

1) Create 3 tables named students, department, year.

```
CREATE TABLE department (  
    Department_id INT PRIMARY KEY,  
    Department_name VARCHAR(50) NOT NULL  
);
```

```
CREATE TABLE year (  
    Year_id INT PRIMARY KEY,  
    Year_name VARCHAR(20) NOT NULL  
);
```

```
CREATE TABLE students (  
    Student_id INT PRIMARY KEY,  
    Student_name VARCHAR(100) NOT NULL,  
    Department_id INT,  
    Year_id INT,  
    FOREIGN KEY (department_id) REFERENCES department(department_id),  
    FOREIGN KEY (year_id) REFERENCES year(year_id)  
);
```

■ Insert data into the department table

```
INSERT INTO department (department_id, department_name) VALUES  
(1, 'CSE'),  
(2, 'ECE'),  
(3, 'MECH');
```

■ Insert data into the year table

```
INSERT INTO year (year_id, year_name) VALUES  
(1, 'Freshman'),  
(2, 'Sophomore'),  
(3, 'Junior'),  
(4, 'Senior');
```

■ Insert data into the students table

```
INSERT INTO students (student_id, student_name, department_id, year_id) VALUES  
(1, 'Alice Smith', 1, 1),  
(2, 'Bob Johnson', 1, 2),  
(3, 'Charlie Lee', 1, 3),  
(4, 'Diana Garcia', 1, 4),  
(5, 'Ethan Martinez', 1, 1),  
(6, 'Fiona Davis', 2, 1),  
(7, 'George Brown', 2, 2),  
(8, 'Hannah Wilson', 2, 3),  
(9, 'Ian Clark', 2, 4),  
(10, 'Jane White', 2, 1),  
(11, 'Kevin Taylor', 3, 1),  
(12, 'Laura Adams', 3, 2),  
(13, 'Michael King', 3, 3),  
(14, 'Nina Scott', 3, 4),  
(15, 'Oscar Harris', 3, 1);
```

#### 5) Query to Display Students from CSE Department

```
SELECT student_name  
FROM students  
JOIN departments ON students.department_id = departments.department_id  
WHERE departments.department_name = 'CSE';
```

Output:

student_name
Alice Smith
Bob Johnson
Charlie Lee
Diana Garcia
Ethan Martinez

#### 6) Query to Display Only Department Names Using Student Table

```
SELECT DISTINCT departments.department_name  
FROM students  
JOIN departments ON students.department_id = departments.department_id;
```

Output:

| department\_name |

--

| CSE |

| ECE |

| MECH |

### 7) Query to Display Students Sorted by Department and First Name

```
SELECT students.student_name, departments.department_name
```

```
FROM students
```

```
JOIN departments ON students.department_id = departments.department_id
```

```
ORDER BY departments.department_name, students.student_name;
```

Output:

| student\_name | department\_name |

|-----|-----|

| Alice Smith | CSE |

| Bob Johnson | CSE |

| Charlie Lee | CSE |

| Diana Garcia | CSE |

| Ethan Martinez | CSE |

| Fiona Davis | ECE |

| George Brown | ECE |

Hannah Wilson	ECE	
Ian Clark	ECE	
Jane White	ECE	
Kevin Taylor	MECH	
Laura Adams	MECH	
Michael King	MECH	
Nina Scott	MECH	
Oscar Harris	MECH	