Assignment No 10

(1) Students table

```
mysql> use student;
Database changed
mysql> select * from student;
+------------+------------+------------+---------------------------------+------------+--------+----------------+
| student_id | first_name | last_name  | email                           | birthdate  | gender | enrollment_date |
+------------+------------+------------+---------------------------------+------------+--------+----------------+
|          1 | vedika     | jadhav     | vedika.jadhav.2021@gmail.com    | 2003-06-05 | Female | 2024-06-03      |
|          2 | pranjal    | kshirsagar | pranjal.kshirsagar.2021@gmail.com | 2003-10-11 | Female | 2024-06-03      |
|          3 | vaishnavi  | salunkhe   | vaishnavi.salunkhe.2021@gmail.com | 2003-12-07 | Female | 2024-06-03      |
|          4 | sayali     | salunkhe   | sayali.salunkhe.2021@gmail.com  | 2003-11-27 | Female | 2024-06-03      |
|          5 | sakshi     | patil      | sakshi.patil.2021@gmail.com     | 2003-10-21 | Female | 2024-06-03      |
|          6 | aditya     | kate       | aditya.kate.2021@gmail.com      | 2003-09-16 | Male   | 2024-06-03      |
|          7 | yash       | bhosale    | yash.bhosale.2021@gmail.com     | 2003-05-15 | Male   | 2024-06-03      |
|          8 | shrisha    | kulkarni   | shrisha.kulkarni.2021@gmail.com | 2003-09-07 | Female | 2024-06-03      |
|          9 | aditya     | kanase     | aditya.kanase.2021@gmail.com    | 2003-07-09 | Male   | 2024-06-03      |
|         10 | shruti     | pawar      | shruti.pawar.2021@gmail.com     | 2003-06-03 | Female | 2024-06-03      |
+------------+------------+------------+---------------------------------+------------+--------+----------------+
10 rows in set (0.07 sec)
```

(2) courses table

```
mysql> select * from courses;
+-----------+------------------+-----------------------------------------------------------------+
| course_id | course_name      | course_description                                              |
+-----------+------------------+-----------------------------------------------------------------+
|         1 | Database System  | Introduction to Database System and SQL.                        |
|         2 | Web Development  | Learn HTML,CSS,Javascript and basic web development techniques. |
|         3 | Data Structures  | Learn about various data structures and their applications.     |
|         4 | Algorithms       | Introduction to algorithms and problem sloving techniques.      |
|         5 | Computer Networks | Overview of computer networking principles and practices.       |
+-----------+------------------+-----------------------------------------------------------------+
5 rows in set (0.18 sec)
```

(3) Enrollments table

```
mysql> select * from enrollments;
+---------------+------------+-----------+
| enrollment_id | student_id | course_id |
+---------------+------------+-----------+
|             1 |          1 |         1 |
|             2 |          1 |         2 |
|             3 |          2 |         1 |
|             4 |          2 |         3 |
|             5 |          3 |         2 |
|             6 |          3 |         4 |
|             7 |          4 |         3 |
|             8 |          4 |         5 |
|             9 |          5 |         4 |
|            10 |          5 |         1 |
|            11 |          6 |         5 |
|            12 |          6 |         2 |
|            13 |          7 |         1 |
|            14 |          8 |         3 |
|            15 |          9 |         4 |
|            16 |         10 |      NULL |
+---------------+------------+-----------+
16 rows in set (0.13 sec)
```

Question 1) Retrieve a list of all students along with the courses they are enrolled in, including students who are not enrolled in any course.

```
mysql> select s.first_name,c.course_name
    -> from student s
    -> join enrollments e
    -> on s.student_id=e.student_id
    -> left join courses c
    -> on c.course_id=e.course_id;
+------------+--------------------+
| first_name | course_name        |
+------------+--------------------+
| vedika     | Database System    |
| vedika     | Web Development    |
| pranjal    | Database System    |
| pranjal    | Data Structures    |
| vaishnavi  | Web Development    |
| vaishnavi  | Algorithms         |
| sayali     | Data Structures    |
| sayali     | Computer Networks  |
| sakshi     | Algorithms         |
| sakshi     | Database System    |
| aditya     | Computer Networks  |
| aditya     | Web Development    |
| yash       | Database System    |
| shrisha    | Data Structures    |
| aditya     | Algorithms         |
| shruti     | NULL               |
+------------+--------------------+
16 rows in set (0.76 sec)
```

Question 2) Find the number of courses each student is enrolled in, and include students who are not enrolled in any course

```
mysql> select s.first_name,s.last_name, count(c.course_id)
    -> from student s
    -> join enrollments e
    -> on s.student_id=e.student_id
    -> left join courses c
    -> on c.course_id=e.course_id
    -> group by s.first_name,s.last_name;
+------------+------------+--------------------+
| first_name | last_name  | count(c.course_id) |
+------------+------------+--------------------+
| vedika     | jadhav     |                  2 |
| pranjal    | kshirsagar |                  2 |
| vaishnavi  | salunkhe   |                  2 |
| sayali     | salunkhe   |                  2 |
| sakshi     | patil      |                  2 |
| aditya     | kate       |                  2 |
| yash       | bhosale    |                  1 |
| shrisha    | kulkarni   |                  1 |
| aditya     | kanase     |                  1 |
| shruti     | pawar      |                  0 |
+------------+------------+--------------------+
10 rows in set (0.04 sec)
```

Question 3) List all courses along with the number of students enrolled in each course. Include courses that currently have no students enrolled.

```
mysql> select c.course_name, count(s.student_id)
    -> from courses c
    -> join enrollments e
    -> on c.course_id=e.course_id
    -> left join student s
    -> on s.student_id=e.student_id
    -> group by c.course_name;
+--------------------+----------------------+
| course_name        | count(s.student_id) |
+--------------------+----------------------+
| Database System    |                    4 |
| Web Development    |                    3 |
| Data Structures    |                    3 |
| Algorithms         |                    3 |
| Computer Networks  |                    2 |
+--------------------+----------------------+
5 rows in set (0.39 sec)
```

Question 4) Find the names of students who are enrolled in both 'Database Systems' and 'Web Development' courses.

```
mysql> select s.first_name,s.last_name
    -> from student s
    -> join enrollments e
    -> on s.student_id=e.student_id
    -> join courses c
    -> on c.course_id=e.course_id
    -> where c.course_name in('Web Development','Database System')
    -> group by s.student_id
    -> having count(*)=2;
+------------+-----------+
| first_name | last_name |
+------------+-----------+
| vedika     | jadhav    |
+------------+-----------+
1 row in set (0.14 sec)
```

Question 5) Retrieve the first name, last name, and email of students who are enrolled in exactly two Courses.

```
mysql> select s.first_name,s.last_name,s.email
    -> from student s
    -> join enrollments e
    -> on s.student_id=e.student_id
    -> group by s.student_id,s.first_name,s.last_name,s.email
    -> having count(e.course_id)=2;
+------------+------------+-----------------------------------+
| first_name | last_name  | email                             |
+------------+------------+-----------------------------------+
| vedika     | jadhav     | vedika.jadhav.2021@gmail.com      |
| pranjal    | kshirsagar | pranjal.kshirsagar.2021@gmail.com |
| vaishnavi  | salunkhe   | vaishnavi.salunkhe.2021@gmail.com |
| sayali     | salunkhe   | sayali.salunkhe.2021@gmail.com    |
| sakshi     | patil      | sakshi.patil.2021@gmail.com       |
| aditya     | kate       | aditya.kate.2021@gmail.com        |
+------------+------------+-----------------------------------+
6 rows in set (0.02 sec)

mysql>
```