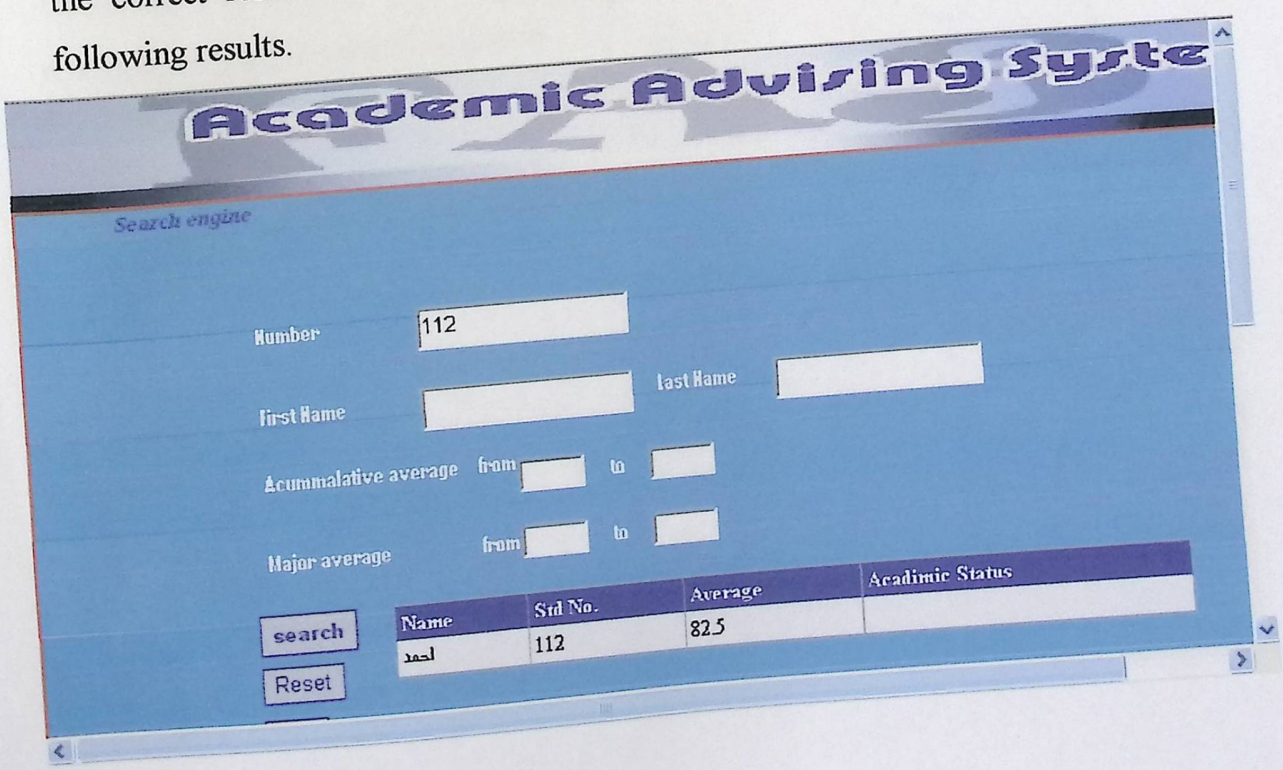


Figure6.1: search results

6

Testing

6.3 Integration Testing

This type of testing is required to perform testing upon the whole system(all web forms are gathered), this process done after generating a code to each web forming the system, open the site from any client and press on any choice, we have been sure that the system works in correct way.

6.4 Testing Plan Results

The forms of web application perform as expected when each one tested separately. The web application gives its results correctly when operated as an integrated environment and process the public and power users.

The testing of the system integration indicated that the system performs as expected.

6.5 Summary and Recommendations

- Each operation is tested separately to ensure that it operates as expected.
- The integration of all objects is tested to ensure that the whole system performs as expected.
- The testing results indicate that the system works correctly.
- The results before and after testing show the process for the user and in the database system.
- The system operation as a unit ensures that the whole FAS_SYSTEM performs as expected to be.

7

Maintenance

Maintenance

7.1 Introduction

Software maintenance is the general process of changing a system after it has been delivered. The change may be simple changes to correct coding error, more extension changes to correct design error or significant enhancement to correct specification errors or accommodate new requirements.

To handle these errors, the system builds the suitable functions for catching the errors and maintaining the drop points to succeed the program perfectly. The system must therefore evolve to remain useful under problem resolution, enhancements, and interface modifications.

This section aims to maintain the program from any identified change in order to keep its services done correctly.

7.2 Implementation Plan

To design a system, it is necessary to decide the situation of the system with other projects that may or may not have a relation with it .The relation determined wither to update a specific system or completely design a new one.

The following steps show what are the prerequisites that needed for the operating environment to help the administrator configure and operate the system.

1. Microsoft Windows server family or XP.
2. Microsoft office Family.
3. Internet Information Service (IIS).
4. .NET Framework.

5. SQL Server 2000.

7.4 FAS system Production

1. ASP.NET Part Production

To put the FAS system in production, the following steps must be done:

1. Build the application (BIN directory and DLL file will be created).
2. Copy the following files to the production server (BIN directory, web forms(.aspx), user controls (.ascx), XML files (.asmx), web.config, global.asax and changes of machine.config).
3. Create a virtual directory using IIS.
4. Register your domain name with one of the companies.
5. While site is up and running, you can replace (update) files with new versions.

2. Database Production

- In the SQL server Enterprise Manager, right click on the database name(FAS_SYSTEM) ,choose all task and then select Detach database
- The detached database will be stored in the following directory……..\Microsoft SQL Server\MSSQL\Data\FAS_SYSTEM.
- To setup database on the production server ,right click on the databases on the SQL server ,choose attach database
- In the attach database dialog box browse for the location of the database with the extension .MDF, and press Ok.

7.4.1 Error handling

During the implementation of the system, if an error occurs, the error message and its description will be displayed on the screen, then the client must deal with the message in a way telling the FAS system administrator about the error.

After the vendor completes repairing the error, he should make unit testing, integrating and system testing to ensure that the system work in a correct way, without damaging other functions. Finally, the corrected pages must be published to the web server to maintain changes.

7.5 Problem and Future Work

The usage of more than one server, which are incompatible with each other, so we coerced to format the server computer more than one time, and to install these servers again, and to change some of the choices during the installation. The access from one computer to another didn't not happen directly all the time, so we changed the network card more than one time.

- Intranet problem

  IIS didn't recognize all the files, which is opened on the intranet as ASP files.

- ODBC problem

  ODBC source data drivers didn't work in a compatible way as the user thinks, and this depends on its version.

- ASP.NET problem

  1. Determine the URL name that the ASP file can recognize it.-
- 2. Data source name some times needs the user name and password, so any change in the ODBC configuration ill lead to an error in the ASP file. Because of this we need to change the entire ASP configuration or to rebuild the AP file.
  3. ASP files support publishing of the query and tables on the internet, but there is a problem in publishing the form.
  4. If there is more than one user who making update on the form on the internet, and because the ASP file is running on the server crosstalk will happen.

- SQL server problem

SQL server can import the tables only from the database and without the relationships and so we need to rebuild the relationships again.

Future work

Add the ability of payment to this system by using the master card.

Connect the system with the lecture schedule of the university in order to check the conflicts in the lecture time.

7.6 Summary and Recommendation

- The programmer must prepare the suitable environment to deal with the system.
- The administrator must keep database access as secure as possible.
- The designers put reports for handling the errors or updating the system if needed.