
General Rules:

1. Another document will be uploaded on the classroom at 1:45 PM sharp, in which you can find what you shall record using any screen recording software (like OBS) (**You will record using the mic**). You should wisely use the time given so that before 1:45 PM, you dump your database or write a database script (so that I can recreate it on my side) and then start recording immediately.
2. Once you finish the recording, you should compress the following files under the following name
"FirstName_SecondName_SectionNumber_BenchNumber_Fall2020_DB_Labexam"
(Replace the first four variables with your information) and upload it on the classroom:
 - a. Your database using one of the two options mentioned above.
 - b. The screen recording.
 - c. The visual studio project (without the debug folders).

Requirements:

Consider the following database schema about Students, courses and which courses they want to register in next semester.

- Each Student can register for more than one course. The same course cannot be added twice by the same Student.
- For the Gender field, you should allow only two values which are "Female" and "Male".
- All fields are obligatory.
- You shouldn't remove or add any column.

Student

FullName	ID	Gender	Date_of_birth
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Course

CourseName	CourseCode	Lectures_hours
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CourseRegistration

StudentID	CourseID
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1. Database (out of 7.5 marks)

- a. Create tables corresponding to the schema above with appropriate data types. **[3 marks]**
- b. Deduce the primary keys and add the primary key for each table. **[1.5 marks]**
- c. Deduce the foreign keys and add the foreign keys to your table. **[1.5 marks]**
- d. Insert 5 rows in each table (Meaningful data, do not just type any characters on your keyboard). **[1.5 marks]**
- e. **Save your database script in your exam folder.**

2. Windows application (out of 12.5 marks)

Create a windows form application with a controller class, db manager class copied from any previous lab

- a. Set up your connection string. **[0.5 mark]**
- b. Create a form with two buttons “Show database” and “Edit database”. **[0.5 marks]**
- c. If the user chose the “Show database”, it should open another window with three buttons named “Show Students”, “Show Courses”, and “Show CourseRegistration”. Each one of the three buttons should show all the data in the related table. **[1.5 marks]**
- d. If the user chose the “Show database”, it should open one big window with 5 buttons and their related fields as follows **[All inputs should be validated and check that no field is empty for any specified action, in order not to lose marks]:**
 - i. “Add Student”, and next to it four empty fields for its four attributes. For the “Gender” attribute, it will be a drop down menu. **[2 marks]**
 - ii. “Add Course”, and next to it three empty fields for its three attributes. **[1.5 marks]**
 - iii. “Request Course”, and next to it two drop down menus to choose from the students list and the courses list. **[2 marks]**
 - iv. “Show Statistics”, this button shows a table of all students (4 columns) and next to them their requested course(s) (3 columns) arranged from top to bottom descendingly (in other words, the student who requested the largest number of courses is at the top of the table -having several rows for different courses- and the student who requested the smallest number of courses will be at the bottom of the table (will be probably one course represented in one row) **[2.5 marks]**
 - v. “Show Statistics2”, this button shows a table for each student (4 columns) and the total number of lecture hours requested by him (1 column). In other words, you should add all of the lecture hours for the courses requested by him. **[2 marks]**