CS443 Database Management Systems

Term Project Guideline

October 10, 2024

This project requires you to develop a web-based database system. The goal of the term project is to learn more about building an effective database driven application. Up to two students can work together as a team. Make up the team before Tuesday, October 15th.

You may choose any topic for the project, such as event management system, airline reservation system, hotel reservation system, online music store, online auction system, online library system, etc.

Your chosen system should include a database with three or more relations (one or more relations should have foreign keys). You are allowed to use any language and any database except Microsoft Office Access.

This project is divided into two phases. The following are the phases along with deliverables you need to deliver by phase due date (due in class time). No extension will be allowed for this project for any reason. You are required to submit documentation through Blackboard on each phase. Each group only needs to submit one copy.

Phase I (due in class or Blackboard on Thursday, October 24th)
Use your brainstorming skills to choose a database system, outline the problem and discuss different user views. Draw a detailed ER schema diagram for the database system you choose.

To Submit

- A precise description of the project
- The complete ER diagram for the database system
- The language, database and any other tools and technologies that you intend to use for the project.

Phase II (due in Blackboard on Wednesday, December 5th)
Convert the ER diagram to a relational schema. Show all the functional dependencies that should hold among the attributes. Then design the relational schemas for the database that are each in 3NF. Indicate primary keys, foreign keys, and any other constraints you may have. Clearly specify any assumptions you make and your rationale. Implement the SQL database schema. Assume suitable data types for the attributes.

With the database development complete at the back end, there should be a user-friendly web interface that allows the user to perform insert, delete, update, and query. Operation results should be displayed on the web interface as well.

To Submit:

- Updated ER diagram
- Relational database schema of your database. Indicate primary keys, foreign keys, and any other constraints you may have. Make sure these relations in 3NF. State assumptions, if you make any.
- User manual
- A project report which outlines your learning experience in the project and identifies changes/modifications to the initial design. Include any known problems, bugs, limitations, unimplemented features; references, acknowledgements, and outside sources; and the contributions of each team member.

Phase II also includes the following activities:

- Project Presentation and demonstration (December 5th)
  The presentation will be 10 to 15 minutes in length, with approximately 2-*3 minutes* for questions and answers at the end of each presentation.

Grading

The instructor will give feedback for phase I submission (NO GRADE). Project grades will be given after the final project documentation is submitted and presentation and demonstration is done. Individual students may receive different final project grades based on the degree of their involvement in the project.

Academic integrity

Feel free to get ideas from sample code you can find on the WWW, but DO NOT submit code that you did not write. Copying from the internet and any other sources (such as senior students or classmates, etc.) is cheating. Cheating will result in a zero for the course and will be reported to the Office of Judicial Affairs.