CS348 – Project – Stage 1

Due Date: 8/26/2024 at 11:59 pm

Introduction to the CS348 Project

In this semester, you will develop a database-backed web or mobile application. The goal of this project is to use course concepts in a real application. The project will allow you to practice most of the following concepts:

- Database design
  - Indexing.
- A database query language (most likely SQL).
  - Stored procedures in databases.
- Using a database query language in code (e.g., using SQL in Python or Java).
- Transactions and concurrency.
- Cloud databases

The project will follow a self-learning approach. You will need to choose and learn about a programming language and a web/mobile framework/stack to develop your application. The project evaluation will focus on the back-end of the application (especially code and SQL used to access the database). Therefore, **any graphical user interface will be accepted** as long as a regular user can utilize the features of your application.

Sample Application

This is a sample application that presents example database and features. For your project, you will choose a different application.

This application serves student clubs management and regular students. Student clubs organize different types of meetings. Meeting organizers will be able to create a meeting and to invite students to the meeting. Students will be able to RSVP (yes, no, maybe). The system provides reports, such as a list of attendees for a specific meeting and statistics regarding the meetings in a specific period of time.

Note that you only need to develop two main features in the application as described below.

Database Design (sample data organized in tables):

Students(student_id, name, email)
Meetings(id, date, time, duration, description, club_id, room_id, invitedCount, acceptedCount)
MeetingOrganizers(meeting_id, student_id)
Clubs(id, name, address, description)
Rooms (id, building, number, maxCapicity)

Requirements

Your application (in stage 2 and stage 3) should support two main features:

1. **Requirement 1:** An interface that allows users to add, edit, and delete data in one main table. This may also require adding, editing, or deleting data in other supporting tables. For example, in the previous application you can develop a page for creating, editing, and deleting a meeting. The page allows the user to choose/change students to be the meeting organizers, which results in adding/editing/deleting rows in the MeetingOrganizers table. If you choose to develop such interface for meetings then you do NOT have to develop interfaces to support add, edit, and delete operations for other tables, such as students, rooms, and clubs.

2. **Requirement 2:** One report interface that allows a user to select which data to display in a report. For example, in the previous application you can develop an interface that allows a user to filter meetings by date (From a start date to an end date), club, and room. Given rooms and clubs are stored in the database, the page retrieves those to build the user interface (e.g., a drop-down list that contains all rooms). After the user picks the room, club, and date range, the application generates a report of the matching meetings and some statistics, such as the average duration time, average number of invited students, average number of accepted invitations, and average attendance rate (attended/invited).

Stage 1 deliverables:

In this stage, you will need to:

1. Select a web/mobile programming language and framework/stack and install it in your computer. Start learning about this language/framework if you have not used it before.
2. Develop a 'hello world' page (or an equivalent mobile window).
3. Record a demo of 1 to 2 minutes showing that you have installed the programming language/framework and you have developed a web page.

Stage 1 Submission:

Submit your demo to Brightspace/Content/Project/stage1

Web framework/stacks options:

Some of the frameworks/stacks used by students in the last semester:

- Python, Flask, SQL Alchemy, React
- Python, Django
- MERN stack (MongoDB, Express.js, React, and Node.js)
- SolidStart/SolidJS, Prisma
- Swift/UIKit/SQLite.swift
- Angular, MySQL, Spring Boot