German University in Cairo
Media Engineering and Technology
Dr. Mervat Abuelkheir

Databases I, Winter 2023
Milestone 1
Submission: 19/10/2023 (11:59 PM)

In this milestone, you are required to draw the EERD according to the project description and translate the EERD designed to its corresponding relational schema.

You are required to submit a zip file containing the following documents:

a) A PDF file containing an image of your Enhanced Entity Relationship Diagram (EERD) of the database of the required application.

b) A PDF file containing the Database Schema of your application.

c) A PDF file containing:

- Team name
- Team leader name and tutorial.
- Team members' names.
- Team members' application numbers.
- Team members' tutorial groups.

Notes:
1. Request
2. NULL
3. Eligibility
4. Make-UP
5. Semester
6. Admin
7. Access for Advisors

<u>Note that:</u>
The EERD has to be drawn using graph editing software, **screenshots or handwritten** EERDs will not be accepted

Examples of software:

- yEd: `https://www.yworks.com/products/yed`, online/offline tool

- draw.io: `https://www.draw.io/`, online tool

Submission guidelines:

a) You have to stick to the conventions of the EERD discussed in the lectures.

b) The deadline of submission for this milestone is **Thursday 19th of October at 11:59 PM**.

c) Only one copy of the documents will be submitted via a team member, other submissions will not be considered. The `zip` file submitted has to be named after the team number which will be announced after registration e.g. Team 10.

d) Submission will be via the submission link available on the course website.

e) **Make sure that the team leader submit a printed A3 hard copy to the team leader corresponding lab TA**

<u>Please Note that:</u>

- **No late** submissions will be accepted.

- Cheating cases will be graded by 0 in the whole project.

- It is your responsibility to make sure that the files were uploaded successfully to the website.

German University in Cairo

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Databases I, Winter 2023

Project Description

"Modified Advising System"

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1 Project Overview

The GUC has an advising system responsible for advising students. In Our system, Student is considered advising if one or more of these conditions are met:

1.   Declared his/her major after the deadline

2.   Has at least one missed course because of the below reasons

            2.1 Didn't take or attend one or more courses from the previous semesters.

            2.2 Failed one or more courses, also not eligible for makeup (Check requirements).

3.   The student is considered under probation. (if his/her GPA is more than 3.7).

    The aim of the project is to implement a **modified** advising system to serve the different students' needs.

2 Systems Requirements

This section describes the different requirements that the system has to include.

2.1 Users

Different types of users can use the system. Users are either: Admin, Advisor or Student.

2.1.1 Admin

The admin can insert or update the details stored in the system.

2.1.2 Student

All advising students can access the system to view the list of missing courses or their graduation plan (if any).

Any student should have an ID, name (firstname and lastname), email, GPA, address, faculty, major, acquired hours, assigned hours, semester (1,2,3…etc) and status (if the student has pending payment(s) past the deadline or financially clear). The student can also have mobile number(s).

Acquired hours means the total credit hours of the courses that the student passed so far.

Assigned hours means the total credit hours that the student is allowed to take in the current semester. The student has assigned hours if the student missed course(s) is offered in the current semester (should be NULL otherwise).

An advising student will take course(s) taught by a specific instructor.

An advising student will choose the course(s) he/she wants to take from the list of courses. He/she should also choose from the course instructor(s).

The system needs to keep track of the selected courses' grade and semester. The grade will be null if the student is still taking the course. If he/she took the course, a value should be assigned to the grade.

  (example: Student takes CS1 with Dr.Slim in Semester Winter23)

Changes:
1. Changed ternary "Assigned_to" to a binary with attribute on the relation.

2.1.3 Advisor

An advisor needs to log into the system. Any advisor should have an ID, email, name and office location.

Each advising student is assigned to only one advisor. The advisor assignment could be changed from one semester to another.In other words, The advisor assignment is limited to a certain semester. (example: Advisor X assigned to Student Y only during Winter23).

An advisor is responsible for creating or modifying the graduation plan of a certain student (when needed).

2.1.4 Instructor

An instructor does **NOT** have access to the system. Any instructor should have an ID, email, name, faculty and office location. Instructors could be assigned to one or more course(s) in the current semester.

2.2 Courses

Each course has a unique course ID, major, course name, credit hours, is_offered (if the course is offered in the current semester), and semester of the course (1,2,3…etc). courses can only be offered during the odd or even semester. Courses have to be taught by one or more course' instructor.

Some courses are a prerequisite of other courses. A course is considered required (according to a certain student) if it is unattended or failed (and not eligible for makeup). Optional courses mean the student has to take them in order to graduate. However, it is not obligatory to be taken in the current semester.

2.3 Semester

Each semester is defined by a start date, end date and unique semester code.

Semester code Example: Winter 2023 à W23, Spring 2023 à S23, Summer 2023 Round 1 à S23R1, Summer 2023 Round 2 à S23R2 …. Etc.

Note that Summer semesters are optional. Winter semester represents an odd semester, Spring semester represents an even semester, summer round 1 represents an **odd** optional semester while summer round 2 represents an **even** optional semester.

2.4 Makeup Exam

The exam has a unique ID, date and type (first or second makeup). A student can register for a makeup exam for a certain course based on eligibility.

2.4.1 Eligibility

By default, all students are eligible for first makeup. A student is eligible for the second makeup of a course if and only if he/she failed or did not attend the first makeup and also has a maximum of **TWO** failed courses per all odd or even semesters.

Even courses' makeup exams are offered at the end of the Spring semester and before the start of the Winter semester. Odd courses makeup exams are offered at the end of the Winter semester and before the start of the Spring semester.

Example: 1) A student failed in the even courses: CS2, and physics 2 then he/ she is eligible for the 2nd makeup.

Example: 2) A student failed in the even courses: CS2, physics 2 and Math 2 then he/ she is **NOT** eligible for the 2nd makeup since the student now has failed in more than 2 courses. In other words, All 3 courses will be added to the failed **required** courses to be taken in the nearest Spring(even) semester.

2.5 Slot

Advising students need to fill their schedule based on slots. A slot has a location, ID, day and time (1st, 2nd,... 5th).

Each course is taught in different slots by different instructors.

2.5 Payment

The system keeps track of the total amount, fund percentage, number of installments, deadline and payment

ID. Each payment can be divided into one or more installments. Each installment will have a date, amount, deadline and status (paid or not). Each semester has a payment.

2.6 Request

An advising student can submit a request for one of the following:

1.   Add courses to take in the current semester.

2.   Add credit hours to the assigned credit hours the student has. A student can only add hours if he/she is **NOT** under probation. A student can add up to 3 credit hours but must also be below the 34 credit hours threshold.
    A request can have course ID(s), credit hours. A request must have a request ID, type, comment and status (pending, approved or rejected by the advisor).

2.7 Graduation plan

An advisor will make a graduation plan to the student if the student has acquired hours greater than 157 credit hours. The plan includes a list of courses to take each semester, the total credit hours per semester, the expected graduation semester and a unique ID.

Points to consider

·   An advising student must have at least one missed course. A course is considered missed if the student failed/didn't attend the course

·   Do NOT consider language or elective courses in the system.   A student under probation takes 25% deduction from the current semester's credit hours.
    Each credit hour added costs 1000 LE that should be updated to the next payment due.