Connection code:
cd
cd xampp
cd mysql
cd bin
mysql –u root –p –h 127.0.0.1

Problem 1:
1) Create any database name
Syntax:

```
MariaDB [(none)]> use my_db;
Database changed
MariaDB [my_db]>
```

2) Create two table name Employee and Department will following columns using appropriate data types and insert the following data in table.
Employee

emp_id	emp_name	Position	salary	Dept_id
1	Anish	Manager	25000	1
2	Sita	Secretary	25000	2
3	Ronit	Analyst	40000	5
4	Riya	Manager	50000	3

Syntax:

```
+-----------+---------------+------+-----+---------+-------+
| Field     | Type          | Null | Key | Default | Extra |
+-----------+---------------+------+-----+---------+-------+
| emp_id    | int(11)       | NO   | PRI | NULL    |       |
| emp_name  | varchar(30)   | YES  |     | NULL    |       |
| Position  | varchar(30)   | YES  |     | NULL    |       |
| salary    | decimal(10,2) | YES  |     | NULL    |       |
| dept_id   | int(11)       | YES  |     | NULL    |       |
+-----------+---------------+------+-----+---------+-------+
```

Department

Dept_id	Dept_name	HOD
1	Sales	Janak
2	Marketing	Madhav
3	Finance	Sapana
4	Operation	Durga

Syntax:

```
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| dept_id    | int(11)     | YES  |     | NULL    |       |
| dept_name  | varchar(30) | YES  |     | NULL    |       |
| HOD        | varchar(30) | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
```

Insert values into table Employee
Syntax:

```
+--------+----------+-----------+----------+---------+
| emp_id | emp_name | Position  | salary   | dept_id |
+--------+----------+-----------+----------+---------+
|      1 | Anish    | Manager   | 25000.00 |       1 |
|      2 | Sita     | Secretary | 25000.00 |       2 |
|      3 | Rohit    | Analyst   | 40000.00 |       5 |
|      4 | Riya     | Manager   | 50000.00 |       3 |
+--------+----------+-----------+----------+---------+
```

Insert values into table Department
Syntax:

```
+---------+-----------+--------+
| dept_id | dept_name | HOD    |
+---------+-----------+--------+
|       1 | sales     | janak  |
|       2 | Marketing | Madhav |
|       3 | Finance   | sapana |
|       4 | Operation | Durga  |
+---------+-----------+--------+
```

3) Now perform the following Join Operations

- **Inner join**

Syntax:

```
+--------+----------+-----------+----------+---------+---------+-----------+--------+
| emp_id | emp_name | Position  | salary   | dept_id | dept_id | dept_name | HOD    |
+--------+----------+-----------+----------+---------+---------+-----------+--------+
|      1 | Anish    | Manager   | 25000.00 |       1 |       1 | sales     | janak  |
|      2 | Sita     | Secretary | 25000.00 |       2 |       2 | Marketing | Madhav |
|      4 | Riya     | Manager   | 50000.00 |       3 |       3 | Finance   | sapana |
+--------+----------+-----------+----------+---------+---------+-----------+--------+
```

- **Outer join**

Left outer join
Syntax:

```
+--------+----------+-----------+----------+---------+---------+-----------+--------+
| emp_id | emp_name | Position  | salary   | dept_id | dept_id | dept_name | HOD    |
+--------+----------+-----------+----------+---------+---------+-----------+--------+
|      1 | Anish    | Manager   | 25000.00 |       1 |       1 | sales     | janak  |
|      2 | Sita     | Secretary | 25000.00 |       2 |       2 | Marketing | Madhav |
|      4 | Riya     | Manager   | 50000.00 |       3 |       3 | Finance   | sapana |
|      3 | Rohit    | Analyst   | 40000.00 |       5 |    NULL | NULL      | NULL   |
+--------+----------+-----------+----------+---------+---------+-----------+--------+
```

Right outer join
Syntax:

```
+--------+----------+-----------+----------+---------+---------+-----------+--------+
| emp_id | emp_name | Position  | salary   | dept_id | dept_id | dept_name | HOD    |
+--------+----------+-----------+----------+---------+---------+-----------+--------+
|      1 | Anish    | Manager   | 25000.00 |       1 |       1 | sales     | janak  |
|      2 | Sita     | Secretary | 25000.00 |       2 |       2 | Marketing | Madhav |
|      4 | Riya     | Manager   | 50000.00 |       3 |       3 | Finance   | sapana |
|   NULL | NULL     | NULL      |     NULL |    NULL |       4 | Operation | Durga  |
+--------+----------+-----------+----------+---------+---------+-----------+--------+
```

Full join
Syntax:

```
+--------+----------+-----------+----------+---------+---------+-----------+--------+
| emp_id | emp_name | Position  | salary   | dept_id | dept_id | dept_name | HOD    |
+--------+----------+-----------+----------+---------+---------+-----------+--------+
|      1 | Anish    | Manager   | 25000.00 |       1 |       1 | sales     | janak  |
|      2 | Sita     | Secretary | 25000.00 |       2 |       2 | Marketing | Madhav |
|      4 | Riya     | Manager   | 50000.00 |       3 |       3 | Finance   | sapana |
|      3 | Rohit    | Analyst   | 40000.00 |       5 |    NULL | NULL      | NULL   |
|   NULL | NULL     | NULL      |     NULL |    NULL |       4 | Operation | Durga  |
+--------+----------+-----------+----------+---------+---------+-----------+--------+
```

- **Natural join**
  Syntax:

```
+--------+----------+-----------+----------+---------+---------+-----------+--------+ --+
| emp_id | emp_name | Position  | salary   | dept_id | dept_id | dept_name | HOD    |  |
+--------+----------+-----------+----------+---------+---------+-----------+--------+ --+
|      1 | Anish    | Manager   | 25000.00 |       1 |       1 | sales     | janak  |  |
|      2 | Sita     | Secretary | 25000.00 |       2 |       2 | Marketing | Madhav |  |
|      4 | Riya     | Manager   | 50000.00 |       3 |       3 | Finance   | sapana |  |
+--------+----------+-----------+----------+---------+---------+-----------+--------+ --+
```

- **Cross join**
  Syntax:

```
MariaDB [ecme_db]> select * from employee cross join Department;
+--------+----------+-----------+----------+---------+---------+-----------+--------+
| emp_id | emp_name | Position  | salary   | dept_id | dept_id | dept_name | HOD    |
+--------+----------+-----------+----------+---------+---------+-----------+--------+
|      1 | Anish    | Manager   | 25000.00 |       1 |       1 | sales     | janak  |
|      2 | Sita     | Secretary | 25000.00 |       2 |       1 | sales     | janak  |
|      3 | Rohit    | Analyst   | 40000.00 |       5 |       1 | sales     | janak  |
|      4 | Riya     | Manager   | 50000.00 |       3 |       1 | sales     | janak  |
|      1 | Anish    | Manager   | 25000.00 |       1 |       2 | Marketing | Madhav |
|      2 | Sita     | Secretary | 25000.00 |       2 |       2 | Marketing | Madhav |
|      3 | Rohit    | Analyst   | 40000.00 |       5 |       2 | Marketing | Madhav |
|      4 | Riya     | Manager   | 50000.00 |       3 |       2 | Marketing | Madhav |
|      1 | Anish    | Manager   | 25000.00 |       1 |       3 | Finance   | sapana |
|      2 | Sita     | Secretary | 25000.00 |       2 |       3 | Finance   | sapana |
|      3 | Rohit    | Analyst   | 40000.00 |       5 |       3 | Finance   | sapana |
|      4 | Riya     | Manager   | 50000.00 |       3 |       3 | Finance   | sapana |
|      1 | Anish    | Manager   | 25000.00 |       1 |       4 | Operation | Durga  |
|      2 | Sita     | Secretary | 25000.00 |       2 |       4 | Operation | Durga  |
|      3 | Rohit    | Analyst   | 40000.00 |       5 |       4 | Operation | Durga  |
|      4 | Riya     | Manager   | 50000.00 |       3 |       4 | Operation | Durga  |
+--------+----------+-----------+----------+---------+---------+-----------+--------+
```

4) Write SQL queries to
Find Employee names with their department
Syntax:

```
+----------+-----------+
| emp_name | dept_name |
+----------+-----------+
| Anish    | sales     |
| Sita     | Marketing |
| Riya     | Finance   |
+----------+-----------+
```

Find emp_name,position,salary of employee who works in finance department
Syntax:

```
+----------+----------+----------+
| emp_name | position | salary   |
+----------+----------+----------+
| Riya     | Manager  | 50000.00 |
+----------+----------+----------+
```

Find emp_name of employee who works in sales department
Syntax:

```
+----------+
| emp_name |
+----------+
| Anish    |
+----------+
```

Find the information of employee who works in marketing department
Syntax:

```
+--------+----------+-----------+----------+---------+---------+-----------+--------+
| emp_id | emp_name | Position  | salary   | dept_id | dept_id | dept_name | HOD    |
+--------+----------+-----------+----------+---------+---------+-----------+--------+
|      2 | Sita     | Secretary | 25000.00 |       2 |       2 | Marketing | Madhav |
+--------+----------+-----------+----------+---------+---------+-----------+--------+
```

Find the HOD of Riya
Syntax:

```
+--------+
| HOD    |
+--------+
| sapana |
+--------+
```

Problem 2:
1) Create two table named emp_civildepartment and emp_computerdepartment with following columns with appropriate data types and insert the following data in table After insertion your table must look like as follows:
emp_civildepartment

Emp_id	Emp_name	Address
1	Kapil	chitwan
2	Ujwal	Dharan
3	Pradip	Palpa
4	Prakash	Kathmandu
5	supriya	Mahendranagar

Syntax:

```
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| emp_id   | int(11)     | YES  |     | NULL    |       |
| emp_name | varchar(30) | YES  |     | NULL    |       |
| address  | varchar(30) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
```

Insert values into emp_civildepartment
Syntax:

```
+--------+----------+---------------+
| emp_id | emp_name | address       |
+--------+----------+---------------+
|      1 | Kapil    | chitwan       |
|      2 | Ujwal    | Dharan        |
|      3 | Pradip   | palpa         |
|      4 | prakash  | kathmandu     |
|      5 | supriya  | Mahendranagar |
+--------+----------+---------------+
```

emp_computerdepartment

Emp_id	Emp_name	Address
1	Mukunda	Surkhet
2	Santosh	Pokhara
3	Pradip	Palpa
4	Jasbin	Kathmandu
5	supriya	Mahendranagar

Syntax:

```
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| emp_id    | int(11)     | YES  |     | NULL    |       |
| emp_name  | varchar(30) | YES  |     | NULL    |       |
| address   | varchar(30) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
```

Insert values into emp_computerdepartment
Syntax:

```
+--------+----------+---------------+
| emp_id | emp_name | address       |
+--------+----------+---------------+
|      1 | mukunda  | Surkhet       |
|      2 | Santosh  | Pokhara       |
|      3 | pradip   | palpa         |
|      4 | jabin    | kathmandu     |
|      5 | supriya  | Mahendranagar |
+--------+----------+---------------+
```

2) perform the following set operations
UNION
Syntax:

```
+--------+----------+---------------+
| emp_id | emp_name | address       |
+--------+----------+---------------+
|      1 | Kapil    | chitwan       |
|      2 | Ujwal    | Dharan        |
|      3 | Pradip   | palpa         |
|      4 | prakash  | kathmandu     |
|      5 | supriya  | Mahendranagar |
|      1 | mukunda  | Surkhet       |
|      2 | Santosh  | Pokhara       |
|      4 | jabin    | kathmandu     |
+--------+----------+---------------+
```

UNION ALL
Syntax:

```
+---------+-----------+----------------+
| emp_id  | emp_name  | address        |
+---------+-----------+----------------+
|      1  | Kapil     | chitwan        |
|      2  | Ujwal     | Dharan         |
|      3  | Pradip    | palpa          |
|      4  | prakash   | kathmandu      |
|      5  | supriya   | Mahendranagar  |
|      1  | mukunda   | Surkhet        |
|      2  | Santosh   | Pokhara        |
|      3  | pradip    | palpa          |
|      4  | jabin     | kathmandu      |
|      5  | supriya   | Mahendranagar  |
+---------+-----------+----------------+
```

INTERSECT
Syntax:

```
+---------+-----------+----------------+
| emp_id  | emp_name  | address        |
+---------+-----------+----------------+
|      3  | Pradip    | palpa          |
|      5  | supriya   | Mahendranagar  |
+---------+-----------+----------------+
```

EXCEPT
Syntax:

```
+---------+-----------+-----------+
| emp_id  | emp_name  | address   |
+---------+-----------+-----------+
|      1  | Kapil     | chitwan   |
|      2  | Ujwal     | Dharan    |
|      4  | prakash   | kathmandu |
+---------+-----------+-----------+
```

3) Write SQL queries for the following:
Find the name of employee who works either civil or computer department
Syntax:

```
+-----------+
| emp_name  |
+-----------+
| Kapil     |
| Ujwal     |
| Pradip    |
| prakash   |
| supriya   |
| mukunda   |
| Santosh   |
| jabin     |
+-----------+
```

Find the name of employee who works in both civil and computer department
Syntax:

```
+----------+
| emp_name |
+----------+
| Pradip   |
| supriya  |
+----------+
```

Find the name of employee who works in computer department but not in civil department
Syntax:

```
+----------+
| emp_name |
+----------+
| mukunda  |
| Santosh  |
| jabin    |
+----------+
```

Find the common address of where both computer and civil department employee lives in .
Syntax:

```
+---------------+
| address       |
+---------------+
| palpa         |
| kathmandu     |
| Mahendranagar |
+---------------+
```

Discussion:

Conclusion: