SQL DEVELOPER

TASK - 1

Student Management System Project for SQL Developers

Objective

The project focuses on providing students with practical experience in SQL database creation, data manipulation, and analysis using student performance data.

Project Steps

1. Database Setup

- Create a database named **StudentManagement**.
- Create a table named **Students** with the following fields:
  - **StudentID**: Primary Key, INT, an auto-incrementing integer.
  - **Name**: Stores the student's name (up to 50 characters).
  - **Gender**: A single character (VARCHAR, 1 - 'M' for Male, 'F' for Female).
  - **Age**: INT
  - **Grade**: Academic grade (VARCHAR, 10 - e.g., 'A', 'B', 'C', etc.).
  - **MathScore**, **ScienceScore**, **EnglishScore**: Integers representing scores in respective subjects.

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2. Insert Data

Populate the Students table with at least 10 sample records, including a variety of names, genders, grades, and scores in Math, Science, and English.

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3. Tasks to Perform

1. Display all students and their details to get an overview of the data.
2. Calculate the average scores for each subject to understand subject-wise performance.
3. Find the student(s) with the highest total score across all subjects to identify the top performer.

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4. Count the number of students in each grade to observe grade distributions.
5. Find the average score for male and female students to compare performance by gender.
6. Identify students whose Math score is above 80 to highlight high achievers in Math.
7. Update the grade of a student with a specific Student ID to reflect changes or corrections.

Deliverables

- A list of SQL queries used for database creation, data insertion, and task completion.
- Documentation explaining:
    - The purpose of each query.
    - Observations and insights derived from the data.

How to Execute

1. Use any SQL tool such as MySQL Workbench or phpMyAdmin to run the queries.
2. Execute each step sequentially:
    - Create the database and table.
    - Insert sample data.
    - Perform the specified tasks.
3. Analyze the results of each query and document your findings.

Expected Outcomes

By completing this project, students will:

- Gain hands-on experience with SQL operations such as creating tables, inserting data, and querying.
- Learn to perform data aggregation, filtering, and updates effectively.
- Develop skills to analyze performance data, draw insights, and make data-driven decisions.

This project offers a practical approach to understanding SQL fundamentals and solving real-world database management challenges.

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Deadline Compliance

- **Restriction**: **Submit the project within 7 days** from the start date.
- **Reason**: Meeting deadlines is crucial in the real-world software development environment. This restriction helps students practice **time management** and **task prioritization**. In professional settings, tight deadlines are often the norm, and learning to meet them without compromising quality is an essential skill.
- **Learning Outcome**: Students will learn to manage their time effectively, complete projects under pressure, and **deliver results on time**, which are all important skills in the workplace.