1. Perform the following tasks:

a. Create Student table with following attributes (STUDENT_ID , FIRST_NAME, LAST_NAME, PHONE_NUMBER, MARKS, COURSE_ID).

Ans:

mysql> create table student(STUDENT_ID int primary key, FIRST_NAME char(20), LAST_NAME char(20), PHONE_NUMBER char(10), MARKS int, COURSE_ID int,foreign key(course_id) REFERENCES course(course_id));

Query OK, 0 rows affected (0.08 sec)

```
mysql> desc student;
+--------------+----------+------+-----+---------+-------+
| Field        | Type     | Null | Key | Default | Extra |
+--------------+----------+------+-----+---------+-------+
| STUDENT_ID   | int      | NO   | PRI | NULL    |       |
| FIRST_NAME   | char(20) | YES  |     | NULL    |       |
| LAST_NAME    | char(20) | YES  |     | NULL    |       |
| PHONE_NUMBER | char(10) | YES  |     | NULL    |       |
| MARKS        | int      | YES  |     | NULL    |       |
| COURSE_ID    | int      | YES  | MUL | NULL    |       |
+--------------+----------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

b. Create Course table with following attributes (COURSE_ID, COURSE_NAME).

ANS:

mysql> create table course(course_id int primary key,course_name char(20));

Query OK, 0 rows affected (0.04 sec)

```
mysql> desc course;
+-------------+----------+------+-----+---------+-------+
| Field       | Type     | Null | Key | Default | Extra |
+-------------+----------+------+-----+---------+-------+
| course_id   | int      | NO   | PRI | NULL    |       |
| course_name | char(20) | YES  |     | NULL    |       |
+-------------+----------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

c. Write a SQL statement to insert 8 records with your own value into the tables.

ANS:

mysql> insert into course(course_id,course_name) values

-> (101, 'JAVA'),

-> (102, 'JAVA'),

-> (103, 'PYTHON'),

-> (104, 'WEB DEVELOPMENT'),

-> (105, 'DBMS'),

-> (106, 'DBMS'),

-> (107, 'JAVA+DBMS'),

-> (108, 'JAVA+DBMS');

```
mysql> INSERT INTO Course (COURSE_ID, COURSE_NAME) VALUES
    -> (101, 'JAVA'),
    -> (102, 'JAVA'),
    -> (103, 'PYTHON'),
    -> (104, 'WEB DEVELOPMENT'),
    -> (105, 'DBMS'),
    -> (106, 'DBMS'),
    -> (107, 'JAVA+DBMS'),
    -> (108, 'JAVA+DBMS');
Query OK, 8 rows affected (0.01 sec)
Records: 8  Duplicates: 0  Warnings: 0
```

mysql> select * from course;

```
mysql> select * from course;
+-----------+-----------------+
| course_id | course_name     |
+-----------+-----------------+
|       101 | JAVA            |
|       102 | JAVA            |
|       103 | PYTHON          |
|       104 | WEB DEVELOPMENT |
|       105 | DBMS            |
|       106 | DBMS            |
|       107 | JAVA+DBMS       |
|       108 | JAVA+DBMS       |
+-----------+-----------------+
8 rows in set (0.00 sec)
```

mysql> INSERT INTO Student (STUDENT_ID, FIRST_NAME, LAST_NAME, PHONE_NUMBER, MARKS, COURSE_ID) VALUES

-> (1, 'Namira', 'Mulla', '1234567890', 85, 101),

-> (2, 'Siddhi', 'Jain', '2345678901', 90, 102),

-> (3, 'sapna', 'vish', '3456789012', 88,103),

-> (4, 'manali', 'patil', '4567890123', 92,104),

-> (5, 'Ashish', 'Davis', '5678901234', 75,105),

-> (6, 'Sarah', 'Wilson', '6789012345', 95,106),

-> (7, 'David', 'Miller', '7890123456', 89,107),

-> (8, 'Laura', 'Taylor', '8901234567', 78,108);

```
mysql> INSERT INTO Student (STUDENT_ID, FIRST_NAME, LAST_NAME, PHONE_NUMBER, MARKS, COURSE_ID) VALUES
    -> (1, 'Namira', 'Mulla', '1234567890', 85, 101),
    -> (2, 'Siddhi', 'Jain', '2345678901', 90, 102),
    -> (3, 'sapna', 'vish', '3456789012', 88,103),
    -> (4, 'manali', 'patil', '4567890123', 92,104),
    -> (5, 'Ashish', 'Davis', '5678901234', 75,105),
    -> (6, 'Sarah', 'Wilson', '6789012345', 95,106),
    -> (7, 'David', 'Miller', '7890123456', 89,107),
    -> (8, 'Laura', 'Taylor', '8901234567', 78,108);
Query OK, 8 rows affected (0.00 sec)
Records: 8  Duplicates: 0  Warnings: 0

mysql> select * from student;
+------------+------------+-----------+--------------+-------+-----------+
| STUDENT_ID | FIRST_NAME | LAST_NAME | PHONE_NUMBER | MARKS | COURSE_ID |
+------------+------------+-----------+--------------+-------+-----------+
|          1 | Namira     | Mulla     | 1234567890   |    85 |       101 |
|          2 | Siddhi     | Jain      | 2345678901   |    90 |       102 |
|          3 | sapna      | vish      | 3456789012   |    88 |       103 |
|          4 | manali     | patil     | 4567890123   |    92 |       104 |
|          5 | Ashish     | Davis     | 5678901234   |    75 |       105 |
|          6 | Sarah      | Wilson    | 6789012345   |    95 |       106 |
|          7 | David      | Miller    | 7890123456   |    89 |       107 |
|          8 | Laura      | Taylor    | 8901234567   |    78 |       108 |
+------------+------------+-----------+--------------+-------+-----------+
8 rows in set (0.00 sec)
```

d. Write a query to get the number of students with the same course.

Ans:

mysql> SELECT COURSE_ID, COUNT(STUDENT_ID) AS NumberOfStudents

-> from student

-> group by course_id;

```
mysql> SELECT COURSE_ID, COUNT(STUDENT_ID) AS NumberOfStudents
    -> from student
    -> group by course_id;
+-----------+------------------+
| COURSE_ID | NumberOfStudents |
+-----------+------------------+
|       101 |                1 |
|       102 |                1 |
|       103 |                1 |
|       104 |                1 |
|       105 |                1 |
|       106 |                1 |
|       107 |                1 |
|       108 |                1 |
+-----------+------------------+
8 rows in set (0.00 sec)
```

f. Write a query to get the student name, course name and marks of the students.

mysql> select student.first_name,

-> student.last_name,

-> course.course_name,

-> student.marks

-> from student

-> join course

-> on student.course_id=course.course_id;

```
mysql> select student.first_name,
    -> student.last_name,
    -> course.course_name,
    -> student.marks
    -> from student
    -> join course
    -> on student.course_id=course.course_id;
+------------+-----------+-----------------+-------+
| first_name | last_name | course_name     | marks |
+------------+-----------+-----------------+-------+
| Namira     | Mulla     | JAVA            |    85 |
| Siddhi     | Jain      | JAVA            |    90 |
| sapna      | vish      | PYTHON          |    88 |
| manali     | patil     | WEB DEVELOPMENT |    92 |
| Ashish     | Davis     | DBMS            |    75 |
| Sarah      | Wilson    | DBMS            |    95 |
| David      | Miller    | JAVA+DBMS       |    89 |
| Laura      | Taylor    | JAVA+DBMS       |    78 |
+------------+-----------+-----------------+-------+
8 rows in set (0.00 sec)
```

g. Write a query to get the Average marks of students course wise.

ANS:

mysql> select course.course_name,

-> AVG(Student.MARKS) AS AverageMarks

-> from student

-> join course

-> on student.course_id=course.course_id

-> group by course.course_name;

```
mysql> select course.course_name,
    -> AVG(Student.MARKS) AS AverageMarks
    -> from student
    -> join course
    -> on student.course_id=course.course_id
    -> group by course.course_name;
+-----------------+--------------+
| course_name     | AverageMarks |
+-----------------+--------------+
| JAVA            |      87.5000 |
| PYTHON          |      88.0000 |
| WEB DEVELOPMENT |      92.0000 |
| DBMS            |      85.0000 |
| JAVA+DBMS       |      83.5000 |
+-----------------+--------------+
5 rows in set (0.00 sec)
```

2. Create database for hospital management system & Perform the following tasks:

```
mysql> create database hospitalManamentSystem;
Query OK, 1 row affected (0.03 sec)
```

a. Create HEALTH CARE WORKERS table with following attributes (EMPLOYEE_ID , FIRST_NAME, LAST_NAME,EMAIL, PHONE_NUMBER, HIRE_DATE, SALARY, DESIGNATION).

mysql> create table HEALTH_CARE_WORKERS(EMPLOYEE_ID int primary key,FIRST_NAME char(20),LAST_NAME char(20),EMAIL char(30),PHONE_NUMBER char(10),HIRE_DATE DATE,SALARY int,DESIGNATION char(30));

```
mysql>  create table HEALTH_CARE_WORKERS(
    -> EMPLOYEE_ID int primary key,
    -> FIRST_NAME char(20),
    -> LAST_NAME char(20),
    -> EMAIL char(30),
    -> PHONE_NUMBER char(10),
    -> HIRE_DATE DATE,
    -> SALARY int,DESIGNATION char(30));
Query OK, 0 rows affected (0.05 sec)
```

mysql> desc HEALTH_CARE_WORKERS;

```
mysql> desc  HEALTH_CARE_WORKERS;
+--------------+----------+------+-----+---------+-------+
| Field        | Type     | Null | Key | Default | Extra |
+--------------+----------+------+-----+---------+-------+
| EMPLOYEE_ID  | int      | NO   | PRI | NULL    |       |
| FIRST_NAME   | char(20) | YES  |     | NULL    |       |
| LAST_NAME    | char(20) | YES  |     | NULL    |       |
| EMAIL        | char(30) | YES  |     | NULL    |       |
| PHONE_NUMBER | char(10) | YES  |     | NULL    |       |
| HIRE_DATE    | date     | YES  |     | NULL    |       |
| SALARY       | int      | YES  |     | NULL    |       |
| DESIGNATION  | char(30) | YES  |     | NULL    |       |
+--------------+----------+------+-----+---------+-------+
8 rows in set (0.00 sec)
```

b. Create PATIENT table with following attributes (PATIENT_ID,NAME, PHONE_NUMBER).

Ans;

mysql> create table patient(PATIENT_ID int primary key,P_NAME char(20),P_PHONE_NUMBER char(10));

```
mysql> create table patient(
    -> PATIENT_ID int primary key,
    -> P_NAME char(20),
    -> P_PHONE_NUMBER char(10));
Query OK, 0 rows affected (0.05 sec)
```

mysql> desc patient;

```
mysql> desc patient;
+---------------+----------+------+-----+---------+-------+
| Field         | Type     | Null | Key | Default | Extra |
+---------------+----------+------+-----+---------+-------+
| PATIENT_ID    | int      | NO   | PRI | NULL    |       |
| P_NAME        | char(20) | YES  |     | NULL    |       |
| P_PHONE_NUMBER | char(10) | YES  |     | NULL    |       |
+---------------+----------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

c. Write a SQL statement to insert 10 records with your own value into the tables.

ANS:

mysql> INSERT INTO HEALTH_CARE_WORKERS (EMPLOYEE_ID, FIRST_NAME, LAST_NAME, EMAIL, PHONE_NUMBER, HIRE_DATE, SALARY, DESIGNATION) VALUES

-> (11, 'Namira', 'Mulla', 'namira.mulla@example.com', '1111111111', '2022-01-05', 53000.00, 'Nurse'),

-> (12, 'Siddhi', 'Jain', 'siddhi.jain@example.com', '2222222222', '2022-03-10', 54000.00, 'Doctor'),

-> (13, 'Sapna', 'Vishwakarma', 'sapna.vishwakarma@example.com', '3333333333', '2022-05-15', 55000.00, 'Technician'),

-> (14, 'Asshish', 'Kashab', 'asshish.kashab@example.com', '4444444444', '2022-07-20', 56000.00, 'Surgeon'),

-> (15, 'Kajal', 'Pasad', 'kajal.pasad@example.com', '5555555555', '2022-09-25', 57000.00, 'Doctor'),

-> (16, 'Shaki', 'Shaikh', 'shaki.shaikh@example.com', '6666666666', '2022-11-30', 58000.00, 'Nurse'),

-> (17, 'Anjli', 'Shing', 'anjli.shing@example.com', '7777777777', '2023-01-15', 59000.00, 'Technician'),

-> (18, 'Sonali', 'Jadhav', 'sonali.jadhav@example.com', '8888888888', '2023-03-20', 60000.00, 'Doctor'),

-> (19, 'Salman', 'Mulla', 'salman.mulla@example.com', '9999999999', '2023-05-25', 61000.00, 'Surgeon');

```
mysql> INSERT INTO HEALTH_CARE_WORKERS (EMPLOYEE_ID, FIRST_NAME, LAST_NAME, EMAIL, PHONE_NUMBER, HIRE_DATE, SALARY, DESIGNATION) VALUES
    ->     (11, 'Namira', 'Mulla', 'namira.mulla@example.com', '1111111111', '2022-01-05', 53000.00, 'Nurse'),
    ->      (12, 'Siddhi', 'Jain', 'siddhi.jain@example.com', '2222222222', '2022-03-10', 54000.00, 'Doctor'),
    ->      (13, 'Sapna', 'Vishwakarma', 'sapna.vishwakarma@example.com', '3333333333', '2022-05-15', 55000.00, 'Technician'),
    ->      (14, 'Asshish', 'Kashab', 'asshish.kashab@example.com', '4444444444', '2022-07-20', 56000.00, 'Surgeon'),
    ->      (15, 'Kajal', 'Pasad', 'kajal.pasad@example.com', '5555555555', '2022-09-25', 57000.00, 'Doctor'),
    ->     (16, 'Shaki', 'Shaikh', 'shaki.shaikh@example.com', '6666666666', '2022-11-30', 58000.00, 'Nurse'),
    ->      (17, 'Anjli', 'Shing', 'anjli.shing@example.com', '7777777777', '2023-01-15', 59000.00, 'Technician'),
    ->      (18, 'Sonali', 'Jadhav', 'sonali.jadhav@example.com', '8888888888', '2023-03-20', 60000.00, 'Doctor'),
    ->      (19, 'Salman', 'Mulla', 'salman.mulla@example.com', '9999999999', '2023-05-25', 61000.00, 'Surgeon');
Query OK, 9 rows affected (0.03 sec)
Records: 9  Duplicates: 0  Warnings: 0
```

mysql> select * from HEALTH_CARE_WORKERS;

```
mysql> select * from HEALTH_CARE_WORKERS;
+-------------+------------+-------------+------------------------------+--------------+------------+--------+-------------+
| EMPLOYEE_ID | FIRST_NAME | LAST_NAME   | EMAIL                        | PHONE_NUMBER | HIRE_DATE  | SALARY | DESIGNATION |
+-------------+------------+-------------+------------------------------+--------------+------------+--------+-------------+
|          11 | Namira     | Mulla       | namira.mulla@example.com     | 1111111111   | 2022-01-05 |  53000 | Nurse       |
|          12 | Siddhi     | Jain        | siddhi.jain@example.com      | 2222222222   | 2022-03-10 |  54000 | Doctor      |
|          13 | Sapna      | Vishwakarma | sapna.vishwakarma@example.com | 3333333333   | 2022-05-15 |  55000 | Technician  |
|          14 | Asshish    | Kashab      | asshish.kashab@example.com   | 4444444444   | 2022-07-20 |  56000 | Surgeon     |
|          15 | Kajal      | Pasad       | kajal.pasad@example.com      | 5555555555   | 2022-09-25 |  57000 | Doctor      |
|          16 | Shaki      | Shaikh      | shaki.shaikh@example.com     | 6666666666   | 2022-11-30 |  58000 | Nurse       |
|          17 | Anjli      | Shing       | anjli.shing@example.com      | 7777777777   | 2023-01-15 |  59000 | Technician  |
|          18 | Sonali     | Jadhav      | sonali.jadhav@example.com    | 8888888888   | 2023-03-20 |  60000 | Doctor      |
|          19 | Salman     | Mulla       | salman.mulla@example.com     | 9999999999   | 2023-05-25 |  61000 | Surgeon     |
+-------------+------------+-------------+------------------------------+--------------+------------+--------+-------------+
9 rows in set (0.00 sec)
```

mysql> INSERT INTO PATIENT (PATIENT_ID,P_NAME,P_PHONE_NUMBER) VALUES

-> (1, 'Ravi Kumar', '1234567890'),

-> (2, 'Priya Sharma', '2345678901'),

-> (3, 'Amit Verma', '3456789012'),

-> (4, 'Sneha Patil', '4567890123'),

-> (5, 'Rajesh Singh', '5678901234'),

-> (6, 'Neha Gupta', '6789012345'),

-> (7, 'Vikram Rao', '7890123456'),

-> (8, 'Anita Joshi', '8901234567'),

-> (9, 'Sunil Desai', '9012345678'),

-> (10, 'Kavita Nair', '0123456789');

```
mysql> INSERT INTO PATIENT (PATIENT_ID,P_NAME,P_PHONE_NUMBER) VALUES
    -> (1, 'Ravi Kumar', '1234567890'),
    -> (2, 'Priya Sharma', '2345678901'),
    -> (3, 'Amit Verma', '3456789012'),
    -> (4, 'Sneha Patil', '4567890123'),
    -> (5, 'Rajesh Singh', '5678901234'),
    -> (6, 'Neha Gupta', '6789012345'),
    -> (7, 'Vikram Rao', '7890123456'),
    -> (8, 'Anita Joshi', '8901234567'),
    -> (9, 'Sunil Desai', '9012345678'),
    -> (10, 'Kavita Nair', '0123456789');
Query OK, 10 rows affected (0.03 sec)
Records: 10  Duplicates: 0  Warnings: 0
```

mysql> select *from patient;

```
mysql>
mysql> select * from PATIENT;
+------------+--------------+----------------+
| PATIENT_ID | P_NAME       | P_PHONE_NUMBER |
+------------+--------------+----------------+
|          1 | Ravi Kumar   | 1234567890     |
|          2 | Priya Sharma | 2345678901     |
|          3 | Amit Verma   | 3456789012     |
|          4 | Sneha Patil  | 4567890123     |
|          5 | Rajesh Singh | 5678901234     |
|          6 | Neha Gupta   | 6789012345     |
|          7 | Vikram Rao   | 7890123456     |
|          8 | Anita Joshi  | 8901234567     |
|          9 | Sunil Desai  | 9012345678     |
|         10 | Kavita Nair  | 0123456789     |
+------------+--------------+----------------+
10 rows in set (0.00 sec)
```

d. Write a query to get the names (first_name, last_name),Designation, salary.

ANS:

mysql> select first_name,last_name,DESIGNATION,salary from HEALTH_CARE_WORKERS;

```
mysql> select first_name,last_name,DESIGNATION,salary from HEALTH_CARE_WORKERS;
+------------+-------------+-------------+--------+
| first_name | last_name   | DESIGNATION | salary |
+------------+-------------+-------------+--------+
| Namira     | Mulla       | Nurse       |  53000 |
| Siddhi     | Jain        | Doctor      |  54000 |
| Sapna      | Vishwakarma | Technician  |  55000 |
| Asshish    | Kashab      | Surgeon     |  56000 |
| Kajal      | Pasad       | Doctor      |  57000 |
| Shaki      | Shaikh      | Nurse       |  58000 |
| Anjli      | Shing       | Technician  |  59000 |
| Sonali     | Jadhav      | Doctor      |  60000 |
| Salman     | Mulla       | Surgeon     |  61000 |
+------------+-------------+-------------+--------+
9 rows in set (0.00 sec)
```

e. Write a query to get the number of employees with the same Designation

ANS:

mysql> SELECT DESIGNATION, COUNT(EMPLOYEE_ID) AS NumberOfEmployees

-> FROM HEALTH_CARE_WORKERS

-> GROUP BY DESIGNATION;

```
mysql> SELECT DESIGNATION, COUNT(EMPLOYEE_ID) AS NumberOfEmployees
    -> FROM HEALTH_CARE_WORKERS
    -> GROUP BY DESIGNATION;
+-------------+-------------------+
| DESIGNATION | NumberOfEmployees |
+-------------+-------------------+
| Nurse       |                 2 |
| Doctor      |                 3 |
| Technician  |                 2 |
| Surgeon     |                 2 |
+-------------+-------------------+
4 rows in set (0.00 sec)
```

f. Write a query to get employee name who are getting salary more than 25000.

Ans:

mysql> SELECT FIRST_NAME, LAST_NAME

-> FROM HEALTH_CARE_WORKERS

-> WHERE SALARY > 25000.00;

```
mysql> SELECT FIRST_NAME, LAST_NAME
    -> FROM HEALTH_CARE_WORKERS
    -> WHERE SALARY > 25000.00;
+------------+-------------+
| FIRST_NAME | LAST_NAME   |
+------------+-------------+
| Namira     | Mulla       |
| Siddhi     | Jain        |
| Sapna      | Vishwakarma |
| Asshish    | Kashab      |
| Kajal      | Pasad       |
| Shaki      | Shaikh      |
| Anjli      | Shing       |
| Sonali     | Jadhav      |
| Salman     | Mulla       |
+------------+-------------+
9 rows in set (0.00 sec)
```

g. Fetch HEALTH CARE WORKERS name using their employee id.

ANS:

mysql> SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME

-> FROM HEALTH_CARE_WORKERS

-> WHERE EMPLOYEE_ID = 11;

```
mysql> SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME
    -> FROM HEALTH_CARE_WORKERS
    -> WHERE EMPLOYEE_ID = 11;
+-------------+------------+-----------+
| EMPLOYEE_ID | FIRST_NAME | LAST_NAME |
+-------------+------------+-----------+
|          11 | Namira     | Mulla     |
+-------------+------------+-----------+
1 row in set (0.00 sec)
```

3.Consider two tables, customers and orders, with the following structures:

Customers Table: customer_id (Primary Key) first_name Last_name

Orders Table: order_id (Primary Key) customer_id (Foreign Key) order_date Total_amount

Write an SQL query to retrieve the first and last names of customers along with the order date and total amount of their orders.

Use an INNER JOIN to connect the two tables.

ANS:

```
mysql> CREATE TABLE customers (
    ->     customer_id INT PRIMARY KEY,
    ->     first_name CHAR(20),
    ->     last_name CHAR(20)
    -> );
```

```
mysql> CREATE TABLE customers (
    -> customer_id INT PRIMARY KEY,
    -> first_name CHAR(20),
    -> last_name CHAR(20)
    -> );
Query OK, 0 rows affected (0.05 sec)
```

```
mysql> CREATE TABLE orders (
    ->     order_id INT PRIMARY KEY,
    ->     customer_id INT,
    ->     order_date DATE,
    ->     total_amount DECIMAL(10, 2),
    ->     FOREIGN KEY (customer_id) REFERENCES customers(customer_id)
    -> );
```

```
mysql> CREATE TABLE orders (
    -> order_id INT PRIMARY KEY,
    -> customer_id INT,
    -> order_date DATE,
    -> total_amount DECIMAL(10, 2),
    -> FOREIGN KEY (customer_id) REFERENCES customers(customer_id)
    -> );
Query OK, 0 rows affected (0.06 sec)
```

```
mysql> INSERT INTO customers (customer_id, first_name, last_name) VALUES
    -> (1, 'Ravi', 'Kumar'),
    -> (2, 'Priya', 'Sharma'),
    -> (3, 'Amit', 'Verma'),
    -> (4, 'Sneha', 'Patil'),
    -> (5, 'Rajesh', 'Singh');
```

```
mysql> INSERT INTO customers (customer_id, first_name, last_name) VALUES
    -> (1, 'Ravi', 'Kumar'),
    -> (2, 'Priya', 'Sharma'),
    -> (3, 'Amit', 'Verma'),
    -> (4, 'Sneha', 'Patil'),
    -> (5, 'Rajesh', 'Singh');
Query OK, 5 rows affected (0.02 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

mysql> INSERT INTO orders (order_id, customer_id, order_date, total_amount) VALUES

-> (101, 1, '2023-08-01', 1500.00),

-> (102, 2, '2023-08-02', 2000.00),

-> (103, 1, '2023-08-03', 2500.00),

-> (104, 3, '2023-08-04', 3000.00),

-> (105, 4, '2023-08-05', 3500.00);

```
mysql> INSERT INTO orders (order_id, customer_id, order_date, total_amount) VALUES
    -> (101, 1, '2023-08-01', 1500.00),
    -> (102, 2, '2023-08-02', 2000.00),
    -> (103, 1, '2023-08-03', 2500.00),
    -> (104, 3, '2023-08-04', 3000.00),
    -> (105, 4, '2023-08-05', 3500.00);
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

mysql> SELECT

-> customers.first_name,

-> customers.last_name,

-> orders.order_date,

-> orders.total_amount

-> FROM

-> customers

-> INNER JOIN

-> orders

-> ON

-> customers.customer_id = orders.customer_id;

```
mysql> SELECT
    -> customers.first_name,
    -> orders.order_date,
    ->  orders.total_amount
    -> FROM
    -> customers
    -> INNER JOIN
    ->  orders
    -> ON
    -> customers.customer_id = orders.customer_id;
+------------+------------+--------------+
| first_name | order_date | total_amount |
+------------+------------+--------------+
| Ravi       | 2023-08-01 |      1500.00 |
| Ravi       | 2023-08-03 |      2500.00 |
| Priya      | 2023-08-02 |      2000.00 |
| Amit       | 2023-08-04 |      3000.00 |
| Sneha      | 2023-08-05 |      3500.00 |
+------------+------------+--------------+
5 rows in set (0.00 sec)
```

4.Consider two tables, departments and employees, with the following structures:

Departments Table: department_id (Primary Key) department_name

Employees Table: employee_id (Primary Key) first_name last_name department_id (Foreign Key)

Write an SQL query to retrieve a list of all departments and the names of employees who belong to each department. Use a LEFT JOIN to include departments that have no employees.

ANS:

```
mysql> CREATE TABLE departments (
    ->     department_id INT PRIMARY KEY,
    ->     department_name CHAR(50)
    -> );
```

```
mysql> CREATE TABLE departments (
    -> department_id INT PRIMARY KEY,
    -> department_name CHAR(50)
    -> );
Query OK, 0 rows affected (0.06 sec)
```

```
mysql> CREATE TABLE employees (
    ->     employee_id INT PRIMARY KEY,
    ->     first_name CHAR(20),
    ->     last_name CHAR(20),
    ->     department_id INT,
    ->     FOREIGN KEY (department_id) REFERENCES departments(department_id)
    -> );
```

```
mysql> CREATE TABLE employees (
    -> employee_id INT PRIMARY KEY,
    -> first_name CHAR(20),
    -> last_name CHAR(20),
    -> department_id INT,
    -> FOREIGN KEY (department_id) REFERENCES departments(department_id)
    -> );
Query OK, 0 rows affected (0.08 sec)
```

```
mysql> INSERT INTO departments (department_id, department_name) VALUES
    -> (1, 'Human Resources'),
    -> (2, 'Finance'),
    -> (3, 'Engineering'),
    -> (4, 'Sales'),
    -> (5, 'Marketing');
```

```
mysql> INSERT INTO departments (department_id, department_name) VALUES
    -> (1, 'Human Resources'),
    -> (2, 'Finance'),
    -> (3, 'Engineering'),
    -> (4, 'Sales'),
    -> (5, 'Marketing');
Query OK, 5 rows affected (0.03 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

```
mysql> INSERT INTO employees (employee_id, first_name, last_name, department_id) VALUES
    -> (101, namira, mulla, 1),
    -> (102, namu, maulla, 2),
    -> (103, manali, madam, 3),
    -> (104, siddhi, jain, 4),
    -> (105, sidddi, jaain, 3);
```

```
mysql> INSERT INTO employees (employee_id, first_name, last_name, department_id) VALUES
    -> (101, 'namira', 'mulla', 1),
    -> (102, 'namu', 'maulla', 2),
    -> (103, 'manali', 'madam', 3),
    -> (104, 'siddhi', 'jain', 4),
    -> (105, 'sidddi', 'jaain', 3);
Query OK, 5 rows affected (0.03 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

```
mysql> SELECT
    ->     departments.department_name,
    ->     employees.first_name,
    ->     employees.last_name
    -> FROM
    ->     departments
    -> LEFT JOIN
    ->     employees
    -> ON
    ->     departments.department_id = employees.department_id;
```

```
mysql> SELECT
    -> departments.department_name,
    -> employees.first_name,
    -> employees.last_name
    -> FROM
    -> departments
    -> LEFT JOIN
    -> employees
    -> ON
    -> departments.department_id = employees.department_id;
+-----------------+------------+-----------+
| department_name | first_name | last_name |
+-----------------+------------+-----------+
| Human Resources | namira     | mulla     |
| Finance         | namu       | maulla    |
| Engineering     | manali     | madam     |
| Engineering     | sidddi     | jaain     |
| Sales           | siddhi     | jain      |
| Marketing       | NULL       | NULL      |
+-----------------+------------+-----------+
6 rows in set (0.00 sec)
```

5. Write a program to show JDBC connection with MYSQL and perform the following operations:

Create table Customer with following fields:

Custno, Custame,Custaddress,Phoneno, City, Pincode, Country

Insert 5 records in Customer table.

a. Insert values

b. Delete values

c. update city name Shimla to Shilong.

d. Show table in the console

Ans:

1)Connection –code

```
package myproject;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;
public class ConnectDb {
	private static Connection con = null;
	public static Connection dbConnect() {
		try {
			// Load the MySQL JDBC driver
			Class.forName("com.mysql.cj.jdbc.Driver");

			// Establish the database connection
			con = DriverManager.getConnection(
					"jdbc:mysql://localhost:3306/namira",
					"root",
					"Namira"
					);

			System.out.println("Connection established successfully.");


		} catch (ClassNotFoundException e) {
			System.out.println("MySQL JDBC Driver not found.");
			e.printStackTrace();
		} catch (SQLException e) {
			System.out.println("Failed to connect to the database.");
			e.printStackTrace();
		}
		return con;
	}

	}
```

2) Query Code

```
package myproject;
import java.sql.Connection;
import java.sql.ResultSet;
import java.sql.Statement;
public class TestConnection extends ConnectDb{
	public static void main(String[] agrs) {
		try(Connection con=ConnectDb.dbConnect();)
		{
			System.out.println("Connection established: "+con);
			// creating statements
			Statement stmt=con.createStatement();

			//creating table
			String sql="create table Customer(Custno int primary
key,CustName char(30),Custaddress char(50),Phoneno char(10),City
char(30),Pincode int,Country char(30))";

			//execute quary
			stmt.execute(sql);
			System.out.println("Table created");

			// Inserting records
			String sql1 = "INSERT INTO Customer (Custno, CustName,
Custaddress, Phoneno, City, Pincode, Country) " +
                          "VALUES (1, 'Namira', 'palghar Road', '9876543210',
'Shimla ', 400001, 'India')";
			stmt.executeUpdate(sql1);

			String sql2 = "INSERT INTO Customer (Custno, CustName,
Custaddress, Phoneno, City, Pincode, Country) " +
                          "VALUES (2, 'Sidhi', 'Park Street', '9123456789',
'Delhi', 110001, 'India')";
			stmt.executeUpdate(sql2);

			String sql3 = "INSERT INTO Customer (Custno, CustName,
Custaddress, Phoneno, City, Pincode, Country) " +
                          "VALUES (3, 'salman', 'Nehru Place', '9876543201',
'Bangalore', 560001, 'India')";
			stmt.executeUpdate(sql3);

			String sql4 = "INSERT INTO Customer (Custno, CustName,
Custaddress, Phoneno, City, Pincode, Country) " +
                          "VALUES (4, 'manali maam', 'Civil Lines',
'9123456709', 'Chennai', 600001, 'India')";
			stmt.executeUpdate(sql4);

			String sql5 = "INSERT INTO Customer (Custno, CustName,
Custaddress, Phoneno, City, Pincode, Country) " +
                          "VALUES (5, 'Umehma maam', 'Juhu Beach',
'9876543212', 'Kolkata', 700001, 'India')";
			stmt.executeUpdate(sql5);

			System.out.println("Records inserted successfully.");

			// delete a 3rd record in table
			String sqldelete="delete from customer where custno=3";
```

```
                stmt.executeUpdate(sqldelete);
                System.out.println("Record with Custno = 3 deleted
successfully.");

                // update the shimla into shillong
                String sqlUpdate = "UPDATE Customer SET City = 'Shillong' WHERE
City = 'Shimla'";
                stmt.executeUpdate(sqlUpdate);

                System.out.println("City name updated from Shimla to
Shillong.");

                // select all record from table
                String sqlSelectAll="select * from customer";
                ResultSet rs= stmt.executeQuery(sqlSelectAll);

                // Printing the table header
                System.out.println("Custno | CustName | Custaddress | Phoneno
| City    | Pincode | Country");
                System.out.println("-----------------------------------------
--------------------");

                // Iterating through the result set and printing each record
                while (rs.next()) {
                      int custno = rs.getInt("Custno");
                      String custName = rs.getString("CustName");
                      String custAddress = rs.getString("Custaddress");
                      String phoneNo = rs.getString("Phoneno");
                      String city = rs.getString("City");
                      int pincode = rs.getInt("Pincode");
                      String country = rs.getString("Country");

                      // Print the record
                      System.out.printf("%-6d | %-8s | %-12s | %-10s | %-8s | %-
7d | %-8s%n",
                                  custno, custName, custAddress, phoneNo, city,
pincode, country);
                }
           }catch(Exception e) {
                e.printStackTrace();
           }
     }
}
```

Output:

```
<terminated> TestConnection [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe  (07-Sept-2024, 1:19:56 pm – 1:19:59 pm) [pid: 92
Connection established successfully.
Connection established: com.mysql.cj.jdbc.ConnectionImpl@1757cd72
Table created
Records inserted successfully.
Record with Custno = 3 deleted successfully.
City name updated from Shimla to Shillong.
Custno | CustName | Custaddress | Phoneno    | City    | Pincode | Country
-------------------------------------------------------------
1      | Namira   | palghar Road | 9876543210 | Shillong | 400001  | India
2      | Sidhi    | Park Street  | 9123456789 | Delhi    | 110001  | India
4      | manali maam | Civil Lines  | 9123456709 | Chennai  | 600001  | India
5      | Umehma maam | Juhu Beach   | 9876543212 | Kolkata  | 700001  | India
```