**Assignment 01- Part II: Database Design, DQL, DML, DDL**

**Due: By 11:59 PM on Saturday, March 16, 2024**

**Overall Grade %**: 12

**Total Points**: 120. **Points in part II:** 60 points.

This part of the is to test your understanding of database design and consists of modeling a scenario into ERD for creating a relational database for managing information of the users in an organization like LinkedIn.

*I strongly recommend to start working on the design early and run your preliminary designs and ideas by me. Try to build the database in small increments and follow the design steps.*

**Submission Files**

Name all the files for this part of the assignment using the following conventions:

For the design steps and description: *assignment\_01\_partII.pptx or .docx*

For the ERD diagram: *assignment\_01\_partII.png or .jpg*

For the SQL statements that are saved in a file: *assignment\_01\_partII.sql*

Upload all the files to the Assignment 01 Part II link on Brightspace.

**Formatting**

At the top of the .SQL file, add ***your LMU.build*** MySQL database connection details using the syntax for multi-line comments.

Example: ***(This is an example, do not use this).***

/\*

Host: kcs.lmu.build

Username: kcslmubu\_dba

Password: sql\_2020

\*/

Before each SQL statement, add the task details in a multi-line comment.

/\*

Task

\*/

SQL

Example:

/\*

8. Select film\_id, title, and description for films that do not have a G, PG, and PG-13 rating.

\*/

SELECT …

FROM …

WHERE …;

Be sure the SQL conforms to the style guide and best practices as discussed in the class (<http://www.sqlstyle.guide>)

**LinkedIn.org Database (50 points)**

You have been given the charge for creating a database for a LinkedIn kind of service. The idea is to connect users who are mainly associated with non-profit and educational activities together. Below are some of the information that needs to be kept track of by the organization.

* Users’ info that they provide when they create the account for the first time. Think about the various information items that are typically provided by a user for his/her profile. Make sure to include at least 5 attributes for a user.
* The work experience of each of the users and their academic qualifications. You can look into someone linked in profile to get an idea about the relationships between users, their work experiences and academic qualifications.
* The direct connections (links) that each user has with others in the system. These are called 1st degree connections. Once again, you can look into Linked In to get an idea of how this information is to be stored.
* Each user has the option of either having a free account or a premium account. Each account should have a timestamp of when it was created. There also should be information about the expiry date of the account status. Clearly, if an account is free, then there is no expiry (or renewal date).
* The monthly charge for free account is $0 while that for the premium account is $14.99.

Before you begin, take a look at your LinkedIn profile to have an understanding of the information that can be stored for a user and the format. If you do not have a LI profile, then you definitely should create one!

**Tasks.**

1. Design a relational database in 3NF for managing the above information for the organization. Clearly list your entities, attributes, relationships, PKs and FKs. ***I may ask you to make an appointment with me to explain the design process to me before I assign the grade. If you cannot explain the process and the rationale for your table design, you will get a zero in this part of the assignment.***  (20 points)
2. Draw an ERD (logical level) for the above database using the crow feet convention. Make sure to save the resulting diagram as an image file. You will upload that image file to Brightspace along with the rest of this assignment. (8 points)

Using sql,

1. Create the database and the tables that you have designed for the above relational database in 3rd Normal Form in your **LMU Build or in an AWS (if you have one) account**. You have to make sure that the tables are created using InnoDB engine and all the FKs have referential integrity with their corresponding PKs. (8 points)
2. INSERT a few records (minimum of 5) in each of the tables. Make sure to enter the data carefully so that there are PK and FK connections. You can generate the records in Excel and then use csv file to upload the data. (8 points)
3. List the name and e-mail address along with the names and e-mail addresses of the 1st level connections for each user. ***Note that you may have to use SUBQUERIES and/or VIEWS (if you are using LMU Build) or CTEs (if you are using AWS)*** along with JOIN to get this information. (8 points)
4. Create 2 queries that you think will be useful for the organization. Briefly justify your choice with comments above the queries. (8 points)