DBMS LAB 07 TASKS

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Note: Write down your commands and errors encountered in a notepad file to be evaluated.

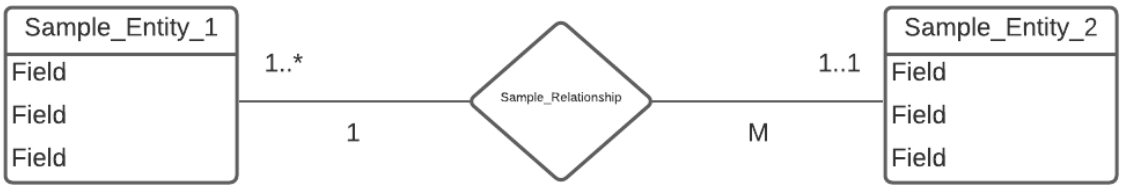
INSTRUCTIONS

Submission Instructions

Your submission should contain the following four files:

1. <student_id>_task1_ERD.pdf/png
2. <student_id>_task1_DDL.txt
3. <student_id>_task2_ERD.pdf/png
4. <student_id>_task2_DDL.txt

ERD Submission Format (The .pdf or .png file content)



DDL Submission Format (The .txt file content)

```
--First note down the reasons why a certain type of relationship exists between two
entities, e.g:
```

1. There is one to many relationship between entity 1 and entity 2 because....
2. There is many to many relationship between entity 2 and entity 3 because...

```
--DDL Statements
CREATE TABLE entity1....
```

```
CREATE TABLE entity2....
```

SCENARIO 1

Government of Bangladesh plans to digitalize its different sectors. Each of the following points are based on a description of the desired system of a particular component and a number of requirements are identified. The components are logically connected.

- A national database should be maintained to store the basic information of each citizen such as Name, Date of Birth (DOB), Blood Group, Address, Profession, Salary etc.
- We want to store and maintain citizens' driving license information such as Name of Citizen, Address, Date of Birth, License No, License Issue Date, License Expire Date. Each Citizen may have at most one driving license.
- Now, medical sector should be connected to this system. To achieve this, the information of each hospital should be maintained including Name of Hospital, Location, Year of Establishment, Total Capacity etc. Citizens may be admitted to any of these hospitals but his time and reason for admission must be stored.
- Libraries should be digitalized too. The different libraries in the country are recognized by their name and location. Libraries store book information such as book title, price, category etc.
  - Publishers are well-known along with some additional information such as Name, Established Year, Country of origin, reputation.
  - Multiple copies of a book must be stored efficiently.
  - A citizen can borrow and return books from library. Information related to date of borrowal and date of return must be stored.

Your tasks are:

1. Create an ER Diagram with appropriate cardinality. Make sure you specify both the minimum and the maximum cardinality of each entity using the notations shown in the demonstration video. You also have to show what type of relationship it is (one to one, many to one, many to many or one to many). You are free to add attributes to the entities only if needed.
   Make sure to follow the submission format mentioned in the instructions section.

2. Convert the ER Diagram into a relational model using standard SQL. Your submitted txt files should include the reasons why a certain type of relationship exists between two entities. [Make sure to appropriately declare primary key and foreign key constraints.]

SCENARIO 2

Bangladesh Road Transport Authority (BRTA) observes that the number of road accidents are increasing everyday. To mitigate the problem, BRTA plans to automate its vehicle and driving license automation. The system must store the basic information of each vehicle such as vehicle type (i.e.Car,Bus,Truck, Other), date of registration, description of vehicle, color of the vehicle, engine no. We assume each citizen has his/her National ID (NID). Other information of citizen are name, dob, address, contact no. Each vehicle must be registered against one citizen. A citizen may have multiple vehicles and one vehicle can not be shared by multiple citizens. Each citizen may have at most one driving license. Driving license includes information such as date of issue, expire date,blood group. Whenever any road accident occurs it is recorded in the central database of BRTA along with date and time of accident,place of accident, vehicle information, driver information.
Your tasks are as follows:

1. Create an ER Diagram with appropriate cardinality. Make sure you specify both the minimum and the maximum cardinality of each entity using the notations shown in the demonstration video. You also have to show what type of relationship it is (one to

one, many to one, many to many or one to many). You are free to add attributes to the entities only if needed.

Make sure to follow the submission format mentioned in the instructions section.

2. Convert the ER Diagram into a relational model using standard SQL. Your submitted txt files should include the reasons why a certain type of relationship exists between two entities. [Make sure to appropriately declare primary key and foreign key constraints.]