PROJECT OVERVIEW: STUDENT MANAGEMENT SYSTEM

Project Introduction

This project is designed to refresh your memory on the concepts you've learned and to challenge you to explore new ideas beyond the course content. While collaboration with your peers is encouraged, I strongly recommend that you put in the effort to solve the tasks independently before seeking help. The process of figuring things out on your own will deepen your understanding and enhance your problem-solving skills.

Remember, the purpose of this project is not just to assess your current knowledge, but also to cultivate a growth mindset—the ability to seek out and learn new concepts on your own. Don't hesitate to use online resources, documentation, and forums as you work through the tasks. These are valuable skills in the real world, where knowing how to find the answer is just as important as knowing the answer itself.

Take this as an opportunity to challenge yourself, build confidence, and showcase your skills! You'll be sharing your work on GitHub and LinkedIn, so make sure to put your best effort into the project. Let it be a testament to your dedication and readiness to advance in the field of data analysis.

BUSINESS QUESTIONS

1. Database Creation & Schema Design

- Create a database called `school_management`.
- Create the following tables:
- students: `student_id` (INT, PRIMARY KEY), `first_name`, `last_name`, `dob`, `email`, `phone_number`.
- courses: `course_id` (INT, PRIMARY KEY), `course_name`, `course_code`, `credits`.
- enrollments: `enrollment_id` (INT, PRIMARY KEY), `student_id` (INT), `course_id` (INT), `enrollment_date`.
- grades: `grade_id` (INT, PRIMARY KEY), `enrollment_id` (INT), `grade`.

2. Alterations and Modifications

- Add a column `address` to the `students` table.
- Modify the `course_name` column in the `courses` table to be of type `VARCHAR(100)`.
- Change the position of the `credits` column to be right after the `course_code` in the `courses` table.
- Rename the `dob` column in `students` to `date_of_birth`.

3. Data Insertion

- Insert at least 30 students into the `students` table.
- Insert at least 10 courses into the `courses` table.
- Insert at least 12 records into the `enrollments` table, ensuring that some students are enrolled in multiple courses.
- Insert grades for each enrollment in the `grades` table.

4. Complex Queries

- Write a query to retrieve the full names and courses for all students.
- Write a query to find all students who have not yet been assigned a grade.
- Write a query that returns the average grade for each course.
- Create a `CASE` statement to assign letter grades (A, B, C, D, F) based on numerical grades.
- Use subqueries to find students with the highest grades in each course.

5. Using CTEs (Common Table Expressions)

- Write a CTE to list all students with their course names and grades.
- Write a CTE to find students who have taken more than 2 courses.

6. Importing & Exporting Data

- Export the `students` table to a CSV file.
- Import a CSV file (provided or created) containing a list of new courses into the `courses` table.

7. Additional Tasks

- Write a query to count the number of students enrolled in each course.
- Create a report showing the total number of students, courses, and enrollments.
- Use a JOIN to retrieve the names of students and the courses they are not enrolled in.
- Write a query to find students who share the same last name.
- Create a new table named dropped_courses with the same structure as enrollments, then move all enrollments where the grade is "F" to this table.
- Delete all records from the grades table where the grade is below 50 and record the number of rows deleted.

Submission Instructions

1. **Upload the Project to GitHub**:
    - Create a repository named Student-Management-System`(or any name of your choice) on GitHub.
    - Upload all the SQL scripts and the exported CSV files.
2. **Share on LinkedIn**:
    - Write a post describing your experience with this project, what you learned, and include a link to your GitHub repository.
    - Use relevant hashtags like #MySQL, #DataAnalytics, #SQLProject, and #StudentManagementSystem.
3. **Share in the WhatsApp Group**:
    - Send the linkedin post link to the whatsapp group.