

EUROPEAN UNIVERSITY OF LEFKE

Faculty of Engineering

Department of Software Engineering



**COMP 337**  
**DATABASE MANAGEMENT**  
**SYSTEMS**

**TERM PROJECT**  
**DATABASE APPLICATION DEVELOPMENT**

Prepared by Ali Hikmet Keklik (180151) - Ali Can Doğan (180343)

Submitted to Dr. Ferhun Yorgancıoğlu

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# 1. INTRODUCTION

This project is about designing a simple University Management System using database management and programming language features. Basically, University Management System increases knowledge sharing between student and teacher and facilitates some useful operations. The system is managed by the Faculty Coordinator (detailed information in Users 1.3)

## 1.1 PROJECT GOAL

In this project, main goal is develop a simple University Management System application using modern programming tools and database management system.

## 1.2 LANGUAGES AND PROGRAMS

Programming Language	Database Management System	Compiler
C++	MySQL	Visual Studio 2019

## 1.3 USERS

There are 3 different users in this project. They have some authority which are;

- Faculty Coordinator:
  - Log in to the system
  - Add a new course
  - Add a new teacher
  - Add a new student
  - Assign courses to instructors (teaching)
  - Assign instructors to students (advisory)
- Instructor:
  - Log in to the system
  - See and update personal details
  - See the courses assigned
  - See course details (course info, list of students registered, etc.)
  - Register students to the courses
- Student:
  - Log in to the system
  - See and update personal details
  - See the courses registered
  - See the other students registered in the class

## 1.4 TASK DISTRIBUTION

- **There was continually communication and cooperation at all stages.**

Student No	Student Name	
180151	ALİ HİKMET KEKLİK	<ul style="list-style-type: none"><li>• Database process</li><li>• MySQL and Visual Studio Connection</li></ul>
180343	ALİ CAN DOĞAN	<ul style="list-style-type: none"><li>• Interface design</li><li>• Report design</li></ul>

## 2 VISUAL STUDIO 2019

### Why Visual Studio?

- It is free,
- It supports many programming languages,
- Syntax highlighting,
- Bracket-matching,
- Auto-indentation,
- Box selection,
- Snippets and more...



Lets create a new empty project for our system.

### 2.1 CREATE A PROJECT

**Get started**

- Clone a repository
- Open a project or solution
- Open a local folder
- Create a new project**

**CLR Empty Project (.NET Framework)**

**Configure your new project**

CLR Empty Project (.NET Framework) C++ Windows Console

Project name: University\_Management\_System

Location: C:\Users\user\source\repos

Solution name: University\_Management\_System

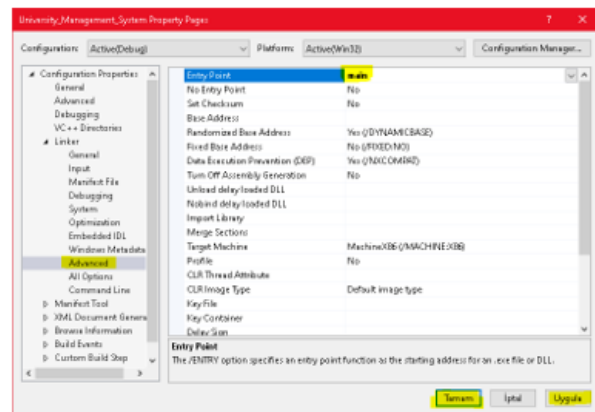
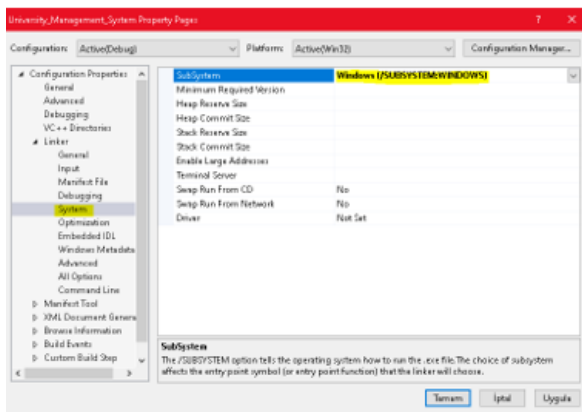
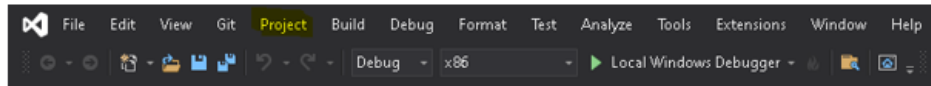
☐ Place solution and project in the same directory

Framework: .NET Framework 4.7.2

**Firstly, create a new project and then select CLR Empty Project(.NET Framework). Now, you can give a name for your project.**

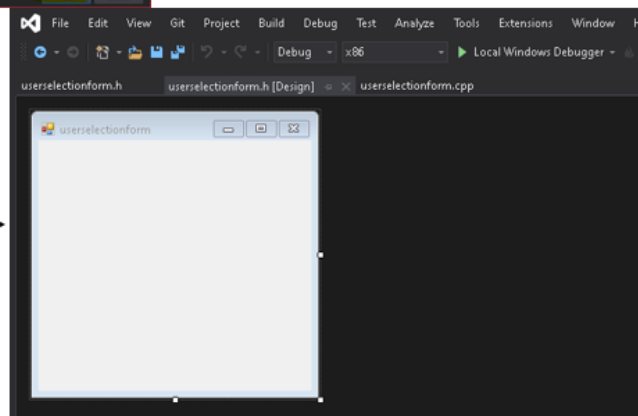
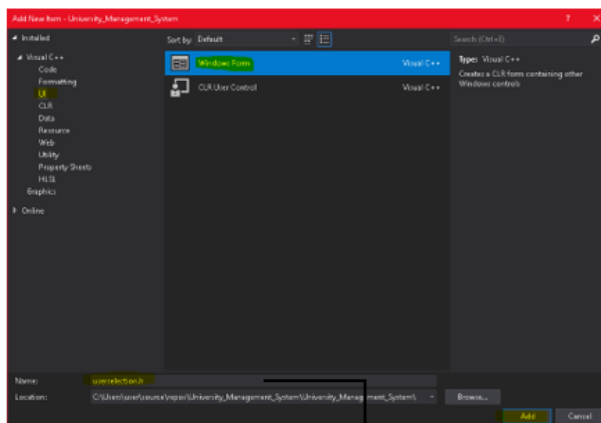
## 2.2 VISUAL STUDIO 2019 SETTINGS

Firstly, create a new project and then select CLR Empty Project(.NET Framework). Now, you can give a name for your project. From the linker section click **System** and change the SubSystem to the **Windows (/SUBSYSTEM:WINDOWS)**. From the advanced section click **Entry Point** and write **main**. Apply and press ok.



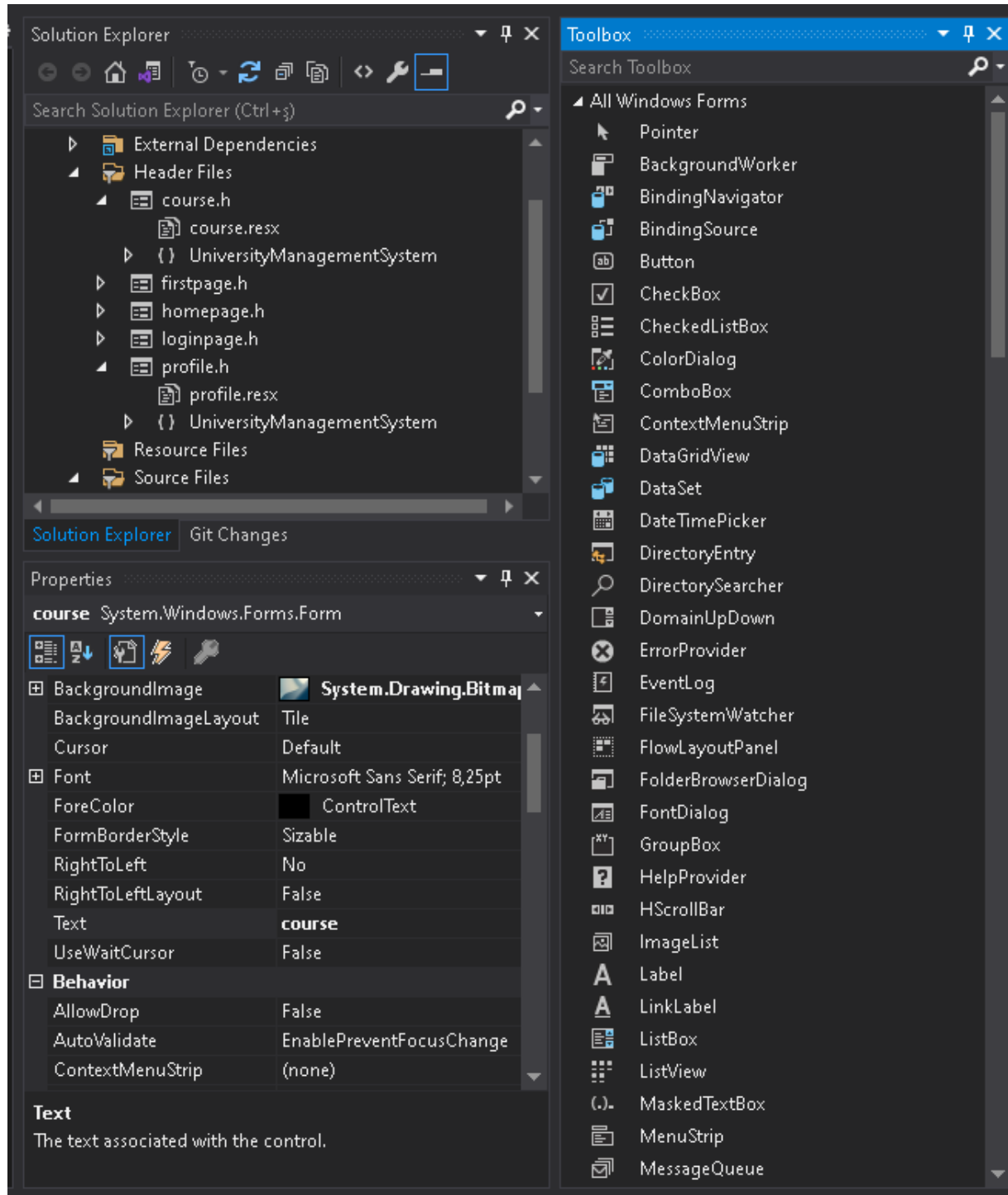
## 2.3 CREATING FORM

Click project and then push the add a new item button then you will see them.



## 2.4 VISUAL STUDIO TOOLS

In Visual Studio there are many useful tools. You can easily manage your project on Solution Explorer. When you click something in your form you can edit it in properties part. Toolbox, allows you to add tools to your form.



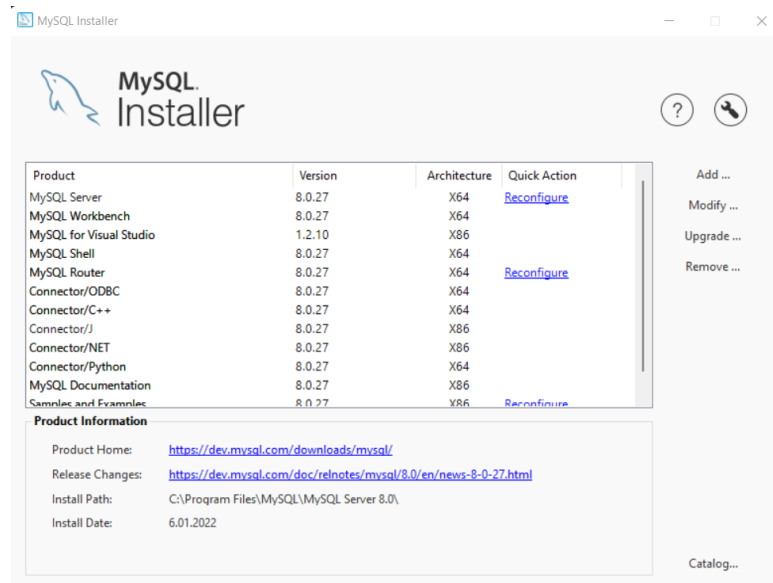
## 3 MYSQL

### Why MySQL?

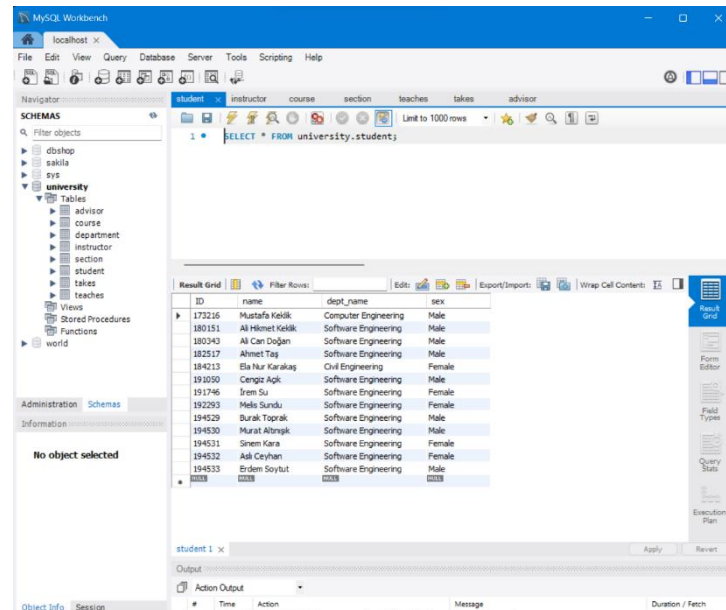
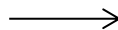
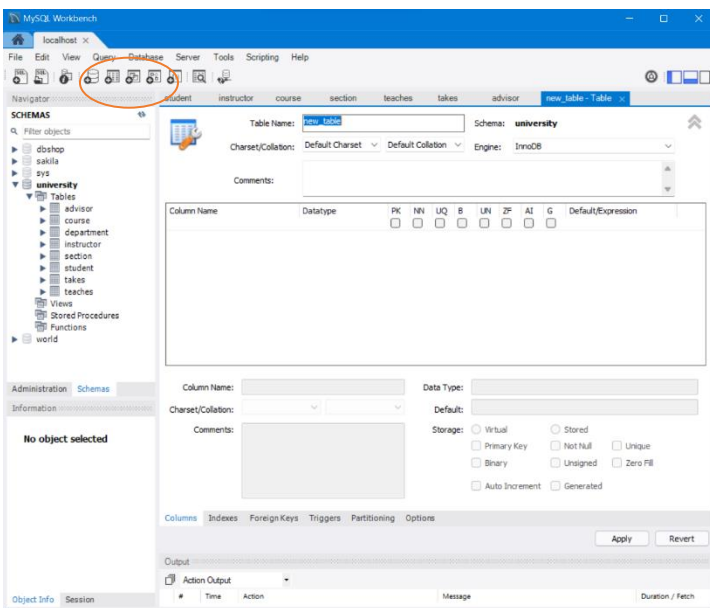
MySQL is the most widely used database development application in the world. There are many reasons for this, to provide comprehensive support for every application development need, to be easily integrated are a few of them.



### 3.1 MySQL INSTALLATION



### 3.2 CREATING TABLE





## 4 INTERFACE DESIGN

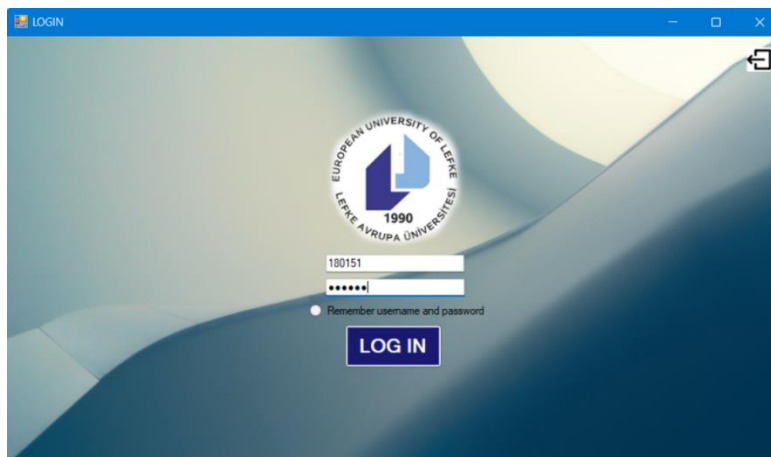
### 4.1 USER SELECTION PAGE



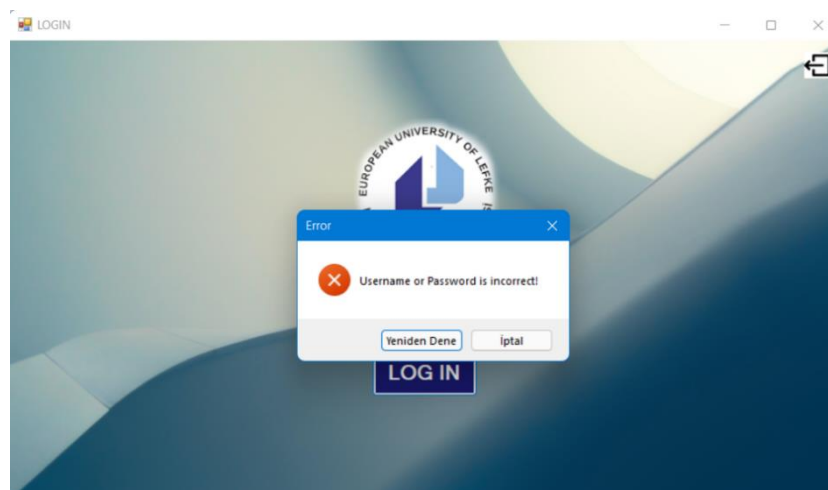
#### 4.1.1 DEFAULT USER PASSWORDS

FACULTY COORDINATOR	INSTRUCTOR	STUDENT
Username:admin Password:password	Username:Instructor ID Password:123	Username:Student ID Password: Student ID

### 4.2 LOGIN PAGE



#### 4.2.1 LOGIN PAGE ERROR



## 4.3 HOMEPAGE

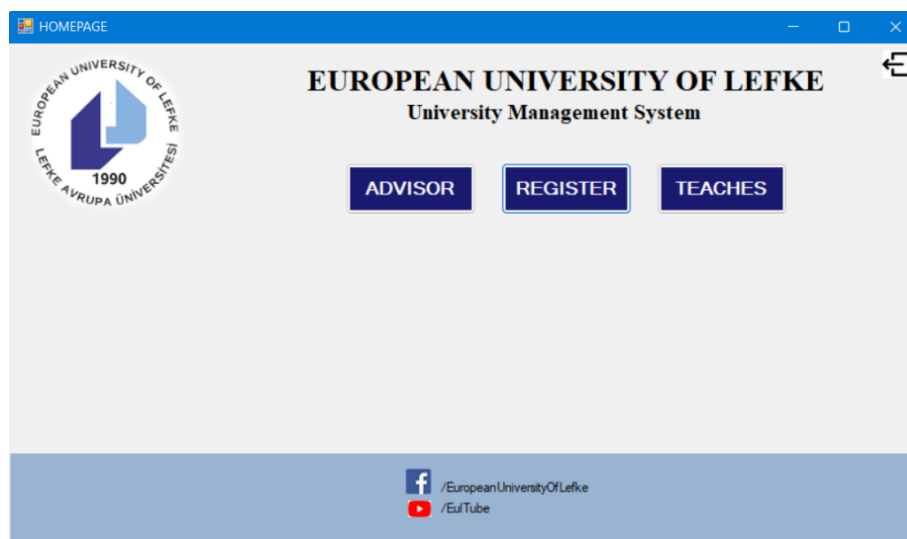
### 4.3.1 STUDENT HOMEPAGE



### 4.3.2 INSTRUCTOR HOMEPAGE



### 4.3.3 FACULTY COORDINATOR HOMEPAGE



## 4.4 PROFIL PAGES

### 4.4.1 STUDENT PROFILE AND UPDATE PASSWORD PAGE

PROFILE

EUROPEAN UNIVERSITY OF LEFKE  
University Management System

1990  
LEFKE AVRUPA ÜNİVERSİTESİ

**STUDENT PROFILE**

ID: 180151

Name: Ali Hikmet Keklik

Department Name: Software Engineering

CHANGE  
PASSWORD

UPDATE PASSWORD

EUROPEAN UNIVERSITY OF LEFKE  
University Management System

1990  
LEFKE AVRUPA ÜNİVERSİTESİ

**STUDENT PROFILE SETTINGS**

OLD PASSWORD:

NEW PASSWORD:

CONFIRM NEW PASSWORD:

SAVE

### 4.4.2 INSTRUCTOR PROFILE AND UPDATE PASSWORD PAGE

PROFILE

EUROPEAN UNIVERSITY OF LEFKE  
University Management System

1990  
LEFKE AVRUPA ÜNİVERSİTESİ

**INSTRUCTOR PROFILE**

ID: 1

Name: Ferhun Yorgancıoğlu

Department Name: Software Engineering

Salary: 10000

CHANGE  
PASSWORD

UPDATE PASSWORD

EUROPEAN UNIVERSITY OF LEFKE  
University Management System

1990  
LEFKE AVRUPA ÜNİVERSİTESİ

**INSTRUCTOR PROFILE SETTINGS**

OLD PASSWORD:

NEW PASSWORD:

CONFIRM NEW PASSWORD:

SAVE

## 4.5 COURSE PAGES

### 4.5.1 STUDENT COURSE PAGE

The screenshot shows the 'STUDENT COURSE PAGE' interface. At the top left is the university logo with the text 'EUROPEAN UNIVERSITY OF LEFKE', 'LEFKE AVRUPA ÜNİVERSİTESİ', and '1990'. To the right, it says 'EUROPEAN UNIVERSITY OF LEFKE' and 'University Management System'. Below this, the title 'STUDENT COURSE PAGE' is displayed. Under the heading 'MY COURSES:', there is a table listing course IDs.

course_id
COMP-124
COMP-117
SENG-305
COMP-218
COMP-217

A black curved arrow points from the bottom left of the table area towards the bottom left corner of the page.

### 4.5.2 INSTRUCTOR COURSE PAGE

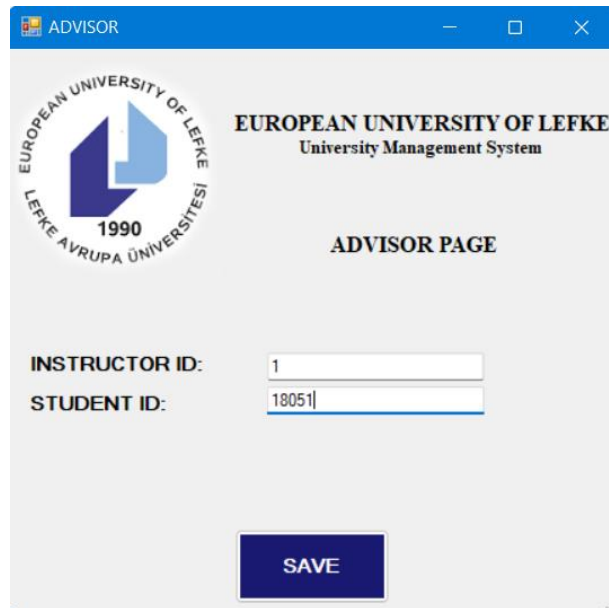
The screenshot shows the 'INSTRUCTOR COURSE PAGE' interface. It features the same university logo and header as the student page. Below the header, the title 'INSTRUCTOR COURSE PAGE' is displayed. Under the heading 'MY COURSES:', there is a dropdown menu currently showing 'COMP-124'. To the right, under the heading 'COURSE DETAILS', there is a table listing names.

name
Mustafa Keklik
Ali Hikmet Keklik
Ali Can Doğan
Ahmet Taş
Ela Nur Karakaş
Cengiz Aşk

A black curved arrow points from the bottom left of the dropdown menu area towards the bottom left corner of the page.

## 4.6 REGISTER PAGES

### 4.6.1 ADVISOR REGISTER PAGE



ADVISOR

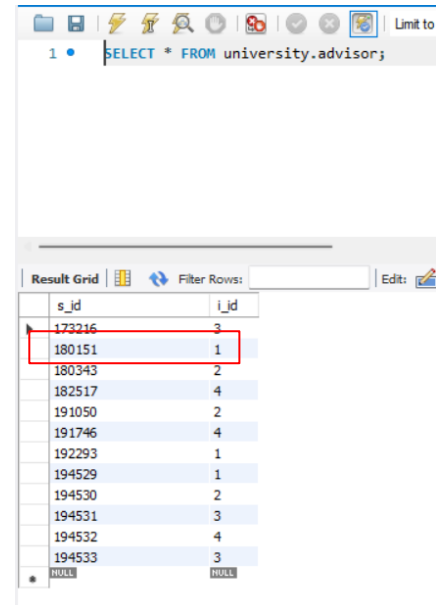
EUROPEAN UNIVERSITY OF LEFKE  
University Management System

ADVISOR PAGE

INSTRUCTOR ID: 1

STUDENT ID: 18051

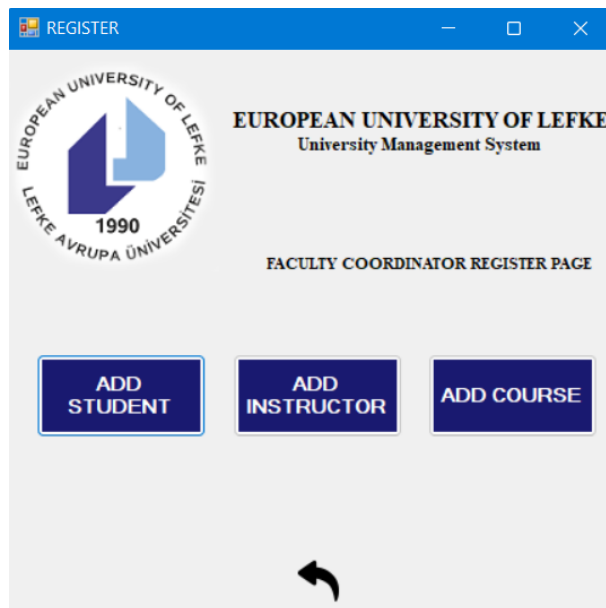
SAVE



```
1 • SELECT * FROM university.advisor;
```

s_id	i_id
173216	3
180151	1
180343	2
182517	4
191050	2
191746	4
192293	1
194529	1
194530	2
194531	3
194532	4
194533	3
NULL	NULL

### 4.6.2 FACULTY COORDINATOR REGISTER PAGE



REGISTER

EUROPEAN UNIVERSITY OF LEFKE  
University Management System

FACULTY COORDINATOR REGISTER PAGE

ADD STUDENT

ADD INSTRUCTOR

ADD COURSE

#### 4.6.2.1 ADD A COURSE PAGE

**ADD COURSE**

**EUROPEAN UNIVERSITY OF LEFKE**  
University Management System

**COURSE REGISTER PAGE**

Enter a new course information

**COURSE ID:** ENG-101

**COURSE TITLE:** English 1

**DEPARTMENT:** Computer Engineering

**CREDIT:** 3

**SAVE**

1 • `SELECT * FROM university.course;`

Limit to 1000 rows

Result Grid

course_id	title	dept_name	credits
COMP-117	Computer Foundations	Software Engineering	4
COMP-124	Computer Programming	Software Engineering	4
COMP-217	Data Structures	Software Engineering	4
COMP-218	Object-Oriented Programming	Software Engineering	4
ENG-101	English 1	Computer Engineering	3
MATH-101	Calculus 1	Software Engineering	4
SENG-305	Software Design and Architecture	Software Engineering	3
NULL	NULL	NULL	NULL

#### 4.6.2.2 ADD A STUDENT PAGE

**ADD STUDENT**

**EUROPEAN UNIVERSITY OF LEFKE**  
University Management System

**REGISTER PAGE**

Enter a new student information

**ID:** 987

**NAME:** Cihan Kara

**DEPARTMENT NAME:** Computer Engineering

**SEX:** Male

**SAVE**

**ADD STUDENT**

**EUROPEAN UNIVERSITY OF LEFKE**  
University Management System

**REGISTER PAGE**

Enter a new student information

**ID:** 987

**NAME:** Cihan Kara

**DEPARTMENT NAME:** Computer Engineering

**SEX:** Male

**SAVE**

Inserted successfully

Tamam

1 • `SELECT * FROM university.student;`


Limit to 1000 rows

Result Grid

ID	name	dept_name	sex	password
987	Cihan Kara	Computer Engineering	Male	987
173216	Mustafa Keldik	Computer Engineering	Male	173216
180151	Ali Hikmet Keldik	Software Engineering	Male	180151
180343	Ali Can Doğan	Software Engineering	Male	180343
182517	Ahmet Taş	Software Engineering	Male	182517
184213	Ela Nur Karakaş	Civil Engineering	Female	184213
191050	Cengiz Ağık	Software Engineering	Male	191050
191746	İrem Su	Software Engineering	Female	191746
192293	Melis Sundu	Software Engineering	Female	192293
194529	Burak Toprak	Software Engineering	Male	194529
194530	Murat Altıngök	Software Engineering	Male	194530
194531	Sinem Kara	Software Engineering	Female	194531
194532	Aslı Ceyhan	Software Engineering	Female	194532
194533	Erdem Soyutut	Software Engineering	Male	194533
NULL	NULL	NULL	NULL	NULL

### 4.6.2.3 ADD A INSTRUCTOR PAGE

**ADD INSTRUCTOR**

 **EUROPEAN UNIVERSITY OF LEFKE**  
University Management System

**REGISTER PAGE**

Enter a new instructor information

ID:

NAME:

DEPARTMENT NAME:

SALARY:

**SAVE**

**SELECT \* FROM university.instructor;**


Limit to 1000 rows

Result Grid

	ID	name	dept_name	salary	password
▶	1	Ferhun Yorgancıoğlu	Software Engineering	10000	123
	2	Ezgi Deniz Ülker	Software Engineering	10000	123
	3	Cem Kalyoncu	Software Engineering	10000	123
	4	Soydan Redif	Software Engineering	10000	123
	654	Yıldırım Pala	Computer Engineering	5000	123
*	NULL	NULL	NULL	NULL	NULL

### 4.6.3 TEACHES PAGE

**TEACHES PAGE**

 **EUROPEAN UNIVERSITY OF LEFKE**  
University Management System

**TEACHES PAGE**

INSTRUCTOR ID:

COURSE ID:

SECTION ID:

SEMESTER:

YEAR:

**SAVE**

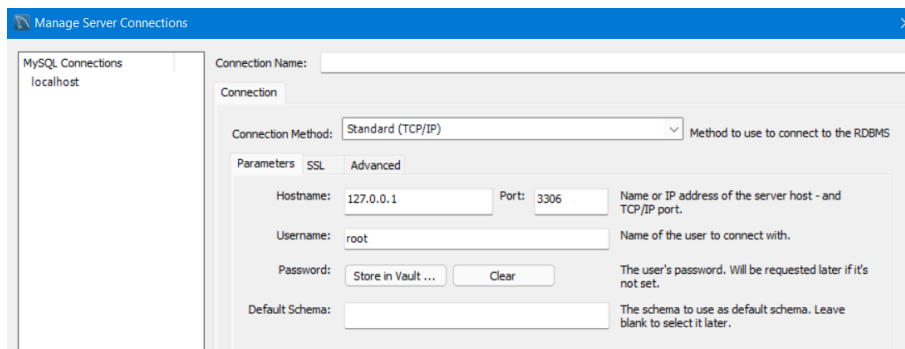
**SELECT \* FROM university.teaches;**

Result Grid

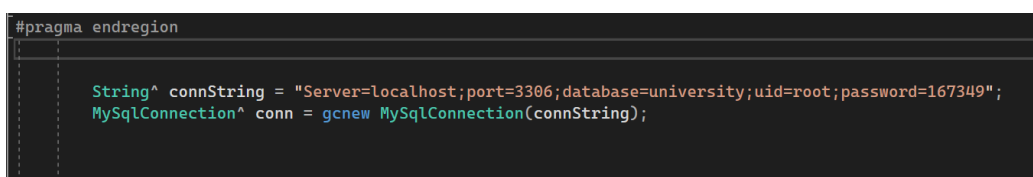
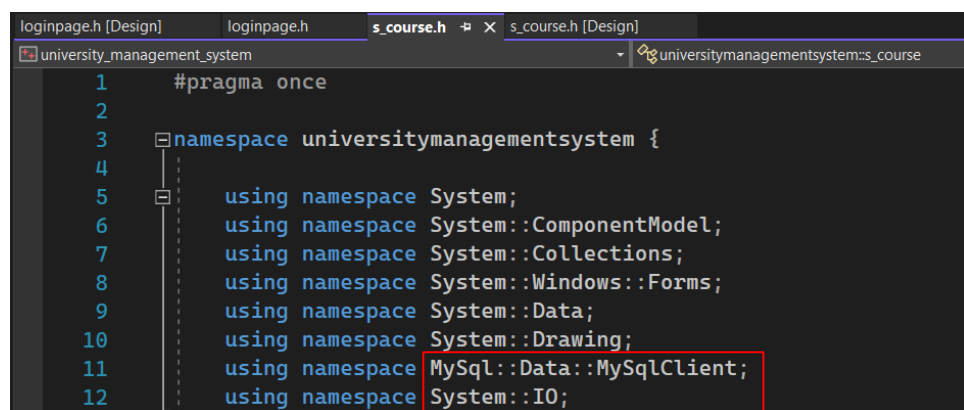
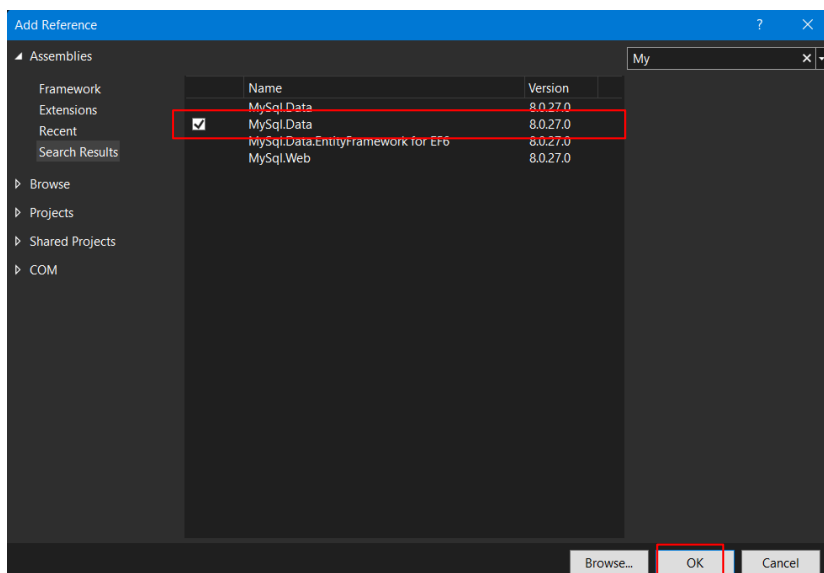
	ID	course_id	sec_id	semester	year
▶	1	COMP-124	1	FALL	2018
	1	COMP-218	4	FALL	2018
	2	SENG-305	3	FALL	2018
	2	COMP-217	5	FALL	2018
	3	COMP-117	2	FALL	2018
	4	MATH-101	6	FALL	2018
*	NULL	NULL	NULL	NULL	NULL

## 5 COMBINING INTERFACE AND DATABASE

### 5.1 MySQL CONNECTION



### 5.2 VISUAL STUDIO CONNECTION





## **6 CONCLUSION**

The system is connected to the database, the interface is designed and ready to use. During the project, a lot of progress was made in interface design and database operations with MySQL. There were some difficulties, the connection of the database and the codes written through visual studio and the data reading and data saving processes were integrated into the project after long efforts. Users have different features according to the system. Faculty coordinator can add a new course, teacher and student, assign lecturers (teaching) and lecturers to students (advisory). The instructor can view and update their personal information, as well as view their own lessons and details. The student can view and update their personal information, and view the registered courses. As a result, in this project University Management System was created. All stages are explained in detail.

## 7 REFERENCES

1. <https://stackoverflow.com/questions/1186017/how-do-i-build-a-graphical-user-interface-in-c>
2. [https://www.simplilearn.com/tutorials/cpp-tutorial/cpp-gui?source=sl\\_frs\\_nav\\_playlist\\_video\\_clicked](https://www.simplilearn.com/tutorials/cpp-tutorial/cpp-gui?source=sl_frs_nav_playlist_video_clicked)
3. <https://stackoverflow.com/questions/16049859/c-program-that-connects-to-mysql>
4. <https://www.codeguru.com/cplusplus/interfacing-mysql-connector-c-with-the-qt-framework/>
5. [https://www.bogotobogo.com/cplusplus/application\\_visual\\_studio\\_2013.php](https://www.bogotobogo.com/cplusplus/application_visual_studio_2013.php)
6. <https://docs.microsoft.com/en-us/cpp/windows/walkthrough-creating-windows-desktop-applications-cpp?view=msvc-170>