Experiment No: 1

Date : 10/02/2025

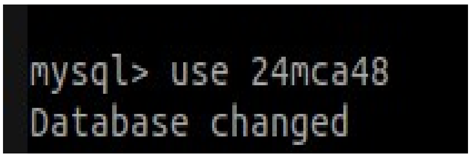
Familiarization of DDL Commands

Data Definition Language (DDL) - These SQL commands are used for creating, modifying, and dropping the structure of database objects. The commands are CREATE, ALTER, DROP, RENAME, and TRUNCATE.

A. Consider the database for a college. Write SQL commands to implement the following:

1. Create a database
>> create database 24mca48;

2. Select the current database
>> use 24mca48;



```
mysql> use 24mca48
Database changed
```

3. Create the following tables:

a) Student (roll_no integer, name varchar, dob date, address text, phone_no varchar, blood_grp varchar)

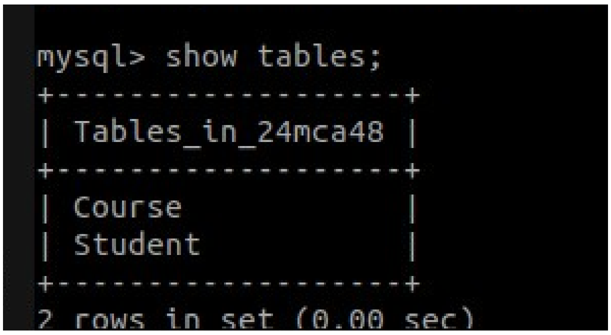
>> create table student(roll_no int,name varchar(30),dob date,address varchar(255),phone_no varchar(11),blood_grp varchar(6));

b) Course (Course_id integer, Course_name varchar, course_duration integer)

>> create table course(course_id int not null,course_name varchar(20),course_duration int);

4. List all tables in the current database.

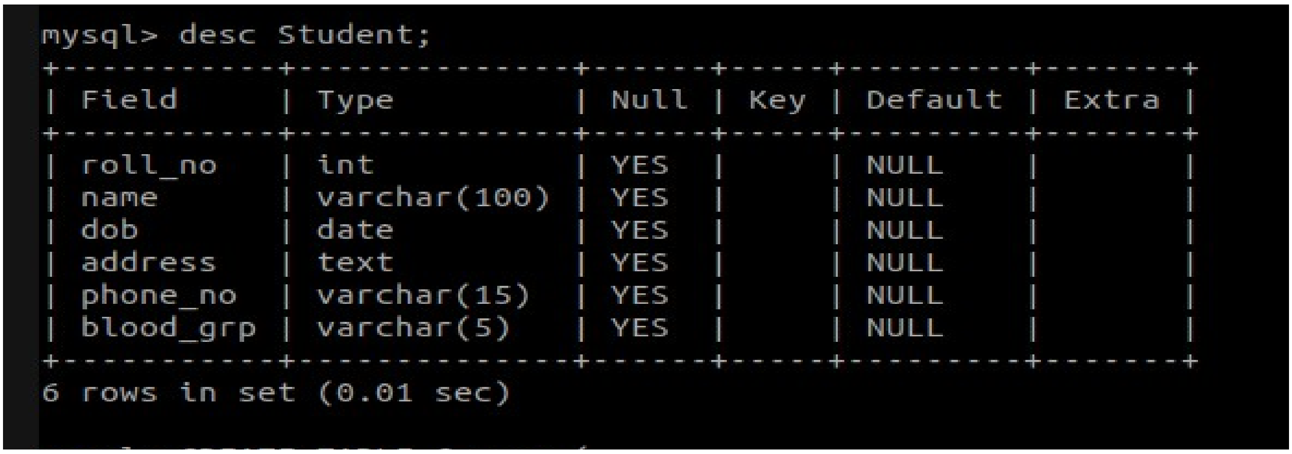
>> show tables;



```
mysql> show tables;
+-------------------+
| Tables_in_24mca48 |
+-------------------+
| Course            |
| Student           |
+-------------------+
2 rows in set (0.00 sec)
```

5. Display the structure of the Student table.

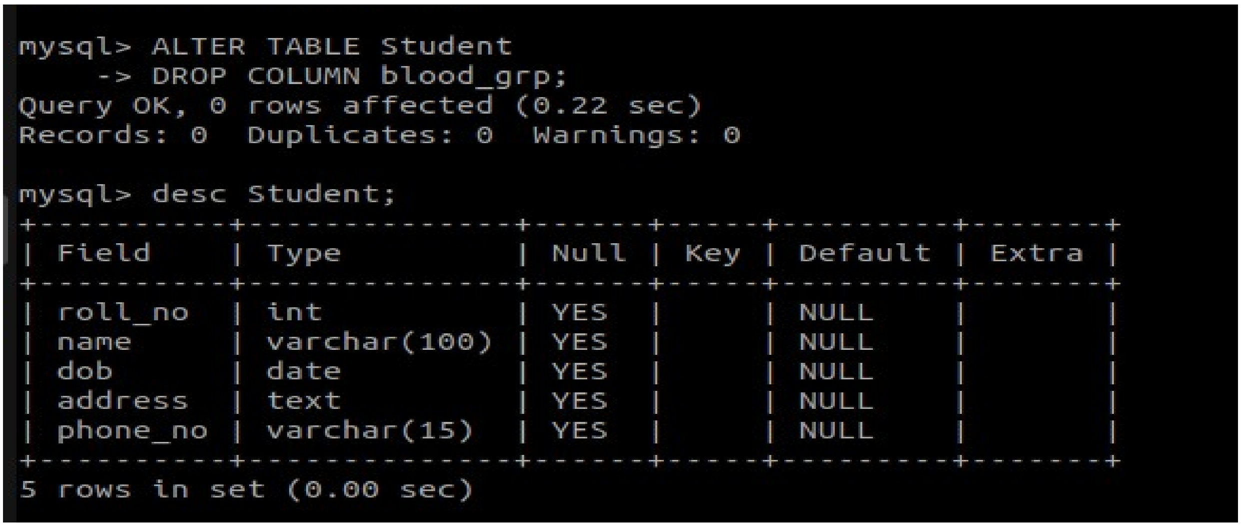
>> describe student;



```
mysql> desc Student;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| roll_no   | int          | YES  |     | NULL    |       |
| name      | varchar(100) | YES  |     | NULL    |       |
| dob       | date         | YES  |     | NULL    |       |
| address   | text         | YES  |     | NULL    |       |
| phone_no  | varchar(15)  | YES  |     | NULL    |       |
| blood_grp | varchar(5)   | YES  |     | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
6 rows in set (0.01 sec)
```

6. Drop the column blood_grp from Student table.

>> alter table student drop column blood_grp;

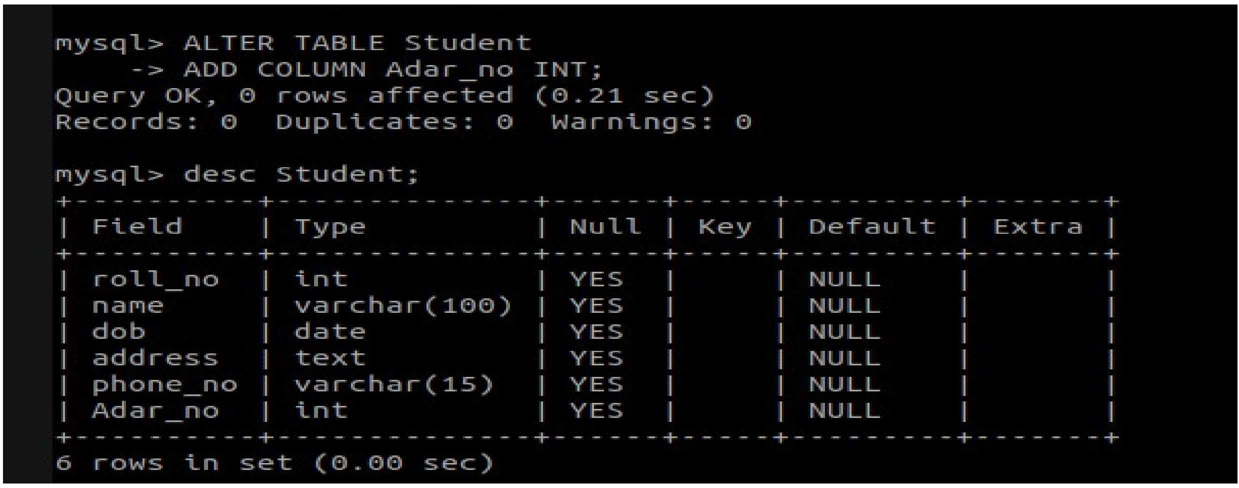


```
mysql> ALTER TABLE Student
    -> DROP COLUMN blood_grp;
Query OK, 0 rows affected (0.22 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc Student;
+----------+--------------+------+-----+---------+-------+
| Field    | Type         | Null | Key | Default | Extra |
+----------+--------------+------+-----+---------+-------+
| roll_no  | int          | YES  |     | NULL    |       |
| name     | varchar(100) | YES  |     | NULL    |       |
| dob      | date         | YES  |     | NULL    |       |
| address  | text         | YES  |     | NULL    |       |
| phone_no | varchar(15)  | YES  |     | NULL    |       |
+----------+--------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

7. Add a new column Adar_no with domain number to the table Student.

>> alter table student add column Adar_no int;



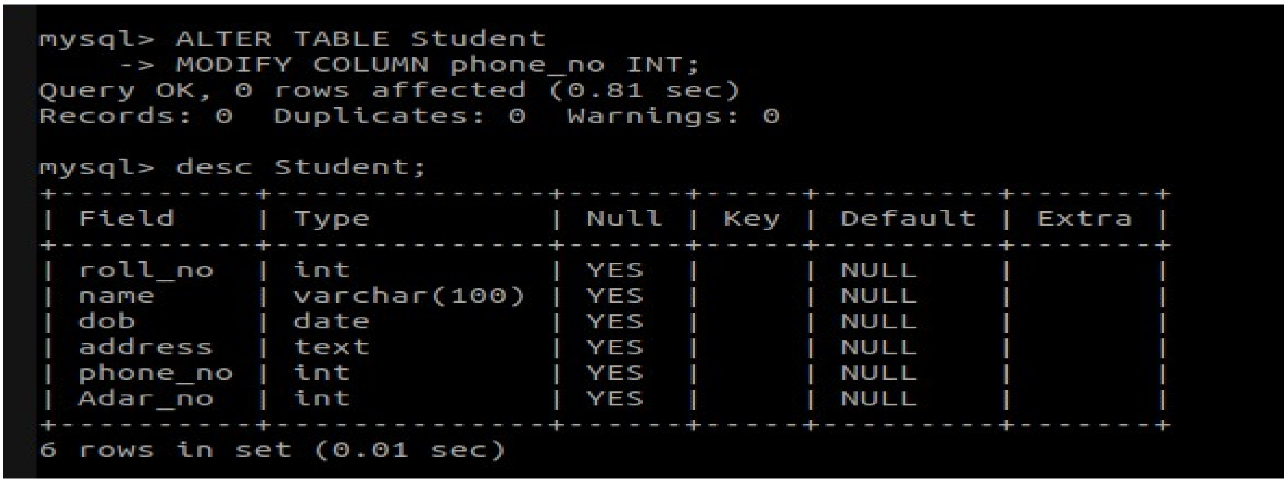
```
mysql> ALTER TABLE Student
    -> ADD COLUMN Adar_no INT;
Query OK, 0 rows affected (0.21 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc Student;
+----------+--------------+------+-----+---------+-------+
| Field    | Type         | Null | Key | Default | Extra |
+----------+--------------+------+-----+---------+-------+
| roll_no  | int          | YES  |     | NULL    |       |
| name     | varchar(100) | YES  |     | NULL    |       |
| dob      | date         | YES  |     | NULL    |       |
| address  | text         | YES  |     | NULL    |       |
| phone_no | varchar(15)  | YES  |     | NULL    |       |
| Adar_no  | int          | YES  |     | NULL    |       |
+----------+--------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

8.

8.Change the datatype of phone_no from varchar to int

>> alter table student modify phone_no int;



```
mysql> ALTER TABLE Student
    -> MODIFY COLUMN phone_no INT;
Query OK, 0 rows affected (0.81 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc Student;
+----------+--------------+------+-----+---------+-------+
| Field    | Type         | Null | Key | Default | Extra |
+----------+--------------+------+-----+---------+-------+
| roll_no  | int          | YES  |     | NULL    |       |
| name     | varchar(100) | YES  |     | NULL    |       |
| dob      | date         | YES  |     | NULL    |       |
| address  | text         | YES  |     | NULL    |       |
| phone_no | int          | YES  |     | NULL    |       |
| Adar_no  | int          | YES  |     | NULL    |       |
+----------+--------------+------+-----+---------+-------+
6 rows in set (0.01 sec)
```

9. Drop the tables.

>> drop table student;

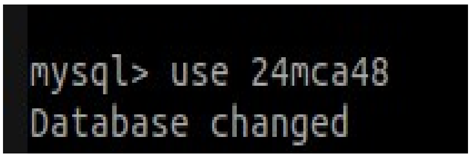
10. Delete the database.

>>Drop database 24mca48;

B. Consider the database for an organization. Write SQL commands to implement the following:

1. Create a database
>> create database 24mca48;

2. Select the current database
>> use 24mca48;



```
mysql> use 24mca48
Database changed
```

3. Create the following tables:

a) Employee (emp_no varchar, emp_name varchar, dob date, address text, mobile_no integer, dept_no varchar, salary integer)

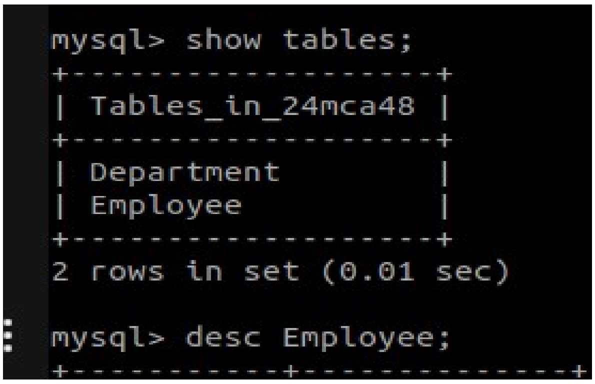
>> create table Employee(emp_no varchar(50),emp_name varchar(100),dob date,address varchar(255),mobile_no int,dept_no varchar(50),salary int);

b) Department (dept_no varchar, dept_name varchar, location varchar)

>> create table department(dept_no varchar(50),dept_name varchar(100),location varchar(100));

4. List all tables in the current database.

>> show tables;

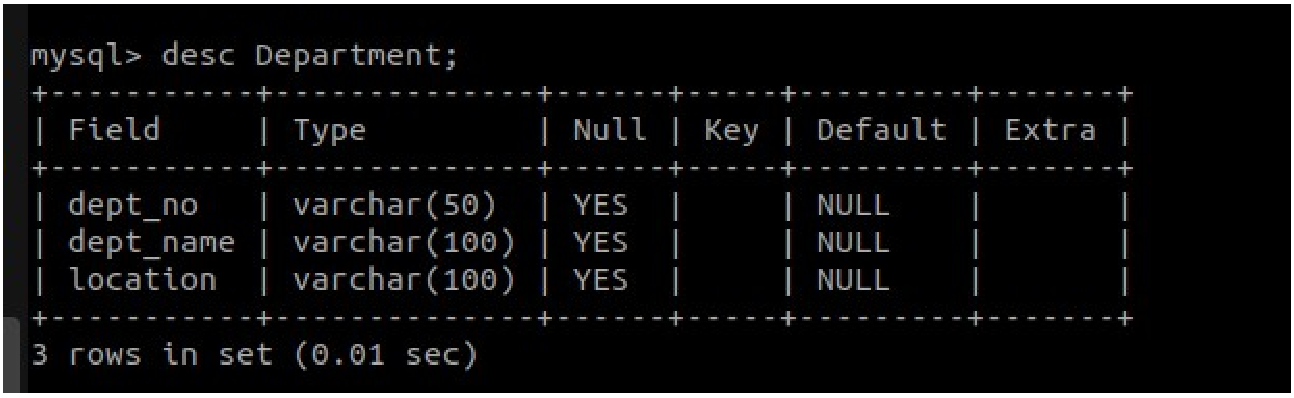


```
mysql> show tables;
+-------------------+
| Tables_in_24mca48 |
+-------------------+
| Department        |
| Employee          |
+-------------------+
2 rows in set (0.01 sec)

mysql> desc Employee;
+-----------+-------------+
```

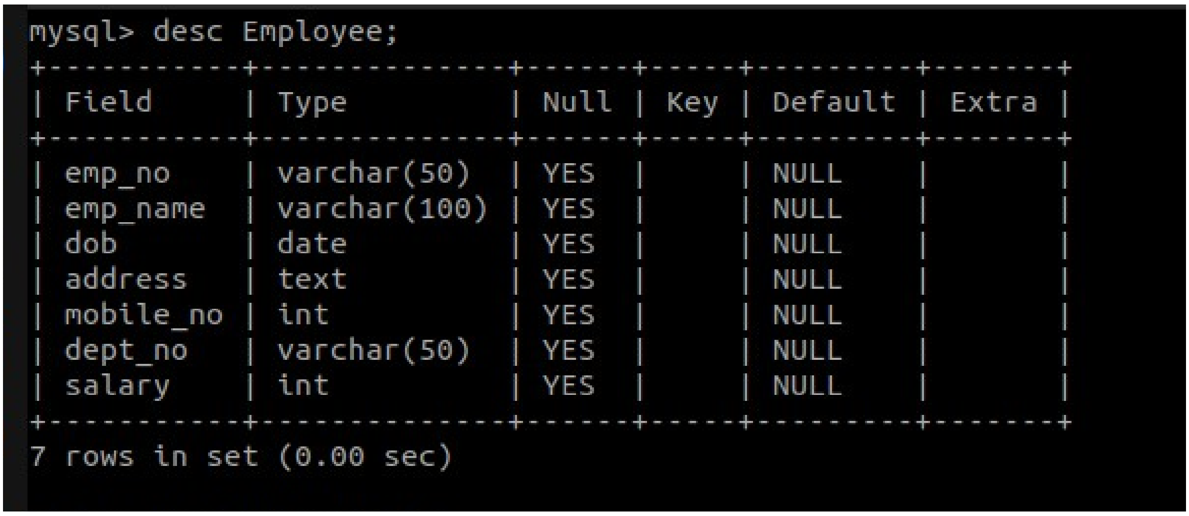
5. Display the structure of the Employee table and Department table.

>> describe department;



```
mysql> desc Department;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| dept_no   | varchar(50)  | YES  |     | NULL    |       |
| dept_name | varchar(100) | YES  |     | NULL    |       |
| location  | varchar(100) | YES  |     | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
3 rows in set (0.01 sec)
```

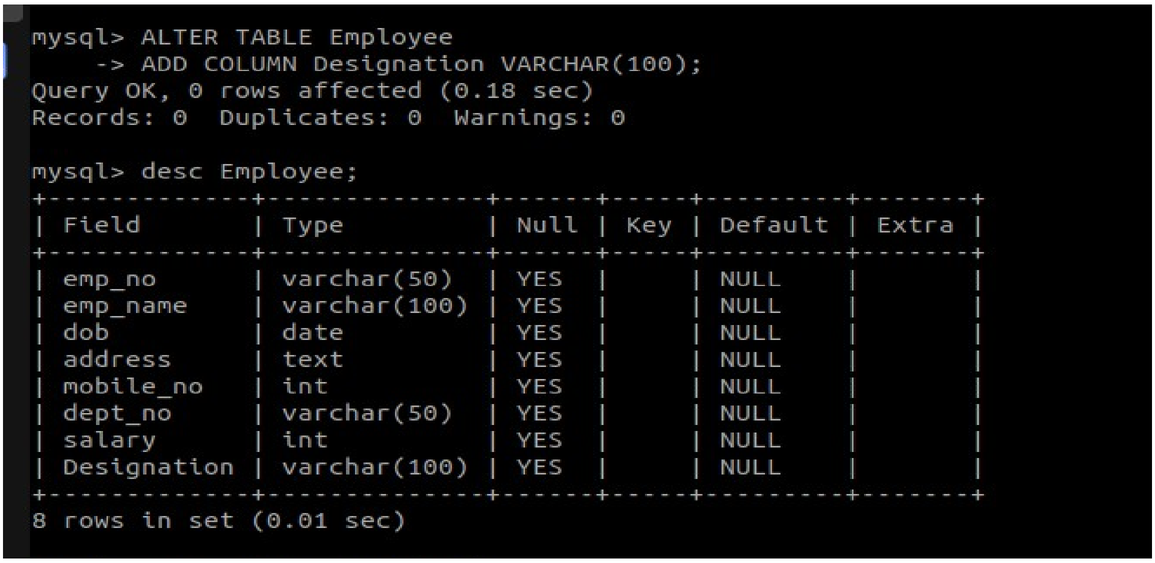
>> describe Employee;



```
mysql> desc Employee;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| emp_no    | varchar(50)  | YES  |     | NULL    |       |
| emp_name  | varchar(100) | YES  |     | NULL    |       |
| dob       | date         | YES  |     | NULL    |       |
| address   | text         | YES  |     | NULL    |       |
| mobile_no | int          | YES  |     | NULL    |       |
| dept_no   | varchar(50)  | YES  |     | NULL    |       |
| salary    | int          | YES  |     | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
7 rows in set (0.00 sec)
```

6. Add a new column ‘Designation’ to the table Employee.

>> alter table employee add column Designation varchar(100);

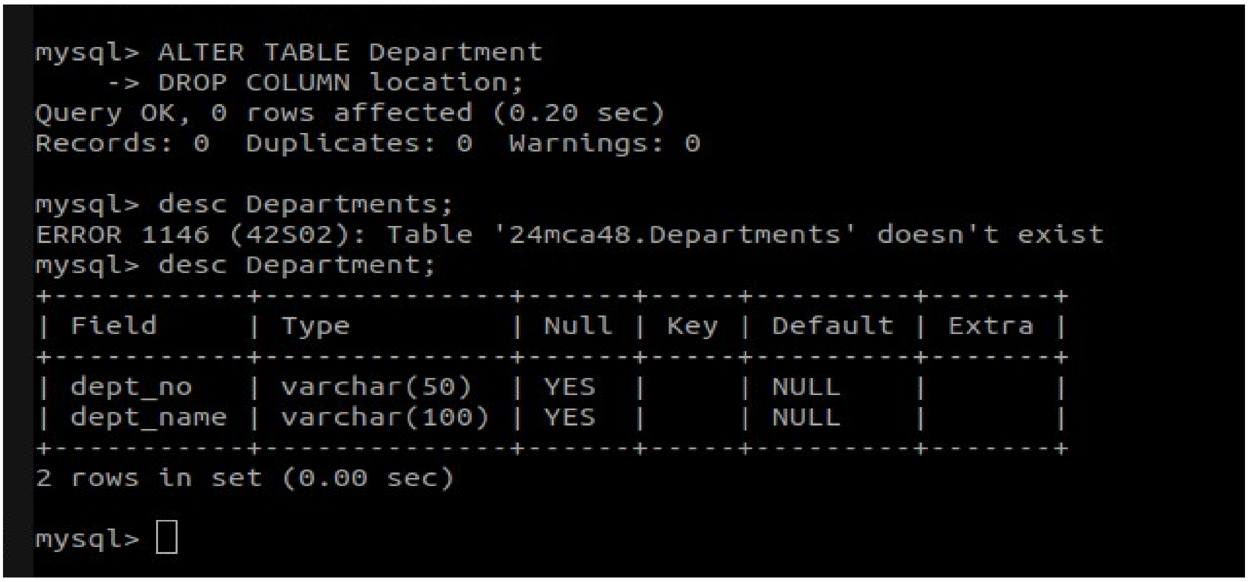


```
mysql> ALTER TABLE Employee
    -> ADD COLUMN Designation VARCHAR(100);
Query OK, 0 rows affected (0.18 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc Employee;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| emp_no      | varchar(50)  | YES  |     | NULL    |       |
| emp_name    | varchar(100) | YES  |     | NULL    |       |
| dob         | date         | YES  |     | NULL    |       |
| address     | text         | YES  |     | NULL    |       |
| mobile_no   | int          | YES  |     | NULL    |       |
| dept_no     | varchar(50)  | YES  |     | NULL    |       |
| salary      | int          | YES  |     | NULL    |       |
| Designation | varchar(100) | YES  |     | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
8 rows in set (0.01 sec)
```

7. Drop the column ‘location’ from Department table.

>> alter table Department drop column location;



```
mysql> ALTER TABLE Department
    -> DROP COLUMN location;
Query OK, 0 rows affected (0.20 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc Departments;
ERROR 1146 (42S02): Table '24mca48.Departments' doesn't exist
mysql> desc Department;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| dept_no   | varchar(50)  | YES  |     | NULL    |       |
| dept_name | varchar(100) | YES  |     | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> 
```

Experiment No: 2

Date : 10/02/2025

Familiarization of SQL Constraints.

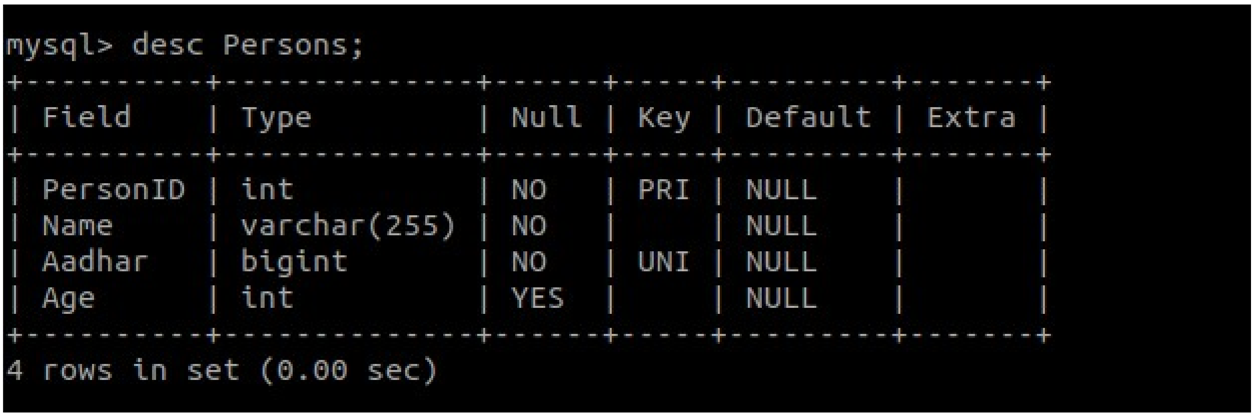
1. Create new table Persons with attributes PersonID (integer, PRIMARY KEY), Name (varchar , NOT NULL), Aadhar (Number, NOT NULL, UNIQUE), Age (integer , CHECK>18).

>> create table Persons(PersonID int primary key,Name varchar(255) not null,aadhar int not null unique,age int,check(age>18));

2. CREATE TABLE Orders with attributes OrderID (PRIMARY KEY), OrderNumber(NOT NULL) and PersonID(set FOREIGN KEY on attribute PersonID referencing the column PersonId of Person table)

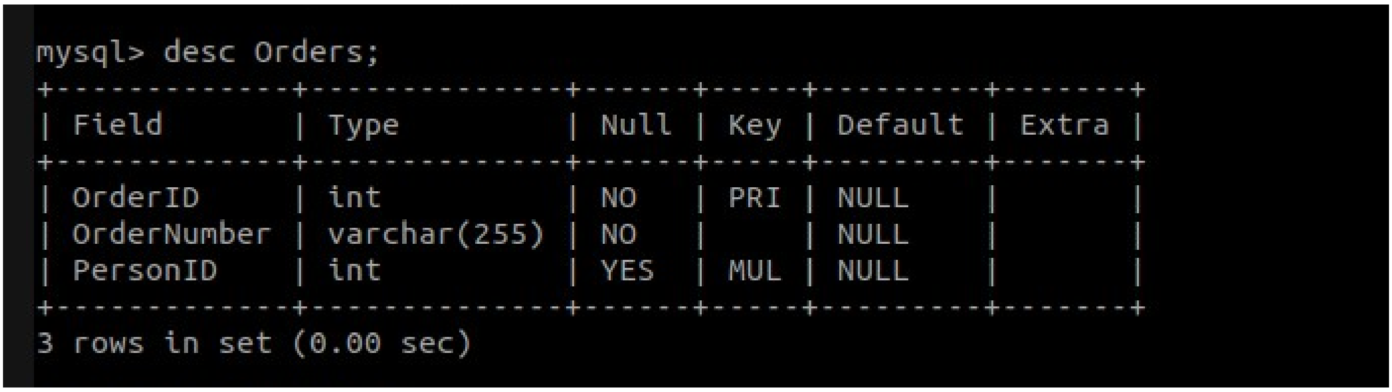
>> create table Orders(OrderID int primary key,OrderNumber int not null varchar(255),person_id int,foreign key(PersonID)references persons(PersonID);

3. Display the structure of Persons tables.
>> describe Persons;



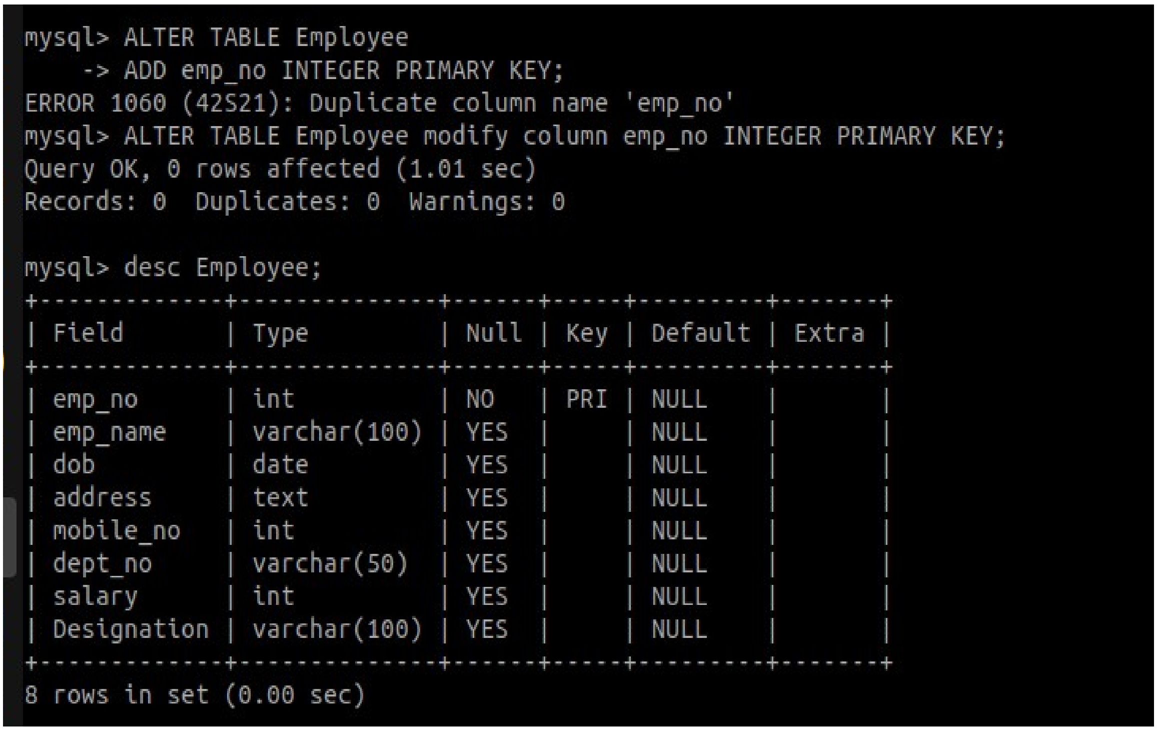
```
mysql> desc Persons;
+----------+--------------+------+-----+---------+-------+
| Field    | Type         | Null | Key | Default | Extra |
+----------+--------------+------+-----+---------+-------+
| PersonID | int          | NO   | PRI | NULL    |       |
| Name     | varchar(255) | NO   |     | NULL    |       |
| Aadhar   | bigint       | NO   | UNI | NULL    |       |
| Age      | int          | YES  |     | NULL    |       |
+----------+--------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

4. Display the structure of Orders tables.
>> describe Orders;



```
mysql> desc Orders;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| OrderID     | int          | NO   | PRI | NULL    |       |
| OrderNumber | varchar(255) | NO   |     | NULL    |       |
| PersonID    | int          | YES  | MUL | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

5. Add emp_no as the primary key of the table Employee.
>> alter table Employee modify column emp_no int primary key;

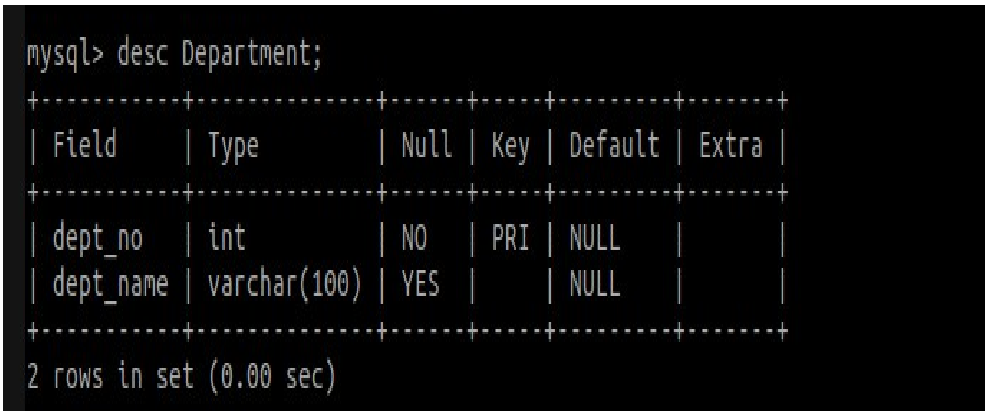


```
mysql> ALTER TABLE Employee
    -> ADD emp_no INTEGER PRIMARY KEY;
ERROR 1060 (42S21): Duplicate column name 'emp_no'
mysql> ALTER TABLE Employee modify column emp_no INTEGER PRIMARY KEY;
Query OK, 0 rows affected (1.01 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc Employee;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| emp_no      | int          | NO   | PRI | NULL    |       |
| emp_name    | varchar(100) | YES  |     | NULL    |       |
| dob         | date         | YES  |     | NULL    |       |
| address     | text         | YES  |     | NULL    |       |
| mobile_no   | int          | YES  |     | NULL    |       |
| dept_no     | varchar(50)  | YES  |     | NULL    |       |
| salary      | int          | YES  |     | NULL    |       |
| Designation | varchar(100) | YES  |     | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
8 rows in set (0.00 sec)
```

6. Add dept_no as the primary key of the table Department.

>> alter table department modify column dept_no int primary key;



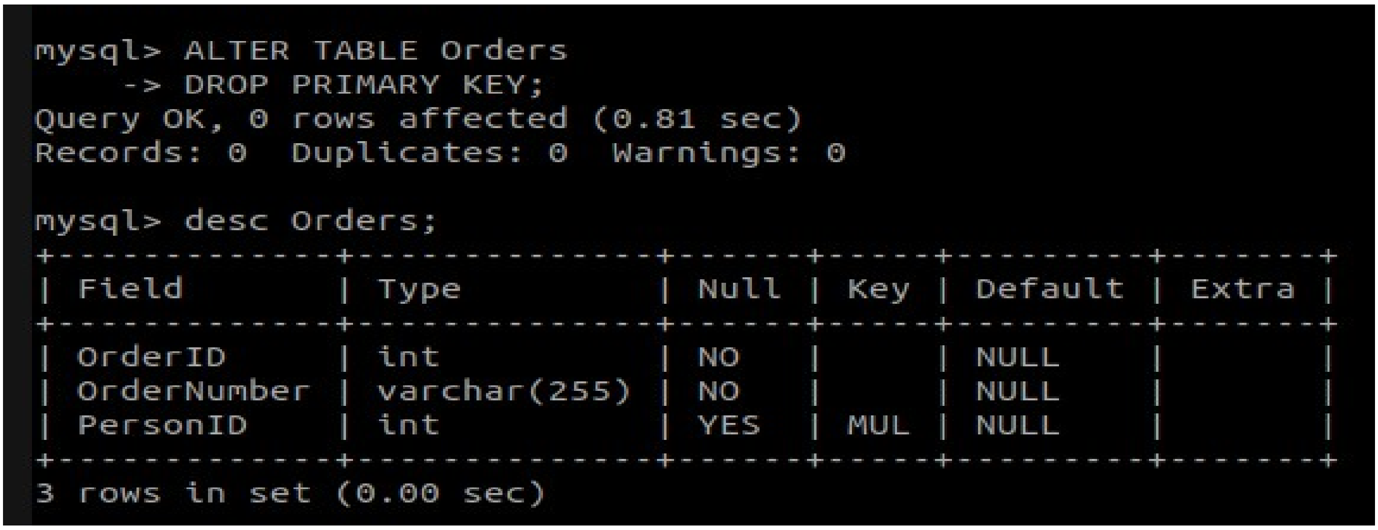
```
mysql> desc Department;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| dept_no   | int          | NO   | PRI | NULL    |       |
| dept_name | varchar(100) | YES  |     | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

7. Add dept_no in Employee table as the foreign key reference to the table Department with on delete cascade.

>> alter table Employee modify column dept_no integer, add constraint foreign key(dept_no)references Department(dept_no)on delete cascade;

8. Drop the primary key of the table Orders.

>> alter table orders drop primary key;



```
mysql> ALTER TABLE Orders
    -> DROP PRIMARY KEY;
Query OK, 0 rows affected (0.81 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc Orders;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| OrderID     | int          | NO   |     | NULL    |       |
| OrderNumber | varchar(255) | NO   |     | NULL    |       |
| PersonID    | int          | YES  | MUL | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

Experiment No: 3

Date : 17/02/2025

Familiarization of DML Commands

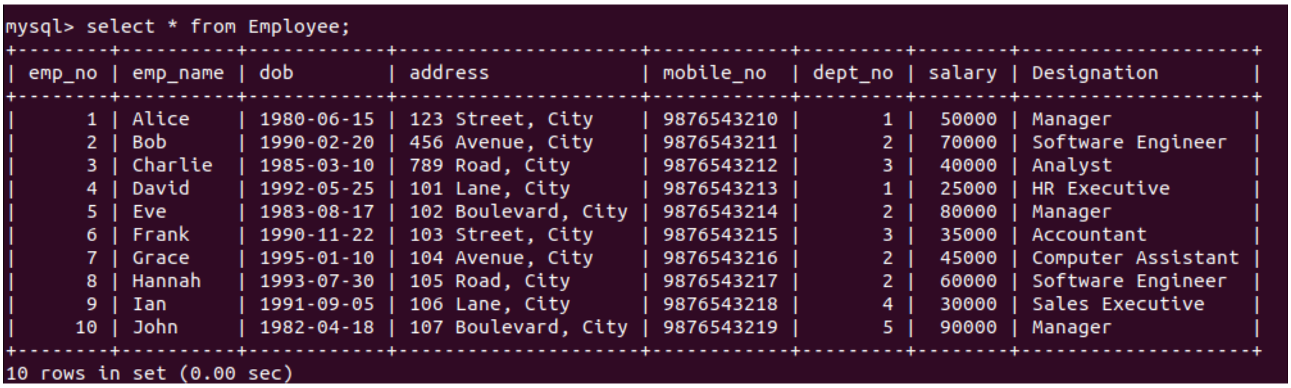
1. Add at least 10 rows into the table Employee and Department.

>> INSERT INTO Department (dept_no, dept_name) VALUES (1, 'HR'),(2, 'IT'),(3, 'Finance'),(4, 'Marketing'),(5, 'Operations'),(6, 'Sales'),(7, 'Customer Support'),(8, 'Research & Development'),(9, 'Logistics'),(10, 'Administration');

>> INSERT INTO Employee (emp_no, emp_name, Designation, dept_no, salary, mobile_no, dob, address) VALUES (1, 'Alice', 'Manager', 1, 50000, 9876543210, '1980-06-15', '123 Street, City'),(2, 'Bob', 'Software Engineer', 2, 70000, 9876543211, '1990-02-20', '456 Avenue, City'),(3, 'Charlie', 'Analyst', 3, 40000, 9876543212, '1985-03-10', '789 Road, City'),(4, 'David', 'HR Executive', 1, 25000, 9876543213, '1992-05-25', '101 Lane, City'),(5, 'Eve', 'Manager', 2, 80000, 9876543214, '1983-08-17', '102 Boulevard, City'),(6, 'Frank', 'Accountant', 3, 35000, 9876543215, '1990-11-22', '103 Street, City'),(7, 'Grace', 'Computer Assistant', 2, 45000, 9876543216, '1995-01-10', '104 Avenue, City'),(8, 'Hannah', 'Software Engineer', 2, 60000, 9876543217, '1993-07-30', '105 Road, City'),(9, 'Ian', 'Sales Executive', 4, 30000, 9876543218, '1991-09-05', '106 Lane, City'),(10, 'John', 'Manager', 5, 90000, 9876543219, '1982-04-18', '107 Boulevard, City');

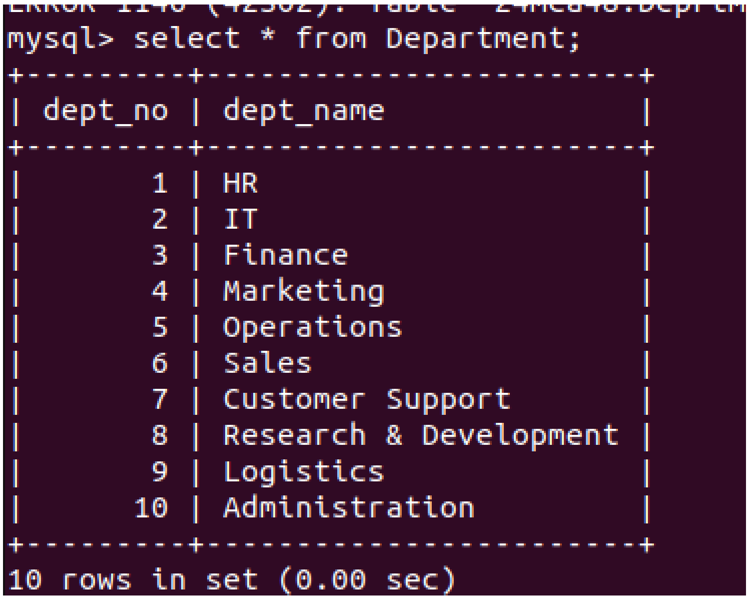
2. Display all the records from the above tables.

>> SELECT * FROM Employee;



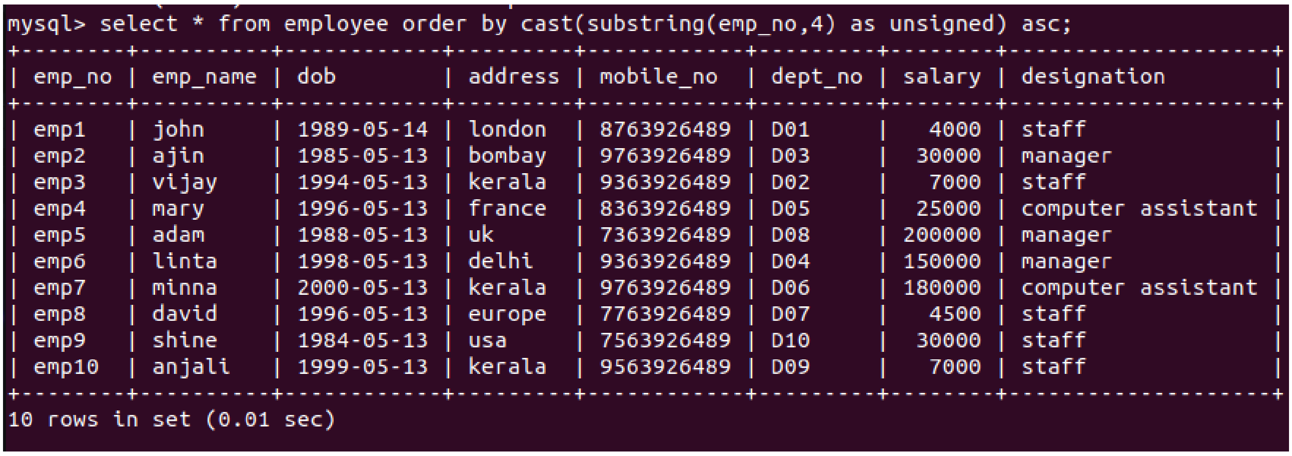
```
mysql> select * from Employee;
+--------+----------+------------+---------------------+------------+---------+--------+--------------------+
| emp_no | emp_name | dob        | address             | mobile_no  | dept_no | salary | Designation        |
+--------+----------+------------+---------------------+------------+---------+--------+--------------------+
|      1 | Alice    | 1980-06-15 | 123 Street, City    | 9876543210 |       1 |  50000 | Manager            |
|      2 | Bob      | 1990-02-20 | 456 Avenue, City    | 9876543211 |       2 |  70000 | Software Engineer  |
|      3 | Charlie  | 1985-03-10 | 789 Road, City      | 9876543212 |       3 |  40000 | Analyst            |
|      4 | David    | 1992-05-25 | 101 Lane, City      | 9876543213 |       1 |  25000 | HR Executive       |
|      5 | Eve      | 1983-08-17 | 102 Boulevard, City | 9876543214 |       2 |  80000 | Manager            |
|      6 | Frank    | 1990-11-22 | 103 Street, City    | 9876543215 |       3 |  35000 | Accountant         |
|      7 | Grace    | 1995-01-10 | 104 Avenue, City    | 9876543216 |       2 |  45000 | Computer Assistant |
|      8 | Hannah   | 1993-07-30 | 105 Road, City      | 9876543217 |       2 |  60000 | Software Engineer  |
|      9 | Ian      | 1991-09-05 | 106 Lane, City      | 9876543218 |       4 |  30000 | Sales Executive    |
|     10 | John     | 1982-04-18 | 107 Boulevard, City | 9876543219 |       5 |  90000 | Manager            |
+--------+----------+------------+---------------------+------------+---------+--------+--------------------+
10 rows in set (0.00 sec)
```

>> SELECT * FROM Department;



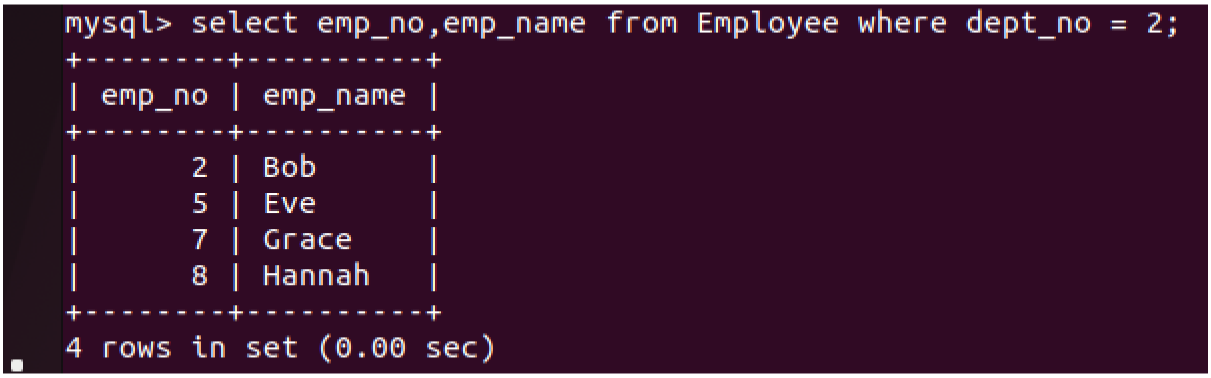
```
ERROR 1146 (42S02): Table '24mca48.Deprtm
mysql> select * from Department;
+---------+------------------------+
| dept_no | dept_name              |
+---------+------------------------+
|       1 | HR                     |
|       2 | IT                     |
|       3 | Finance                |
|       4 | Marketing              |
|       5 | Operations             |
|       6 | Sales                  |
|       7 | Customer Support       |
|       8 | Research & Development |
|       9 | Logistics              |
|      10 | Administration         |
+---------+------------------------+
10 rows in set (0.00 sec)
```

>> select * from Employee;



```
mysql> select * from employee order by cast(substring(emp_no,4) as unsigned) asc;
+--------+----------+------------+---------+------------+---------+--------+---------------------+
| emp_no | emp_name | dob        | address | mobile_no  | dept_no | salary | designation         |
+--------+----------+------------+---------+------------+---------+--------+---------------------+
| emp1   | john     | 1989-05-14 | london  | 8763926489 | D01     |   4000 | staff               |
| emp2   | ajin     | 1985-05-13 | bombay  | 9763926489 | D03     |  30000 | manager             |
| emp3   | vijay    | 1994-05-13 | kerala  | 9363926489 | D02     |   7000 | staff               |
| emp4   | mary     | 1996-05-13 | france  | 8363926489 | D05     |  25000 | computer assistant  |
| emp5   | adam     | 1988-05-13 | uk      | 7363926489 | D08     | 200000 | manager             |
| emp6   | linta    | 1998-05-13 | delhi   | 9363926489 | D04     | 150000 | manager             |
| emp7   | minna    | 2000-05-13 | kerala  | 9763926489 | D06     | 180000 | computer assistant  |
| emp8   | david    | 1996-05-13 | europe  | 7763926489 | D07     |   4500 | staff               |
| emp9   | shine    | 1984-05-13 | usa     | 7563926489 | D10     |  30000 | staff               |
| emp10  | anjali   | 1999-05-13 | kerala  | 9563926489 | D09     |   7000 | staff               |
+--------+----------+------------+---------+------------+---------+--------+---------------------+
10 rows in set (0.01 sec)
```

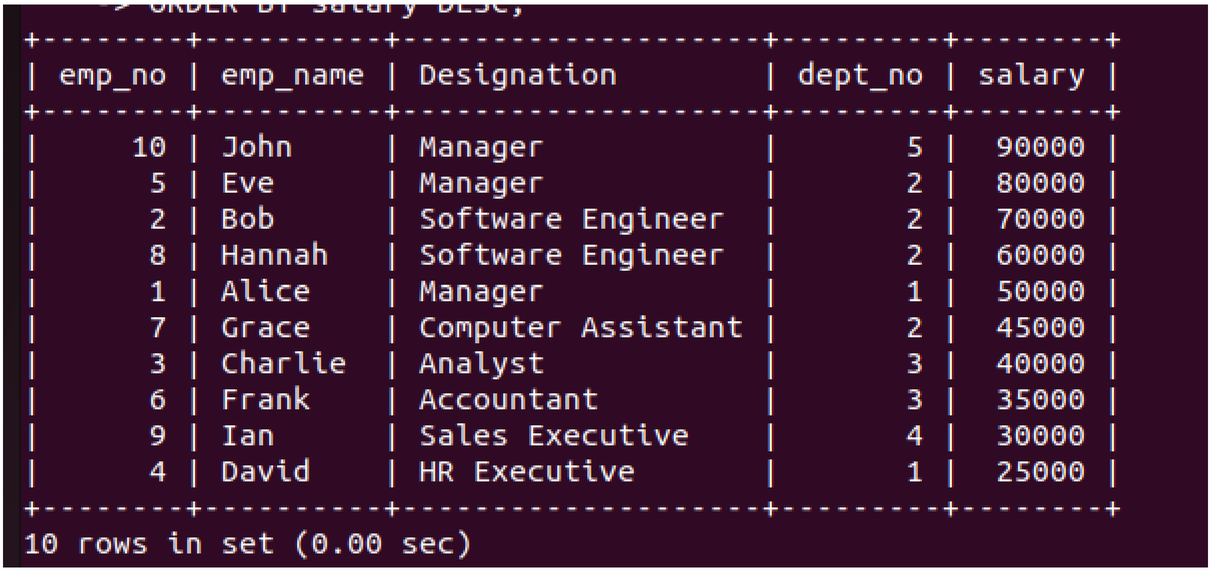
3. Display the emp_no and name of employees from department no ‘D02’.
>> select emp_no,emp_name from employee where dept_no=2;



```
mysql> select emp_no,emp_name from Employee where dept_no = 2;
+--------+----------+
| emp_no | emp_name |
+--------+----------+
|      2 | Bob      |
|      5 | Eve      |
|      7 | Grace    |
|      8 | Hannah   |
+--------+----------+
4 rows in set (0.00 sec)
```

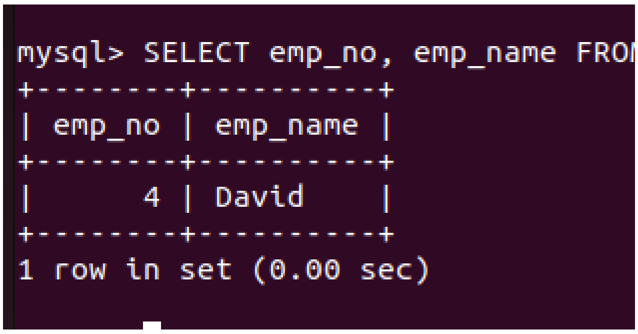
4. Display emp_no, emp_name , designation, deptno and salary of employees in the descending order of salary.

>> select emp_no,emp_name,Designation,dept_no,salary from employee order by salary desc;



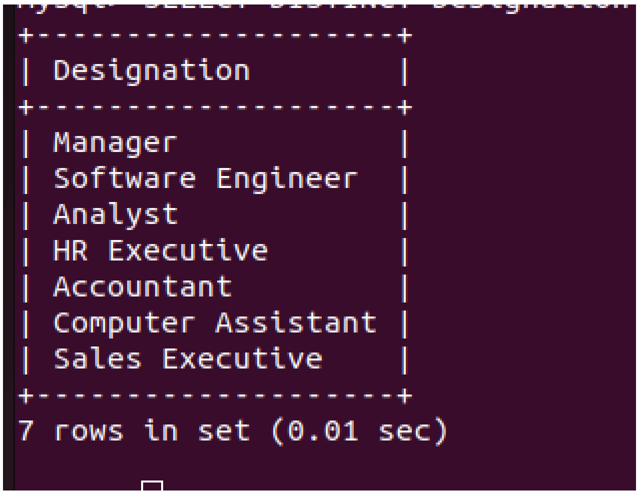
```
    -> ORDER BY salary DESC;
+--------+----------+--------------------+---------+--------+
| emp_no | emp_name | Designation        | dept_no | salary |
+--------+----------+--------------------+---------+--------+
|     10 | John     | Manager            |       5 |  90000 |
|      5 | Eve      | Manager            |       2 |  80000 |
|      2 | Bob      | Software Engineer  |       2 |  70000 |
|      8 | Hannah   | Software Engineer  |       2 |  60000 |
|      1 | Alice    | Manager            |       1 |  50000 |
|      7 | Grace    | Computer Assistant |       2 |  45000 |
|      3 | Charlie  | Analyst            |       3 |  40000 |
|      6 | Frank    | Accountant         |       3 |  35000 |
|      9 | Ian      | Sales Executive    |       4 |  30000 |
|      4 | David    | HR Executive       |       1 |  25000 |
+--------+----------+--------------------+---------+--------+
10 rows in set (0.00 sec)
```

5. Display the emp_no , name of employees whose salary is between 2000 and 5000
>> select emp_no,emp_name from Employee where salary between 2000 and 5000;



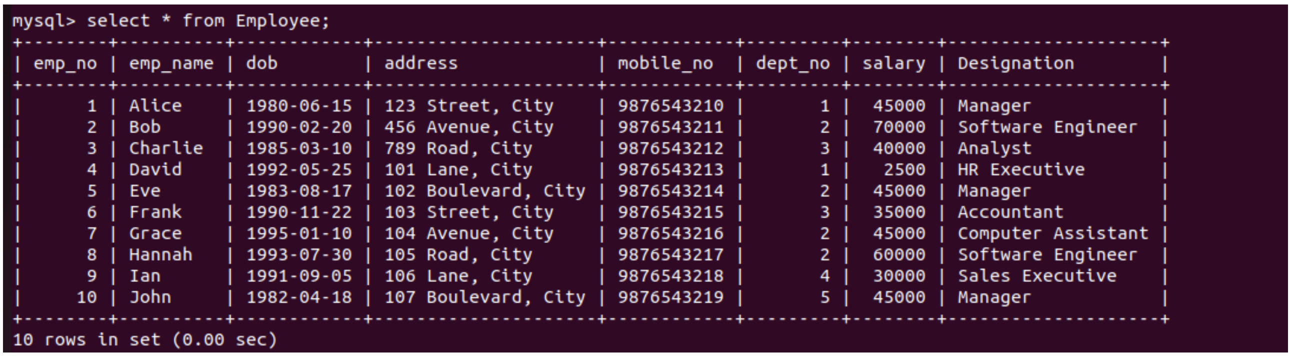
```
mysql> SELECT emp_no, emp_name FRO
+--------+----------+
| emp_no | emp_name |
+--------+----------+
|      4 | David    |
+--------+----------+
1 row in set (0.00 sec)
```

6. Display the designations without duplicate values
>> select distinct Designation from Employee;



```
mysql> SELECT DISTINCT Designation
+--------------------+
| Designation        |
+--------------------+
| Manager            |
| Software Engineer  |
| Analyst            |
| HR Executive       |
| Accountant         |
| Computer Assistant |
| Sales Executive    |
+--------------------+
7 rows in set (0.01 sec)
```

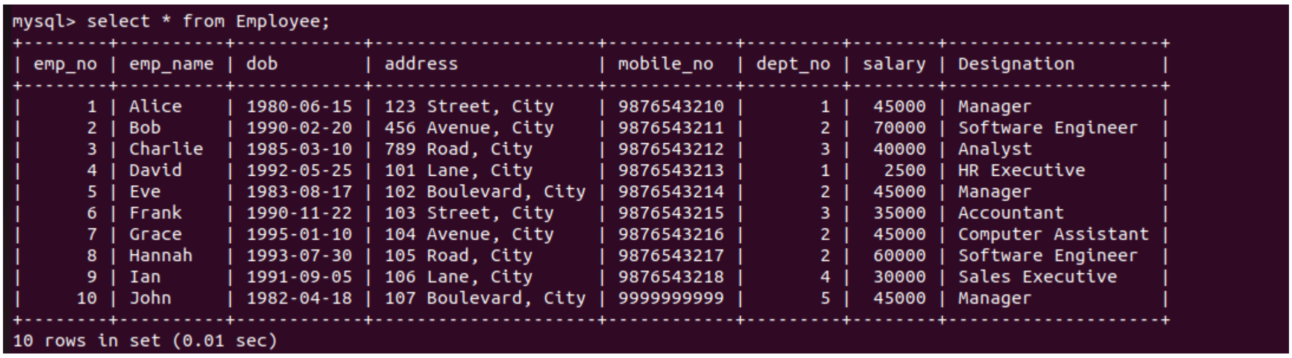
7. Change the salary of employees to 45000 whose designation is 'Manager'
>> update Employee set salary='45000' where Designation='Manager';



```
mysql> select * from Employee;
+--------+----------+------------+--------------------+------------+---------+--------+--------------------+
| emp_no | emp_name | dob        | address            | mobile_no  | dept_no | salary | Designation        |
+--------+----------+------------+--------------------+------------+---------+--------+--------------------+
|      1 | Alice    | 1980-06-15 | 123 Street, City   | 9876543210 |       1 |  45000 | Manager            |
|      2 | Bob      | 1990-02-20 | 456 Avenue, City   | 9876543211 |       2 |  70000 | Software Engineer  |
|      3 | Charlie  | 1985-03-10 | 789 Road, City     | 9876543212 |       3 |  40000 | Analyst            |
|      4 | David    | 1992-05-25 | 101 Lane, City     | 9876543213 |       1 |   2500 | HR Executive       |
|      5 | Eve      | 1983-08-17 | 102 Boulevard, City | 9876543214 |       2 |  45000 | Manager            |
|      6 | Frank    | 1990-11-22 | 103 Street, City   | 9876543215 |       3 |  35000 | Accountant         |
|      7 | Grace    | 1995-01-10 | 104 Avenue, City   | 9876543216 |       2 |  45000 | Computer Assistant |
|      8 | Hannah   | 1993-07-30 | 105 Road, City     | 9876543217 |       2 |  60000 | Software Engineer  |
|      9 | Ian      | 1991-09-05 | 106 Lane, City     | 9876543218 |       4 |  30000 | Sales Executive    |
|     10 | John     | 1982-04-18 | 107 Boulevard, City | 9876543219 |       5 |  45000 | Manager            |
+--------+----------+------------+--------------------+------------+---------+--------+--------------------+
10 rows in set (0.00 sec)
```

8. Change the mobile number of employees named John

>> UPDATE Employee SET mobile_no = 9999999999 WHERE emp_name = 'John';



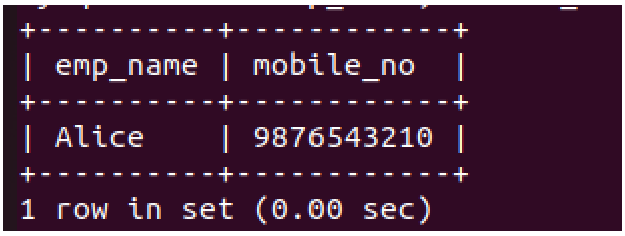
```
mysql> select * from Employee;
+--------+----------+------------+--------------------+------------+---------+--------+--------------------+
| emp_no | emp_name | dob        | address            | mobile_no  | dept_no | salary | Designation        |
+--------+----------+------------+--------------------+------------+---------+--------+--------------------+
|      1 | Alice    | 1980-06-15 | 123 Street, City   | 9876543210 |       1 |  45000 | Manager            |
|      2 | Bob      | 1990-02-20 | 456 Avenue, City   | 9876543211 |       2 |  70000 | Software Engineer  |
|      3 | Charlie  | 1985-03-10 | 789 Road, City     | 9876543212 |       3 |  40000 | Analyst            |
|      4 | David    | 1992-05-25 | 101 Lane, City     | 9876543213 |       1 |   2500 | HR Executive       |
|      5 | Eve      | 1983-08-17 | 102 Boulevard, City | 9876543214 |       2 |  45000 | Manager            |
|      6 | Frank    | 1990-11-22 | 103 Street, City   | 9876543215 |       3 |  35000 | Accountant         |
|      7 | Grace    | 1995-01-10 | 104 Avenue, City   | 9876543216 |       2 |  45000 | Computer Assistant |
|      8 | Hannah   | 1993-07-30 | 105 Road, City     | 9876543217 |       2 |  60000 | Software Engineer  |
|      9 | Ian      | 1991-09-05 | 106 Lane, City     | 9876543218 |       4 |  30000 | Sales Executive    |
|     10 | John     | 1982-04-18 | 107 Boulevard, City | 9999999999 |       5 |  45000 | Manager            |
+--------+----------+------------+--------------------+------------+---------+--------+--------------------+
10 rows in set (0.01 sec)
```

9. Delete all employees whose salary is equal to Rs.7000

>> delete from employee where salary='7000';

10. Retrieve the name, mobile number of all employees whose name start with “A”.

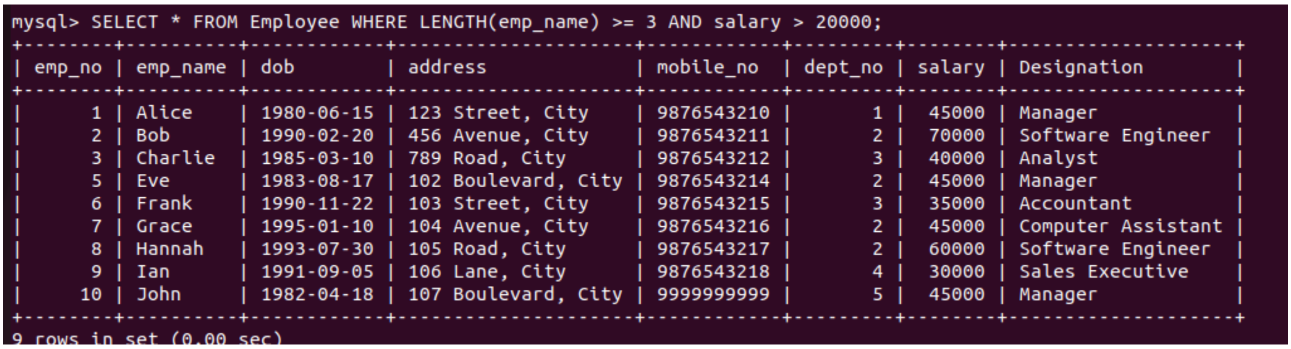
>> SELECT emp_name, mobile_no FROM Employee WHERE emp_name LIKE 'A%';



```
+----------+------------+
| emp_name | mobile_no  |
+----------+------------+
| Alice    | 9876543210 |
+----------+------------+
1 row in set (0.00 sec)
```

11. Display the details of the employee whose name has at least three characters and salary greater than 20000.

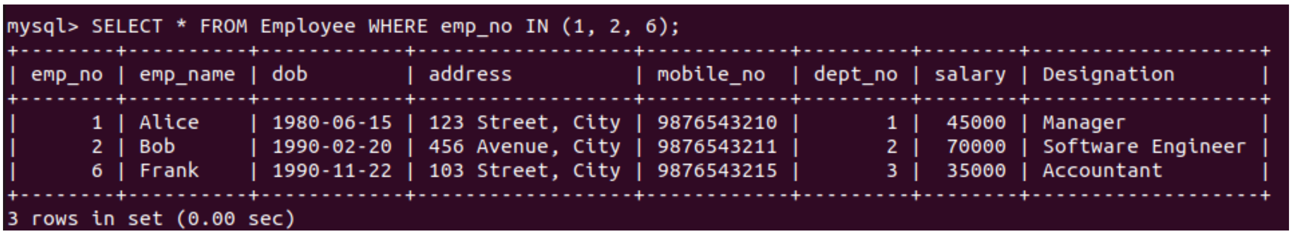
>> SELECT * FROM Employee WHERE LENGTH(emp_name) >= 3 AND salary > 20000;



```
mysql> SELECT * FROM Employee WHERE LENGTH(emp_name) >= 3 AND salary > 20000;
+--------+----------+------------+--------------------+------------+---------+--------+--------------------+
| emp_no | emp_name | dob        | address            | mobile_no  | dept_no | salary | Designation        |
+--------+----------+------------+--------------------+------------+---------+--------+--------------------+
|      1 | Alice    | 1980-06-15 | 123 Street, City   | 9876543210 |       1 |  45000 | Manager            |
|      2 | Bob      | 1990-02-20 | 456 Avenue, City   | 9876543211 |       2 |  70000 | Software Engineer  |
|      3 | Charlie  | 1985-03-10 | 789 Road, City     | 9876543212 |       3 |  40000 | Analyst            |
|      5 | Eve      | 1983-08-17 | 102 Boulevard, City | 9876543214 |       2 |  45000 | Manager            |
|      6 | Frank    | 1990-11-22 | 103 Street, City   | 9876543215 |       3 |  35000 | Accountant         |
|      7 | Grace    | 1995-01-10 | 104 Avenue, City   | 9876543216 |       2 |  45000 | Computer Assistant |
|      8 | Hannah   | 1993-07-30 | 105 Road, City     | 9876543217 |       2 |  60000 | Software Engineer  |
|      9 | Ian      | 1991-09-05 | 106 Lane, City     | 9876543218 |       4 |  30000 | Sales Executive    |
|     10 | John     | 1982-04-18 | 107 Boulevard, City | 9999999999 |       5 |  45000 | Manager            |
+--------+----------+------------+--------------------+------------+---------+--------+--------------------+
9 rows in set (0.00 sec)
```

12. Display the details of employees with empid ‘emp1’, ‘emp2’ and ‘emp6’.

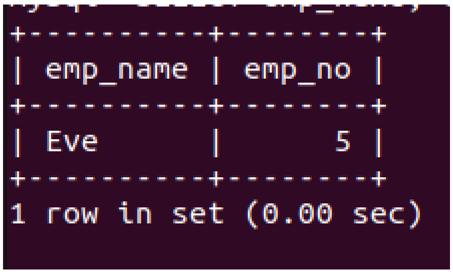
>> SELECT * FROM Employee WHERE emp_no IN (1, 2, 6);



```
mysql> SELECT * FROM Employee WHERE emp_no IN (1, 2, 6);
+--------+----------+------------+------------------+------------+---------+--------+-------------------+
| emp_no | emp_name | dob        | address          | mobile_no  | dept_no | salary | Designation       |
+--------+----------+------------+------------------+------------+---------+--------+-------------------+
|      1 | Alice    | 1980-06-15 | 123 Street, City | 9876543210 |       1 |  45000 | Manager           |
|      2 | Bob      | 1990-02-20 | 456 Avenue, City | 9876543211 |       2 |  70000 | Software Engineer |
|      6 | Frank    | 1990-11-22 | 103 Street, City | 9876543215 |       3 |  35000 | Accountant        |
+--------+----------+------------+------------------+------------+---------+--------+-------------------+
3 rows in set (0.00 sec)
```

13. Display employee name and employee id of those who have salary between 120000 and 300000.

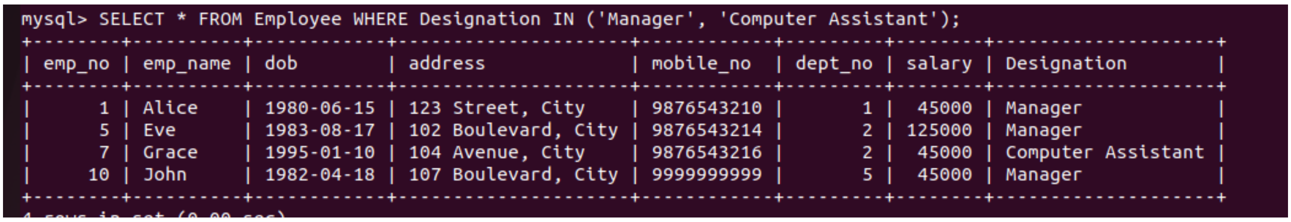
>> SELECT emp_name, emp_no FROM Employee WHERE salary BETWEEN 120000 AND 300000;



```
+----------+--------+
| emp_name | emp_no |
+----------+--------+
| Eve      |      5 |
+----------+--------+
1 row in set (0.00 sec)
```

14. Display the details of employees whose designation is ‘Manager’ or ‘Computer Assistant’.

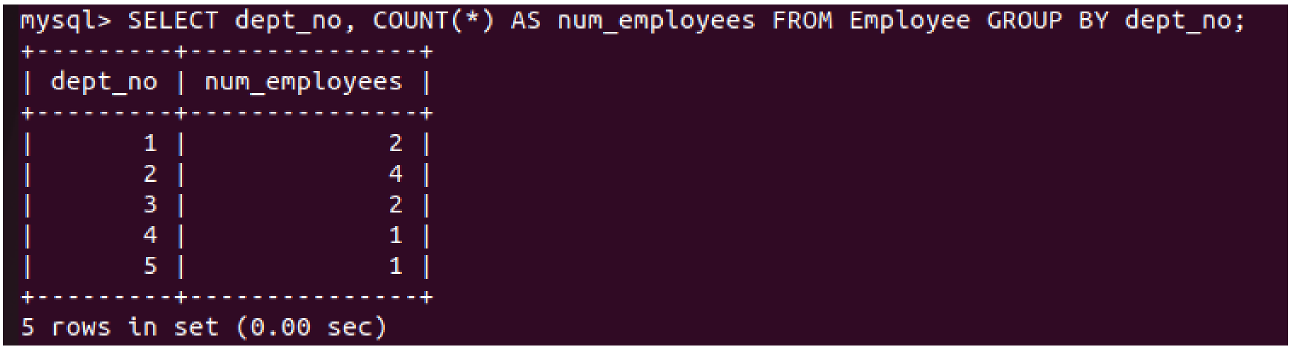
>> SELECT * FROM Employee WHERE Designation IN ('Manager', 'Computer Assistant');



```
mysql> SELECT * FROM Employee WHERE Designation IN ('Manager', 'Computer Assistant');
+--------+----------+------------+--------------------+------------+---------+--------+--------------------+
| emp_no | emp_name | dob        | address            | mobile_no  | dept_no | salary | Designation        |
+--------+----------+------------+--------------------+------------+---------+--------+--------------------+
|      1 | Alice    | 1980-06-15 | 123 Street, City   | 9876543210 |       1 |  45000 | Manager            |
|      5 | Eve      | 1983-08-17 | 102 Boulevard, City | 9876543214 |       2 | 125000 | Manager            |
|      7 | Grace    | 1995-01-10 | 104 Avenue, City   | 9876543216 |       2 |  45000 | Computer Assistant |
|     10 | John     | 1982-04-18 | 107 Boulevard, City | 9999999999 |       5 |  45000 | Manager            |
+--------+----------+------------+--------------------+------------+---------+--------+--------------------+
4 rows in set (0.00 sec)
```

15. Displays how many employees work for each department.

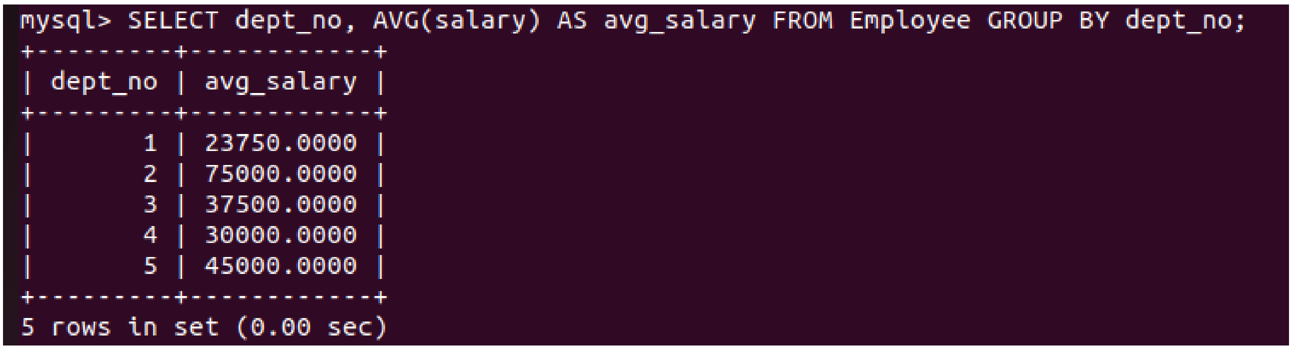
>> SELECT dept_no, COUNT(*) AS num_employees FROM Employee GROUP BY dept_no;



```
mysql> SELECT dept_no, COUNT(*) AS num_employees FROM Employee GROUP BY dept_no;
+---------+---------------+
| dept_no | num_employees |
+---------+---------------+
|       1 |             2 |
|       2 |             4 |
|       3 |             2 |
|       4 |             1 |
|       5 |             1 |
+---------+---------------+
5 rows in set (0.00 sec)
```

16. Displays average salary of employees in each department.

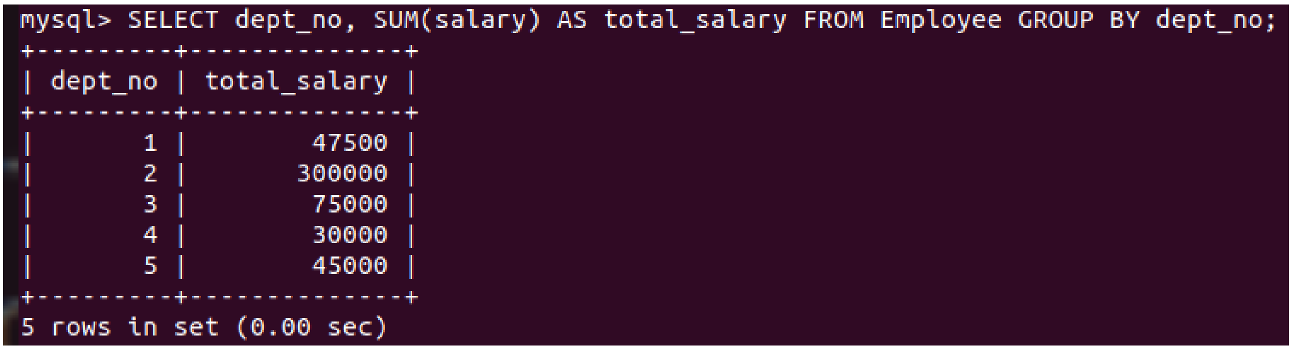
>> SELECT dept_no, AVG(salary) AS avg_salary FROM Employee GROUP BY dept_no;



```
mysql> SELECT dept_no, AVG(salary) AS avg_salary FROM Employee GROUP BY dept_no;
+---------+------------+
| dept_no | avg_salary |
+---------+------------+
|       1 | 23750.0000 |
|       2 | 75000.0000 |
|       3 | 37500.0000 |
|       4 | 30000.0000 |
|       5 | 45000.0000 |
+---------+------------+
5 rows in set (0.00 sec)
```

17. Displays total salary of employees in each department.

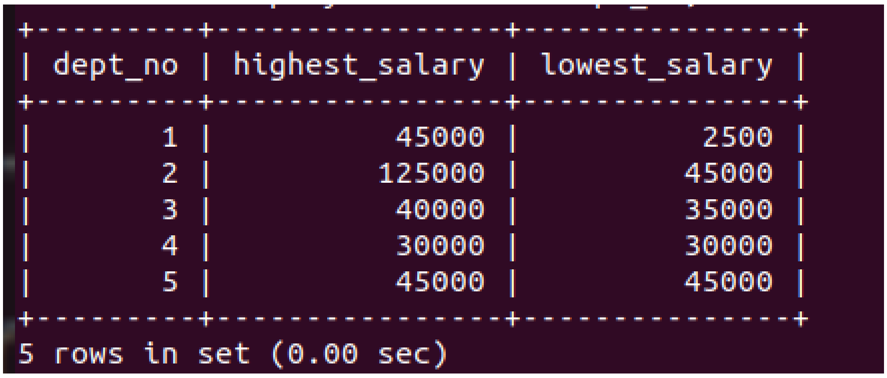
>> SELECT dept_no, SUM(salary) AS total_salary FROM Employee GROUP BY dept_no;



```
mysql> SELECT dept_no, SUM(salary) AS total_salary FROM Employee GROUP BY dept_no;
+---------+--------------+
| dept_no | total_salary |
+---------+--------------+
|       1 |        47500 |
|       2 |       300000 |
|       3 |        75000 |
|       4 |        30000 |
|       5 |        45000 |
+---------+--------------+
5 rows in set (0.00 sec)
```

18. Displays top and lower salary of employees in each department.

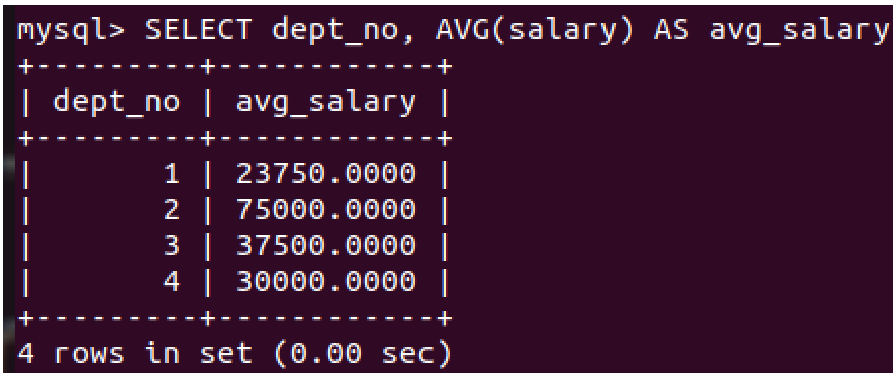
>> SELECT dept_no, MAX(salary) AS highest_salary, MIN(salary) AS lowest_salary FROM Employee GROUP BY dept_no;



```
+---------+----------------+---------------+
| dept_no | highest_salary | lowest_salary |
+---------+----------------+---------------+
|       1 |          45000 |          2500 |
|       2 |         125000 |         45000 |
|       3 |          40000 |         35000 |
|       4 |          30000 |         30000 |
|       5 |          45000 |         45000 |
+---------+----------------+---------------+
5 rows in set (0.00 sec)
```

19. Displays average salary of employees in all departments except department with department number ‘D05’.

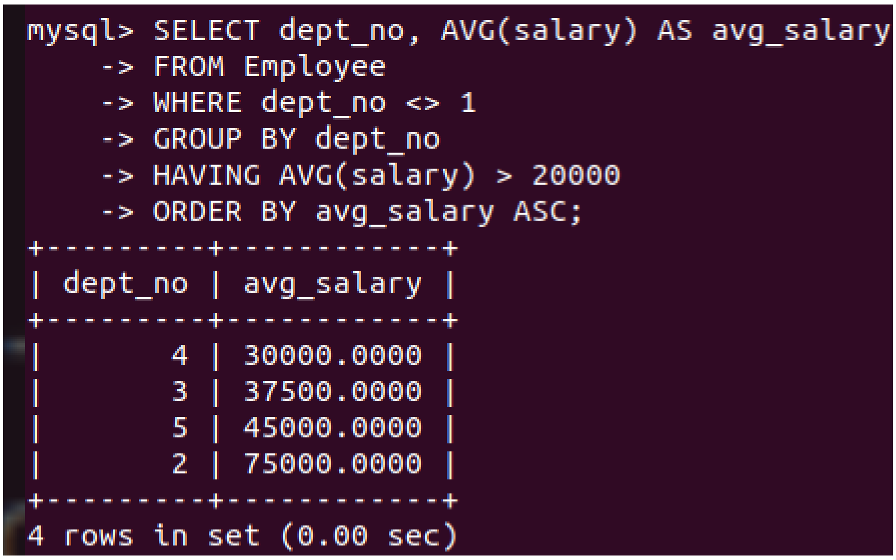
>> SELECT dept_no, AVG(salary) AS avg_salary FROM Employee WHERE dept_no <> 5 GROUP BY dept_no;



```
mysql> SELECT dept_no, AVG(salary) AS avg_salary
+---------+------------+
| dept_no | avg_salary |
+---------+------------+
|       1 | 23750.0000 |
|       2 | 75000.0000 |
|       3 | 37500.0000 |
|       4 | 30000.0000 |
+---------+------------+
4 rows in set (0.00 sec)
```

20. Displays average salary of employees in all departments except department with department number ‘D01’ and average salary greater than 20000 in the ascending order of average salary.

>> SELECT dept_no, AVG(salary) AS avg_salary FROM Employee WHERE dept_no <> 1 GROUP BY dept_no HAVING AVG(salary) > 20000 ORDER BY avg_salary ASC;



```
mysql> SELECT dept_no, AVG(salary) AS avg_salary
    -> FROM Employee
    -> WHERE dept_no <> 1
    -> GROUP BY dept_no
    -> HAVING AVG(salary) > 20000
    -> ORDER BY avg_salary ASC;
+---------+------------+
| dept_no | avg_salary |
+---------+------------+
|       4 | 30000.0000 |
|       3 | 37500.0000 |
|       5 | 45000.0000 |
|       2 | 75000.0000 |
+---------+------------+
4 rows in set (0.00 sec)
```