



Suez Canal University

Faculty Of Science

Mathematics Department



An Electronic Database To Manage Files and Activities

(Graduation Project)



By Students

Dina Abdullah - Madleen Atef

Esraa Abdulrasoul - Ghada Mohamed

Supervised by

Dr.Mohamed Ali

Second Term

2019 / 2020

ACKNOWLEDGEMENT

We Would like to thank from the depths of our hearts all those who supported and encourage us in this work. Firstly, we would like to thank our supervisor:

Dr.Mohamed Ali for being our leader and instructor. He spend a lot of time in discussion , suggestion and guiding to keep the project in the right direction. And we want to thank a lot of people who answering our questions throughout the collection data stage of our project. The greater portion of gratefulness Is to our families for being the source of our strength and support. Also thank them for their patience for our engrossment . Finally we would like to thank the head and all the staff members of our department for teaching us and supporting.

Abstract

This project introduces an electronic system to manage the activities and files of the Mathematics Department using database to eliminate the time and effort wasted for data entry.

It also reduces the amount of traditional documentation needed in data management archives.

Facilitate communication with civil society institutions.

It's built to be used for any department or Faculty to manage data easily.

Table of Contents

Chapter 1 : Introduction

1.1 introduction.....	2
1.2 Problem Definition.....	2
1.3 Aim of the Project.....	2
1.4 Application requirement.....	3

Chapter 2 : System Analysis

2.1 Introduction.....	5
2.2 Data Collection.....	5
2.3 The Programs Used.....	5
2.4 Development Tools.....	6
2.5 Gantt Chart.....	7
2.6 Use Case Diagram.....	8
2.7 Pert Chart.....	10

Chapter 3 : Used Technologies & Design

3.1 Introduction.....	12
3.2 Database Design.....	12
3.3 ER Diagram.....	12
3.4 System interface Design.....	15
3.1 Form1:Login.....	15

3.2 Form12:Home Page.....	16
3.3 Form2:Users.....	18
3.4 Form3:Teachers.....	19
3.5 Form4:Students.....	20
3.6 Form5:Students Activities.....	20
3.7 Form19:Add Student Training.....	21
3.8 Form20:Add Student Study	21
3.9 Form21: Add Student Course.....	22
3.10 Form22: Add Student Advising Meeting.....	22
3.11Form7:Research Project.....	23
3.12Form8:Professors.....	23
3.13 Form9:Professors Activities	24
3.14 Form10:Labs	25
3.15 Form11:Labours	25
3.16 Form13:Courses.....	26
3.17 Form14:Council Meeting Records.....	27
3.18 Form15:Committees.....	28
3.19 Form14:Add a committees record.....	28
3.20 Form23: Add Scientific Research	29
3.21Bathrooms.....	30
3.22 Tables.....	31

Chapter 4 : Implementation

4.1 Introduction.....36

Chapter 5 : Conclusion & Future Work

5.1 Conclusion40

5.2 Future Work40

References.....41

Chapter 1

Introduction

1.1 Introduction

The proposed program measures a set of indicators that facilitate obtaining the appropriate measurements required by the department of mathematics and faculty of science, or useful in the quality management process.

The database facilitates access to data for students, faculty, and their assistants

1.2 Problem Definition

In faculty of education there are some obstacles that face the instructor.

The obstacles that face the instructor to enter the student's data is that may waste a large amount of time to enter each student's data.

1.3 AIMs OF THE PROJECT

- ❖ Seamless screens for data entry and display the results that can be referred to in decision-making for the department's management and its various programs.
- ❖ The program measures a set of indicators that facilitate obtaining the appropriate measurements required by the college or useful in the quality management process.
- ❖ The database facilitates access to data for students, faculty, and their assistants.
- ❖ The database facilitates the monitoring of custody and the state of the halls and laboratories, which facilitates maintenance or forecasting.
- ❖ Facilitate obtaining the various documents received from or issued to the department.
- ❖ Facilitate communication with civil society institutions.

- ❖ Facilitate communication with the graduates of the department.
- ❖ Knowing the minutes and numbers of councils dealing with a specific topic.
- ❖ Make an inventory of faculty members, their assistants, and students according to specific criteria.

1.4 Application requirements

SQL Server

Microsoft SQL Server is a relational database management system developed by Microsoft. As a database server, it is a software product with the primary function of storing and retrieving data as requested by other software applications which may run either on the same computer or on another computer across a network (including the Internet). Microsoft markets at least a dozen different editions of Microsoft SQL Server, aimed at different audiences and for workloads ranging from small single-machine applications to large Internet-facing applications with many concurrent users.

Visual Studio

Visual Studio, also known as Microsoft Visual Studio and VS, is an integrated development environment for Microsoft Windows. It is a tool for writing computer programs, websites, web apps, and web services. It includes a code editor, debugger, GUI design tool, and database schema designer, and supports most major revision control systems. It is available in both a free "Community" edition as well as a paid commercial version.

Chapter 2

System Analysis

2.1 Introduction

This Chapter Presented that analysis of our system through how we collect data , requirement to our system , Gantt chart ,pert chart and use case diagram.

2.2 Data Collection

We made an interview with some instructors and we asked them some questions such as the following :

- As an instructor what are the problems that face you in data entering process?
- it's impossible to enter data of each student in each subject in the same day .
- Waste the time.
- I use lots of paper to keep data of all students in many subjects.

2.3 The Programs Used

-  **SQL Server 2014**
-  **Visual Studio 2017**
-  **Microsoft Visio 2013**
-  **Microsoft Word 2010**

2.4 Development Tools

Tools Used

SQL Server 2014	a relational database management system developed by Microsoft
Microsoft Visio 2013	For designing use case diagram , ER Diagram , Gantt Chart
Microsoft Word 2010	Processing Our Documentation
Visual Studio 2017	database schema designer, and supports most major revision control systems

2.5 Gantt Chart

Gantt Chart Figure 2.1 is a graphical representation of a project that Shows each task as a horizontal bar whose length is proportional to its time for completion.

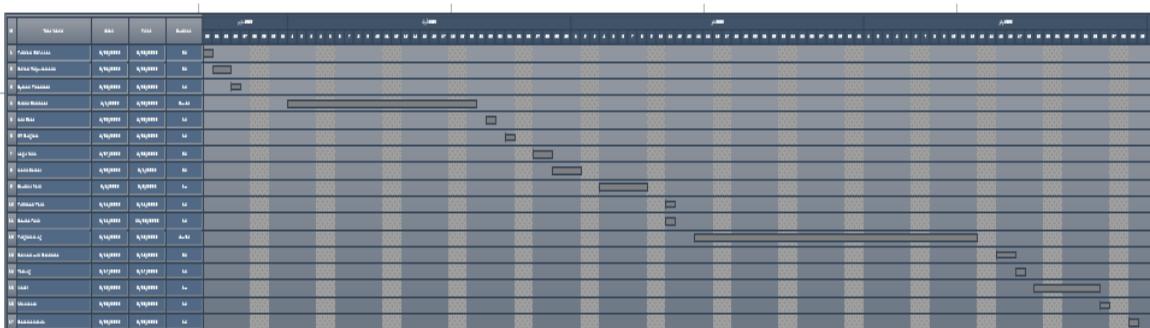
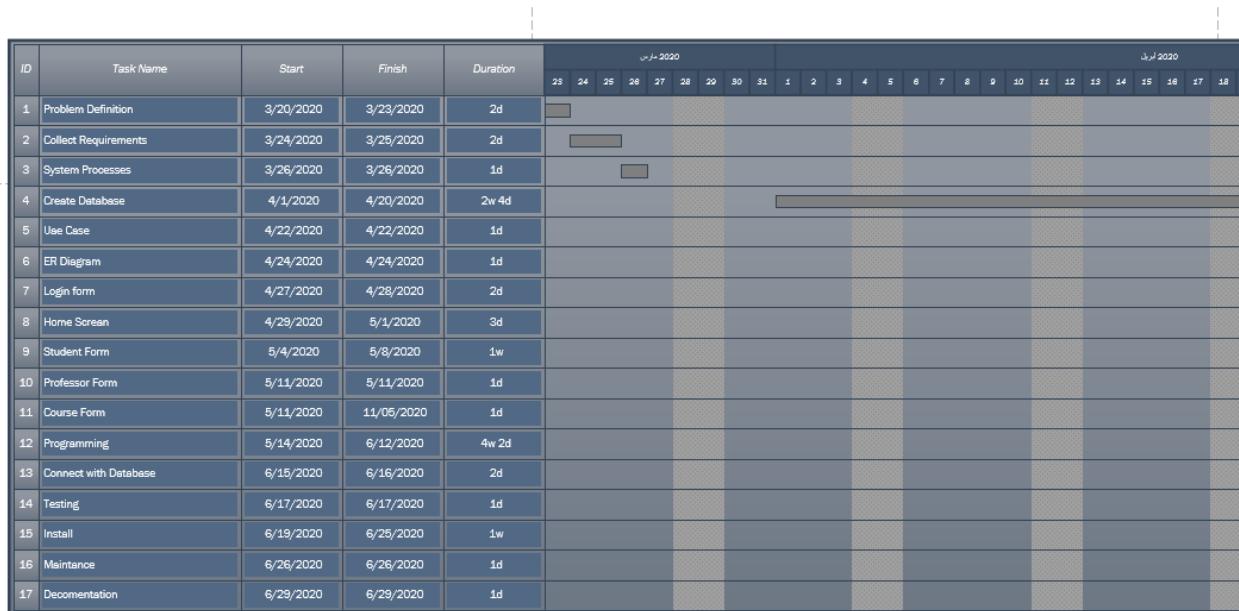


Figure 2.1 Gantt Chart

2.6 Use Case Diagram

Use cases define interactions between external actors and the system to attain particular goals.

- + A use case diagram at its simplest is a representation of a user's interaction with the system and depicting the specifications of a use case.
- + A use case diagram can portray the different types of users of a system and the various ways that they interact with they interact with the system.
- + A use case diagram summarizes all of the use cases (for the part of the system being modeled) together in one picture.
- + Typically, the use diagram is drawn early on the SDLC.

A use case diagram **Figure 2.2** is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. A use case diagram can identify the different types of users of a system and the different use cases and will often be accompanied by other types of diagrams as well. The use cases are represented by either circles or ellipses.

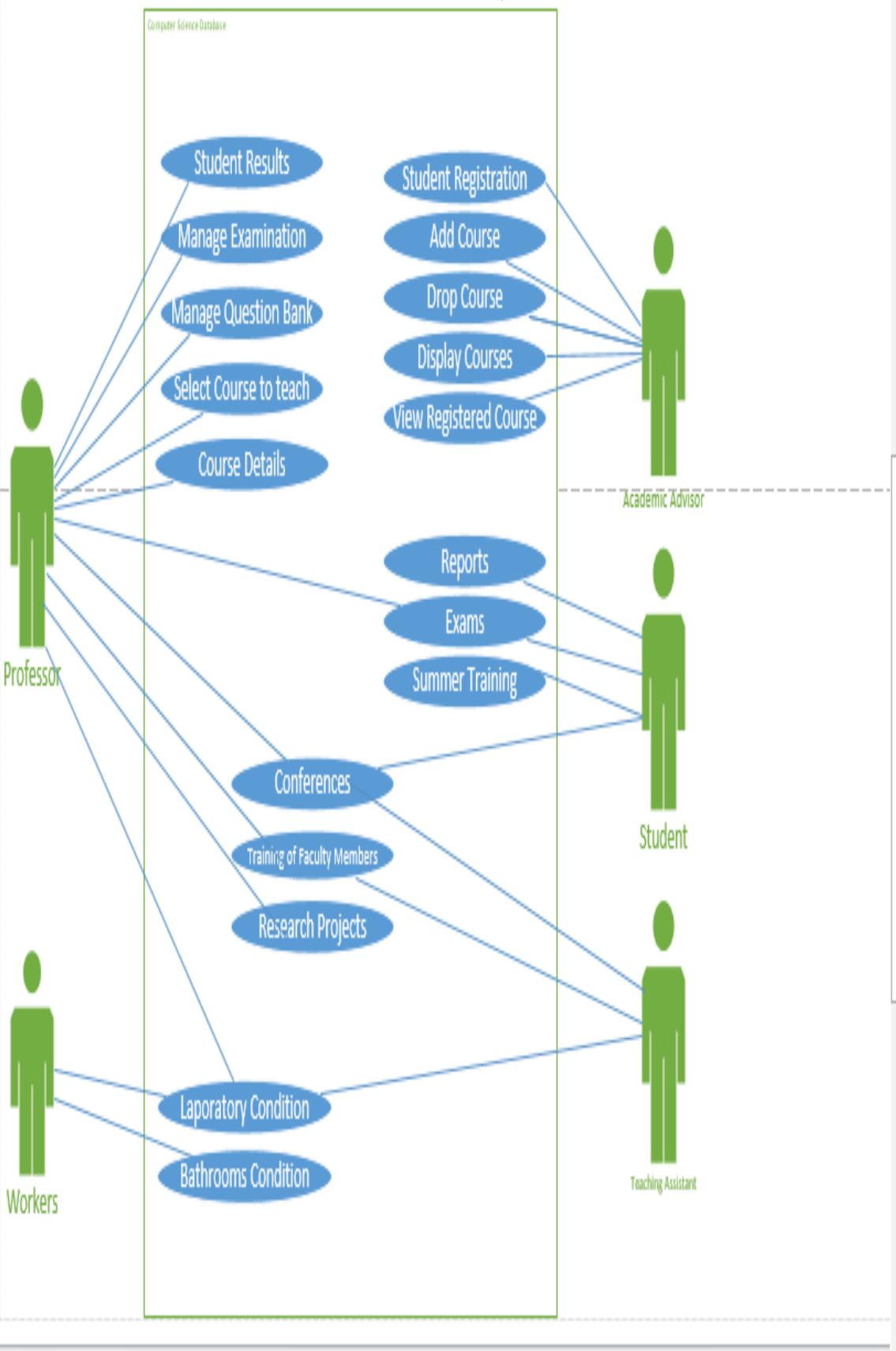


Figure 2.2 Use Case Diagram

2.7 Pert Chart

Pert Chart Figure 2.3 is a project management tool used to schedule, organize, and coordinate tasks within a project. It is basically a method to analyze the tasks involved in completing a given project, especially the time needed to complete each task, and to identify the minimum time needed to complete the total project.



Figure 2.3 Pert chart

Chapter 3

Used Technologies & Design

3.1 Introduction

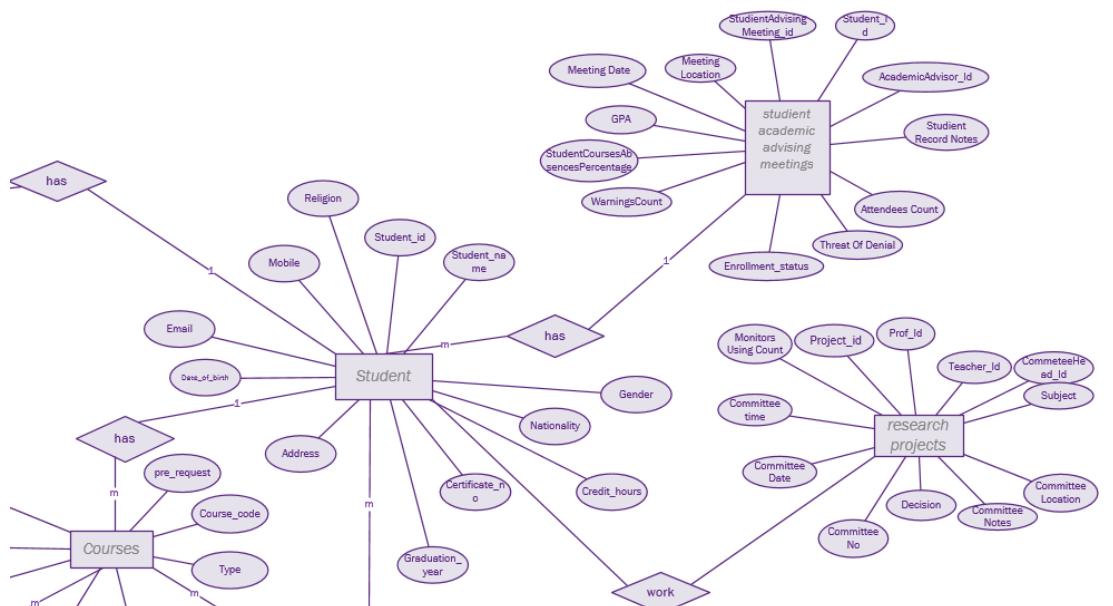
This Chapter present the design of our system (database design and design interface)

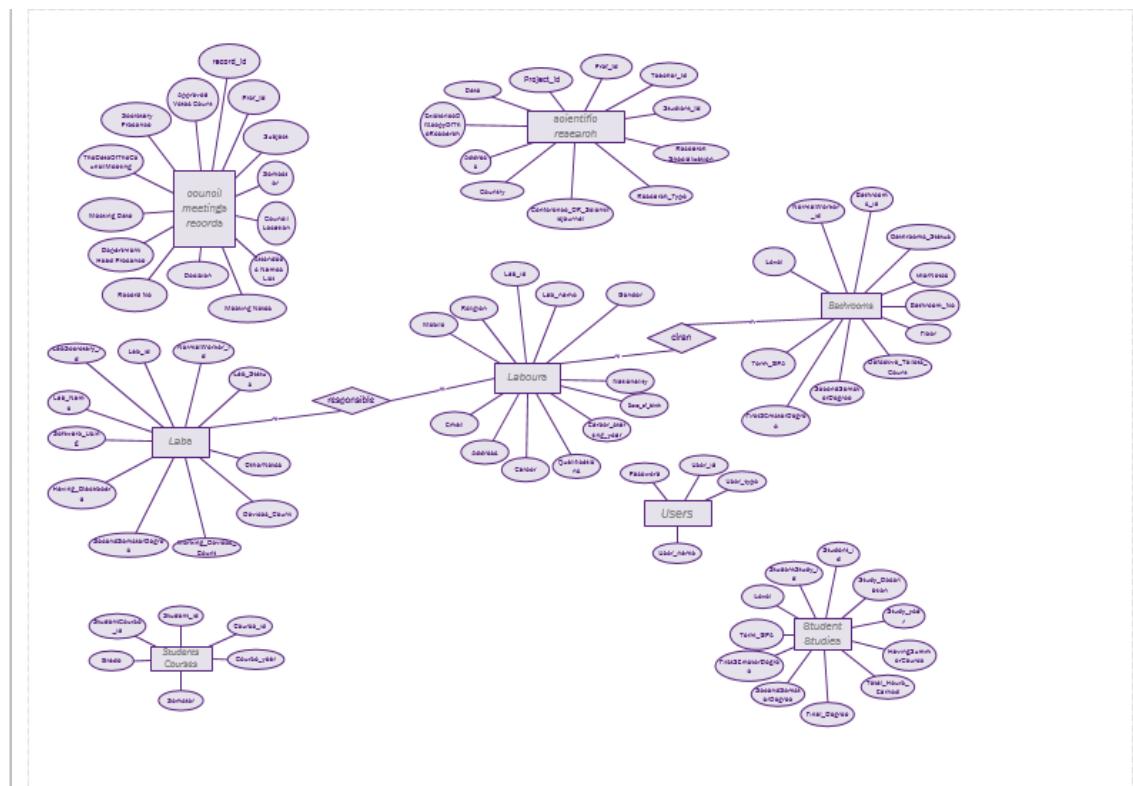
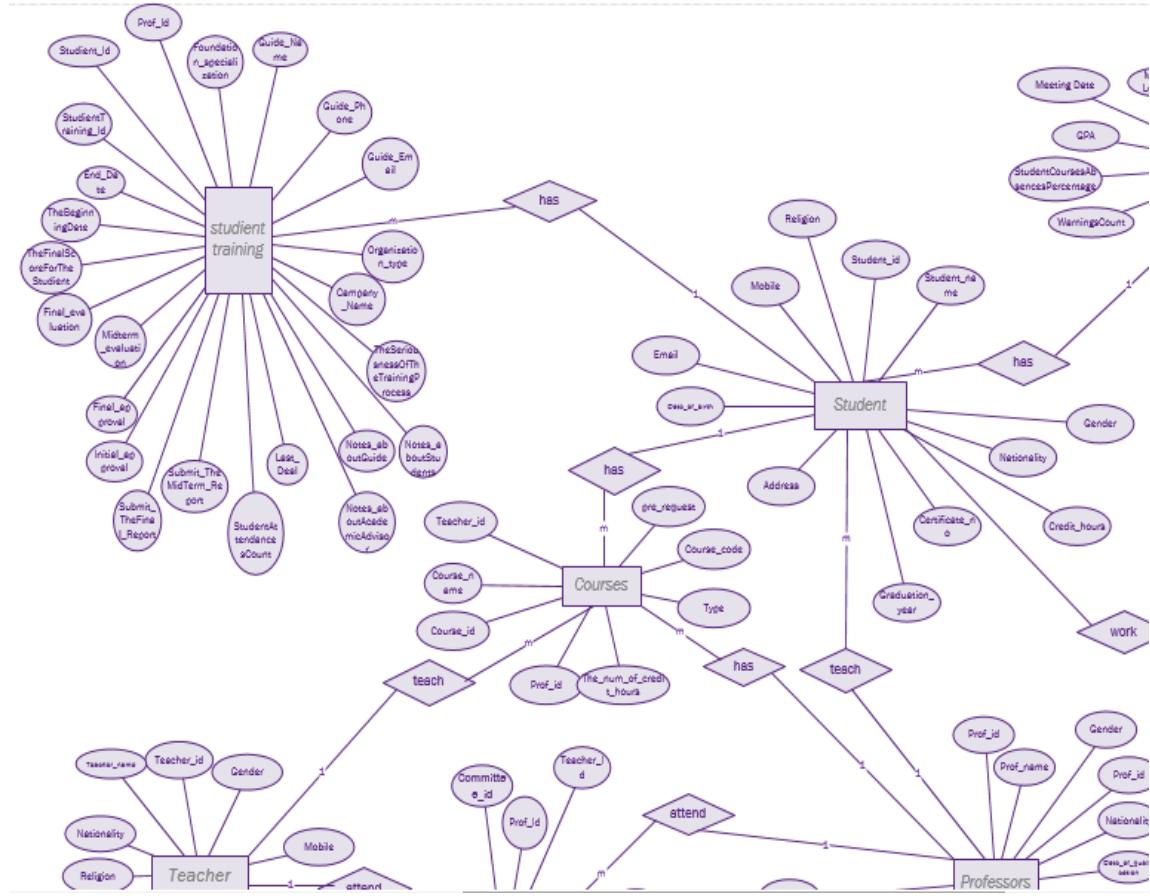
3.2 Database Design

We use SQL server and Visual Studio.

3.3 ER Diagram

An entity relationship model (ER model) describes inter related things of interest in a specific domain of knowledge. An ER model is composed of entity type (which classify the things of interest) and specifies relationships that can exist between instances of those entity type.





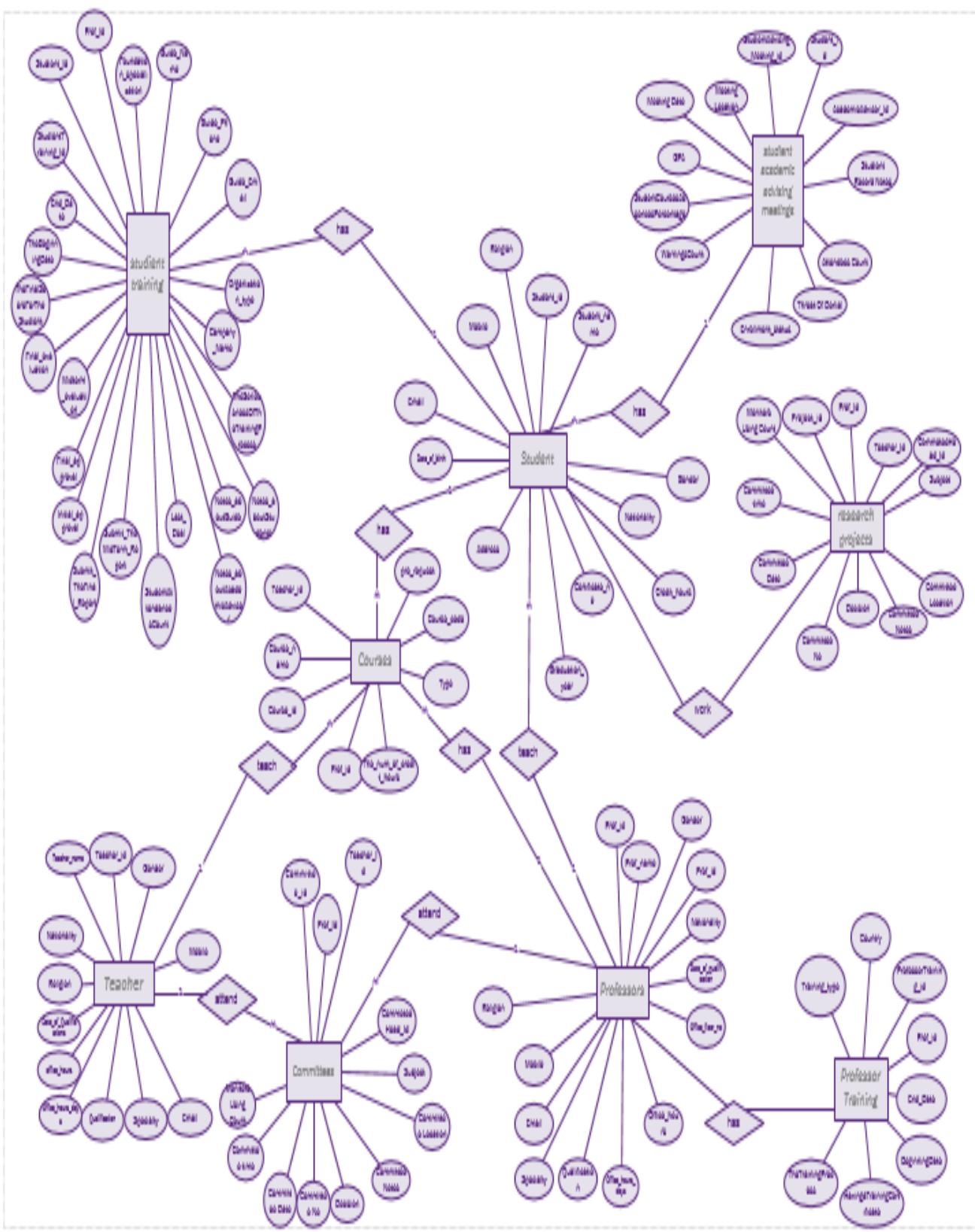


Figure 2.4 ER Diagram

3.4 System interface Design

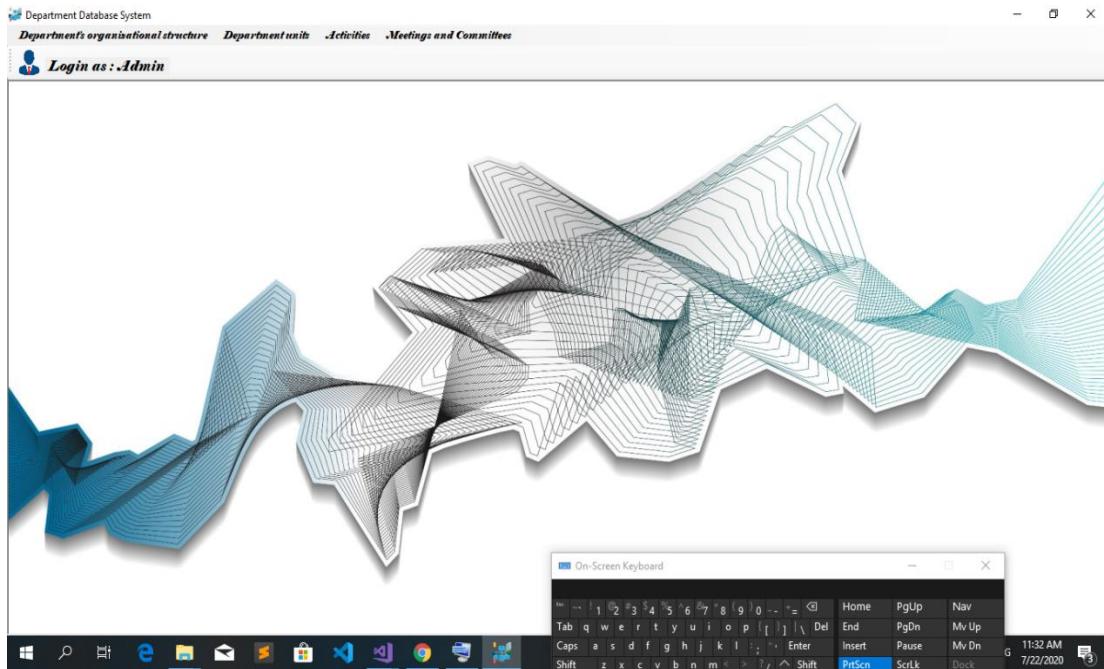
In the following we will present the interface design of our application.

Welcome to log in

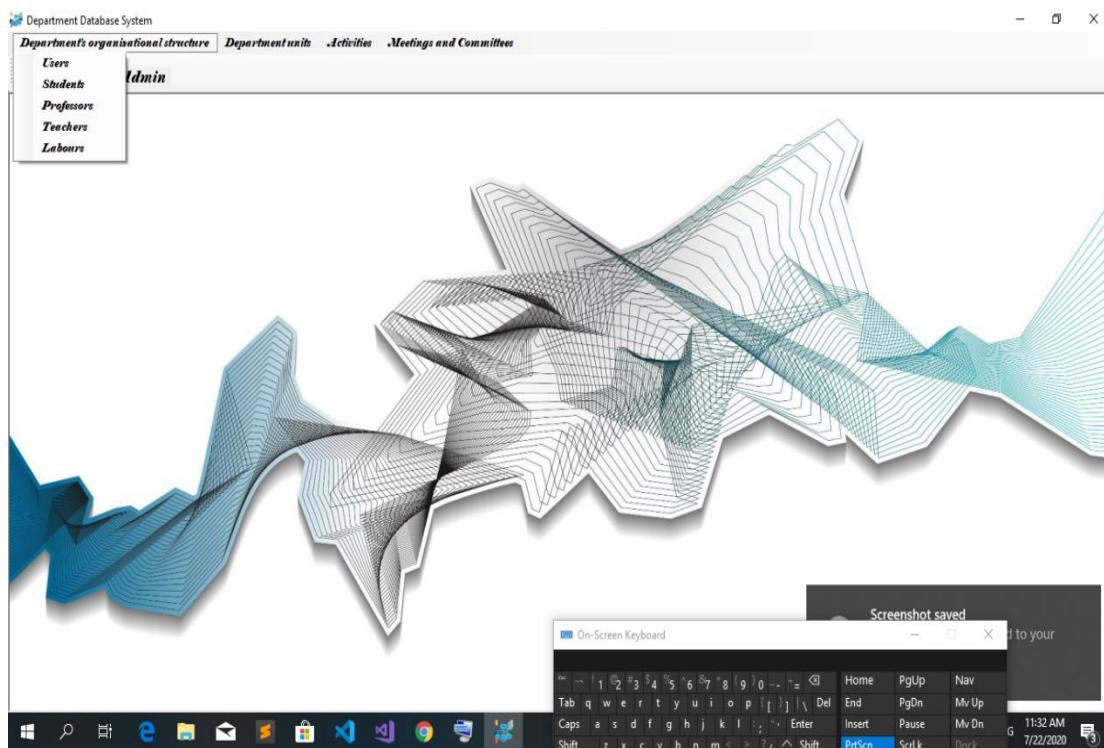


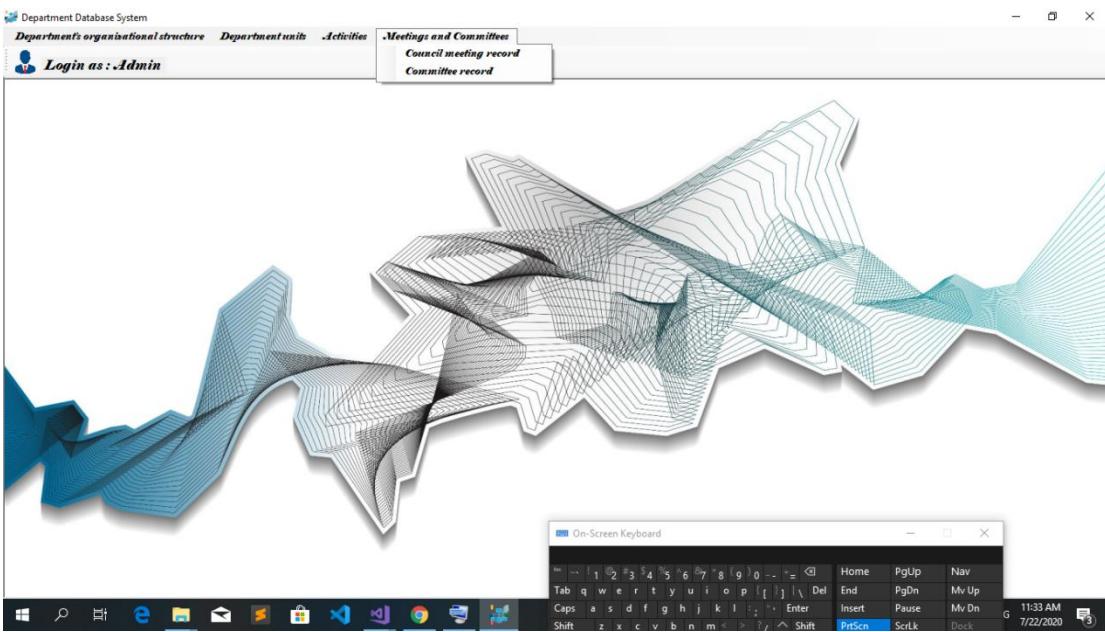
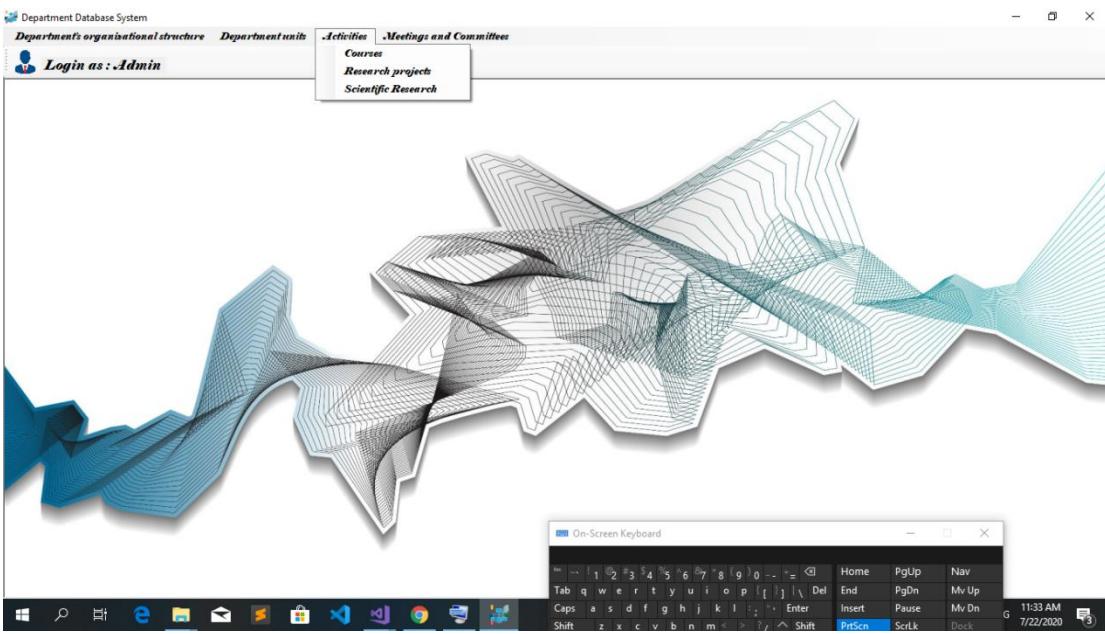
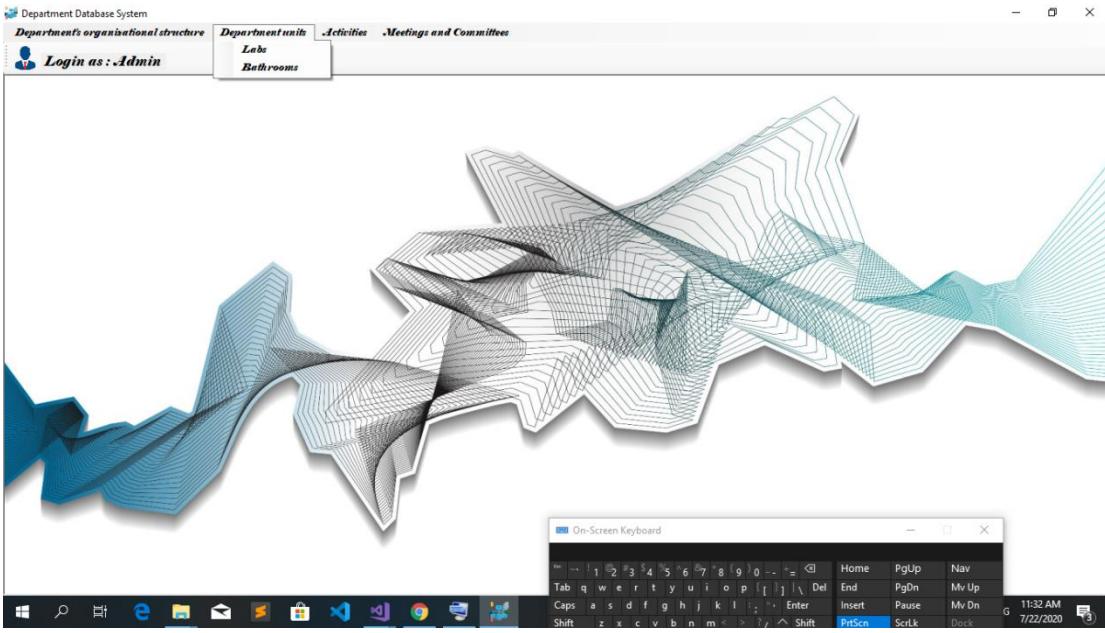
3.1Form1:Login

Login as Admin

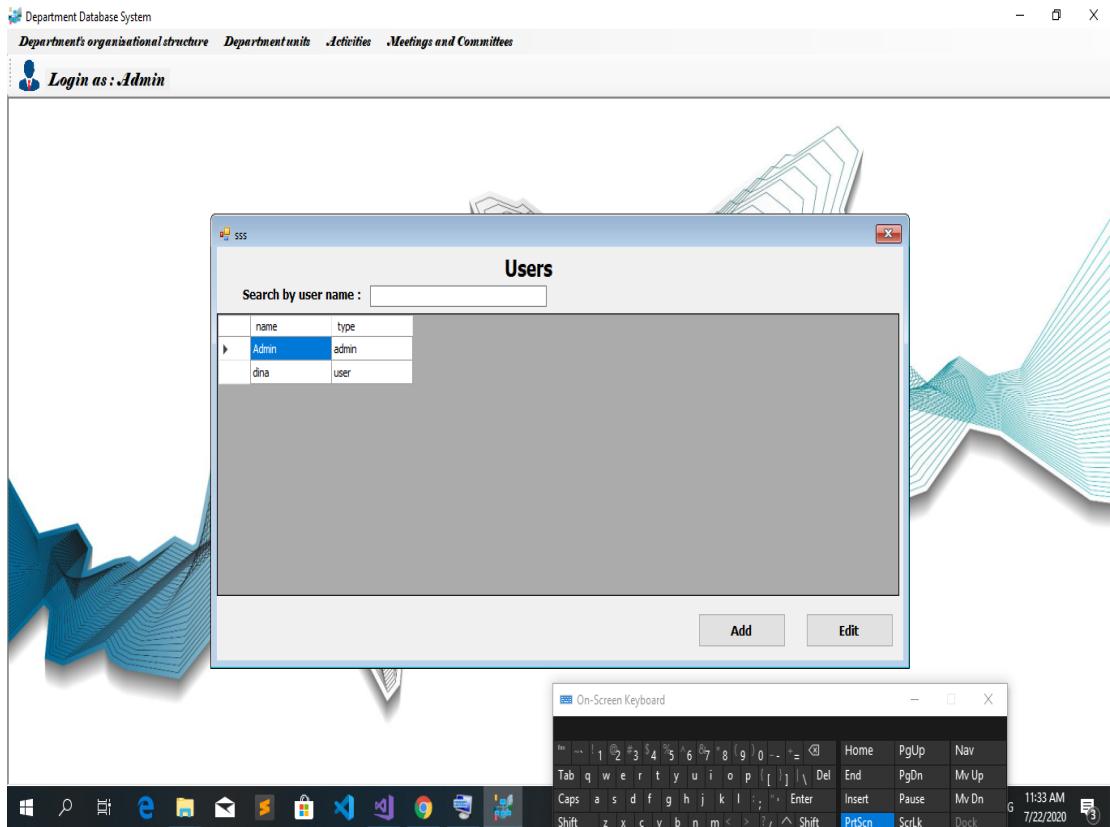


3.2 Form12:Home Page



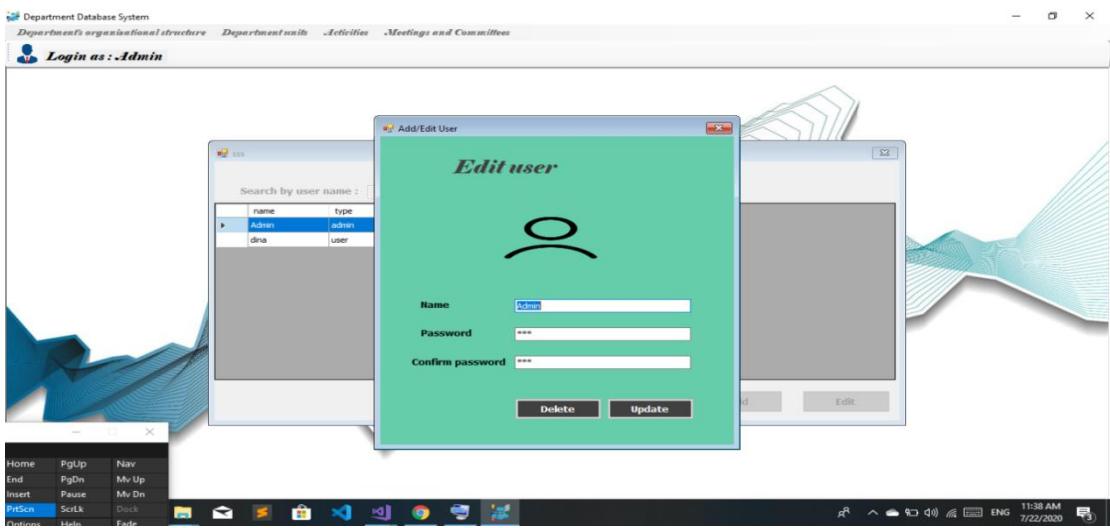


- Add , update and delete users
- Search by user name



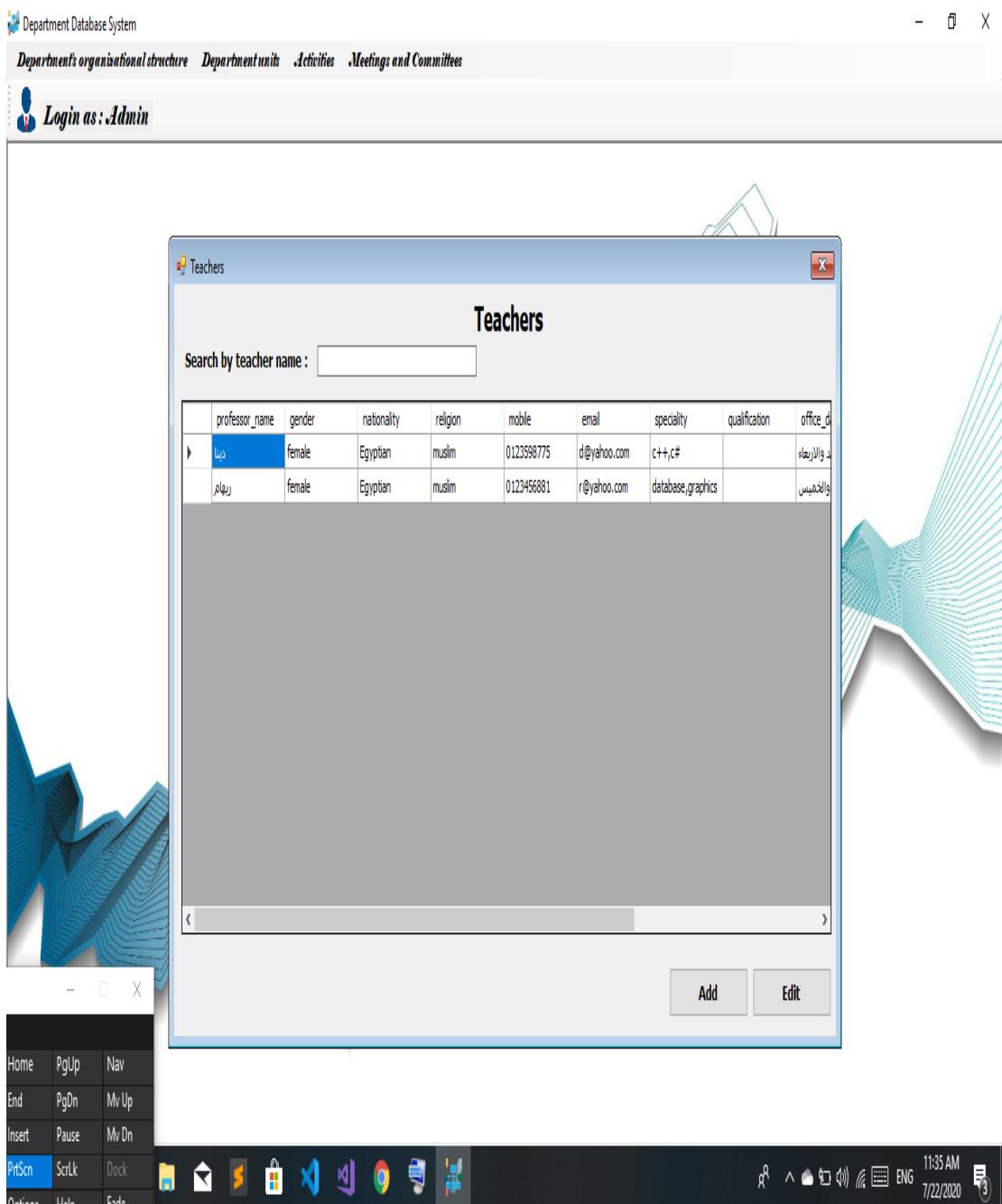
3.3 Form2:Users

- Edit user
- Update and delete password



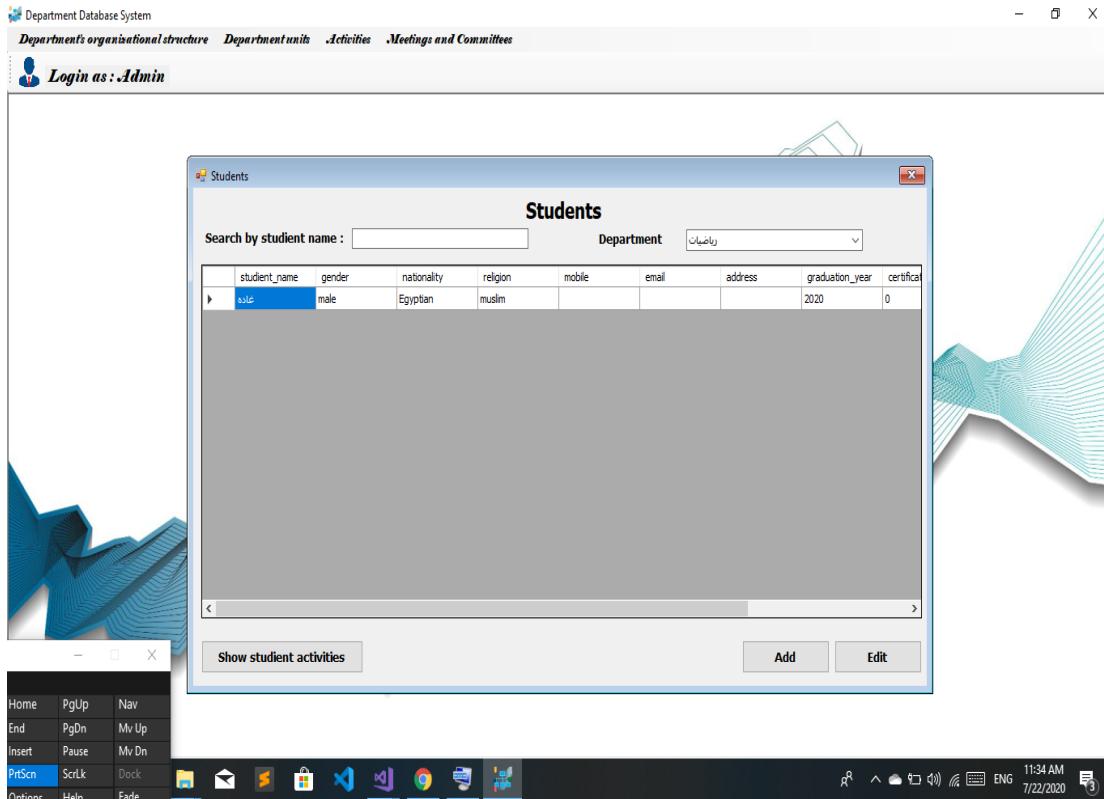
Edit user

- Add ,Update and Delete Teachers
- Search by Teacher Name

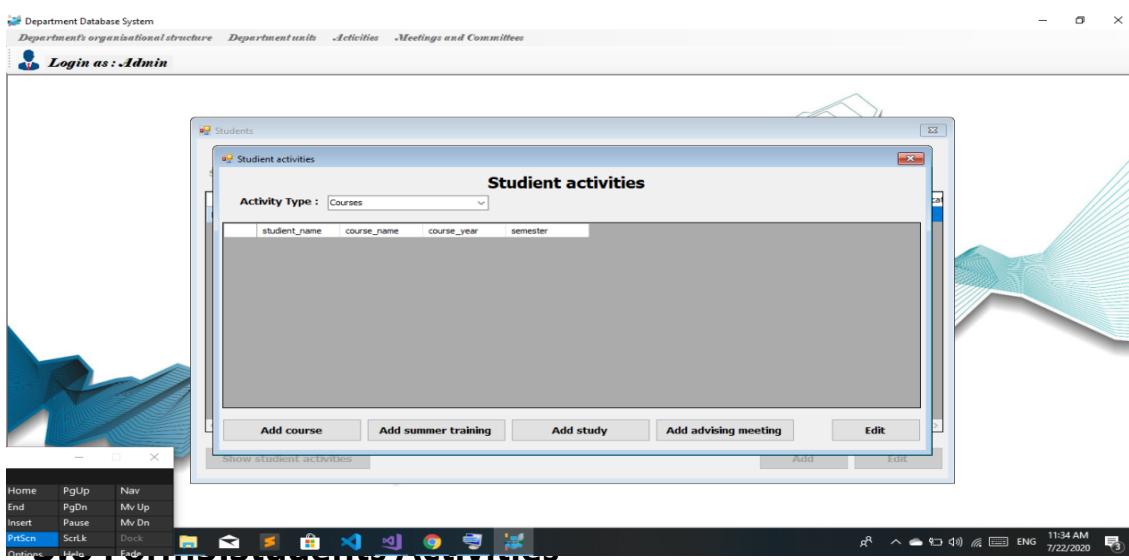


3.4 Form3:Teachers

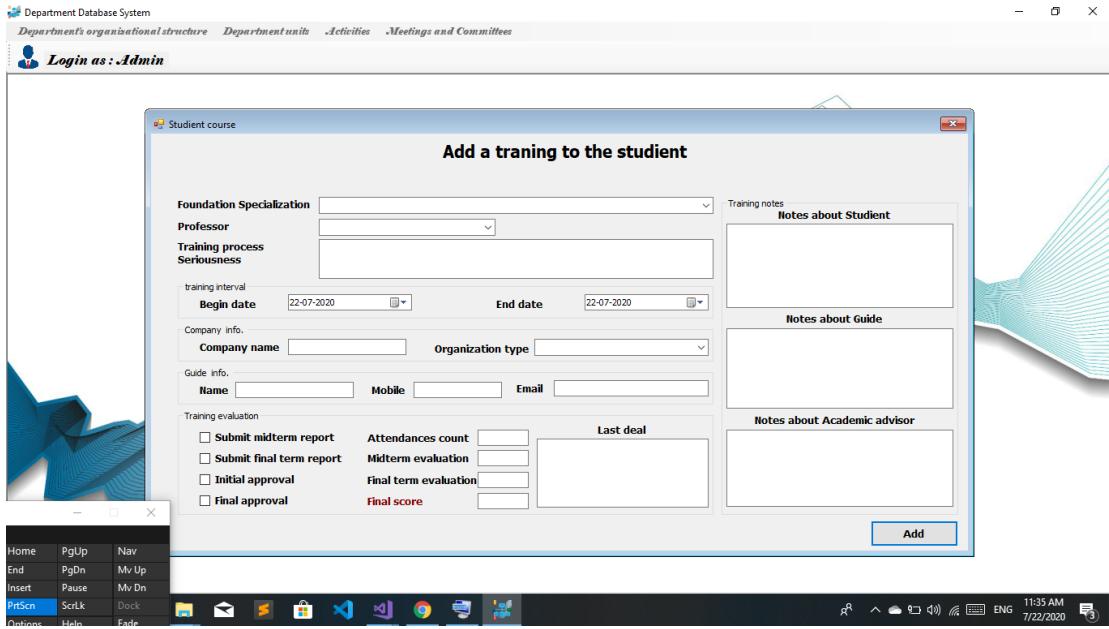
- Add and Update ,Delete Students .
- Search by Students Name.
- Add Student Activities.



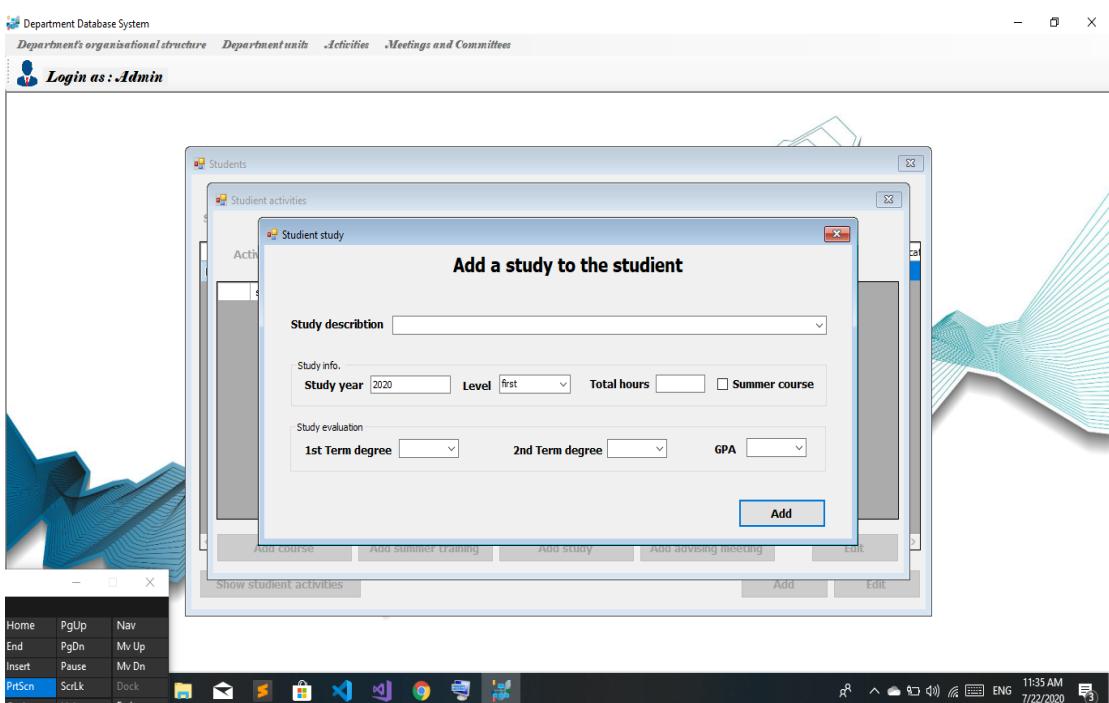
3.5 Form4:Students



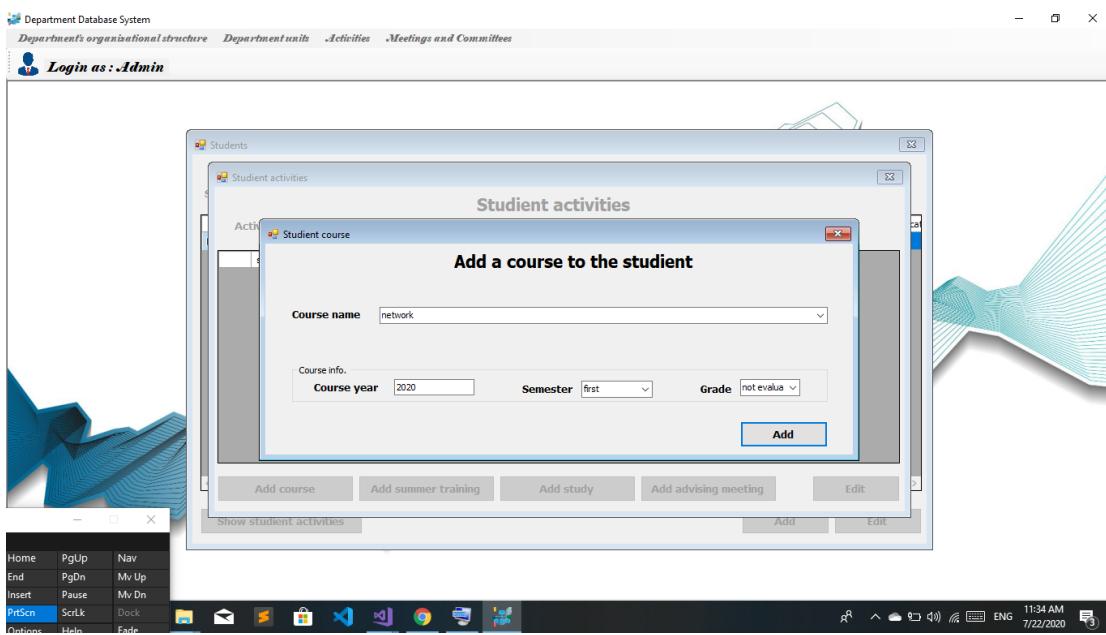
3.6 Form5:Students Activities



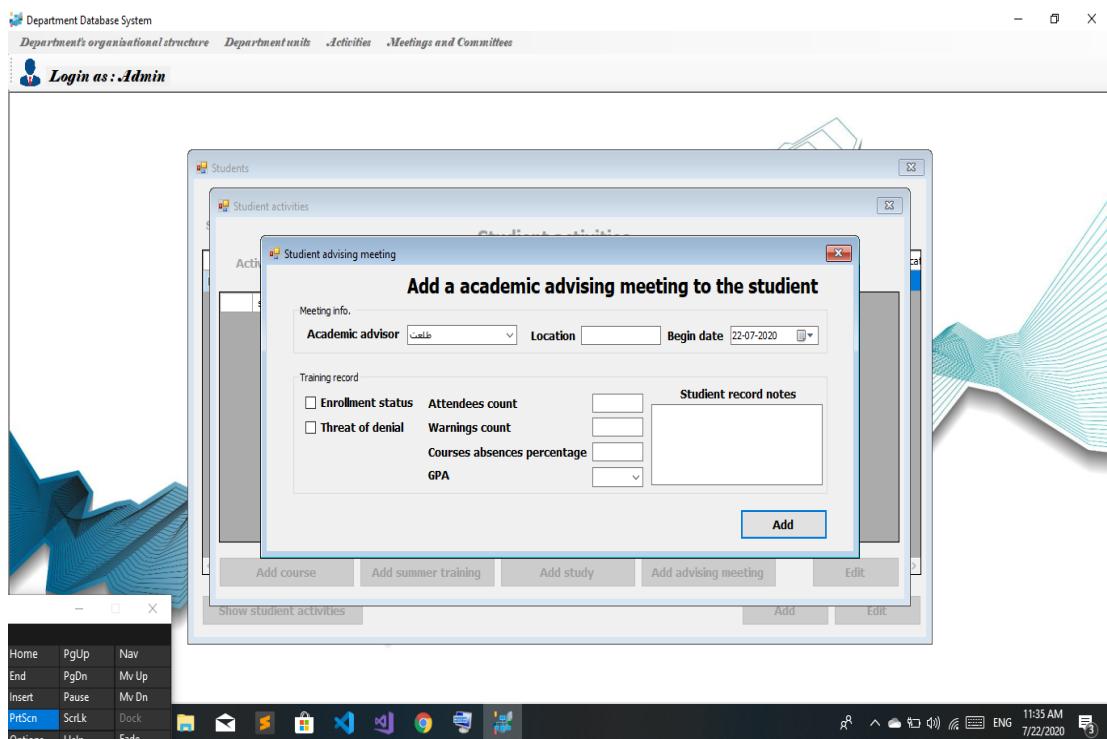
3.7 Form19: Add Student Training



3.8 Form20: Add Student Study

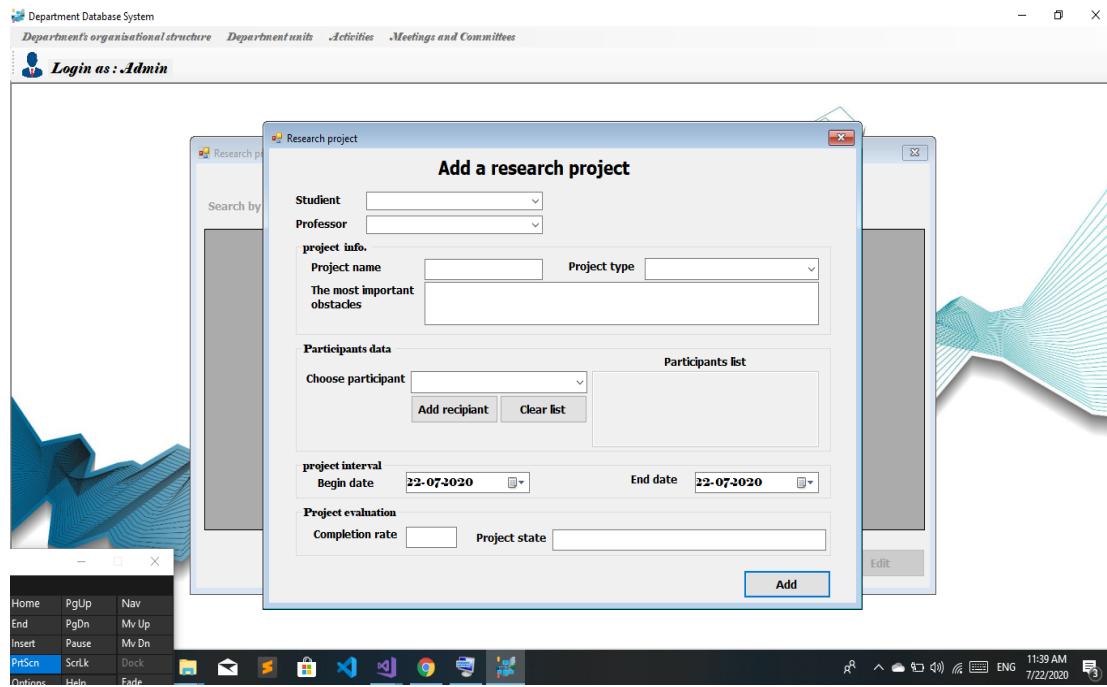


3.9 Form21: Add Student Course

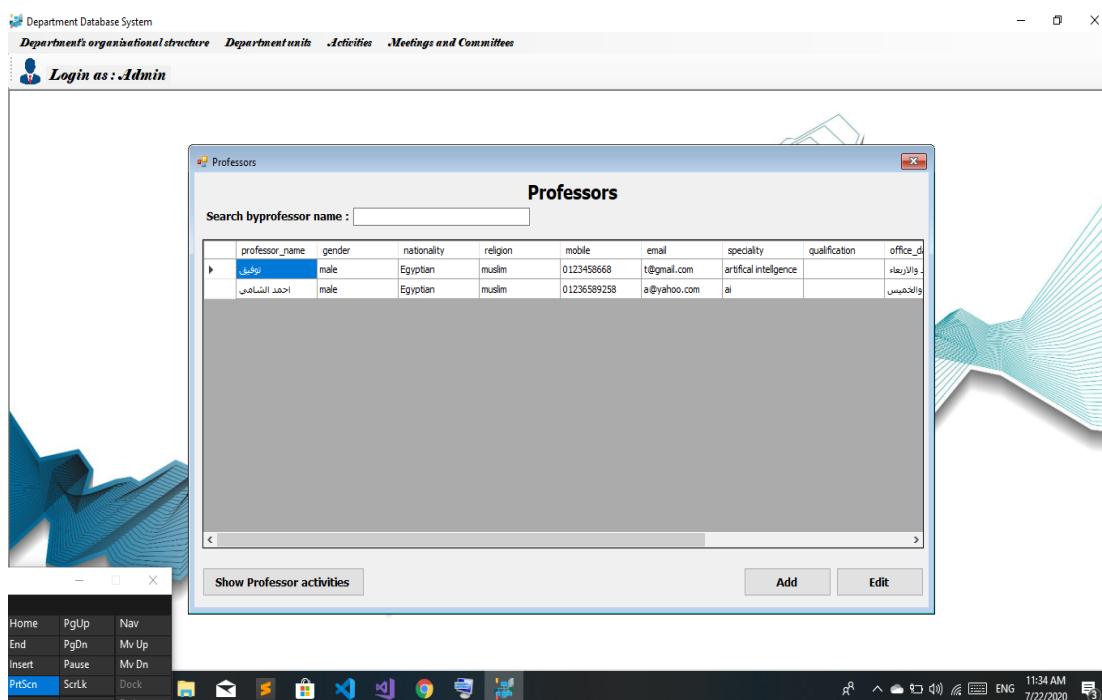


3.10 Form22: Add Student Advising Meeting

➤ Add ,delete and update Research Project

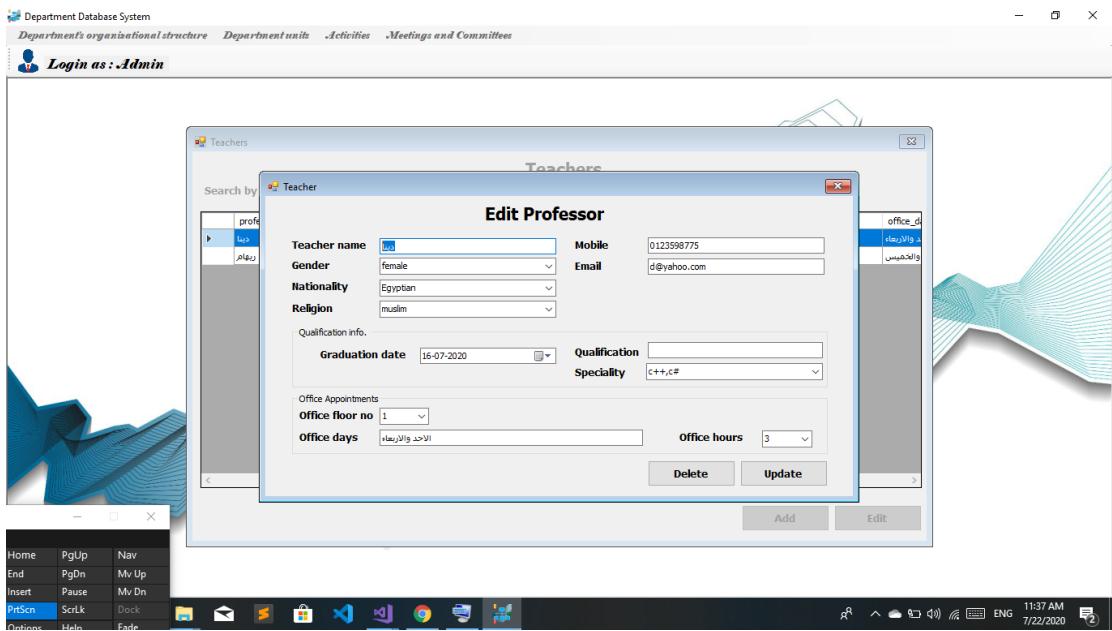


3.11 Form7:Research Project



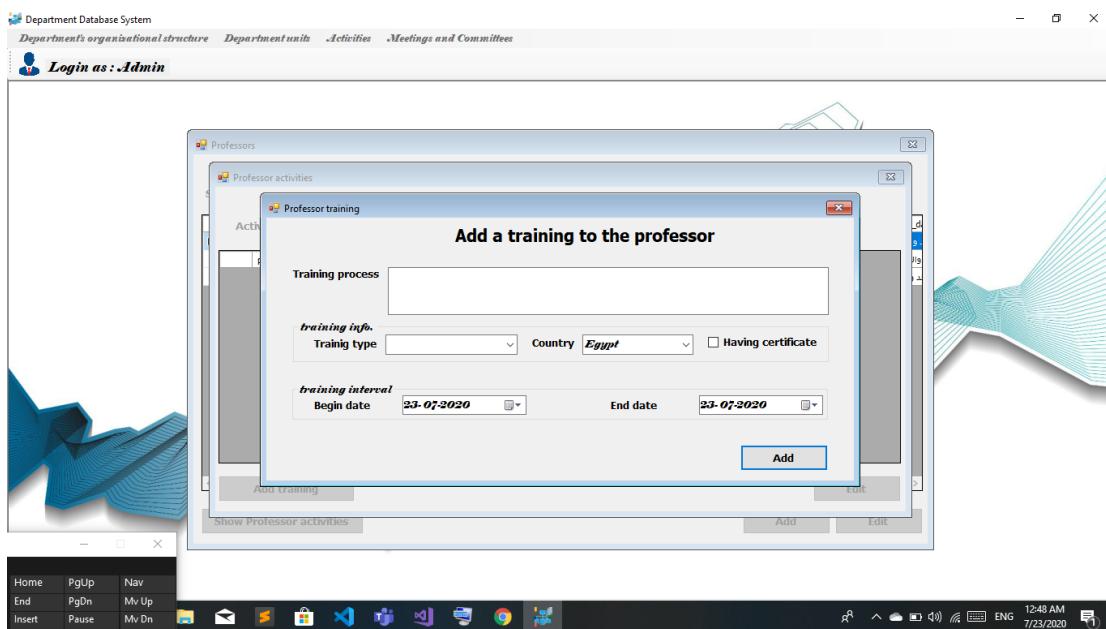
3.12 Form8:Professors

➤ Add ,delete and update Professors Activities

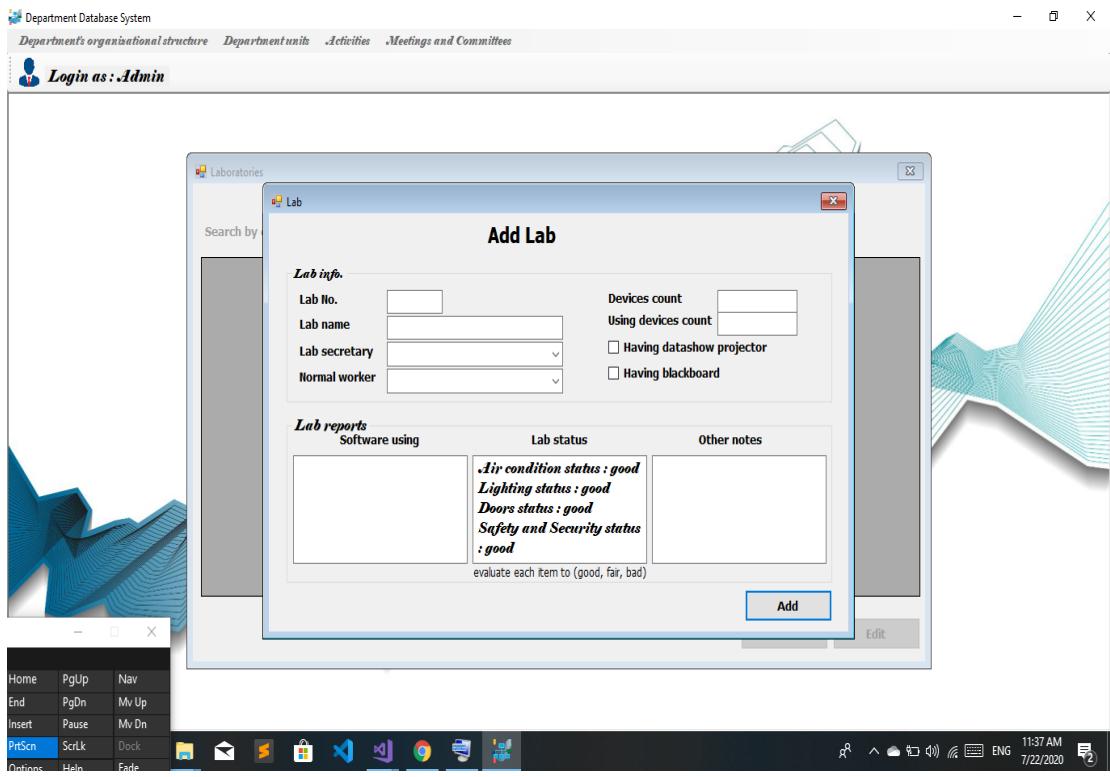


3.13 Form9:Professors Activities

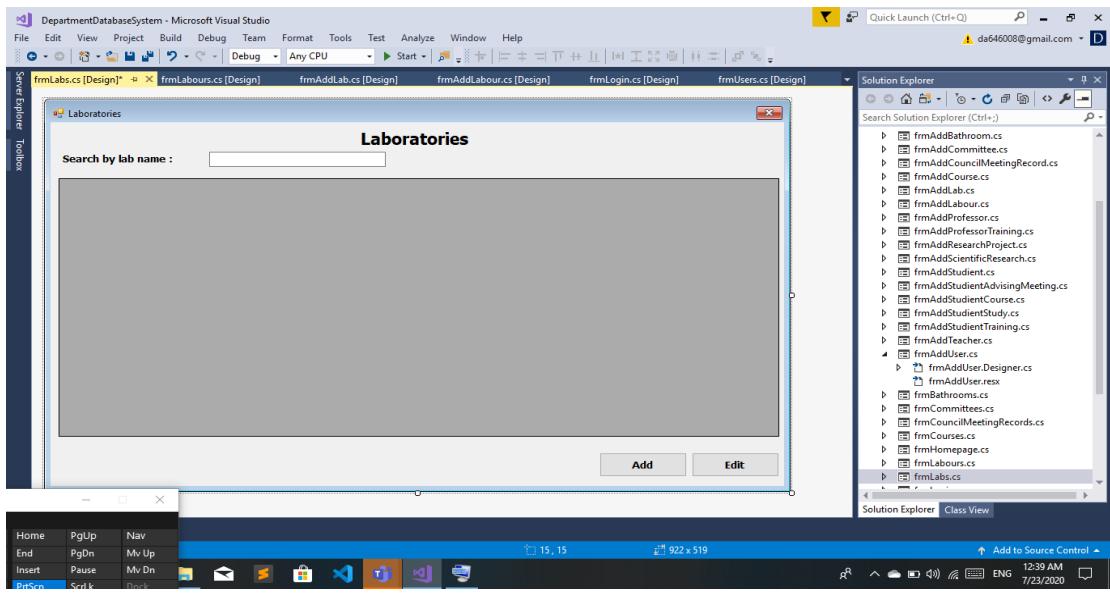
➤ Add training to professors.



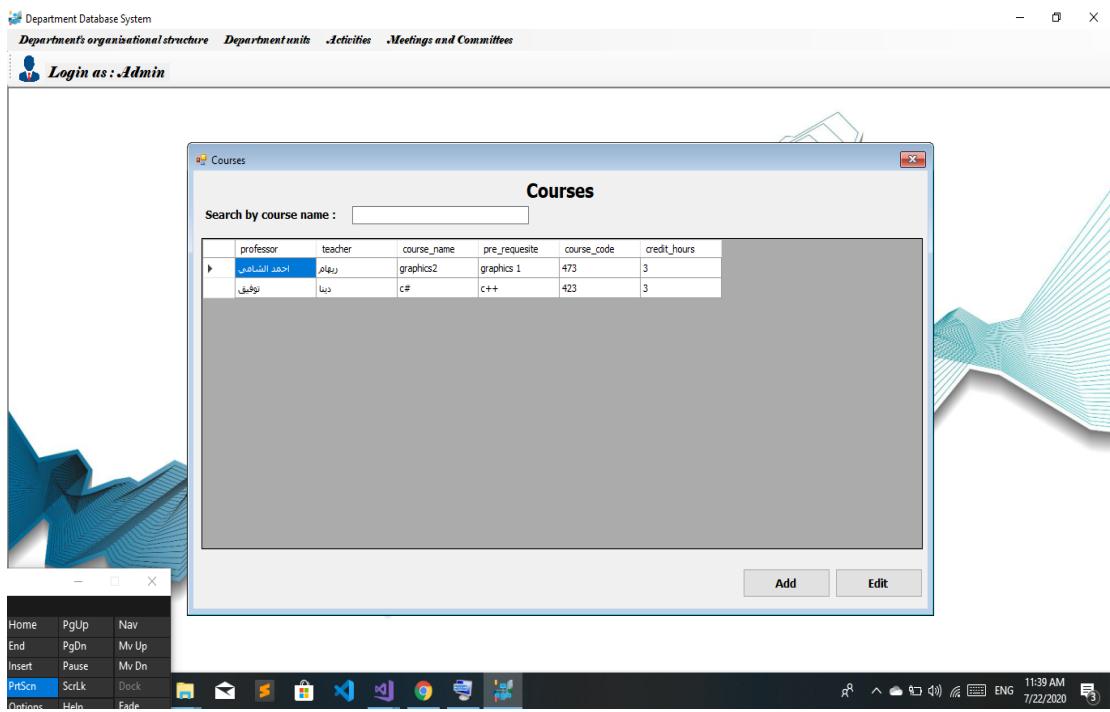
Professors Training



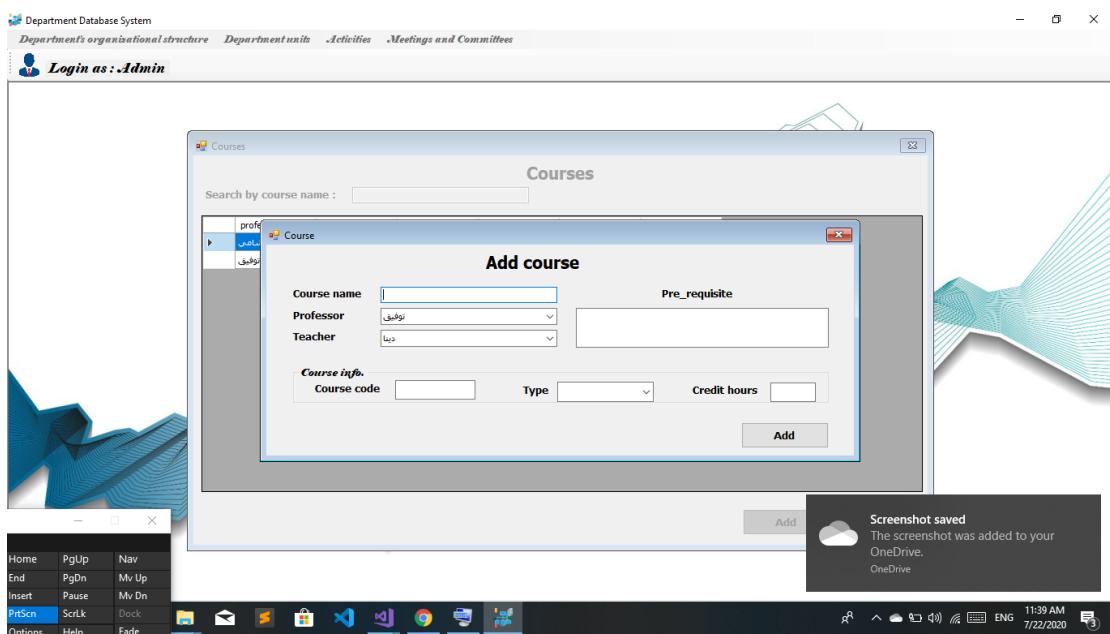
3.14 Form10:Labs

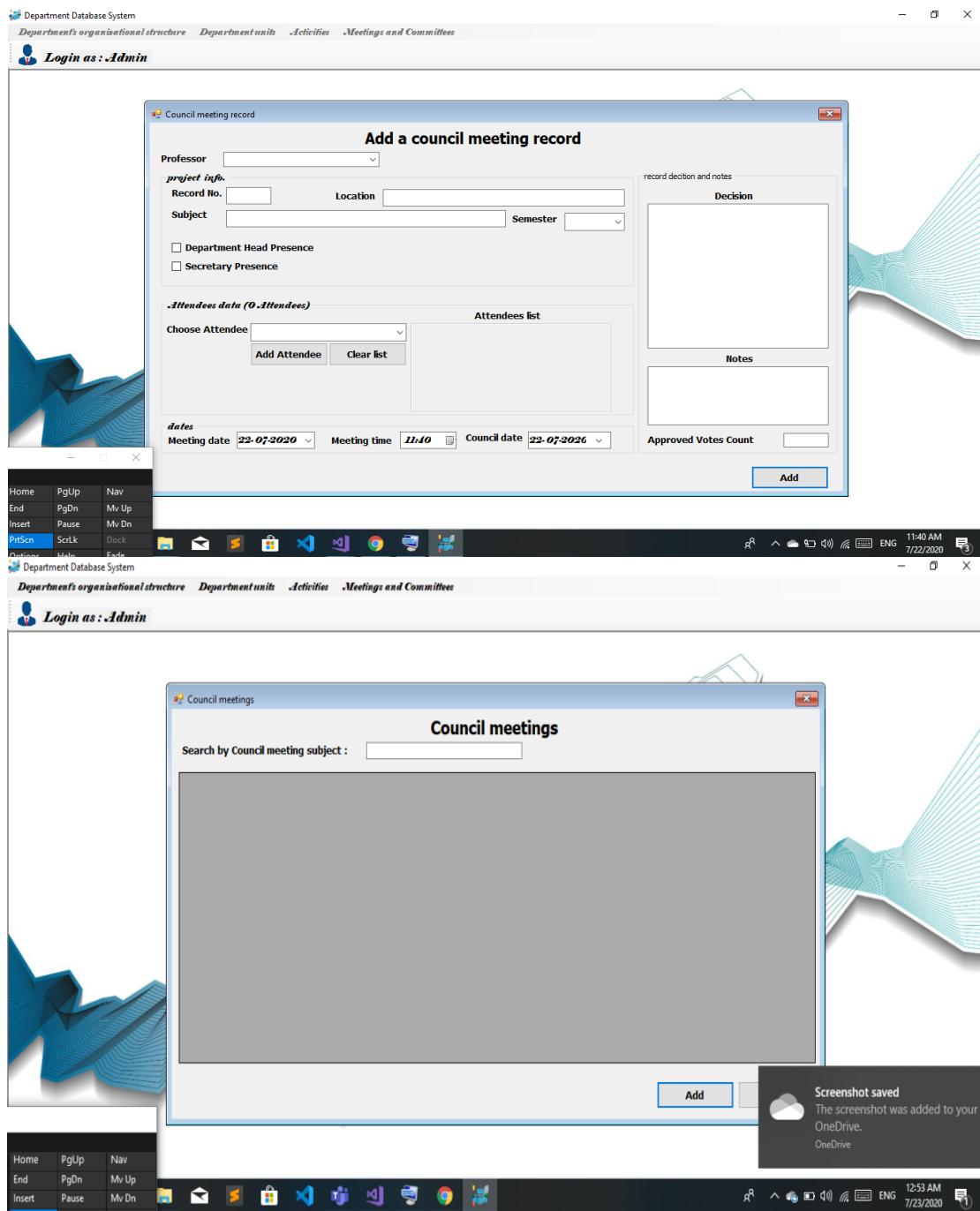


3.15 Form11:Labour

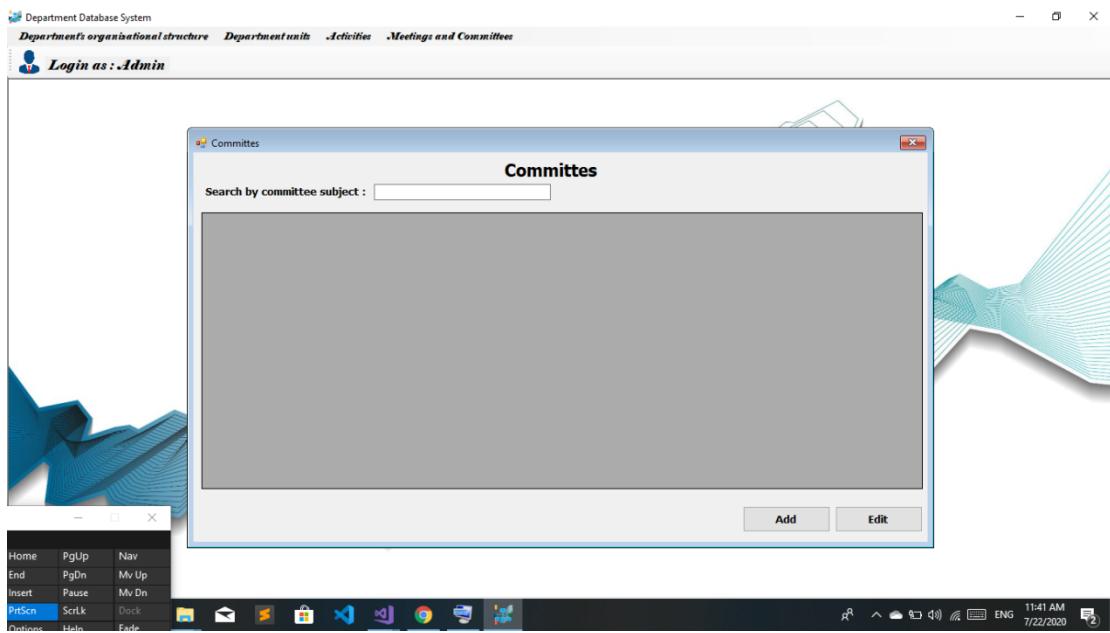


3.16 Form13:Courses

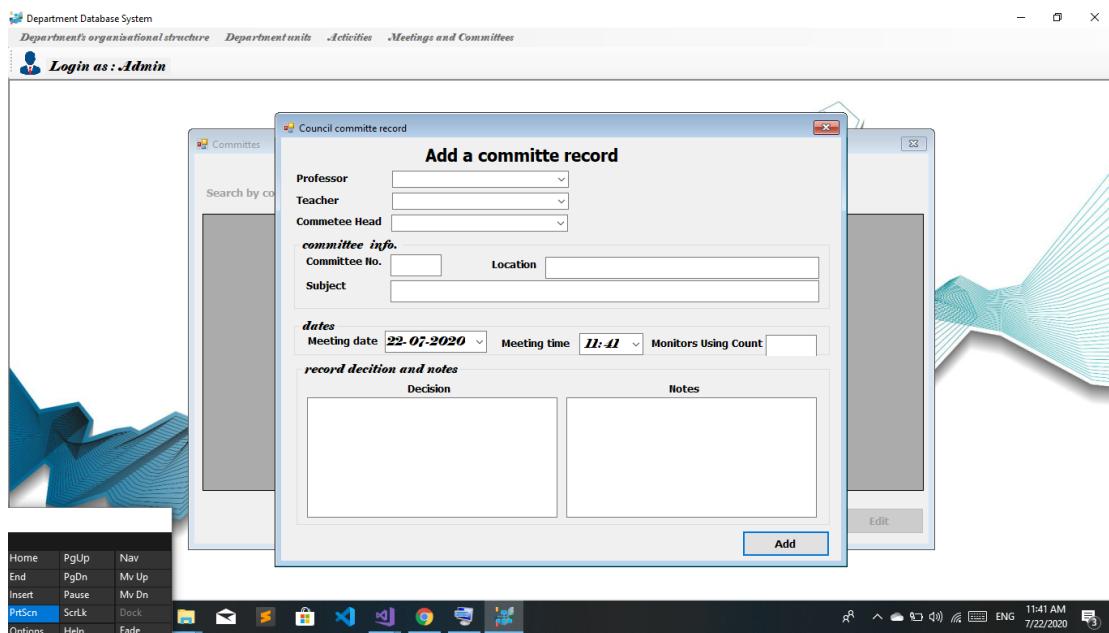




3.17 Form14:Council Meeting Records

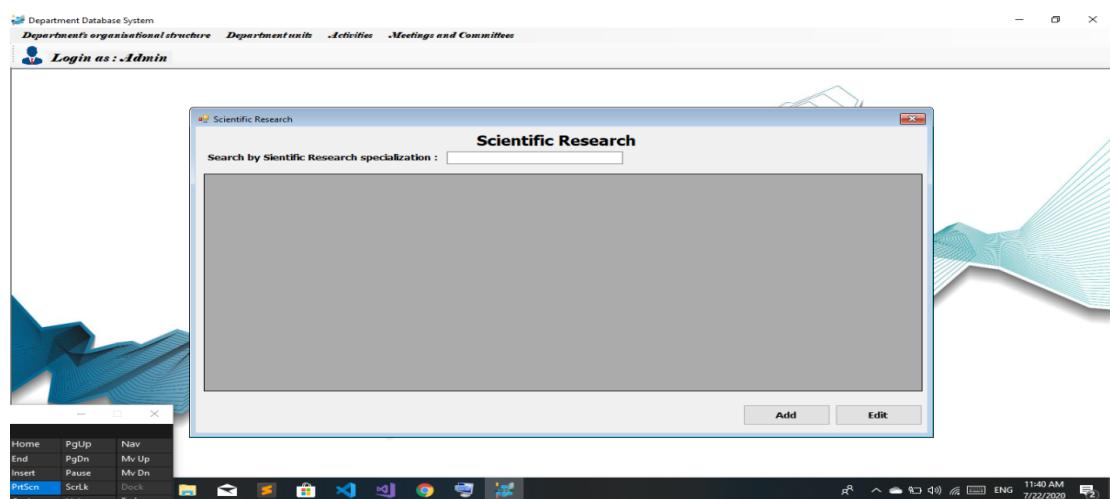
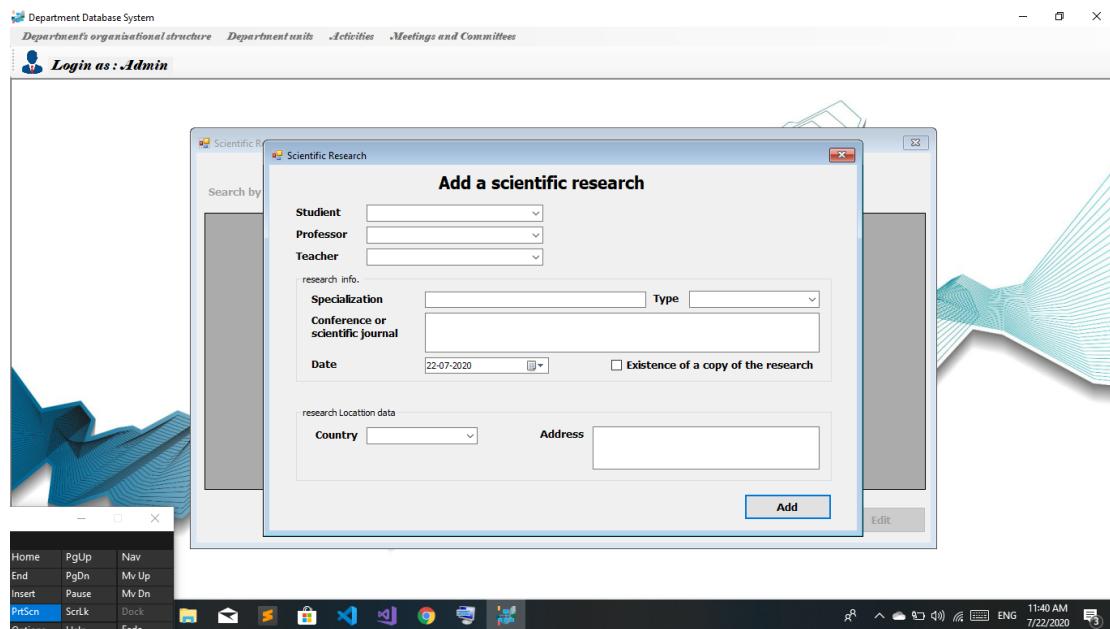


3.18 Form15:Committees



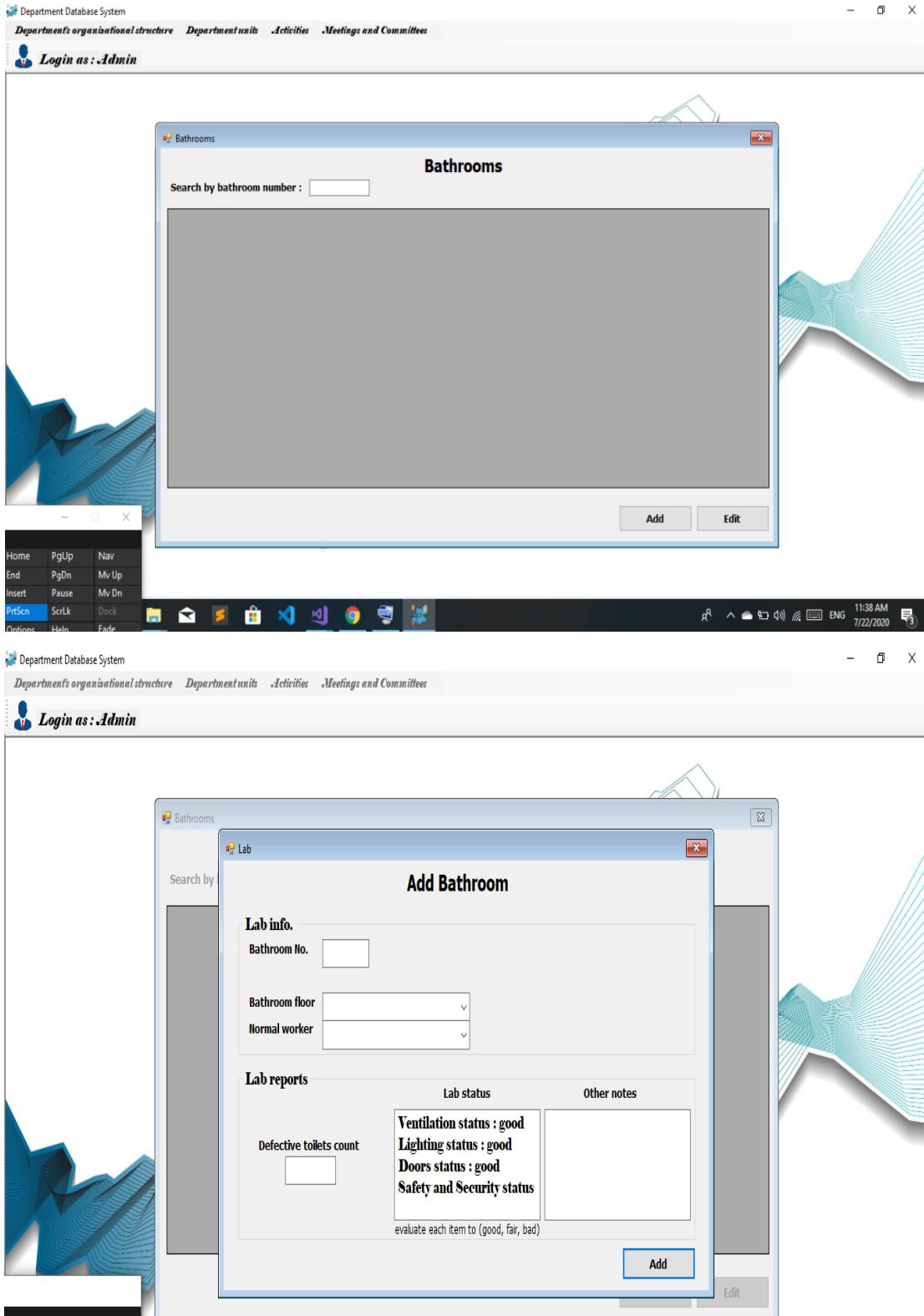
3.19 Form14:Add a committees record

➤ Add ,edit ,search and delete Scientific Research



3.20 Form23: Add Scientific Research

- Search by Bathrooms number
- ADD Bathrooms
- Knowing Bathrooms statues



3.21 Add Bathrooms

3.22 Tables

Department Database System				
Des	From	To	Data Type	
Des 1	Fieldxx00	Fieldxx09	VARCHAR(255)	to insert string up to 255 characters
Des 2	Fieldxx10	Fieldxx14	VARCHAR(1020)	to insert string up to 1020 characters
Des 3	Fieldxx15	Fieldxx19	INTEGER	to insert integer number
Des 4	Fieldxx20	Fieldxx29	NUMERIC(18,0)	to insert float number
Des 5	Fieldxx30	Fieldxx37	DATE	to insert date
Des 6	Fieldxx38	Fieldxx40	TIME(0)	to insert time
Des 7	Fieldxx41	Fieldxx42	VARBINARY(MAX)	to store photos
Table01 users				
Field	Format	Caption	Container	Notes
Field 0100	نام	User Id		
Field 0101	نام	User type		
Field 0102	نام	User name		
Field 0103	نام	Password		
Table02 professors				
Field	Format	Caption	Container	Notes
Field 0200	str	Prof_Id		
Field 0201	str	Prof_name		
Field 0202	str	Gender		
Field 0203	str	Nationality		
Field 0204	str	Religion		
Field 0205	str	Mobile		
Field 0206	str	Email		
Field 0207	str	Specialty		
Field 0208	str	Qualification		
Field 0209	str	Office_hours_days		
Field 0215	int	Office_Hours		
Field 0216	int	Office_floor_no		
Field 0230	date	Date_of_Qualification		
Table03 teachers				
Field	Format	Caption	Container	Notes
Field 0300	str	Teacher_Id		
Field 0301	str	Teacher_name		
Field 0302	str	Gender		
Field 0303	str	Nationality		
Field 0304	str	Religion		
Field 0305	str	Mobile		
Field 0306	str	Email		
Field 0308	str	Qualification		
Field 0309	str	Office_hours_days		
Field 0315	int	Office_Hours		
Field 0316	int	Office_floor_no		
Field 0330	date	Date_of_Graduation		
Table04 students				
Field	Format	Caption	Container	Notes
Field 0400	str	Student_Id		
Field 0401	str	Student name		
Field 0402	str	Gender		
Field 0403	str	Nationality		
Field 0404	str	Religion		
Field 0405	str	Mobile		
Field 0406	str	Email		
Field 0407	str	Address		
Field 0415	int	Graduation year		
Field 0416	int	Certificate no		
Field 0417	int	Credit hours		
Field 0430	date	Date of birth		
Table05 labours				
Field	Format	Caption	Container	Notes
Field 0500	str	Labour_Id		
Field 0501	str	Labour_name		
Field 0502	str	Gender		
Field 0503	str	Nationality		
Field 0504	str	Religion		
Field 0505	str	Mobile		

Field 0506	str	Email		
Field 0507	str	Address		
Field 0508	str	Career		Normal worker/Lab secretary/Academic advisor
Field 0509	str	Qualification		
Field 0515	int	Career Starting Year		
Field 0530	date	Date of birth		
Table06	courses			
Field	Format	Caption	Container	Notes
Field 0600	str	Course_Id		
Field 0601	str	Prof_Id		
Field 0602	str	Teacher_Id		
Field 0603	long str	Course_Name		
Field 0610	str	Pre_requisite		
Field 0615	int	Course_Code		
Field 0616	int	Type		Optional/Mandatory(0/1)
Field 0617	int	TheNumberOfCreditHours		
Table07	student courses			
Field	Format	Caption	Container	Notes
Field 0700	str	StudentCourse_Id		
Field 0701	str	Student_Id		
Field 0702	str	Course_Id		
Field 0715	str	Course_year		
Field 0716	int	Semester		First_Semester/Second_Semester(1/2)
Field 0717	int	Grade		fail/fair/good/verygood/excellent(0/1/2/3/4)
Table08	student studies			
Field	Format	Caption	Container	Notes
Field 0800	str	StudentStudy_Id		
Field 0801	str	Student_Id		
Field 0802	str	Study_Description		
Field 0815	int	Study_year		
Field 0816	int	HavingSummerCourse		
Field 0817	int	Total_Hours_Earned		
Field 0818	int	Level		first/second/third/fourth(0/1/2/3)
Field 0820	decimal	Term_GPA		
Field 0821	decimal	FirstSemesterDegree		
Field 0822	decimal	SecondSemesterDegree		
Field 0823	decimal	Final_degree		
Table09	student training			
Field	Format	Caption	Container	Notes
Field 0900	str	StudentTraining_Id		
Field 0901	str	Student_Id		
Field 0902	str	Prof_Id		
Field 0903	str	Foundation_specialization		
Field 0904	str	Guide_Name		
Field 0905	str	Guide_Phone		
Field 0906	str	Guide_Email		
Field 0907	str	Organization_type		
Field 0908	str	Campany_Name		
Field 0910	long str	TheSeriousnessOfTheTrainingProcess		
Field 0911	long str	Notes_aboutStudents		
Field 0912	long str	Notes_aboutGuide		
Field 0913	long str	Notes_aboutAcademicAdvisor		
Field 0914	long str	Last_Deal		
Field 0915	int	StudentAttendancesCount		
Field 0916	int	Submit_TheMidTerm_Report		0/1
Field 0917	int	Submit_TheFinal_Report		0/1
Field 0918	int	Initial_approval		0/1
Field 0919	int	Final_approval		0/1
Field 0920	decimal	Midterm_evaluation		%
Field 0921	decimal	Final_evaluation		%
Field 0922	decimal	TheFinalScoreForTheStudent		
Field 0930	date	TheBeginningDate		
Field 0931	date	End_Date		
Table10	professor training			
Field	Format	Caption	Container	Notes
Field 1000	str	ProfessorTraining_Id		
Field 1001	str	Prof_Id		
Field 1002	str	Country		

Field 1003	str	training_type		
Field 1010	long str	TheTrainingProcess		
Field 1015	int	HavingatrainingCertificate		
Field 1030	date	TheBeginningDate		
Field 1031	date	End_Date		
Table11 labs				
Field	Format	Caption	Container	Notes
Field 1100	str	Lab_id		
Field 1101	str	LabSecretary_id		
Field 1102	str	NormalWorker_id		
Field 1103	str	Lab Name		
Field 1110	long str	Software Using		
Field 1111	long str	Lab Status		Air_condition;Lighting;Doors;SafetyandSecurity;Datashow_Projector;Hardware;Operating_System;Software;Internet
Field 1112	long str	OtherNotes		
Field 1115	int	Lab No		
Field 1116	int	Devices Count		
Field 1117	int	Working Devices Count		
Field 1118	int	Having Datashow Projector		
Field 1119	int	Having Blackboard		
Table12 bathrooms				
Field	Format	Caption	Container	Notes
Field 1200	str	Bathroom_id		
Field 1201	str	NormalWorker_id		
Field 1211	long str	Bathroom Status		Ventilation;Lighting;Doors;SafetyandSecurity;Disinfection
Field 1212	long str	OtherNotes		
Field 1215	int	Bathroom No		
Field 1216	int	Floor		
Field 1217	int	Defective Toilets Count		
Table13 student academic advising meetings				
Field	Format	Caption	Container	Notes
Field 1300	str	StudentAdvisingMeeting_id		
Field 1301	str	Student_Id		
Field 1302	str	AcademicAdvisor_Id		
Field 1303	str	Meeting Location		
Field 1310	long str	Student Record Notes		
Field 1315	int	Attendees Count		
Field 1316	int	Threat Of Denial		0/1
Field 1317	int	Enrollment_status		0/1
Field 1318	int	WarningsCount		
Field 1320	decimal	StudentCoursesAbsencesPercentage		
Field 1321	decimal	GPA		
Field 1330	date	Meeting Date		
Table14 council meetings records				
Field	Format	Caption	Container	Notes
Field 1400	str	record_id		
Field 1401	str	Prof_Id		
Field 1402	str	Subject		
Field 1403	str	Semester		
Field 1404	str	Council Location		
Field 1410	long str	Attendee Names List		0/1
Field 1411	long str	Meeting Notes		
Field 1412	long str	Decision		
Field 1415	int	Record No		
Field 1416	int	Department Head Presence		
Field 1417	int	Secretary Presence		
Field 1418	int	Approved Votes Count		
Field 1430	date	TheDateOfTheCouncilMeeting		
Field 1431	date	Meeting Date		
Field 1438	time	Meeting time		
Table15 Committees				
Field	Format	Caption	Container	Notes
Field 1500	str	Committee_id		
Field 1501	str	Prof_Id		
Field 1502	str	Teacher_Id		
Field 1503	str	CommeteeHead_Id		
Field 1504	str	Subject		

Field 1505	str	Committee Location		
Field 1510	long str	Committee Notes		
Field 1511	long str	Decision		
Field 1515	int	Committee No		
Field 1516	int	Monitors Using Count		
Field 1530	date	Committee Date		
Field 1538	time	Committee time		

Table16 research projects

Field	Format	Caption	Container	Notes
Field 1600	str	Project_id		
Field 1601	str	Student_Id		
Field 1602	str	Prof_Id		
Field 1603	str	Project Name		
Field 1604	str	Project_Type		
Field 1605	str	Project_State		
Field 1610	long str	Participants Names List		
Field 1611	long str	TheMostImportantObstacles		
Field 1620	decimal	Completion_Rate		
Field 1630	date	BeginingDate		
Field 1631	date	EndingDate		

Table17 scientific research

Field	Format	Caption	Container	Notes
Field 1700	str	Project_id		
Field 1701	str	Student_Id		
Field 1702	str	Prof_Id		
Field 1703	str	Teacher_Id		
Field 1704	str	Research Specialization		
Field 1705	str	Research_Type		
Field 1706	str	Conference OR ScientificJournal		
Field 1707	str	Country		
Field 1708	str	Address		
Field 1715	int	ExistenceOfAcopyOfTheResearch		
Field 1730	date	Date		

CHAPTER 4

IMPLEMENTATION

Introduction

In this chapter we present the prefabricated functions we used.

We used SQL to implement our system.

3.4 Students

- ✓ Knowing the personal data of the department students.
- ✓ Knowing the students 'contact information.

3.5 Students Activities

- ✓ Know the different types of activities.
- ✓ Knowing the names of students registered in activities.
- ✓ Know the dates of activities.

3.6 Form19:Add Student Training

- ✓ Institutional inventory.
- ✓ List the institutions specialties.
- ✓ List and know all cooperative training activities.
- ✓ Enumeration and follow-up of all student documents in cooperative training.
- ✓ Identify and identify defects in the training process.

3.11 Professors

- ✓ Knowing the number and dates of the department board minutes.

3.12 Professors Activities

- ✓ Knowing the Council's decisions.
- ✓ Determine the council number that includes a decision.

- ✓ Know the number and names of the voters voting yes to a decision.
- ✓ Knowing which of the criteria is beneficial to the decision.
- ✓ Knowing the matter that is beneficial to the decision.
- ✓ Standing on the training courses for faculty members to ensure their proper employment in the appropriate tasks.
- ✓ Follow up the training exercises for preparing annual reports and self-evaluation.

3.13 Labs

- ✓ Knowledge of laboratory data.
- ✓ Determine the required programs for the laboratory.
- ✓ Knowledge of laboratory supervisors.
- ✓ Knowing the decisions that benefit from the laboratory.

3.14 Form11:Labours

- ✓ Know the names of students belonging to an academic advisor.
- ✓ Knowing the name of the student's academic supervisor.
- ✓ Know the number and topics of the meetings as well as the decisions.
- ✓ Knowing the student's registration status.
- ✓ Knowing the courses the student has passed.
- ✓ Knowing the courses in which the student was registered.
- ✓ Knowing the remaining subjects for the student.
- ✓ Knowing the student's rate

3.16 Courses

- ✓ Knowing course data.
- ✓ Knowing the previous requirements of the courses.

- ✓ Knowing the parallel requirements of the courses.
- ✓ Knowledge of teaching and learning resources.
- ✓ Knowing the required programs.
- ✓ Knowing the required references.

3.17 Form14:Council Meeting Records

- ✓ Knowing the number and dates of the department board minutes.
- ✓ Knowing the Council's decisions.
- ✓ Determine the council number that includes a decision.
- ✓ Know the number and names of voters voting yes to a decision.
- ✓ Knowing which criteria are useful for the decision.
- ✓ Knowing the matter that benefits the decision.

3.18 Committees

- ✓ Knowledge of committee heads.
- ✓ Knowledge of committee members

3.19 Form14: Add a committees record

- ✓ Know the topics of the meetings of the various committees meetings.
- ✓ Know the attendance.
- ✓ Define the topics and decisions included in the committees
- ✓ Determine the dates and times of the committees.

3.20 Form23: Add Scientific Research

- ✓ Defining research projects for the department members.
- ✓ Contribute to counting the points that faculty members. can participate in the research in.

Chapter 5

Conclusion

5.1 Conclusion

We introduce this argument to document our project to enhance the electronic management of mathematics department by uploading database to server to facilitate communication with civil society institutions.

5.2 Future Work

- + improving database design
- + improving program forms
- + Adding other tables showing the details of the department

References

<https://www.tutorialspoint.com/sql/index.htm>

Fundamentals_of_Database_Systems,_6th_Edition book
[\(http://www.cvauni.edu.vn/imgupload_dinhkem/file/CSDL/Fundamentals_of_Database_Systems,_6th_Edition.pdf\)](http://www.cvauni.edu.vn/imgupload_dinhkem/file/CSDL/Fundamentals_of_Database_Systems,_6th_Edition.pdf)

<http://csharp.net-informations.com/data-providers/csharp-sql-server-connection.htm>

System.Data.SqlClientlibrary (<https://www.oreilly.com/library/view/adonet-in-a/0596003617/ch36.html>)

<https://www.tutorialspoint.com/csharp/index.htm>

<https://www.w3schools.com/cs/>