Course Project

CSC 675/775

The goal of the course project is to practice database concepts in a realistic context.

- The project can be done in groups of 2, 3 or 4 students.
- It has 2 Phases. You will submit a report for each phase.
- You need to submit two reports including a design report and an implementation report through ilearn.
- Each group will present during the last lecture.

Tasks of phase1

Task1: Select a topic/application

- Do the Requirement Analysis to find out about the data to be stored and what to do with the stored data and the constraints on the data.

Task2: Conceptual Design

- Design a conceptual model; build ER diagram and related data logic.
    - Your database should include at least 4 entities and 3 relationships.

Task3: Logical Design

- Translating the conceptual model into relational schemas

Task4: Writing your design report

- The design report must be a pdf file including:
    - Name of group members,
    - A brief description of your database and data requirements
    - ER diagram, and
    - Relational schemas.

Task1 credit: 40/100

Tasks of phase2

Task1: Create Tables, indexes and constraints.

- At least one index (hash-based or tree-based) and one view.

Task2: Collect and import data. You can collect data manually or import data from any available online data repository.

Task3: Write SQL Queries

- At least 2 queries involving GROUP BY, HAVING, and aggregate operators.
- At least 2 nested queries involving IN, EXIST, op ANY, op ALL…

Task4: Final report

- For your final report you should submit a PDF file including:
  - All CREATE TABLE, INDEX, VIEW statements, as well as SELECT queries.
  - The snapshot of the results of your SELECT queries. If the results of your select queries are large just include part of the results.

Task5: Project presentation and demos

- You will present your project during the last session of class.
- Your presentation should include:
  - Presentation slides describing your design and implementation.
  - A live demo of executing your SQL queries, including aggregate queries and nested queries.

- For the implementations, you can use any relational database system, including SQLite, MySQL, PostgreSQL, ORACLE, Microsoft SQL Server, …

  Note: *you cannot use Oracle live SQL.*

Task2 credit: 60/100

Optional Extra Tasks

1. Developing a front end web-interface

Any front-end client interface (e.g., a Web or mobile interface) is not required for this course project, but such a front-end application can be interesting and can be considered as a bonus.
Such interface should be able to read data from the database and present on the web interface, also write the new updates back to the database.

Extra-task1 credit: 14/100

2. Develop a NoSQL database

- Consider the same application that you developed a relational database for it
- Design and develop a NoSQL database for your application using MongoDB (or any NoSQL database)
  1. Create collections and documents
  2. Insert, update, delete and query documents in collections
  3. Create an index of any type

Extra-task2 credit: 12/100