Final Project (10% of total grade)

Purpose: In this final project, you will design, build, and document a MySQL database system. Your project will cover various database-related concepts and practices, including views, triggers, stored procedures, functions, normalization, data types, keys, and constraints. This project is worth 10% of your final grade.

Overview

(1) Proposal

- **a.** Due **Week 12**
- **b.** Written, not coded
- **c.** Database design, including database tools

(2) Presentation

- **a. Week 14,15**
- **b.** Create your database
- **c.** 5-minute presentation

Part I PROPOSAL :

Purpose: Your assignment is to **propose** a database architecture, (which you will later **build**, and **present** to the class).

The proposal will include:

- Database schema and normalized table architecture, including:
  - Columns, including:
    - Names
    - Data types
    - Keys
    - Constraints
- At least one view
- At least trigger
- At least one function OR one procedure

Your plan should include the **justification** for all of the above features - in other words, you must state *why* these things are necessary.

Your database will be based on the following premise:

Scenario:

You are managing the data at an animal sanctuary. There are many possible database features that could assist in the sanctuary's operation. Here are some examples:

- If an animal joins or leaves the sanctuary, how can you make it easy to update all necessary tables?
- Assume that donors have the option to earmark their donations for certain types of animals. How can you see the total donated funds for each type of animal?
- Sleep schedules of certain animals could determine when exhibits are open. How can we generate a schedule of when exhibits are open?
- Dietary requirements of certain animals could determine a feeding schedule. How can we generate a feeding schedule?
- The animal sanctuary is open to the public within certain hours, excluding certain holidays. How can we generate a calendar that shows when the sanctuary is open?
- Employees must be scheduled for different shifts. How can we schedule different types of employees for different shifts, while making sure employees don't work more than 88 hours per two-week period?

There are, naturally, other functions for this application that a database can help with - feel free to come up with your own!

Choose at least **two features** for your database (a feature being a solution to a real-world problem). Create your database tables and tools for these features. Design your solutions based on normalized data, and ease-of-use.

Proposal is due: Week 12

Content:

- What problems are you solving?
- How will your features solve them?
- What are your tables, how are they composed, and why is that justified by your solutions?
- What are your database tools (procedures, functions, etc.), and why are they justified?

Rubrics:

- Description of the problems you're solving. **3 marks**
- Description of table architecture – normalization, relationship between tables and datatypes. **3 marks**
- Description of all database tools required for your solutions (procedures, views, referential actions, et al.). **2 marks**
- Justifications for the architecture and tools. **1 mark**
- Reasonably estimated timeline. **1 mark**

Part II: Presentation

Your final assignment will be a five-minute presentation to the class, with supporting materials. Since you have 5 minutes, please be prepared with all materials to present when it is your turn.

1**. Presentation**
You will describe your animal sanctuary database, and, assuming you got it up-and-running, demonstrate your features. You can also present additional materials for context, such as a wireframe of a user-interface that would interact with the database. **It equally valid to present on your failures as it is to present your successes.**

2. **Supporting materials**
Additionally, you will submit on BlackBoard, an sql document containing all tables, queries and/or procedure calls required to use your features, PowerPoint slides and final report.

These presentations will be given in class on the last week of classes (Week 14/15).

Presentation – maximum 5 slides

Here is the suggested breakdown of the slides for the 5-minute presentation:

1. Overview of Problem-statements - What are the 2 problems you are solving for an overall theme. 1 minute
2. Database entity diagram - explain relationship between tables. 1 minute
3. Code - demo your code. 2-3 minutes

Rubrics:

- Problem-statement – does your code solve a real-world problem? 2 pt
- Database architecture – overview of your database. 2 pt
- Relationship between tables – 1 to many, many to many relationships. 2 pt
- Application of concepts – trigger, procedure, view, function 3pt
- Code demo – is your code easy to read / well-formatted? 1pt

Presentation is due: Week 14/ 15

Please submit the following

(1) Final report
(2) Ppt (max 5 slides)
(3) sql file

BE SURE TO PUT YOUR NAME IN THE FILENAMES:
e.g. Final-project-YOURNAME-24W.ppt