***Project Title: Student Management System Project for SQL Developers***

**Objective**

The project focuses on providing students with practical experience in SQL database creation, data manipulation, and analysing 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, an integer, auto-incrementing.
     + Name: Stores student names, a VARCHAR (50).
     + Age: An integer.
     + Gender: A single character (VARCHAR (1) - 'M' for Male, 'F' for Female).
     + Grade: An integer.
     + Subjects: A VARCHAR (50) to store subjects like 'Math, Science, English'.
     + Scores: A JSON object (VARCHAR) - e.g., {"Math": 90, "Science": 85, "English": 88} representing scores in different subjects.
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.
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 scores across all subjects to identify the top performer.
4. **Additional Tasks**
   1. Count the number of students in each grade to assess grade distribution.
   2. Analyse average scores for male and female students to compare performance by gender.
   3. Identify students whose math scores are below the 50th percentile and suggest improvements.
   4. Track the academic trend of a student with a specific StudentID based on changes or improvements in scores.

5. **SQL Queries:**

* **Database Creation:** The SQL commands used to create the StudentManagement database and the Students table.
* **Data Insertion:** The SQL commands used to insert sample records into the Students table.
* **Task Queries:** The SQL queries used to complete each of the tasks listed in the project steps.

6. **Documentation:**

* **Project Goal:** An explanation of the project's main objective, which is to provide practical experience in SQL database creation and data manipulation using student performance data.
* **Steps and Methods Used:**
  + **Database Setup:** How the database and tables were created, including the structure of the Students table.
  + **Data Insertion:** How sample data was inserted into the table, including examples of the data used.
  + **Task Execution:** Detailed descriptions of how each task was performed using SQL queries.
* **Observations and Insights:** Analysis of the results obtained from executing the SQL queries. This includes any patterns or trends identified, such as average scores per subject, top performers, grade distribution, gender-based performance comparisons, and areas for improvement

**How to Execute**

1. **Using SQL:**
   * Create and set up the database and tables.
   * Insert the sample data.
   * Execute the required queries and document your findings.
2. **Tools:**
   * Use any SQL tool such as MySQL Workbench or phpMyAdmin to run the queries.
   * Ensure proper indexing for efficient querying.

**Expected Outcomes**

By completing this project, students will:

* Gain hands-on experience with SQL operations such as creating tables, inserting data, and querying.
* Develop skills in data aggregation, filtering, and analysis.
* Learn to derive insights from data and present findings using data-driven methods.
* Enhance problem-solving skills.
* Build a strong foundation in understanding SQL fundamentals and working with real-world database management challenges

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SQL DEVELOPER INTERNSHIP

5th JAN – 5th MARCH

TASK - 1