Final Requirement in CC 104: Information Management

Instructions:

As a database administrator, you are responsible for managing and querying a database for a specific application. You will design your own database, define its structure, and apply SQL queries to retrieve, update, and manage data efficiently.

Requirements:

1. **Choose Your Database Topic:**
    - Decide on a real-world application for your database (e.g., a school system, hospital records, e-commerce store, library management, etc.).
2. **Define Your Database Structure:**
    - Identify at least **six related tables** with meaningful attribute domains.
    - Ensure each table has a **primary key** and consider **foreign keys** for relationships.
3. **Create a relational schema:**
    - Design a schema to visually represent the relationships between tables.
    - Use appropriate notations to indicate primary keys, foreign keys, and cardinality.
4. **Develop a Data Dictionary:**
    - Document each table, including column names, data types, constraints, and descriptions.
5. **Create Your Database and Tables:**
    - Write SQL statements to create the necessary tables and paste your queries into a Word document.
6. **Insert Sample Data:**
    - Populate each table with sample records, at least 15 records on parent table.

Outputs:

1. Relational schema for the database
2. Data dictionary of the database
3. A fully functional **SQL database** that can be accessed using **XAMPP**, along with a **Word document** containing a copy of the SQL queries used to create and manipulate the database.

Presentation Guide:

Part I: Brief Presentation

- Each group will present their work to the instructor from **April 28 to May 2, 2025** depending on their class schedule.

Part II: Q and A

- After presenting, students may be asked to perform the following tasks ***randomly***:

Example Task Only:

Writing and executing SQL queries, including:

- Basic Queries: Retrieve all records from a table.
- Filtering: Use WHERE to filter records based on conditions.
- Joins: Combine data from multiple tables using JOIN.
- Aggregations: Use COUNT(), SUM(), AVG(), etc., to analyze data.
- Updates: Modify existing records.
- Deletions: Remove specific records.
- Modify your queries to extract different insights from the data.
- Add a new table to your database and establish relationships with existing tables.
- Write a query that retrieves the most frequent users, highest transactions, or most borrowed books, depending on your database topic.

Overall Grading Rubric for Outputs

Criteria	A+ (95-100%)	A (90-94%)	B (85-89%)	C (75-84%)	D (65-74%)	F (0-64%)	Weight (%)
SQL Database (XAMPP-Compatible) with Queries	Fully functional, no errors, optimized queries, and proper constraints.	Functional with minor optimization or constraint issues.	Works but has missing constraints or minor errors.	Contains major errors affecting usability.	Incomplete or not fully functional.	Not submitted or completely non-functional.	**50%**
Relational Schema	Well-structured, accurate relationships, and clear notation.	Mostly correct with minor relationship issues.	Some errors in structure but generally accurate.	Several errors affecting clarity and accuracy.	Incomplete or poorly structured with major issues.	Not submitted or completely incorrect.	**35%**
Data Dictionary	Complete, detailed, and well-organized with table names, attributes, data types, and constraints.	Mostly complete with minor missing details.	Some missing or incorrect details affecting clarity.	Lacks structure, missing essential components.	Incomplete or poorly formatted.	Not submitted.	**15%**

Presentation Grade (Group Points + Individual Points)

Group Grade:

Criteria	**Points**
Content & Organization	20 pts
Delivery & Engagement	15 pts
Visuals	10 pts
Time Management	5 pts
Total:	**50 pts**

Question and Score (Individual)

Criteria	**Points**	**Description**
Both Queries Are Perfect	50 pts	Both queries are correctly written, execute without errors, and return the expected results.
One Query Perfect, One Minor Issue	40 pts	One query is fully correct, while the other has a small syntax or logic error.
Both Queries Have Minor Errors	30 pts	Both queries contain small syntax or logical mistakes but still mostly function.
One Query Correct, One Incorrect	20 pts	One query is fully correct, but the other has major errors or does not function.
Both Queries are Incorrect or Missing	0-10 pts	Queries do not execute properly, return incorrect results, or were not submitted.