ISOM3260 Database Design and Administration

Project Guideline

Overview

To truly learn how to build business applications with databases, you need to work on a group project. The group project is simpler than real life cases, but complex enough to illustrate common problems that you may encounter.

The project will reinforce the concepts discussed in lectures, especially database design (ER diagrams, normalization, SQL). By working on the project throughout the semester, you can have a better understanding of the topics.

Project Requirements

This group project (**5-6 members** each) is to develop a database system for a newly established e-Commerce company. It contributes **30 points (30%)** to the course grade. By the end of the project, students should be able to

Non-technical
- Perform a comprehensive analysis on data and functional requirements
- Allocate different tasks to group members effectively as in IT development projects
- Build professional IT documentations

Technical
- Perform data modeling of the application using Toad Data Modeler
- Construct an information system using (SQL) and its extensions (i.e., PL/SQL)
- Compile valuable managerial information from the database using SQL

To fulfill the project requirements, each project group will conduct two demonstrations, a progress demonstration (5%) and a project demonstration (25%).

Important Dates

Project Group Formation	**11 March 2020**
Progress Demonstration	**30 March – 1 April 2020**
Project Demonstration and Final Report	**11 – 13 May 2020**

Deliverables

Progress Demonstration **(5%)**

All project groups are required to demonstrate the progress of their project. It is mandatory for each group to walk-through the project with the instructor during the 8-min demonstration in week 7. This is to make sure the project is developed on an appropriate track.

There will be **no make-up demonstrations available**. Groups that fail to demonstrate during the specified periods will be scored 0% in the demonstration.

In the progress demonstration, project groups should submit a preliminary version of the final report:

1. **Conceptual data model – 1 page**
   You should present the E-R diagram and provide necessary explanations of the model, such as why specific entity classes, relationships, and attributes are modeled in your model. You should state the business rules and assumptions you have made.

2. **Data dictionary – 2 to 4 pages**
   You should describe all tables including their attributes, primary keys, and foreign keys.

3. **Functional requirements – 1 page**
   You should include a list of functions that you have implemented. Besides a list of basic functions of which you can find from the project case document, you should also list and explain the extra function you have implemented (if any).

4. **Screenshots of system prototypes – 8 to 10 pages**
   You should design the GUI layout of your system based on the functions of which you can find from the project case document. You should also show the page flow and indicate all the buttons that required using SQL statements accessing with the database tables.

In addition to a preliminary version of the final report, project groups **should also create the table structure physically in the Oracle Database** with all the functions.

Project Demonstration and Final Report **(25%)**

All groups must conduct final project demonstrations to the instructors in week 13. Each group is given 20 minutes to **demonstrate all functions** of their systems. Details and rules will be given in due course.

After the project demonstration, each project group is required to submit a final report. The report is the formal document of your system. It should integrate all work you have done in this semester, containing the following sections:

1. **Introduction to the project – 1 page**

2. **Conceptual data model (improved from Progress Demonstration) – 1 page**
   You should present the **finalized** E-R diagram and provide necessary explanations of the model, such as why specific entity classes, relationships, and attributes are modeled in your model. You should state the business rules and assumptions you have made.

3. **Logical data model – 1 to 2 pages, landscape**
   You should map the E-R diagram into relations and normalize the relations into 2NF or 3NF. To prove that the relations are all in 2NF or 3NF, you must list all functional dependencies for every relation. You may consider using Excel to draw the relations, with hand-drawn functional dependencies and referential integrity.

4. **Data dictionary (improved from Progress Demonstration) – 2 to 4 pages**
   You should describe all tables including their attributes, primary keys, and foreign keys.

5. **Functional requirements (improved from Progress Demonstration) – 1 page**
   You should include a list of functions that you have implemented. Besides a list of basic functions of which you can find from the project case document, you should also list and explain the extra function you have implemented (if any).

6. **A brief conclusion – 0.5 to 1 page**
   Summarize the state of your project and any thoughts you have on this project including suggestions and comments for further development.

7. **Assumptions – 0.5 to 1 page**
   Document any extra assumptions (in point form) that you make when you implement the project.