**Create Table with primary key and foreign key constraints.**

**a. Alter table with add n modify**

**b. Drop table**

**Answer :**

**1. Create Tables with Primary and Foreign Key Constraints**

In this example, we will create a **Student** table, an **Instructor** table, and a **Course** table, where:

* Student will have a **Primary Key** on StudentID.
* Course will have a **Foreign Key** on InstructorID (referencing the Instructor table).
* Enrollment will be a **junction table** with **Foreign Keys** to both Student and Course.

**-- Step 1: Create the database**

CREATE DATABASE IndianCollegeDB;

**-- Step 2: Use the database**

USE IndianCollegeDB;

**-- Step 3: Create the Instructor table with Primary Key**

CREATE TABLE Instructor (

InstructorID INT PRIMARY KEY,

Name VARCHAR(100),

Department VARCHAR(100)

);

**-- Step 4: Create the Student table with Primary Key**

CREATE TABLE Student (

StudentID INT PRIMARY KEY,

Name VARCHAR(100),

Email VARCHAR(100)

);

**-- Step 5: Create the Course table with Foreign Key reference to Instructor table**

CREATE TABLE Course (

CourseID INT PRIMARY KEY,

Title VARCHAR(100),

InstructorID INT,

FOREIGN KEY (InstructorID) REFERENCES Instructor(InstructorID)

);

**-- Step 6: Create the Enrollment table (junction table) with Foreign Keys**

CREATE TABLE Enrollment (

EnrollmentID INT PRIMARY KEY,

StudentID INT,

CourseID INT,

EnrollmentDate DATE,

FOREIGN KEY (StudentID) REFERENCES Student(StudentID),

FOREIGN KEY (CourseID) REFERENCES Course(CourseID)

);

**-- Step 7: Insert sample data into Instructor table (using Indian names)**

INSERT INTO Instructor (InstructorID, Name, Department) VALUES

(1, 'Dr. Rajesh Kumar', 'Computer Science'),

(2, 'Prof. Meena Agarwal', 'Mathematics'),

(3, 'Dr. Arvind Sharma', 'Physics');

**-- Step 8: Insert sample data into Student table (using Indian names)**

INSERT INTO Student (StudentID, Name, Email) VALUES

(1, 'Amit Patel', 'amit.patel@example.com'),

(2, 'Priya Sharma', 'priya.sharma@example.com'),

(3, 'Ravi Kumar', 'ravi.kumar@example.com'),

(4, 'Neha Singh', 'neha.singh@example.com'),

(5, 'Vikram Joshi', 'vikram.joshi@example.com');

**-- Step 9: Insert sample data into Course table**

INSERT INTO Course (CourseID, Title, InstructorID) VALUES

(1, 'Introduction to Programming', 1),

(2, 'Data Structures', 1),

(3, 'Calculus I', 2),

(4, 'Quantum Mechanics', 3),

(5, 'Linear Algebra', 2);

**-- Step 10: Insert sample data into Enrollment table**

INSERT INTO Enrollment (EnrollmentID, StudentID, CourseID, EnrollmentDate) VALUES

(1, 1, 1, '2025-04-01'),

(2, 2, 2, '2025-04-02'),

(3, 3, 3, '2025-04-03'),

(4, 4, 4, '2025-04-04'),

(5, 5, 5, '2025-04-05');

**-- Step 11: Add a PhoneNumber column to Student table**

ALTER TABLE Student

ADD COLUMN PhoneNumber VARCHAR(15);

**-- Step 12: Modify the Email column in Student table to allow longer email addresses**

ALTER TABLE Student

MODIFY COLUMN Email VARCHAR(150);

**-- Step 13: Drop the Enrollment table (removes the table and its data)**

DROP TABLE Enrollment;

**-- Step 14: View all tables in the database**

SHOW TABLES;

**-- Step 15: Describe the structure of each table to verify their structure**

DESCRIBE Instructor;

DESCRIBE Student;

DESCRIBE Course;

DESCRIBE Enrollment;

**-- Step 16: View all data from each table to verify the inserted data**

SELECT \* FROM Instructor;

SELECT \* FROM Student;

SELECT \* FROM Course;

SELECT \* FROM Enrollment;