**📘 SQL Queries**

**Database Commands:**

**-- Create a database**

CREATE DATABASE college;

-- Show all databases

SHOW DATABASES;

-- Use a database

USE college

-- Drop a database

DROP DATABASE college;

**Table Commands:**

-- Create a table

CREATE TABLE User (

Id INT PRIMARY KEY,

Name VARCHAR(50),

Course VARCHAR(20),

CGPA DECIMAL(3,2)

);

-- Show all tables

SHOW TABLES;

-- Describe table structure

DESCRIBE User;

-- Delete a table

DROP TABLE User;

**Insert Data:**

-- Insert single row

INSERT INTO User (Id, Name, Course, CGPA)

VALUES (101, 'Suraj Sharma', 'B.Tech', 8.84);

-- Insert multiple rows

INSERT INTO User (Id, Name, Course, CGPA)

VALUES

(102, 'Paras Mehta', 'B.Tech', 8.50),

(103, 'Lassi', 'B.Tech', 8.00);

**Select Queries:**

-- Select all rows

SELECT \* FROM User;

-- Select specific columns

SELECT Name, CGPA FROM User;

-- Select with condition

SELECT \* FROM User WHERE CGPA > 8.5;

-- Select with sorting

SELECT \* FROM User ORDER BY CGPA DESC;

-- Select with alias

SELECT Name AS Student, CGPA AS Score FROM User;

**Update & Delete:**

-- Update data

UPDATE User

SET CGPA = 9.0

WHERE Id = 101;

-- Delete row

DELETE FROM User

WHERE Id = 103;

**Aggregate Functions:**

-- Count rows

SELECT COUNT(\*) FROM User;

-- Minimum CGPA

SELECT MIN(CGPA) FROM User;

-- Maximum CGPA

SELECT MAX(CGPA) FROM User;

-- Average CGPA

SELECT AVG(CGPA) FROM User;

-- Sum of CGPAs

SELECT SUM(CGPA) FROM User;

**Constraints:**

-- Add NOT NULL constraint

CREATE TABLE Teacher (

Id INT PRIMARY KEY,

Name VARCHAR(50) NOT NULL,

Subject VARCHAR(30) UNIQUE

);

**Delete Queries:**

-- Delete a single row (by condition)

DELETE FROM User

WHERE Id = 102;

-- Delete all rows (table remains, but empty)

DELETE FROM User;

**Alter Table (Structure Changes):**

-- Add a new column

ALTER TABLE User

ADD Email VARCHAR(100);

-- Drop (remove) a column

ALTER TABLE User

DROP COLUMN Course;

-- Rename table name

ALTER TABLE old\_table RENAME TO new\_table;

-- Update the row data

UPDATE Department

SET GroupName = 'Room'

WHERE GroupName = 'Ward';

Or

UPDATE Fruit

SET UnitId = 2

WHERE FruitName = 'Apple' AND UnitId = 1;

-- Rename a column

ALTER TABLE User

RENAME COLUMN Name TO FullName;

-- Modify column datatype

ALTER TABLE User

MODIFY COLUMN CGPA FLOAT(3,2);

-- Change column name + datatype together (MySQL syntax)

ALTER TABLE User

CHANGE COLUMN CGPA GPA DECIMAL(4,2);

-- Add NOT NULL constraint to an existing column

ALTER TABLE User MODIFY Email VARCHAR(100) NOT NULL;

**Extra Useful Queries:**

-- Select top 2 students (highest CGPA)

SELECT \* FROM User ORDER BY CGPA DESC LIMIT 2;

-- Find duplicate CGPAs

SELECT CGPA, COUNT(\*)

FROM User

GROUP BY CGPA

HAVING COUNT(\*) > 1;

-- Find students with same Course

SELECT Course, GROUP\_CONCAT(Name) AS Students

FROM User

GROUP BY Course;

-- Begin a transaction

START TRANSACTION;

-- Commit a transaction

COMMIT;

-- Rollback a transaction

ROLLBACK;

-- Create a savepoint named SAVEPOINT\_NAME:

SAVEPOINT SAVEPOINT\_NAME;