Database Systems (CMP 320)
Course Project

<u>Objective</u>:
In this project you are required to develop a simple database application with a GUI interface.

<u>Description</u>:
Students should **work in groups of 3** to develop a simple database application to demonstrate what they have learned in the course and the lab. The project's <u>minimum</u> requirements are as follows:

1. The database should have a minimum of three tables.
2. The application program should allow the user to do insert/delete/update on each of the tables.
3. The application program should provide the user with a suitable interface to query the database and display the results. The supported queries will depend on your application. However, at least one of the queries must use joins (i.e., retrieve data from table X based on data specified from table Y), and another one should provide statistics using aggregate functions.
4. Data validation: for insert/update operations, make sure you validate user input in the application, e.g., validate date format, numbers, and string values in the application before sending data to the database tables.
5. Application access is controlled through user login. There are two types of users:
   a. Administrator:
      i. Can create/update/delete other users
      ii. Has all privileges of the normal user
   b. Normal
      i. Full access to all tables, but cannot add/delete users.
6. (Optional) Log user activity: Add a log table to keep track of what logged-in users are doing with the application.

<u>Deliverables</u>:
Report: Every team should submit a report that includes the following **by 12/7/2021**:

1) Project description: Describe the miniworld, the data requirements (what data will be stored in the database). In addition, you should also list the functional requirements, what functionalities will your application provide (just a simple list of the functionalities will do)
2) Conceptual design: Model your data requirements using ER/EER diagrams. Make sure to explain the constraints and provide a brief discussion on the model. You need to discuss your conceptual model with me during this week before you start the implementation.
3) Logical design: Map the ER diagram to a schema diagram. Make sure to provide a discussion on the mapping choices you made if needed.
4) The SQL statements used to implement the database schema.
5) Brief description of your application interface

Presentation: Each team should prepare a short (10 minutes) presentation/demonstration of their project. The presentations will be on **Monday 12/7/2021.**