

Assignment No 4

Problem Statement:

SQL queries all types of join , sub- query and view.

Input:

```
CREATE DATABASE university_db;
USE university_db;
CREATE TABLE student (
    student_id INT AUTO_INCREMENT PRIMARY KEY,
    student_name VARCHAR(50) NOT NULL,
    email VARCHAR(100),
    admission_date DATE
);
CREATE TABLE course (
    course_id INT AUTO_INCREMENT PRIMARY KEY,
    course_name VARCHAR(50),
    credits INT
);
CREATE TABLE student_course (
    student_id INT,
    course_id INT,
    enrollment_date DATE,
    PRIMARY KEY (student_id, course_id),
    FOREIGN KEY (student_id) REFERENCES student(student_id) ON DELETE CASCADE,
    FOREIGN KEY (course_id) REFERENCES course(course_id) ON DELETE CASCADE
);
INSERT INTO student (student_name, email, admission_date)
VALUES
('John Doe', 'john@example.com', '2023-01-15'),
('Jane Smith', 'jane@example.com', '2023-02-20'),
('Emily White', 'emily@example.com', '2024-04-10');
INSERT INTO course (course_name, credits)
VALUES
('Mathematics', 4),
('Computer Science', 3),
('Physics', 2);
INSERT INTO student_course (student_id, course_id, enrollment_date)
VALUES
(1, 1, '2024-10-23'),
(1, 2, '2024-10-23'),
(2, 2, '2024-10-23');
SELECT s.student_name, c.course_name, sc.enrollment_date
FROM student s
INNER JOIN student_course sc ON s.student_id = sc.student_id
INNER JOIN course c ON sc.course_id = c.course_id;
SELECT s.student_name, c.course_name, sc.enrollment_date
FROM student s
LEFT JOIN student_course sc ON s.student_id = sc.student_id
LEFT JOIN course c ON sc.course_id = c.course_id;
SELECT s.student_name, c.course_name, sc.enrollment_date
```

```

FROM student s
RIGHT JOIN student_course sc ON s.student_id = sc.student_id
RIGHT JOIN course c ON sc.course_id = c.course_id;
SELECT s.student_name, c.course_name, sc.enrollment_date
FROM student s
LEFT JOIN student_course sc ON s.student_id = sc.student_id
LEFT JOIN course c ON sc.course_id = c.course_id
UNION
SELECT s.student_name, c.course_name, sc.enrollment_date
FROM student s
RIGHT JOIN student_course sc ON s.student_id = sc.student_id
RIGHT JOIN course c ON sc.course_id = c.course_id;
SELECT student_name
FROM student
WHERE student_id IN (
    SELECT student_id
    FROM student_course sc
    JOIN course c ON sc.course_id = c.course_id
    WHERE c.course_name = 'Mathematics'
);
SELECT course_name
FROM course
WHERE course_id = (
    SELECT course_id
    FROM student_course
    GROUP BY course_id
    ORDER BY COUNT(student_id) DESC
    LIMIT 1
);
CREATE VIEW student_courses_view AS
SELECT s.student_name, c.course_name, sc.enrollment_date
FROM student s
JOIN student_course sc ON s.student_id = sc.student_id
JOIN course c ON sc.course_id = c.course_id;
SELECT * FROM student_courses_view;
SHOW TABLES;
DESCRIBE student;
SHOW FULL TABLES WHERE TABLE_TYPE = 'VIEW';

```

Output:

```
+-----+-----+-----+
| student_name | course_name | enrollment_date |
+-----+-----+-----+
| John Doe     | Mathematics | 2024-10-23      |
| John Doe     | Computer Science | 2024-10-23      |
| Jane Smith   | Computer Science | 2024-10-23      |
+-----+-----+-----+
3 rows in set (0.00 sec)
```

```
+-----+-----+-----+
| student_name | course_name | enrollment_date |
+-----+-----+-----+
| John Doe     | Mathematics | 2024-10-23      |
| John Doe     | Computer Science | 2024-10-23      |
| Jane Smith   | Computer Science | 2024-10-23      |
| Emily White  | NULL        | NULL             |
+-----+-----+-----+
4 rows in set (0.00 sec)
```

```
+-----+-----+-----+
| student_name | course_name | enrollment_date |
+-----+-----+-----+
| John Doe     | Mathematics | 2024-10-23      |
| John Doe     | Computer Science | 2024-10-23      |
| Jane Smith   | Computer Science | 2024-10-23      |
| NULL         | Physics     | NULL             |
+-----+-----+-----+
4 rows in set (0.00 sec)
```

```
+-----+-----+-----+
| student_name | course_name | enrollment_date |
+-----+-----+-----+
| John Doe     | Computer Science | 2024-10-23      |
| John Doe     | Mathematics     | 2024-10-23      |
| Jane Smith   | Computer Science | 2024-10-23      |
| Emily White  | NULL           | NULL             |
| NULL         | Physics        | NULL             |
+-----+-----+-----+
5 rows in set (0.00 sec)
```

```

+-----+
| student_name |
+-----+
| John Doe     |
+-----+
1 row in set (0.00 sec)

```

```

+-----+
| course_name   |
+-----+
| Computer Science |
+-----+
1 row in set (0.00 sec)

```

```

+-----+-----+-----+
| student_name | course_name   | enrollment_date |
+-----+-----+-----+
| John Doe     | Mathematics   | 2024-10-23      |
| John Doe     | Computer Science | 2024-10-23      |
| Jane Smith   | Computer Science | 2024-10-23      |
+-----+-----+-----+
3 rows in set (0.00 sec)

```

```

+-----+-----+
| Tables_in_jishan | Table_type |
+-----+-----+
| student_courses_view | VIEW      |
+-----+-----+
1 row in set (0.00 sec)

```