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 **November 21/22, 2023**
- **b.** Written, not coded
- **c.** Database design, including database tools

(2) Presentation

- **a. December 12/13, 2023**
- **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. **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. The presentation will be online. Please be camera-ready – that means you will be on camera and have your presentation and materials ready on MS Teams. Since you 5 minutes, please be prepared to have 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 to me an sql document containing all queries and/or procedure calls required to use your features.
These presentations will be given in class on the last week of classes (Week 15).

Content:

1. What you are trying to do?
2. Why you are trying to do it?
3. How you are trying to do it?
4. Why did you *not* do it another way?
5. What is working well?
6. What is not going well?
7. What would the next step be?
8. What's left to do for this feature to be "done", and how are you going to get there?

Rubrics:

- How well do you explain the state and progress of your work (see above, 1-8)? **6 marks**
- How well did you plan and scope your feature? **1 marks**
- Was there anything innovative about your feature? **1 mark**
- How useful would your feature be to end-users and/or other developers? **1 mark**
- How well-formatted/easy-to-read is your code? **1 mark**

Presentation is due: Week 15

BE SURE TO PUT YOUR NAME IN THE FILENAME:
e.g. Final-project-YOURNAME-23F.sql