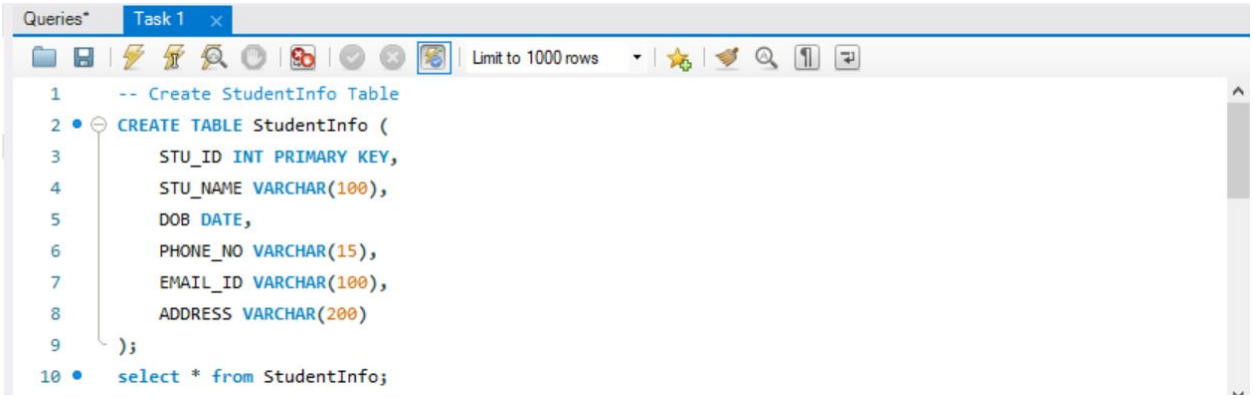
QUERY SHEET

Project Title: Academic Management System (using SQL)

1. Database Creation:

a) Create the StudentInfo table with columns STU_ ID, STU_NAME, DOB, PHONE_NO, EMAIL_ID,ADDRESS.




```sql
-- Create StudentInfo Table
CREATE TABLE StudentInfo (
    STU_ID INT PRIMARY KEY,
    STU_NAME VARCHAR(100),
    DOB DATE,
    PHONE_NO VARCHAR(15),
    EMAIL_ID VARCHAR(100),
    ADDRESS VARCHAR(200)
);
select * from StudentInfo;
```

b) Create the CoursesInfo table with columns COURSE_ID, COURSE_NAME,COURSE_INSTRUCTOR NAME.

```sql
-- Create CoursesInfo Table
CREATE TABLE CoursesInfo (
    COURSE_ID INT PRIMARY KEY,
    COURSE_NAME VARCHAR(100),
    COURSE_INSTRUCTOR_NAME VARCHAR(100)
);
select * from CoursesInfo;
```

c) Create the EnrollmentInfo with columns ENROLLMENT_ID, STU_ ID, COURSE_ID, ENROLL_STATUS(Enrolled/Not Enrolled). The FOREIGN KEY constraint in the EnrollmentInfo table references the STU_ID column in the StudentInfo table and the COURSE_ID column in the CoursesInfo table.

```sql
-- Create EnrollmentInfo Table
CREATE TABLE EnrollmentInfo (
    ENROLLMENT_ID INT PRIMARY KEY,
    STU_ID INT,
    COURSE_ID INT,
    ENROLL_STATUS VARCHAR(20) CHECK (ENROLL_STATUS IN ('Enrolled', 'Not Enrolled')),
    FOREIGN KEY (STU_ID) REFERENCES StudentInfo(STU_ID),
    FOREIGN KEY (COURSE_ID) REFERENCES CoursesInfo(COURSE_ID)
);
```

2. Data Creation:
Insert some sample data for StudentInfo table , CoursesInfo table, EnrollmentInfo with respective fields.

a)Insert Sample Data into StudentInfo:

```
30 •  INSERT INTO StudentInfo (STU_ID, STU_NAME, DOB, PHONE_NO, EMAIL_ID, ADDRESS) VALUES
31    (1, 'Sucharita', '2000-04-15', '9876543210', 'suchargs@gmail.com', '123 Maple Street'),
32    (2, 'Madhuri', '1999-07-22', '9123456780', 'madhuri@gmail.com', '456 Elm Street'),
33    (3, 'Rama', '2001-01-10', '9987654321', 'rama@gmail.com', '789 Oak Street');
34
```

b) **Insert Sample Data into CoursesInfo**:

```
35 •  INSERT INTO CoursesInfo (COURSE_ID, COURSE_NAME, COURSE_INSTRUCTOR_NAME) VALUES
36    (101, 'Mathematics', 'Dr. Newton'),
37    (102, 'Physics', 'Dr. Tesla'),
38    (103, 'Chemistry', 'Dr. Curie');
39
```

c) **Insert Sample Data into EnrollmentInfo**:

```
40 •  INSERT INTO EnrollmentInfo (ENROLLMENT_ID, STU_ID, COURSE_ID, ENROLL_STATUS) VALUES
41    (1, 1, 101, 'Enrolled'),
42    (2, 2, 102, 'Enrolled'),
43    (3, 3, 103, 'Not Enrolled'),
44    (4, 1, 102, 'Enrolled'),
45    (5, 2, 103, 'Enrolled');
46
```

3) Retrieve the Student Information
a) Write a query to retrieve student details, such as student name, contact informations, and Enrollment status.

```
47 •  SELECT STU_NAME, PHONE_NO, EMAIL_ID, ENROLL_STATUS
48    FROM StudentInfo
49    JOIN EnrollmentInfo ON StudentInfo.STU_ID = EnrollmentInfo.STU_ID;
```

b) Write a query to retrieve a list of courses in which a specific student is enrolled.

```
51 •  SELECT COURSE_NAME
52    FROM CoursesInfo
53    JOIN EnrollmentInfo ON CoursesInfo.COURSE_ID = EnrollmentInfo.COURSE_ID
54    WHERE EnrollmentInfo.STU_ID = 1 AND ENROLL_STATUS = 'Enrolled';
55
```

c) Write a query to retrieve course information, including course name, instructor information.

```
56 •  SELECT COURSE_NAME, COURSE_INSTRUCTOR_NAME
57    FROM CoursesInfo;
```

d) Write a query to retrieve course information for a specific course .

```
59 •  SELECT COURSE_NAME, COURSE_INSTRUCTOR_NAME
60    FROM CoursesInfo
61    WHERE COURSE_ID = 101;
```

e) Write a query to retrieve course information for multiple courses.

```
63 •  SELECT COURSE_NAME, COURSE_INSTRUCTOR_NAME
64    FROM CoursesInfo
65    WHERE COURSE_ID IN (101, 102);
```

4. Reporting and Analytics (Using joining queries)

a) Write a query to retrieve the number of students enrolled in each course

```
68 •  SELECT COURSE_NAME, COUNT(EnrollmentInfo.STU_ID) AS Enrolled_Students
69    FROM CoursesInfo
70    JOIN EnrollmentInfo ON CoursesInfo.COURSE_ID = EnrollmentInfo.COURSE_ID
71    WHERE ENROLL_STATUS = 'Enrolled'
72    GROUP BY COURSE_NAME;
```

b) Write a query to retrieve the list of students enrolled in a specific course

```
74 •  SELECT STU_NAME
75    FROM StudentInfo
76    JOIN EnrollmentInfo ON StudentInfo.STU_ID = EnrollmentInfo.STU_ID
77    WHERE EnrollmentInfo.COURSE_ID = 102 AND ENROLL_STATUS = 'Enrolled';
```

c) Write a query to retrieve the count of enrolled students for each instructor.

```
79 •  SELECT COURSE_INSTRUCTOR_NAME, COUNT(EnrollmentInfo.STU_ID) AS Enrolled_Students
80    FROM CoursesInfo
81    JOIN EnrollmentInfo ON CoursesInfo.COURSE_ID = EnrollmentInfo.COURSE_ID
82    WHERE ENROLL_STATUS = 'Enrolled'
83    GROUP BY COURSE_INSTRUCTOR_NAME;
```

d) Write a query to retrieve the list of students who are enrolled in multiple courses

```
85 •  SELECT STU_NAME, COUNT(DISTINCT COURSE_ID) AS Courses_Enrolled
86    FROM StudentInfo
87    JOIN EnrollmentInfo ON StudentInfo.STU_ID = EnrollmentInfo.STU_ID
88    WHERE ENROLL_STATUS = 'Enrolled'
89    GROUP BY STU_NAME
90    HAVING COUNT(DISTINCT COURSE_ID) > 1;
```

e) Write a query to retrieve the courses that have the highest number of enrolled students (arranging from highest to lowest)

```
92 •    SELECT COURSE_NAME, COUNT(EnrollmentInfo.STU_ID) AS Enrolled_Students
93      FROM CoursesInfo
94      JOIN EnrollmentInfo ON CoursesInfo.COURSE_ID = EnrollmentInfo.COURSE_ID
95      WHERE ENROLL_STATUS = 'Enrolled'
96      GROUP BY COURSE_NAME
97      ORDER BY Enrolled_Students DESC;
```

Full query

1. Database Creation

a) Create StudentInfo Table

```
CREATE TABLE StudentInfo (
   STU_ID INT PRIMARY KEY,
   STU_NAME VARCHAR(100),
   DOB DATE,
   PHONE_NO VARCHAR(15),
   EMAIL_ID VARCHAR(100),
   ADDRESS VARCHAR(200)
);
```

b) Create CoursesInfo Table

```
CREATE TABLE CoursesInfo (
   COURSE_ID INT PRIMARY KEY,
   COURSE_NAME VARCHAR(100),
   COURSE_INSTRUCTOR_NAME VARCHAR(100)
);
```

c) Create EnrollmentInfo Table

```
CREATE TABLE EnrollmentInfo (
   ENROLLMENT_ID INT PRIMARY KEY,
   STU_ID INT,
   COURSE_ID INT,
   ENROLL_STATUS VARCHAR(20) CHECK (ENROLL_STATUS IN ('Enrolled', 'Not
Enrolled')),
   FOREIGN KEY (STU_ID) REFERENCES StudentInfo(STU_ID),
   FOREIGN KEY (COURSE_ID) REFERENCES CoursesInfo(COURSE_ID)
);
```

2. Data Creation

a) Insert Sample Data into StudentInfo

```
INSERT INTO StudentInfo (STU_ID, STU_NAME, DOB, PHONE_NO, EMAIL_ID, ADDRESS)
VALUES
(1, 'Sucharita', '2000-04-15', '9876543210', 'suchargs@gmail.com', '123 Maple Street'),
(2, 'Madhuri', '1999-07-22', '9123456780', 'madhuri@gmail.com', '456 Elm Street'),
(3, 'Rama', '2001-01-10', '9987654321', 'rama@gmail.com', '789 Oak Street');
```

b) Insert Sample Data into CoursesInfo

```
INSERT INTO CoursesInfo (COURSE_ID, COURSE_NAME, COURSE_INSTRUCTOR_NAME)
VALUES
(101, 'Mathematics', 'Dr. Newton'),
(102, 'Physics', 'Dr. Tesla'),
(103, 'Chemistry', 'Dr. Curie');
```

c) Insert Sample Data into EnrollmentInfo

```
INSERT INTO EnrollmentInfo (ENROLLMENT_ID, STU_ID, COURSE_ID, ENROLL_STATUS)
VALUES
(1, 1, 101, 'Enrolled'),
(2, 2, 102, 'Enrolled'),
(3, 3, 103, 'Not Enrolled'),
(4, 1, 102, 'Enrolled'),
(5, 2, 103, 'Enrolled');
```

3. Retrieve Student Information

a) Retrieve Student Details

```
SELECT STU_NAME, PHONE_NO, EMAIL_ID, ENROLL_STATUS
FROM StudentInfo
JOIN EnrollmentInfo ON StudentInfo.STU_ID = EnrollmentInfo.STU_ID;
```

b) Retrieve Courses for a Specific Student

```
SELECT COURSE_NAME
FROM CoursesInfo
JOIN EnrollmentInfo ON CoursesInfo.COURSE_ID = EnrollmentInfo.COURSE_ID
WHERE EnrollmentInfo.STU_ID = 1 AND ENROLL_STATUS = 'Enrolled';
```

c) Retrieve All Course Information

```
SELECT COURSE_NAME, COURSE_INSTRUCTOR_NAME
FROM CoursesInfo;
```

d) Retrieve Information for a Specific Course

```
SELECT COURSE_NAME, COURSE_INSTRUCTOR_NAME
FROM CoursesInfo
WHERE COURSE_ID = 101;
```

e) Retrieve Information for Multiple Courses

```
SELECT COURSE_NAME, COURSE_INSTRUCTOR_NAME
FROM CoursesInfo
WHERE COURSE_ID IN (101, 102);
```

4. Reporting and Analytics

a) Number of Students Enrolled in Each Course

```
SELECT COURSE_NAME, COUNT(EnrollmentInfo.STU_ID) AS Enrolled_Students
FROM CoursesInfo
JOIN EnrollmentInfo ON CoursesInfo.COURSE_ID = EnrollmentInfo.COURSE_ID WHERE
ENROLL_STATUS = 'Enrolled'
GROUP BY COURSE_NAME;
```

b) List of Students Enrolled in a Specific Course

```
SELECT STU_NAME
FROM StudentInfo
JOIN EnrollmentInfo ON StudentInfo.STU_ID = EnrollmentInfo.STU_ID
WHERE EnrollmentInfo.COURSE_ID = 102 AND ENROLL_STATUS = 'Enrolled';
```

c) Count of Students for Each Instructor

```
SELECT COURSE_INSTRUCTOR_NAME, COUNT(EnrollmentInfo.STU_ID) AS Enrolled_Students
FROM CoursesInfo
JOIN EnrollmentInfo ON CoursesInfo.COURSE_ID = EnrollmentInfo.COURSE_ID
WHERE ENROLL_STATUS = 'Enrolled'
GROUP BY COURSE_INSTRUCTOR_NAME;
```

d) Students Enrolled in Multiple Courses

```
SELECT STU_NAME, COUNT(DISTINCT COURSE_ID) AS Courses_Enrolled
FROM StudentInfo
JOIN EnrollmentInfo ON StudentInfo.STU_ID = EnrollmentInfo.STU_ID
WHERE ENROLL_STATUS = 'Enrolled' GROUP BY STU_NAME
HAVING COUNT(DISTINCT COURSE_ID) > 1;
```

e) Courses with the Highest Number of Students

```
SELECT COURSE_NAME, COUNT(EnrollmentInfo.STU_ID) AS Enrolled_Students
FROM CoursesInfo
JOIN EnrollmentInfo ON CoursesInfo.COURSE_ID = EnrollmentInfo.COURSE_ID
WHERE ENROLL_STATUS = 'Enrolled'
GROUP BY COURSE_NAME
ORDER BY Enrolled_Students DESC;
```