CS 195: Final Project

Database Project
In this project you will design a non-trivial database information system for an institution (a company, library, supermarket, video store, etc.) of your choice. Non-trivial means something that takes a significant amount of time and effort to complete (i.e., not something you can finish in a single sitting or over a few hours). It must be substantially different then HW and in-class database. You will work on this project in teams. Each team will be made up of 2 students (no exceptions). Your database must show substantial difference from the database we are using in lab and as homework.

If you plagiaries, you not only will get a 0 for the final project but you will receive an F in the class. Cheating, plagiarism, and/or code copying will not be tolerated.

See Deadline Section for all deadlines for the project.

You have to submit a project report for this project.
The project report should effectively communicate everything that you have done in the project. It should describe the problem / environment, what you proposed to do, the scope of the project, and of course everything from the diagrams to the final queries.

Importantly, the project report should specifically include the following but is not limited to:

Section1: Project definition, scope

- What is the underlying problem that the database addresses?
- Who will be the users of this database?
- What kind of data is to be stored in this database?
- Will there be any constraints on the data that will be stored in this database? Why?
- What real world scenarios will this data represent (i.e., what are the kinds of transactions that you can think of that will take place with your database)?
- What kind of information would you expect to retrieve from this database, e.g., the kinds of reports that the various kinds of users might like to see? Or queries they would like to run?
- In what ways do you think your project will give your company competitive advantage?

Deliverables: Detailed answers to the questions under this section.
Rules: Must be detailed and thorough otherwise will get 0 points

Section2: Conceptual Design:

1. ERD Diagram
   - Entity definitions for all entities in the ERD diagram
     - Must have at least 5 entities
     - This does not include intermediary relationships (aka M:N broken into 3 entities still only count as 2 entities)
   - Relationship definitions for all relationships in the ERD diagram
     - Cardinality, Ordinality, Description
   - Attribute definitions for all attributes in all entities (PK, FK, Normal Attributes)
     - Each entity must have at least 5 attributes (not including PK and FK)
2. Develop a 3NF mapping
   - Can be a diagram or a visual explanation in detail of how you are in 1NF and 2NF

Deliverables: ERD Diagram, 3NF mapping

Section3: Logical Design:

1. Map the ERD diagram to a relational schema (aka create your database)
    - Each table must have at least 15 records of the 5 main tables
    - All other tables must have at least 1 record, there should be no table with 0 records

2. Write SQL queries for your database.
    Note: Select * queries do not count
    - You should write at least 5 single-table queries. These queries should serve some business function.
    - You should write at least 5 multi-table queries. These queries should serve some business function.
3. Write at least 2 stored procedures or stored functions that server a business function

Deliverables: Saved scripts of all queries and any additional features that you may have included that enriches the project.

- Design:
    - Create
    - Insert
    - Update
    - Delete
    - Any other queries
- Queries: List all queries and a brief explanation of the purpose of each query and why someone would want to run this query (If no explanation you will get 0 points)
    - Single-table queries
    - Multi-table queries
- Two stored procedures or stored functions: List and briefly explain the purpose of each.

Section4: Design Overview

Deliverables: Basic description of your database tables and design, why did you design it the way you did. What is the purpose for each of the tables (don't just give me the table name with the columns, I can see that from your ERD)

Presentation:

You can either do a recording or give a live presentation that you will present to the classroom (you can use things like PowerPoint, Teams, Google Slides, or any other recording software)

- At least 5 minutes with max 6 minutes
    - You will be docked 10 points for every minute over
    - You will get 0 points for the presentation section if it is not at least 5 minutes
- After presenting you will have 2 minutes of questions
    - Each team will get +5 points for each meaningful question they ask another group for the presentation points

Deliverables: Submit your recorded presentation OR submit your slides you will present

Ideas for what to present:

- Overview of the project
- Explain ERD
- Show some queries/stored procedure/stored function

NOTE: if you are going to show ERD or say queries you need to make sure that someone can read the entire thing. This might mean that you need to have multiple screenshots for the ERD across multiple slides or you might need to show one query at a time. If we can't see what you are doing you will get points off.

Final submission:

1. Report with at least Sections1-4
2. Saved scripts (zip in one folder)
3. Database export (see below on how to export)
4. Recorded presentation
    a. If you are going to do a live presentation you still need to submit your PowerPoint or slides you will be using

Deadline:

1. 4/11: Team Submission
2. 4/20: ERD draft
3. 5/5
    a. Report
    b. Saved scripts (zip in one folder)
    c. Database Export
    d. Recorded Presentation or Presentation Slides
4. 5/6:
    a. Group evaluation
5. 5/6:
    a. 10:30am – 12:30pm > Presentation (7 mins – 5 mins content, 2 mins questions)

Rubric:

- Section1: 10%
- Section2: 30%
- Section3: 40%
- Section4: 10%
- Presentation: 10%

Team Submission: (1 low – 4 high)

- 1 – 30% deduction
- 2 – 20% deduction
- 3 – 10% deduction
- 4 – 100% of the overall points

Note: If you are using the Team database on the Rady server you do not need to export your database, just indicate your team database name (Ex: Team 9). You still do need to turn in the create, insert, single table, multi table, stored procedure queries.

Export Database

1. Connect to your MySQL database.
2. Click Server on the main tool bar.
3. Select Data Export.
4. Select the tables you want to back up.
5. Under Export Options, select where you want your dump saved. ...
6. Click Start Export. ...