UNIVERSITY OF CALGARY
DEPARTMENT OF COMPUTER SCIENCE
Fall 2019
CPSC 471: Data Base Management Systems

Group Project Specification

In practice, database management is rarely accomplished by a single person. For this reason, 30% of your final grade is allocated to a group project component.

Group

You have to work in a group of three students. Group members can be from different tutorials but should have the **same TA**. Select your group members and send **the name, student ID, tutorial number for each group member by Thursday, September 19th (11:59 PM) to Kashfia Sailunaz <kashfia.sailunaz@ucalgary.ca>.** Kashfia can help you form groups if needed.

Tutorials :
TUT 1 TR 08:00 - 08:50 – TA : Kashfia Sailunaz
TUT 2 TR 17:00 - 17:50 – TA : Kashfia Sailunaz
TUT 3 MW 15:00 - 15:50 – TA : Abdelghani Guerbas
TUT 4 MW 13:00 - 13:50 – TA : Abdelghani Guerbas
TUT 5 MW 11:00 - 11:50 – TA : Abdelghani Guerbas

Contributions

At the end of the semester, **each student will be asked to confidentially evaluate the performance of other team members.** If certain members of a group do not contribute as much as they should have, their marks will be adjusted according to how much contributions they have to the project.

The Project

Each group has to develop either a website or a mobile app. The project is comprised of four distinct components and every component is mandatory. If a group fails to complete one of the components, the group members may each be assigned a mark of 'Zero' for all components. **You have to make sure that your implemented system can prevent SQL injections.**

1. Project Proposal (Due Date: Monday, September 30th (11:59 PM))

The first component is a formal project proposal. The proposal should be for a real-life problem or scenario for which a database application would be appropriate. Possible problems include car rental, pharmacy, airlines reservation, real estate, multimedia store, etc. It is highly recommended to find your own real-life problem based on your own external contacts. This could involve making a real database web application or a mobile app for someone running a business. You have to make sure that the workload of your proposed project is reasonable compared to the size of your team.

Your project proposal should include:

1. Introduction.
2. Problem Definition.
3. Proposed Solution.
4. Motivation.

5. Conclusion.
6. References (Preferred).

The proposal must describe some of the functionality you expect to implement in your system. You are not required to make specific design decisions at this point, but you should provide a general overview of your proposed system. **The detailed guideline for project proposal is explained in "Project Proposal Guideline.pdf" in the folder "Project" in D2L.**

The proposal should be submitted via D2L.

After your proposal is accepted, the topic may not be changed without permission of the instructor. Your group may be asked to "scale" this the proposed project up or down if it is deemed too simple or too difficult.

2. Intermediate progress reports

Intermediate progress reports are to be submitted according to the following schedule:

1. A detailed ERD and all the related assumptions **due to Friday, October 11th (11:59 PM).**

   The basic requirements for the system you are designing are as follows:

   a. You must have at least eight (8) unique entity types.

   b. At least one (1) of your entity types must be weak.

   c. You must have at least ten (10) relationship types.

   d. You must have entities for at least two different types of end-users such as (admins and clients).

2. The initial (logical) relational model **due to Monday, October 21st (11:59 PM)**
3. The initial draft design of the functional (programming) part of the project. Students have to **either do UML and Sequence diagrams or HIPO & DFD diagrams. You also have to include all possible SQL statements for your project**. This part **due to Monday, November 4th (11:59 PM).**

3. Demonstration (Last week of classes)

The third component is a demonstration. The demonstration will not be a presentation so don't prepare slides. This is more of informal talk with your TA near the end of the semester. Every group member must attend and participate in the demonstration. **YOU SHOULD HAVE A COMPLETE IMPLEMENTATION OF YOUR PROJECT AT THE DEMONSTRATION.**

Your demonstration will be assessed according to the following criteria:

- Were the scenario and system details fully described?
- Was the system well-designed and well-presented?
- Were the basic requirements (noted above) met?
- Was the user-interface functional and appealing?
- Were the structure and results of several well-designed queries presented?
- Did every group member participate and respond to questions?

4. Final Report (Due Date: Friday, December 6th (11:59 PM))

The fourth component is a final report. This report should contain a comprehensive summary of the real-world scenario you selected as a topic (as though you conducted some form of use case analysis) and a complete description of the database and interfaces constructed. The final report has to be submitted via D2L. Submission should include a single PDF file and the project's source code and database.

The report should include the following sections:

- An abstract of no more than 300 words.
- An introduction wherein you:
  - Describe the problem or task your database was designed to address.
  - Describe (briefly) the system you have created to address the problem or task.
- A project design section where you discuss the different users of your system. Your discussion in this section should be considerably more detailed than what you described for the presentation – this section should describe a complete transaction collection and, consequently, provide a complete picture of the functionality offered by your system.
- The project design section must also include a thorough ER diagram. Every component of this diagram must be present, visible, and legible and any changes that were made since the presentation should be clearly indicated.
- An implementation section should begin with a complete relational model diagram, indicating that you followed the algorithm for converting an entity relationship diagram to a relational schema diagram. Discuss any significant or unusual decisions made during this process.
- The implementation section should then describe the DBMS you selected for the implementation of the project and must also include the SQL statements for each of the transactions implemented. It is not necessary to discuss these transactions in relational algebra or calculus.
- **A professional user manual with snapshots for your application. Also, you have to include, as an appendix, sample data records/instances you have used to populate your database.**

There is no minimum page requirement, but you must thoroughly address every section requested above. Insufficient coverage in any of the areas detailed above may warrant penalties.

Your group is expected to reference all materials (including the course textbook and any personal communications) used to complete the components described above. Failure to do so may be considered academic misconduct.

It may become necessary to amend this specification at some point. If that is the case, you will be notified via D2L.