AMERICAN UNIVERSITY OF BEIRUT

MAROUN SEMAAN FACULTY OF ENGINEERING & ARCHITECTURE

American University of Beirut

School of Engineering and Architecture

Department of Electrical and Computer Engineering

EECE 433 - Database Systems - Project Phase 3

Date assigned: Monday 30th of October 2023 at 11:59 PM
Date Due: Friday 10th of November 2023 at 11:59 PM.

Objectives:
To test students' knowledge of the following database topics & some of the important database design skills:

Implementing a database in a famous DBMS.	DDL SQL queries to create tables & Constraints
DML complex queries to retrieve useful data from the DB	DML queries to insert data/ to update data

General Rules

- **Submissions are not allowed after 24 hours from the deadline. For any additional hour after the deadline, a penalty of 4% will be applied.** This is **a group assessment**. Groups are now set. Topics were given to you in the class. Feedback on Phase 2 was given to you
- **Cheating or copying** other students' work will get all the involved students a zero grade. I do not care if someone copied your work or who copied from whom. This project assignment should be unique. It is statistically impossible that two groups in the class would end up doing the same project or have the same or even similar diagrams or concepts.
- **Any form of plagiarism or academic misconduct is prohibited. I have a zero-tolerance policy concerning this**. Copying diagrams or parts of diagrams, text or paraphrased text, concepts, ideas, techniques, code found elsewhere or changing it a bit and then claiming it to be yours will get you a zero grade immediately. **Using anything which you did not create yourself, MUST be cited and credited adequately** in your submitted report document. Failure to cite adequately the exact sources in your submitted report **will get all group members a zero grade on project phase 3.** This is literally the definition of plagiarism: claiming someone else ideas as yours.
- The **report, diagrams. mapping & other concepts of this phase and any future phases of this database project should NOT appear elsewhere**, **nor should be a previous submission to a different or to the same course in any previous semester or in any other university or academic institution,** nor should be a project made elsewhere in the industry, nor made for a client, nor made before for any other reasons that I did not state. If we discover this is the case, you will get a zero grade immediately and maybe further penalties & disciplinary actions.
- Please refer to the student's code of conduct in the syllabus for further penalties on academic offences.

What deliverables I need to submit?
Each group member MUST submit the following to Moodle - please include the group number & the topic in all of your submissions:

1. A **well-written phase 3 report** document (in PDF or Microsoft Word) – please check the requirements section for further details.

Requirements

1. Include the cover page as previous project phases with all group names, the group number and other needed info.

2. Correct phase II as per the feedback communicated to you. Include phase 1 (the corrected version), phase 2 (old + corrected), and phase 3 (SQL/DBMS implementation) in a report in spiral binding.
3. Build your database on the **PostgreSQL Database Management Server** or any other DBMS that is approved by your lecturer. Create all the tables and insert all the data that is necessary. Ensure that there are at least ten tuples per relation. You must include in the report all the DDL SQL statements used for creating your tables and for adding the necessary constraints in addition to all SQL queries used to insert the data itself. All SQL statements/queries must be included in the report. Include snapshots of all the tables showing the types of the columns + any constraints. Include snapshots of the inserted data in your tables (table states) from your DBMS.
4. Come up with **10 complex transactions** to query your database. Note: Your **queries should be complex, interesting & pertinent to the database that you have designed**, none of this wishy-washy stuff. They should have real world value. **Explain each query clearly**: in other words, explain what it does and why it is needed. Each query should have a clear description and an output/result.
5. Execute your SQL queries against your database implemented using **PostgreSQL Database Management Server**. Include in the report **snapshots of all the queries and the results** obtained from executing these queries (you can also copy them to your report if this is easier).
6. Pay attention: please enforce all constraints including your own database topic's constraints specified in requirements or that are essential to have in your DB, I need to see the usage of SQL checks. If you need views for derived values, please create the necessary views. You should use triggers and to a lesser extent stored procedures when needed.

NB: All reports of this phase and subsequent phases should be printed in spiral binding, same as previous phases.
NB: Do not include DBMS generated SQL in the report. If you do this, you will lose lots of grades as you did not write the SQL yourself, but your DBMS did on your behalf.