# CMSC 508 - Semester project
# Database Implementation

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## Objective

The objective of the second phase of the final project is to implement the solution that was designed in the first phase using MySQL in a cloud environment. You may realize that it<U+00E2><U+20AC><U+2122>s necessary to consider modifications to the design in order to have a working solution satisfying the expected functionality and you should update your design appropriately, if necessary.

For Phase 2 you will translate the design into a functional solution by:

1. Creating MySQL database tables using proper data types, constraints, and keys according to the design proposed or your revised design.
2. Populating the tables using sample data, maintaining the consistency and integrity of the data. There should be enough sample data to allow for a meaningful demonstration of the functionality of the solution.
3. Creating SQL queries to select, insert, update, and delete data from tables, according to the expected functionality described in the problem statement.
4. Creating views, triggers, and procedures to facilitate the usage and manipulation of the database.
5. Implementing user roles and authentication procedures needed to keep your data secure.
6. Creating a web interface that connects to your cloud-based database implementation to give the end user the ability to access and manipulate the data.
7. Creating a recorded demonstration of the functionality of your database and how it contributes to the solution to the original problem statement.

The main aim is to implement the database satisfying the information and functional requisites extracted from the analysis of the problem statement, in order to demonstrate your expertise and proficiency on the use of database methodologies to create an accurate and faithful database. The implementation must reflect all expected information, scenarios, and functionality.

## Guidelines

(As of 8/21/2022 I am still determining the appropriate database platform. Possible options include AWS, Google, Azure or homegrown.)

You are responsible for providing all necessary information for the evaluation of your projects. Should any username/password be required to access the database, they must be provided as well so that I can test all the functionality of the database and its correctness.

All transactions, errors and constraint-checking must be carried out using the proper database procedures. The consistency, integrity, and security of the information in the database is a priority and will be evaluated.

## Deliverables

- **Final Documentation:**

1. Updated problem statement, if any changes were made to it.
2. Updated Entity-Relationship diagram.
3. Updated relational design (including functional dependencies and normalization).
4. Database: SQL scripts for creating the database tables, views, triggers, and procedures.
5. Interface software: source code and documentation of the interface to the database. This is to be provided as a link to your GitHub repository for the project.
6. Project demonstration. (see below)

- **Demonstration of a running database:**

You will record a presentation of the finished project that demonstrates the design and functionality of the finished database and how it solves the problem posed by your project. The recording should be approximately 5 minutes in length.

Use of 3rd-party code is allowed, as long as it is referenced properly. However, the project will be evaluated according to your team<U+00E2><U+20AC><U+2122>s capability of developing your own code, and the completeness and functionality of the database.

Additionally, you will be evaluating the members of your team and yourself for teamwork qualities. **Non-contributing teammates will receive a reduction in the semester project grade.**

For your web-based interface, use of HTML5, AJAX, CSS, etc. technologies will be positively valued but it is not a requisite (i.e., this is not a web programming course, but learning such languages will be beneficial for your professional career).