

Objective:

Gain hands-on experience with SQL queries involving Data Definition Language (DDL) and Data Manipulation Language (DML) operations.

Instructions:

1. Database Setup:

- Create a new database named "UniversityDB".
- Inside this database, create two tables:

Table 1: "Students"

- `student_id` (Integer, Primary Key)
 - `student_name` (Varchar)
 - `email_id` (Varchar)
 - `GPA` (Decimal)
 - `major_subject` (Varchar)
- Table 2: "Courses"

- `course_id` (Integer, Primary Key)
- `course_name` (Varchar)
- `instructor` (Varchar)
- `credits` (Decimal)

2. Data Insertion:

- Insert sample data into both the "Students" and "Courses" tables.
Sample Data for Table 1 ("Students"):

"Ali", "Muhammad", "muhammad.ali@example.com", 3.6, "Computer Science"),
("Khan", "Fatima", "fatima.khan@example.com", 3.9, "Mathematics"),
("Hassan", "Ahmed", "ahmed.hassan@example.com", 3.2, "Biology"),
("Ahmed", "Ayesha", "ayesha.ahmed@example.com", 3.8, "Physics"),
("Rehman", "Sana", "sana.rehman@example.com", 3.5, "Chemistry"),
("Khan", "Bilal", "bilal.khan@example.com", 3.1, "Economics"),

("Mahmood", "Zara", "zara.mahmood@example.com", 3.7, "Psychology"),
("Ali", "Hassan", "hassan.ali@example.com", 3.9, "English Literature"),
("Malik", "Aisha", "aisha.malik@example.com", 3.4, "Business Administration"),
("Iqbal", "Usman", "usman.iqbal@example.com", 3.6, "Political Science")

Sample Data for Table 2 ("Courses"):

"Introduction to SQL", "Dr. Ahmed", 3),
("Data Structures", "Prof. Fatima", 4),
("Calculus I", "Dr. Ali", 4),
("Introduction to Biology", "Prof. Ayesha", 3),
("Financial Accounting", "Dr. Hassan", 3),
("History of Pakistan", "Prof. Zara", 3),
("Psychology", "Dr. Bilal", 4),
("English Literature", "Prof. Zara", 4),
("Business Management", "Dr. Usman", 3),
("Computer Networks", "Prof. Aisha", 3)

3. Query Tasks (for "Students" Table):

For each of the following queries related to the "Students" table, write the SQL statement to achieve the desired result.

Queries for "Students" Table:

- a. Retrieve the email IDs of students who have a GPA below 3.0.
- b. Retrieve the names and GPAs of students majoring in Computer Science.
- c. Update the GPA of a student named "Muhammad Ali" to 3.9.
- d. Delete the record of the student with the lowest GPA.
- e. Retrieve the names and major subjects of students with GPAs between 3.5 and 4.0.

4. Query Tasks (for "Courses" Table):

For each of the following queries related to the "Courses" table, write the SQL statement to achieve the desired result.

Queries for "Courses" Table:

- f. Retrieve the names of all courses taught by an instructor with the highest number of courses.
- g. Update the credits of a course named "Data Structures" to 5.
- h. Delete all records of courses with fewer than 3 credits.
- i. Retrieve the names of courses with unique instructors (no repeated instructors).
- j. Retrieve the names and instructors of courses with the highest number of credits.

5. Submission:

Write the SQL queries for each task in a document or text file.