## THIS HOMEWORK WILL NOT BE GRADED. USE IT AS A PREPARATION TO THE MIDTERM EXAM

## WE WILL SOLVE IT IN THE CLASS BEFORE THE MIDTERM EXAM WEEK!

**Q1. Entity Relationship Diagram (ERD) design. According to the description below, design the ERD. Please also show cardinality constraints on your ERDs [25 Marks].**

Nurses, doctors and patients are Persons who has person_id, name and date-of-birth. Nurses and Doctors have speciality. In addition, Nurses and Doctors belong to one department. Departments have department_id, building and dept_name. Nurses may take place in patient visits. Doctors are examining many patients but a patient can see only one doctor. Patients may get medical or operational treatments. For those patients who need to be treated with medication, medication details are included such as medication name, interval.

**Q2. DBMS design and SQL queries: Use the table schema and the given records below for the following questions. You have to implement these tables and DDL/DML/SQL queries in MySQL DBMS. For each question, write DDL/DML/SQL QUERIES and find/show their answers.**

Tutor(tid, t_fname, t_lname, hourly_wage)
Student(sid, s_fname, s_lname, address, city)
Course(course_code, title, credit, semester)
Takes(sid, course_code)
Teaches(tid, course_code, hours)

**Tutor**

| tid | t_fname | t_lname | hourly_wage |
|-----|---------|---------|-------------|
| 1 | Alex | Jackson | 40 |
| 2 | David | Lewis | 10 |
| 3 | Sue | White | 20 |

**Student**

| sid | s_fname | s_lname | Address | city |
|-----|---------|---------|---------|------|
| 1111 | Jane | Morgan | Yasemin sokak, Gonyeli | Nicosia |
| 2222 | Katie | Smith | Gul sokak, Hamitkoy | Kyrenia |
| 3333 | Leslie | Carr | Zeytin sokak, Catalkoy | Kyrenia |
| 4444 | Max | McKane | Lale sokak, Küçükkaymaklı | Nicosia |

**Course**

| course_code | title | credit | semester |
|-------------|-------|--------|----------|
| CMPE343 | DBMS I | 4 | Fall |
| CMPE344 | DBMS II | 4 | Spring |
| MATH101 | Calculus I | 4 | Fall |
| MATH121 | Linear Algebra | 2 | Fall |
| CMPE214 | Visual Programming | 3 | Spring |

**Takes**

| sid | course_code |
|-----|-------------|
| 1111 | CMPE343 |
| 1111 | CMPE214 |
| 2222 | MATH101 |
| 2222 | MATH121 |
| 4444 | CMPE214 |
| 4444 | CMPE344 |

**Teaches**

| tid | course_code | hours |
|-----|-------------|-------|
| 1 | CMPE343 | 3 |
| 1 | CMPE344 | 3 |
| 2 | MATH101 | 3 |
| 2 | MATH121 | 2 |
| 3 | CMPE214 | 3 |

Q2-1) Using **DDL statements (create table),** create tutor, student, course, takes and teaches tables. Make sure that you specify primary keys, foreign keys, unique and not null values **[20 Marks]**.

Q2-2) Using **insert into DML statements,** add the given records above to the designated tutor, student, course, takes and teaches tables. **[5 Marks]**

Q2-3) List all information about students who have taken a course called **'DBMS' (title) [5 Marks].**

Q2-4) Find the **last name of all tutors** whose hourly wage is **greater than 15 [5 Marks]**.

Q2-5) Find the **first name of all students** whose address contains the word **'koy' [5 Marks]**.

Q2-6) Display course_code of courses which have been taken by a student '1111' **[5 Marks]**.

Q2-7) Display the first, last name and address of all students **who live in Nicosia [5 Marks]**.

Q2-8) List course codes of courses that have **4 credits and** taught **in Spring Semester [5 Marks]**.

Q2-9) List course_codes of the courses that has **2 hours** lectures **[5 Marks]**.

Q2-10) **Add a new column** to the student table called **CGPA** that has **float datatype [5 Marks]**.

Q2-11) **Using DML based on sid**, add the following CGPA values into the student table **[10 Marks]**.

1111→ 2.88
2222→ 3.14
3333→ 2.05
4444→ 3.77