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 college;

2. Select the current database

>> use college;

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(10),dob date,address text,phone_no varchar(10),blood_grp varchar(3));

```
mysql> create table Student(roll_no int,name varchar(20),dob date,address text,phone_no varchar(10),blood_grp varchar(3)
);
Query OK, 0 rows affected (0.05 sec)
```

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

>> create table course(course_id int,course_name varchar(10),course_duration int);

```
mysql> create table Course(Course_id int,Course_name varchar(20),course_duration int);
Query OK, 0 rows affected (0.05 sec)
```

4. List all tables in the current database.

>> show tables;

```
mysql> show tables;
+--------------------+
| Tables_in_24mca35 |
+--------------------+
| course             |
| student            |
+--------------------+
2 rows in set (0.00 sec)
```

5. Display the structure of the Student table.

>> desc student;

```
mysql> desc Student;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| roll_no   | int         | YES  |     | NULL    |       |
| name      | varchar(20) | YES  |     | NULL    |       |
| dob       | date        | YES  |     | NULL    |       |
| address   | text        | YES  |     | NULL    |       |
| phone_no  | varchar(10) | YES  |     | NULL    |       |
| blood_grp | varchar(3)  | 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 (0.06 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc Student;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| roll_no  | int         | YES  |     | NULL    |       |
| name     | varchar(20) | YES  |     | NULL    |       |
| dob      | date        | YES  |     | NULL    |       |
| address  | text        | YES  |     | NULL    |       |
| phone_no | varchar(10) | 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 (0.06 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc Student;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| roll_no  | int         | YES  |     | NULL    |       |
| name     | varchar(20) | YES  |     | NULL    |       |
| dob      | date        | YES  |     | NULL    |       |
| address  | text        | YES  |     | NULL    |       |
| phone_no | varchar(10) | YES  |     | NULL    |       |
| adar_no  | int         | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

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 (0.08 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc student;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| roll_no  | int         | YES  |     | NULL    |       |
| name     | varchar(20) | YES  |     | NULL    |       |
| dob      | date        | YES  |     | NULL    |       |
| address  | text        | YES  |     | NULL    |       |
| phone_no | int         | YES  |     | NULL    |       |
| adar_no  | int         | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

9. Drop the tables.

>> drop table student;

>> drop table Course;

```
mysql> drop table Student;
Query OK, 0 rows affected (0.03 sec)

mysql> show tables;
+-------------------+
| Tables_in_24mca35 |
+-------------------+
| course            |
+-------------------+
1 row in set (0.00 sec)

mysql> drop table Course;
Query OK, 0 rows affected (0.04 sec)

mysql> show tables;
Empty set (0.00 sec)
```

10.Delete the database.

>>drop database college;

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

1. Create a database

>> create database company;

2. Select the current database

>> use company;

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(500),emp_name varchar(20),dob date,address text,mobile_no int,dept_no varchar(30),salary int);

```
mysql> create table Employee(emp_no varchar(500),emp_name varchar(20),dob date,address text,mobile_no int,dept_no varchar(30),salary int);
Query OK, 0 rows affected (0.04 sec)
```

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

>> create table department(dept_no varchar(10),dept_name varchar(20),location varchar(10));

```
mysql> create table Department(dept_no varchar(10),dept_name varchar(20),location varchar(10));
Query OK, 0 rows affected (0.05 sec)
```

4. List all tables in the current database.

>> show tables;

```
mysql> show tables;
+-------------------+
| Tables_in_24mca35 |
+-------------------+
| department        |
| employee          |
+-------------------+
2 rows in set (0.00 sec)
```

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

>> desc department;

```
mysql> desc department;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| dept_no   | varchar(10) | YES  |     | NULL    |       |
| dept_name | varchar(20) | YES  |     | NULL    |       |
| location  | varchar(10) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

>> desc employee;

```
mysql> desc employee;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| emp_no    | varchar(500) | YES  |     | NULL    |       |
| emp_name  | varchar(20)  | YES  |     | NULL    |       |
| dob       | date         | YES  |     | NULL    |       |
| address   | text         | YES  |     | NULL    |       |
| mobile_no | int          | YES  |     | NULL    |       |
| dept_no   | varchar(30)  | 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(20);

```
mysql> alter table employee add column designation varchar(20);
Query OK, 0 rows affected (0.06 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc employee;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| emp_no      | varchar(500) | YES  |     | NULL    |       |
| emp_name    | varchar(20)  | YES  |     | NULL    |       |
| dob         | date         | YES  |     | NULL    |       |
| address     | text         | YES  |     | NULL    |       |
| mobile_no   | int          | YES  |     | NULL    |       |
| dept_no     | varchar(30)  | YES  |     | NULL    |       |
| salary      | int          | YES  |     | NULL    |       |
| designation | varchar(20)  | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
8 rows in set (0.00 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 (0.08 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc department;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| dept_no   | varchar(10) | YES  |     | NULL    |       |
| dept_name | varchar(20) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

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(person_id int primary key,name varchar(20) not null,Aadhar int not null unique,Age int check(age>=18));

```
mysql> create table persons(person_id int primary key,name varchar(20) not null,Aadhar int not null unique,Age int check(age>=18));
Query OK, 0 rows affected (0.06 sec)
```

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(Order_id int primary key,Order_number int not null,person_id int,foreign key(person_id) references persons (person_id));

```
mysql> create table orders(Order_id int primary key,Order_number int not null,person_id int,foreign key(person_id) references persons (person_id));
Query OK, 0 rows affected (0.08 sec)

mysql> desc orders;
+--------------+------+------+-----+---------+-------+
| Field        | Type | Null | Key | Default | Extra |
+--------------+------+------+-----+---------+-------+
| Order_id     | int  | NO   | PRI | NULL    |       |
| Order_number | int  | NO   |     | NULL    |       |
| person_id    | int  | YES  | MUL | NULL    |       |
+--------------+------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

3. Display the structure of Persons tables.

>> desc persons;

```
mysql> desc persons;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| person_id | int         | NO   | PRI | NULL    |       |
| name      | varchar(20) | NO   |     | NULL    |       |
| Aadhar    | int         | NO   | UNI | NULL    |       |
| Age       | int         | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

4. Display the structure of Orders tables.

>> desc orders;

```
mysql> desc orders;
+--------------+------+------+-----+---------+-------+
| Field        | Type | Null | Key | Default | Extra |
+--------------+------+------+-----+---------+-------+
| Order_id     | int  | NO   | PRI | NULL    |       |
| Order_number | int  | NO   |     | NULL    |       |
| person_id    | int  | YES  | MUL | NULL    |       |
+--------------+------+------+-----+---------+-------+
3 rows in set (0.01 sec)
```

5. Add emp_no as the primary key of the table Employee.

>> alter table employee modify column emp_no varchar(100) primary key;

```
mysql> alter table employee modify column emp_no varchar(100) primary key;
Query OK, 0 rows affected (0.09 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc employee;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| emp_no      | varchar(100) | NO   | PRI | NULL    |       |
| emp_name    | varchar(20)  | YES  |     | NULL    |       |
| dob         | date         | YES  |     | NULL    |       |
| address     | text         | YES  |     | NULL    |       |
| mobile_no   | int          | YES  |     | NULL    |       |
| dept_no     | varchar(30)  | YES  |     | NULL    |       |
| salary      | int          | YES  |     | NULL    |       |
| designation | varchar(20)  | 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 varchar(10) primary key;

```
mysql> alter table department modify column dept_no varchar(10) primary key;
Query OK, 0 rows affected (0.07 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc department;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| dept_no   | varchar(10) | NO   | PRI | NULL    |       |
| dept_name | varchar(20) | 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 add constraint fk foreign key(dept_no)references department(dept_no)on delete cascade;

```
mysql> alter table employee add constraint fk foreign key(dept_no) references department (dept_no) on delete cascade;
Query OK, 0 rows affected (0.10 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc employee
    -> ;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| emp_no     | varchar(100) | NO   | PRI | NULL    |       |
| emp_name   | varchar(20)  | YES  |     | NULL    |       |
| dob        | date         | YES  |     | NULL    |       |
| address    | text         | YES  |     | NULL    |       |
| mobile_no  | int          | YES  |     | NULL    |       |
| dept_no    | varchar(30)  | YES  | MUL | NULL    |       |
| salary     | int          | YES  |     | NULL    |       |
| designation | varchar(20) | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
8 rows in set (0.00 sec)
```

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 (0.09 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc orders;
+--------------+------+------+-----+---------+-------+
| Field        | Type | Null | Key | Default | Extra |
+--------------+------+------+-----+---------+-------+
| Order_id     | int  | NO   |     | NULL    |       |
| Order_number | int  | NO   |     | NULL    |       |
| person_id    | 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 VALUES ('D01', 'sales'), ('D02', 'finance'), ('D03', 'HR'), ('D04', 'marketing'),('D05', 'security'), ('D06', 'IT'), ('D07', 'delivery'), ('D08', 'export'),('D09', 'service'),('D10', 'purchase');

```
mysql> INSERT INTO department
    -> VALUES
    -> ('D01', 'sales'),
    -> ('D02', 'finance'),
    -> ('D03', 'HR'),
    -> ('D04', 'marketing'),
    -> ('D05', 'security'),
    -> ('D06', 'IT'),
    -> ('D07', 'delivery'),
    -> ('D08', 'export'),
    -> ('D09', 'service'),
    -> ('D10', 'purchase');
Query OK, 10 rows affected (0.02 sec)
Records: 10  Duplicates: 0  Warnings: 0
```

>> INSERT INTO employee VALUES ('emp1', 'john', '1989-01-14', 'london', '8763926489', 'D01', '4000', 'staff'),('emp2', 'alice', '1992-03-22', 'new york', '9876543210', 'D02', '4500', 'staff'),('emp3', 'bob', '1985-06-10', 'paris', '9123456789', 'D03', '5000', 'manager'),('emp4', 'susan', '1990-07-19', 'berlin', '8234567890', 'D04', '5500', 'staff'),('emp5', 'tom', '1988-11-23', 'mumbai', '7425678901', 'D05', '6000', 'security'),('emp6', 'kate', '1995-02-15', 'sydney', '6712345678', 'D06', '4700', 'IT'),('emp7', 'luke', '1983-09-05', 'toronto', '6034928765', 'D07', '5200', 'delivery'),('emp8', 'mary', '1994-12-30', 'dubai', '6345879201', 'D08', '4600', 'export'),('emp9', 'james', '1987-05-12', 'tokyo', '6154890327', 'D09', '5800', 'service'),('emp10', 'emma', '1991-04-17', 'cape town', '6987451230', 'D10', '6200', 'purchase');

```
mysql> INSERT INTO employee
    -> VALUES
    -> ('emp1', 'john', '1989-01-14', 'london', '8763926489', 'D01', '4000', 'staff'),
    -> ('emp2', 'alice', '1992-03-22', 'new york', '9876543210', 'D02', '4500', 'staff'),
    -> ('emp3', 'bob', '1985-06-10', 'paris', '9123456789', 'D03', '5000', 'manager'),
    -> ('emp4', 'susan', '1990-07-19', 'berlin', '8234567890', 'D04', '5500', 'staff'),
    -> ('emp5', 'tom', '1988-11-23', 'mumbai', '7425678901', 'D05', '6000', 'security'),
    -> ('emp6', 'kate', '1995-02-15', 'sydney', '6712345678', 'D06', '4700', 'IT'),
    -> ('emp7', 'luke', '1983-09-05', 'toronto', '6034928765', 'D07', '5200', 'delivery'),
    -> ('emp8', 'mary', '1994-12-30', 'dubai', '6345879201', 'D08', '4600', 'export'),
    -> ('emp9', 'james', '1987-05-12', 'tokyo', '6154890327', 'D09', '5800', 'service'),
    -> ('emp10', 'emma', '1991-04-17', 'cape town', '6987451230', 'D10', '6200', 'purchase');
Query OK, 10 rows affected (0.02 sec)
Records: 10  Duplicates: 0  Warnings: 0
```

2. Display all the records from the above tables.

>> select * from department;

```
mysql> select * from department;
+---------+-----------+
| dept_no | dept_name |
+---------+-----------+
| D01     | sales     |
| D02     | finance   |
| D03     | HR        |
| D04     | marketing |
| D05     | security  |
| D06     | IT        |
| D07     | delivery  |
| D08     | export    |
| D09     | service   |
| D10     | purchase  |
+---------+-----------+
10 rows in set (0.00 sec)
```

>> select * from employee;

```
mysql> select * from employee;
+--------+----------+------------+-----------+------------+---------+--------+-------------+
| emp_no | emp_name | dob        | address   | mobile_no  | dept_no | salary | designation |
+--------+----------+------------+-----------+------------+---------+--------+-------------+
| emp1   | john     | 1989-01-14 | london    | 8763926489 | D01     |   4000 | staff       |
| emp10  | emma     | 1991-04-17 | cape town | 6987451230 | D10     |   6200 | purchase    |
| emp2   | alice    | 1992-03-22 | new york  | 9876543210 | D02     |   4500 | staff       |
| emp3   | bob      | 1985-06-10 | paris     | 9123456789 | D03     |   5000 | manager     |
| emp4   | susan    | 1990-07-19 | berlin    | 8234567890 | D04     |   5500 | staff       |
| emp5   | tom      | 1988-11-23 | mumbai    | 7425678901 | D05     |   6000 | security    |
| emp6   | kate     | 1995-02-15 | sydney    | 6712345678 | D06     |   4700 | IT          |
| emp7   | luke     | 1983-09-05 | toronto   | 6034928765 | D07     |   5200 | delivery    |
| emp8   | mary     | 1994-12-30 | dubai     | 6345879201 | D08     |   4600 | export      |
| emp9   | james    | 1987-05-12 | tokyo     | 6154890327 | D09     |   5800 | service     |
+--------+----------+------------+-----------+------------+---------+--------+-------------+
10 rows in set (0.00 sec)
```

3. Display the emp_no and name of employees from department no ‘D02’.

>> select emp_no,emp_name from employee where dept_no='D02';

```
mysql> select emp_no,emp_name from employee where dept_no='D02';
+--------+----------+
| emp_no | emp_name |
+--------+----------+
| emp2   | alice    |
+--------+----------+
1 row 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;

```
mysql> select emp_no,emp_name,designation,dept_no,salary from employee order by salary desc;
+--------+----------+-------------+---------+--------+
| emp_no | emp_name | designation | dept_no | salary |
+--------+----------+-------------+---------+--------+
| emp10  | emma     | purchase    | D10     |   6200 |
| emp5   | tom      | security    | D05     |   6000 |
| emp9   | james    | service     | D09     |   5800 |
| emp4   | susan    | staff       | D04     |   5500 |
| emp7   | luke     | delivery    | D07     |   5200 |
| emp3   | bob      | manager     | D03     |   5000 |
| emp6   | kate     | IT          | D06     |   4700 |
| emp8   | mary     | export      | D08     |   4600 |
| emp2   | alice    | staff       | D02     |   4500 |
| emp1   | john     | staff       | D01     |   4000 |
+--------+----------+-------------+---------+--------+
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 from employee where salary between 2000 and 5000;
+--------+----------+
| emp_no | emp_name |
+--------+----------+
| emp1   | john     |
| emp2   | alice    |
| emp3   | bob      |
| emp6   | kate     |
| emp8   | mary     |
+--------+----------+
5 rows in set (0.00 sec)
```

6. Display the designations without duplicate values

>> select distinct designation from employee;

```
mysql> select distinct designation from employee;
+-------------+
| designation |
+-------------+
| staff       |
| purchase    |
| manager     |
| security    |
| IT          |
| delivery    |
| export      |
| service     |
+-------------+
8 rows in set (0.00 sec)
```

7. Change the salary of employees to 45000 whose designation is 'Manager'

>> update employee set salary='45000' where designation='manager';

```
mysql> update employee set salary='45000' where designation='manager';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
mysql> select * from employee;
+--------+----------+------------+-----------+------------+---------+--------+-------------+
| emp_no | emp_name | dob        | address   | mobile_no  | dept_no | salary | designation |
+--------+----------+------------+-----------+------------+---------+--------+-------------+
| emp1   | john     | 1989-01-14 | london    | 8763926489 | D01     |   4000 | staff       |
| emp10  | emma     | 1991-04-17 | cape town | 6987451230 | D10     |   6200 | purchase    |
| emp2   | alice    | 1992-03-22 | new york  | 9876543210 | D02     |   4500 | staff       |
| emp3   | bob      | 1985-06-10 | paris     | 9123456789 | D03     |  45000 | manager     |
| emp4   | susan    | 1990-07-19 | berlin    | 8234567890 | D04     |   5500 | staff       |
| emp5   | tom      | 1988-11-23 | mumbai    | 7425678901 | D05     |   6000 | security    |
| emp6   | kate     | 1995-02-15 | sydney    | 6712345678 | D06     |   4700 | IT          |
| emp7   | luke     | 1983-09-05 | toronto   | 6034928765 | D07     |   5200 | delivery    |
| emp8   | mary     | 1994-12-30 | dubai     | 6345879201 | D08     |   4600 | export      |
| emp9   | james    | 1987-05-12 | tokyo     | 6154890327 | D09     |   5800 | service     |
+--------+----------+------------+-----------+------------+---------+--------+-------------+
10 rows in set (0.00 sec)
```

8. Change the mobile number of employees named John

>> update employee set mobile_no='7834563489' where emp_name='john';

```
mysql> update employee set mobile_no='7834563489' where emp_name='john';
Query OK, 0 rows affected (0.02 sec)
Rows matched: 1  Changed: 0  Warnings: 0

mysql> select * from employee;
+--------+----------+------------+-----------+------------+---------+--------+-------------+
| emp_no | emp_name | dob        | address   | mobile_no  | dept_no | salary | designation |
+--------+----------+------------+-----------+------------+---------+--------+-------------+
| emp1   | john     | 1989-01-14 | london    | 7834563489 | D01     |   4000 | staff       |
| emp10  | emma     | 1991-04-17 | cape town | 6987451230 | D10     |   6200 | purchase    |
| emp2   | alice    | 1992-03-22 | new york  | 9876543210 | D02     |   4500 | staff       |
| emp3   | bob      | 1985-06-10 | paris     | 9123456789 | D03     |  45000 | manager     |
| emp4   | susan    | 1990-07-19 | berlin    | 8234567890 | D04     |   5500 | staff       |
| emp5   | tom      | 1988-11-23 | mumbai    | 7425678901 | D05     |   6000 | security    |
| emp6   | kate     | 1995-02-15 | sydney    | 6712345678 | D06     |   4700 | IT          |
| emp7   | luke     | 1983-09-05 | toronto   | 6034928765 | D07     |   5200 | delivery    |
| emp8   | mary     | 1994-12-30 | dubai     | 6345879201 | D08     |   4600 | export      |
| emp9   | james    | 1987-05-12 | tokyo     | 6154890327 | D09     |   5800 | service     |
+--------+----------+------------+-----------+------------+---------+--------+-------------+
10 rows in set (0.00 sec)
```

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

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

```
mysql> delete from employee where salary='7000';
Query OK, 1 row affected (0.01 sec)

mysql> select * from employee;
+--------+----------+------------+-----------+------------+---------+--------+-------------+
| emp_no | emp_name | dob        | address   | mobile_no  | dept_no | salary | designation |
+--------+----------+------------+-----------+------------+---------+--------+-------------+
| emp10  | emma     | 1991-04-17 | cape town | 6987451230 | D10     |   6200 | purchase    |
| emp2   | alice    | 1992-03-22 | new york  | 9876543210 | D02     |   4500 | staff       |
| emp3   | bob      | 1985-06-10 | paris     | 9123456789 | D03     |  45000 | manager     |
| emp4   | susan    | 1990-07-19 | berlin    | 8234567890 | D04     |   5500 | staff       |
| emp5   | tom      | 1988-11-23 | mumbai    | 7425678901 | D05     |   6000 | security    |
| emp6   | kate     | 1995-02-15 | sydney    | 6712345678 | D06     |   4700 | IT          |
| emp7   | luke     | 1983-09-05 | toronto   | 6034928765 | D07     |   5200 | delivery    |
| emp8   | mary     | 1994-12-30 | dubai     | 6345879201 | D08     |   4600 | export      |
| emp9   | james    | 1987-05-12 | tokyo     | 6154890327 | D09     |   5800 | service     |
+--------+----------+------------+-----------+------------+---------+--------+-------------+
9 rows in set (0.00 sec)
```

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%';

```
mysql> select emp_name,mobile_no from employee where emp_name like'a%';
+----------+------------+
| emp_name | mobile_no  |
+----------+------------+
| alice    | 9876543210 |
+----------+------------+
1 row in set (0.01 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 |
+--------+----------+------------+---------+------------+---------+--------+-------------+
| emp3   | bob      | 1985-06-10 | paris   | 9123456789 | D03     |  45000 | manager     |
+--------+----------+------------+---------+------------+---------+--------+-------------+
1 row in set (0.00 sec)
```

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

>> select * from employee where emp_no in('emp1', 'emp2', 'emp6');

```
mysql> select * from employee where emp_no in('emp1', 'emp2', 'emp6');
+--------+----------+------------+----------+------------+---------+--------+-------------+
| emp_no | emp_name | dob        | address  | mobile_no  | dept_no | salary | designation |
+--------+----------+------------+----------+------------+---------+--------+-------------+
| emp1   | john     | 1990-05-05 | usa      | 9876403490 | D01     |   5000 | IT          |
| emp2   | alice    | 1992-03-22 | new york | 9876543210 | D02     |   4500 | staff       |
| emp6   | kate     | 1995-02-15 | sydney   | 6712345678 | D06     |   4700 | IT          |
+--------+----------+------------+----------+------------+---------+--------+-------------+
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;

```
mysql>  select emp_name,emp_no from employee where salary between 120000 and
    -> 300000;
+----------+--------+
| emp_name | emp_no |
+----------+--------+
| kate     | emp6   |
+----------+--------+
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      |
+--------+----------+------------+---------+------------+---------+--------+------------------+
| emp2   | alice    | 1992-03-22 | new york | 9876543210 | D02     |   4500 | computer assistant |
| emp3   | bob      | 1985-06-10 | paris    | 9123456789 | D03     |  45000 | manager          |
+--------+----------+------------+---------+------------+---------+--------+------------------+
2 rows in set (0.00 sec)
```

15. Displays how many employees work for each department.

>> select dept_no,count(dept_no) from employee group by dept_no;

```
mysql> select dept_no,count(dept_no) from employee group by dept_no;
+---------+----------------+
| dept_no | count(dept_no) |
+---------+----------------+
| D01     |              1 |
| D02     |              1 |
| D03     |              1 |
| D04     |              1 |
| D05     |              1 |
| D06     |              1 |
| D07     |              1 |
| D08     |              1 |
| D09     |              1 |
| D10     |              1 |
+---------+----------------+
10 rows in set (0.02 sec)
```

16. Displays average salary of employees in each department.

>> select dept_no,avg(salary) from employee group by dept_no;

```
mysql> select dept_no,avg(salary) from employee group by dept_no;
+---------+-------------+
| dept_no | avg(salary) |
+---------+-------------+
| D01     |   5000.0000 |
| D02     |   4500.0000 |
| D03     |  45000.0000 |
| D04     |   5500.0000 |
| D05     |   6000.0000 |
| D06     | 150000.0000 |
| D07     |   5200.0000 |
| D08     |   4600.0000 |
| D09     |   5800.0000 |
| D10     |   6200.0000 |
+---------+-------------+
10 rows in set (0.00 sec)
```

17. Displays total salary of employees in each department.

>> select dept_no,sum(salary) from employee group by dept_no;

```
mysql> select dept_no,sum(salary) from employee group by dept_no;
+---------+-------------+
| dept_no | sum(salary) |
+---------+-------------+
| D01     |        5000 |
| D02     |        4500 |
| D03     |       45000 |
| D04     |        5500 |
| D05     |        6000 |
| D06     |      150000 |
| D07     |        5200 |
| D08     |        4600 |
| D09     |        5800 |
| D10     |        6200 |
+---------+-------------+
10 rows in set (0.00 sec)
```

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

>> select dept_no,max(salary),min(salary) from employee group by dept_no;

```
mysql> select dept_no,max(salary),min(salary) from employee group by dept_no;
+---------+-------------+-------------+
| dept_no | max(salary) | min(salary) |
+---------+-------------+-------------+
| D01     |        5000 |        5000 |
| D02     |        4500 |        4500 |
| D03     |       45000 |       45000 |
| D04     |        5500 |        5500 |
| D05     |        6000 |        6000 |
| D06     |      150000 |      150000 |
| D07     |        5200 |        5200 |
| D08     |        4600 |        4600 |
| D09     |        5800 |        5800 |
| D10     |        6200 |        6200 |
+---------+-------------+-------------+
10 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) from employee where dept_no!= 'D05' group by dept_no;

```
mysql> select dept_no,avg(salary) from employee where dept_no!= 'D05' group by dept_no;
+---------+-------------+
| dept_no | avg(salary) |
+---------+-------------+
| D01     |   5000.0000 |
| D02     |   4500.0000 |
| D03     |  45000.0000 |
| D04     |   5500.0000 |
| D06     | 150000.0000 |
| D07     |   5200.0000 |
| D08     |   4600.0000 |
| D09     |   5800.0000 |
| D10     |   6200.0000 |
+---------+-------------+
9 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) from employee where dept_no!= 'D01' group by dept_no having avg(salary)> '20000' order by avg(salary) asc;

```
mysql> select dept_no,avg(salary) from employee where dept_no!= 'D01' group by dept_no having avg(salary)> '20000' order
 by avg(salary) asc;
+---------+-------------+
| dept_no | avg(salary) |
+---------+-------------+
| D03     |  45000.0000 |
| D06     | 150000.0000 |
+---------+-------------+
2 rows in set (0.02 sec)
```