CS3402 Practice 6:

1. Query the name of students who have studied ‘English’ course.
   Answer:

```
SELECT
        s_name
FROM
        Student
WHERE
        s_id IN (
                SELECT
                        s_id
                FROM
                        Sc S, Course C
                WHERE
                        S.c_id = C.c_id and C.c_name = 'English'
                        );
```

2. Query the information of students who have studied the course with id ‘01’ but have not studied the course with id ‘02’.
   Answer:

```
SELECT
        *
FROM
        Student
WHERE
        s_id IN (
                SELECT
                        s_id
                FROM
                        Sc
                WHERE
                        c_id = '01'
        )
        AND s_id NOT IN (
                SELECT
                        s_id
                FROM
                        Sc
                WHERE
                        c_id = '02'
        );
```

3. Query the names of students who have not studied any course taught by teacher ‘ZHANG San’.
   Answer:

```
SELECT S.s_name
```

```
FROM Student S
WHERE
        NOT EXISTS (
                SELECT c_id
                FROM Sc
                WHERE Sc.s_id=S.s_id

                INTERSECT

                SELECT  c_id
                FROM Course C, Teacher T
                WHERE C.t_id = T.t_id AND t_name = 'ZHANG San'
        );
```

4. Query course ids and the number of students enrolling for each course.
   Answer:

```
SELECT
        c_id, COUNT(s_id)
FROM
        Sc
GROUP BY
        c_id;
```

5. Query the average score of each course, and sort the results in descending order of the average score.
   Answer:

```
SELECT
        c_id, AVG(s_Sc)
FROM
        Sc
GROUP BY
        c_id
ORDER BY
        AVG(s_Sc) DESC;
```

6. Query id and name of students who enroll only 2 courses.
   Answer:

```
SELECT
        s_id, s_name
FROM
        Student
WHERE
        s_id IN (
                SELECT
                        s_id
                FROM
                        Sc
                GROUP BY
                        s_id
```

```
            HAVING
                COUNT(c_id) = 2
        );
```

7. Query information of students who have taken all courses.
   Answer:

```
    SELECT
        *
    FROM
        Student
    WHERE
        s_id IN (
            SELECT
                s_id
            FROM
                Sc
            GROUP BY
                s_id
            HAVING
                COUNT(*) = (
                    SELECT
                        COUNT(*)
                    FROM
                        Course
                )
        );
```

8. Display student id and average grades for each student in descending order of average grades.
   Answer:

```
    SELECT
        Sc.s_id, AVG(s_Sc)
    FROM
        Sc
    GROUP BY
        Sc.s_id
    ORDER BY
        AVG(s_Sc) DESC;
```

9. Query the information of other students who took at least one same course as the student with id ‘01’.
   Answer:

```
    SELECT
        DISTINCT Student.*
    FROM
        Student, SC
    WHERE
        Student.s_id=SC.s_id
        AND SC.c_id IN (
                SELECT
```

```
                a.c_id
            FROM
                Sc a
            WHERE
                a.s_id = '01'
        )
    AND Student.s_id != '01';
```

10. Query the information of the students who got highest score in the ‘Math’ course.

Answer:

```
SELECT
    *
FROM
    Student
WHERE
    Student.s_id IN (
        SELECT s_id
        FROM Sc
        WHERE (Sc.c_id, Sc.s_sc) = (
            SELECT Sc.c_id, MAX(Sc.s_sc)
            FROM Sc, Course
            WHERE Sc.c_id = Course.c_id
            AND Course.c_name = 'Math'
            Group BY Sc.c_id
        )
    );
```