Assignment #2 – **Academic Student Placement**

Due date: 21 May Tuesday, 23:55

Goal

In this assignment, you are asked to design a database model to organize an academic student placement. The detailed scenario and business rules are given below.

Scenario and Business Rules

In this system, there is a list of students who will get into university according to their scores in university examination. Each university has information such as university id, name, address, e-mail address, city, university type (state or private), year of foundation. Each university is made up of various faculties which have faculty id, name, e-mail address. Under each faculty, a number of departments are placed and they have information such as department id, name, e-mail address, language (English or Turkish), education type (formal (*fe*) or evening education (*ee*)), quota, the quota for top ranked students, education period, minimum score in 2024, minimum order in 2024. Students have personal identification number (ID), name, surname, examination score, the ranking of the student in the exam, the position of the student in high school (top ranked student or not), three university preferences of student (the department id's). The system will help students determine whether they can get into any department of a university or not.

a) Construct an ER diagram based on the preceding statements. Draw your diagram with Dia (http://dia-installer.de/download/linux.html.en) (Or with another tool of your choice, as long as the ER is in the format that is practiced in the lecture.) Don't forget to define the relationships, cardinalities, cardinality limits and participations (mandatory or optional).

You should use only PostgreSQL for the parts b to d.

b) Assign the attributes to the appropriate entities. Indicate primary key and foreign key attributes.

c) According to a and b, create your database and tables. Insert some sample meaningful example records to each table. Meaningful examples should at least answer (d)'s queries. If we do not get any results while testing your code with your examples, you will lose 5 points for each non-working query.

d) Write the SQL queries of the following questions:

1) Find the university names which are located in the cities whose name starts with "A" and founded after 1990.
2) Find the universities which include "Engineering" and "Medicine" Faculties.
3) Find the count of faculties according to university types.
4) Find the departments that contain "engineering" and are the type of "ee".
5) Find the top five departments with the longest education period and the highest score.
6) Find the most preferred 4-year departments.

7) List the students who prefer the Department of Computer Engineering as their first choice according to their exam score in a descending order.
8) Update the Faculty of Engineering in Dokuz Eylül University to be located in Izmir Technical University.
9) Extend the current education period of the departments under the Faculty of Law by one year.
10) Delete the faculties and departments in İzmir University.

Submission

Submission will be via SAKAI. There will also be live code check.

- Name your source files xxx.png (database model) and xxx.sql (SQL answers), where xxx is your student ID. If you don't follow the naming rules, a penalty applies (10 pts)
- Late submission is not accepted.

Honesty

Your submissions will be scanned among each other as well as the Internet repository (**including ChatGPT**). Any assignments that are over the similarity threshold of a system for Detecting Software Similarity will get zero. We strongly encourage you not to submit your assignment rather than a dishonest submission.

Grading policy

- Database design & ER diagram 35%
- Primary and foreign keys, data types 10%
- Insert script 5%
- SQL queries 50%

For Questions

For any questions about the assignment please write under the topic "Assignment 2 Questions" in Forum on the SAKAI platform. Before asking your question, please check carefully previous questions and answers, where similar questions that were asked by someone else were already answered. No private questions via email will be answered!!!

Good luck!!!