Revised Database Project Plan

Phase 2: Database Implementation (30%)

Deadline: *November 20, 2025 (11:55 PM)*

Objective:

The purpose of this phase is to design, implement, and validate a fully functional relational DB in Microsoft SQL Server based on the conceptual model, your ER diagram, developed in phase 1. Students are required to construct the DB schema, populate it with realistic and scalable data, and demonstrate the correct use of SQL Server features studied in class. This phase emphasizes database design, creation and feature implementation.

Instructions:

1. **Database Development**
    - Convert your ER diagram into a completely physical database schema.
    - Implement all entities, attributes, and relationships as defined in Phase 1.
    - Enforce primary key, foreign keys, and constraints to maintain referential integrity.
    - Follow normalization principles (at least up to 3NF)

2. **SQL Server Feature Implementation**
    - Each SQL Server Feature listed below must be implemented at least twice in a meaningful way
        - Stored Procedures, Functions, Triggers (After, Instead-of), Views, Common Table Expressions (CTEs), Various types of indexes, and Table partitioning
    - Each implementation should have a real and relevant purpose within your application's domain

3. **Scalability Requirement**
    - The database must contain a minimum of 1 million rows distributed across key tables.
    - Ensure all relationships and constraints remain valid after data insertion

4. **Execution Readiness**
    - Create a single SQL script (.sql) capable of creating and populating the entire database from scratch on the instructor's SQL server.
    - The script must run without any manual modifications.

5. **Template Adherence**
   A formal submission template is provided on LMS -> Assignments -> Project - Phase 2

Deliverables:

1. **Database Creation Script (.sql):**
    - A single .sql script that will create all objects on the instructor's server.

2. **Documentation:**
    - A short report that includes:
        - Overview of database design and Schema
        - Description of each feature implemented
    - The report should be clear, concise, and professionally formatted. No essays. Just a paragraph for the overview and bullet points for everything else.

Submission Instructions:

- Submit the final document (PDF) on LMS in a **ZIP** named groupX_p2.
- File name format: *groupX_p2.pdf/sql*
- Make sure all group members' names and roll numbers are written.
- Only one submission per group is allowed.
- Ensure the .sql script is included as a separate attachment.