Lab 5
SQL (Structured Query Language)

Objectives:

- Ability to write complex SQL queries.
- Using and referencing Composite keys
- Know how to use Union, Exists and implementing division.

Database:

The following relations show basic entities of Course Registration Processing System. Implement the following schema using DDL statements:-

department (dept_id, dept_name)
student (student_id, student_name, major, level, age)
professor (prof_id, prof_name, dept_id)
course (course_code, name**)**
semester_course (course_code, quarter, year, prof_id)
enrolled (student_id, course_code, quarter, year, enrolled_at)

Use "Sample data" to populate your schema with proper data.

SQL Queries (Solve only 10):

1. Find the names of students with level "SR" who are enrolled in a class taught by professor whose id="1".
2. Find the age of the oldest student who is either a "History" major or enrolled in a course taught by "Michael Miller".
3. Find the names of all students and their courses' name even if they weren't enrolled in any course.
4. Find the names of professors whose combined enrollment of all courses that they taught is less than five.
5. Find students' names enrolled in **all courses** that professor with id="2" has taught.
6. Find all courses that haven't been taught before, as well as courses taught by professors who work in department "Computer Science".
7. Find names of all students whose names start with M and age < 20 and all professors whose names starts with M and teaches more than 2 courses (note: 2 courses with same code but different years/semester are counted twice)

8. Find the names and ids of the professors that have enrolled in less than 2 courses and whose department is either 1,2,3,4
9. Find all students with their professor according to their enrollment in the professors' courses, including the professor who doesn't teach any class or have no students enrolling in their courses and the student who haven't been enrolled in a class yet
10. Find course name, course code and professor name and id for courses that the same professor taught twice or more.
11. Find names of all departments whose professors collectively teach less than 3courses

Bonus:

Solve all questions

Policies

- You should deliver DDL scripts for database creation and SQL scripts for the required queries.
- You should work **individually**.
- If 2 or more copies are discovered, all copies will lose all year work marks. Hence, it is better to deliver nothing than delivering a copy.
- Late submission is allowed for one week with 80% of the total mark. No late submission is allowed after that.