Experiment No: 1

Date : 13/02/2025

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 varchar(10),phone_no varchar(10),blood_grp varchar(10));

```
mysql> create table student(roll_no int,name varchar(10),dob date,address var
char(10),phone_no varchar(10),blood_grp varchar(10));
Query OK, 0 rows affected (0.28 sec)

mysql> describe table student;
+----+-------------+---------+------------+------+---------------+------+----
-----+------+------+----------+-------+
| id | select_type | table   | partitions | type | possible_keys | key  | key
_len | ref  | rows | filtered | Extra |
+----+-------------+---------+------------+------+---------------+------+----
-----+------+------+----------+-------+
|  1 | SIMPLE      | student | NULL       | ALL  | NULL          | NULL | NUL
L    | NULL |    1 |   100.00 | NULL  |
+----+-------------+---------+------------+------+---------------+------+----
-----+------+------+----------+-------+
1 row in set, 1 warning (0.01 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(10),course_durat
ion int);
Query OK, 0 rows affected (0.33 sec)

mysql> show tables;
+------------------+
| Tables_in_24mca11 |
+------------------+
| course           |
| student          |
+------------------+
2 rows in set (0.00 sec)
```

4. List all tables in the current database.

>> show tables;

```
mysql> show tables;
+--------------------+
| Tables_in_24mca11 |
+--------------------+
| course             |
| student            |
+--------------------+
2 rows in set (0.00 sec)
```

5. Display the structure of the Student table.

>> describe student;

```
mysql> describe student;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| roll_no   | int         | YES  |     | NULL    |       |
| name      | varchar(10) | YES  |     | NULL    |       |
| dob       | date        | YES  |     | NULL    |       |
| address   | varchar(10) | YES  |     | NULL    |       |
| phone_no  | varchar(10) | YES  |     | NULL    |       |
| blood_grp | varchar(10) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
6 rows in set (0.00 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> describe student;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| roll_no  | int         | YES  |     | NULL    |       |
| name     | varchar(10) | YES  |     | NULL    |       |
| dob      | date        | YES  |     | NULL    |       |
| address  | varchar(10) | YES  |     | NULL    |       |
| phone_no | varchar(10) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
5 rows in set (0.01 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 (0.17 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> describe student;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| roll_no  | int         | YES  |     | NULL    |       |
| name     | varchar(10) | YES  |     | NULL    |       |
| dob      | date        | YES  |     | NULL    |       |
| address  | varchar(10) | 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 phone_no int;
Query OK, 0 rows affected (1.01 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> describe student;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| roll_no  | int         | YES  |     | NULL    |       |
| name     | varchar(10) | YES  |     | NULL    |       |
| dob      | date        | YES  |     | NULL    |       |
| address  | varchar(10) | 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;

```
mysql> drop table student;
Query OK, 0 rows affected (0.20 sec)

mysql> show tables;
+-------------------+
| Tables_in_24mca11 |
+-------------------+
| course            |
+-------------------+
1 row in set (0.01 sec)

mysql> drop table course;
Query OK, 0 rows affected (0.22 sec)

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

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(10),emp_name varchar(10),dob date,address varchar(10),mobile_no int,dept_no varchar(10),salary int);

```
mysql> create table employee(emp_no varchar(10),emp_name varchar(10),dob date
,address varchar(10),mobile_no int,dept_no varchar(10),salary int);
Query OK, 0 rows affected (0.33 sec)

mysql> show tables;
+-------------------+
| Tables_in_24mca11 |
+-------------------+
| employee          |
+-------------------+
1 row in set (0.00 sec)
```

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

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

```
mysql> create table department(dept_no varchar(10),dept_name varchar(10),loca
tion varchar(10));
Query OK, 0 rows affected (0.36 sec)

mysql> show tables;
+-------------------+
| Tables_in_24mca11 |
+-------------------+
| department        |
| employee          |
+-------------------+
2 rows in set (0.01 sec)
```

4. List all tables in the current database.

>> show tables;

```
mysql> show tables;
+--------------------+
| Tables_in_24mca11 |
+--------------------+
| department         |
| employee           |
+--------------------+
2 rows in set (0.01 sec)
```

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

>> describe department;

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

>> describe employee;

```
mysql> describe employee;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| emp_no    | varchar(10) | YES  |     | NULL    |       |
| emp_name  | varchar(10) | YES  |     | NULL    |       |
| dob       | date        | YES  |     | NULL    |       |
| address   | varchar(10) | YES  |     | NULL    |       |
| mobile_no | int         | YES  |     | NULL    |       |
| dept_no   | varchar(10) | YES  |     | NULL    |       |
| salary    | int         | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
7 rows in set (0.01 sec)
```

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

>> alter table employee add column designation varchar(10);

```
mysql> alter table employee add column designation varchar(10);
Query OK, 0 rows affected (0.21 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> describe employee;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| emp_no      | varchar(10) | YES  |     | NULL    |       |
| emp_name    | varchar(10) | YES  |     | NULL    |       |
| dob         | date        | YES  |     | NULL    |       |
| address     | varchar(10) | YES  |     | NULL    |       |
| mobile_no   | int         | YES  |     | NULL    |       |
| dept_no     | varchar(10) | YES  |     | NULL    |       |
| salary      | int         | YES  |     | NULL    |       |
| designation | varchar(10) | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
8 rows in set (0.00 sec)
```

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

>> alter table department frop column location;

```
mysql> alter table department drop column location;
Query OK, 0 rows affected (0.17 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> describe department;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| dept_no   | varchar(10) | YES  |     | NULL    |       |
| dept_name | varchar(10) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
2 rows in set (0.01 sec)
```

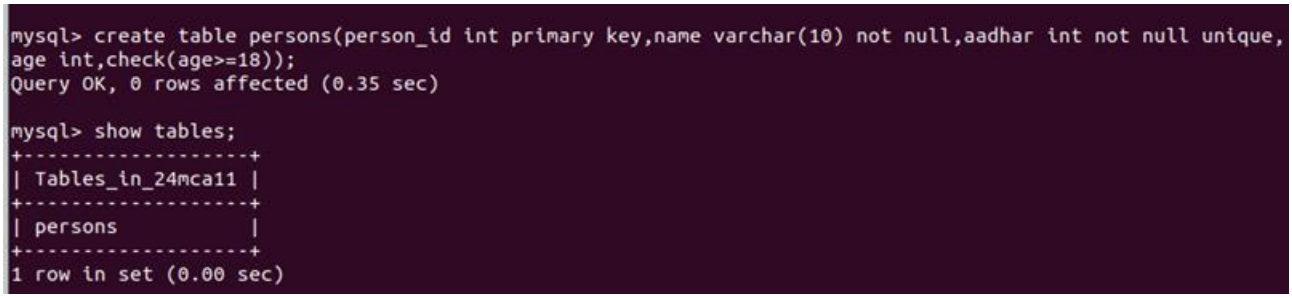
Experiment No: 2

Date : 13/02/2025

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(10) not null,aadhar int not null unique,age int,check(age>=18));

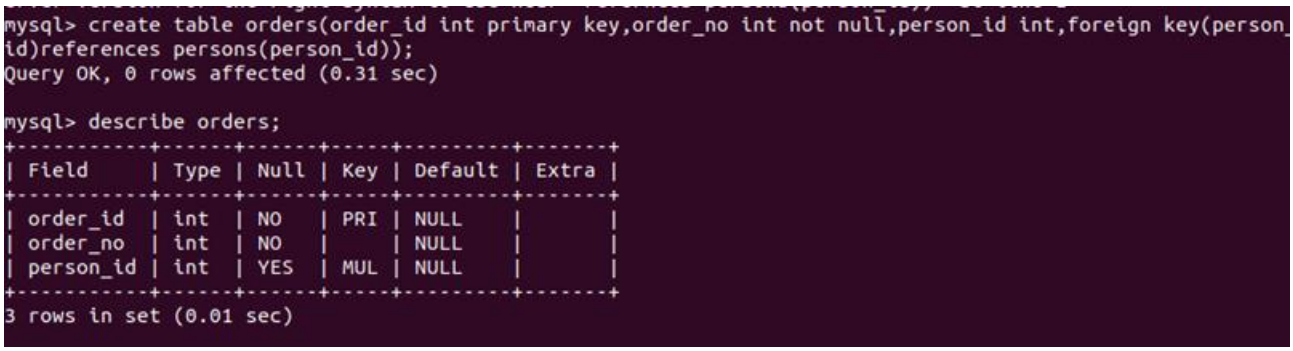


```
mysql> create table persons(person_id int primary key,name varchar(10) not null,aadhar int not null unique,
age int,check(age>=18));
Query OK, 0 rows affected (0.35 sec)

mysql> show tables;
+-------------------+
| Tables_in_24mca11 |
+-------------------+
| persons           |
+-------------------+
1 row in set (0.00 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_no int not null,person_id int,foreign key(person_id)references persons(person_id));



```
mysql> create table orders(order_id int primary key,order_no int not null,person_id int,foreign key(person_
id)references persons(person_id));
Query OK, 0 rows affected (0.31 sec)

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

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

```
mysql> describe persons;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| person_id | int         | NO   | PRI | NULL    |       |
| name      | varchar(10) | NO   |     | NULL    |       |
| aadhar    | int         | NO   | UNI | NULL    |       |
| age       | int         | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
4 rows in set (0.01 sec)
```

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

```
mysql> describe orders;
+-----------+------+------+-----+---------+-------+
| Field     | Type | Null | Key | Default | Extra |
+-----------+------+------+-----+---------+-------+
| order_id  | int  | NO   | PRI | NULL    |       |
| order_no  | 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 add primary key(emp_no);

```
mysql> alter table employee add primary key(emp_no);
Query OK, 0 rows affected (0.79 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> describe employee;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| emp_no      | varchar(10) | NO   | PRI | NULL    |       |
| emp_name    | varchar(10) | YES  |     | NULL    |       |
| dob         | date        | YES  |     | NULL    |       |
| address     | varchar(10) | YES  |     | NULL    |       |
| mobile_no   | int         | YES  |     | NULL    |       |
| dept_no     | varchar(10) | YES  |     | NULL    |       |
| salary      | int         | YES  |     | NULL    |       |
| designation | varchar(10) | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
8 rows in set (0.00 sec)
```

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

>> alter table department add primary key(dept_no);

```
mysql> alter table department add primary key(dept_no);
Query OK, 0 rows affected (0.54 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> describe department;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| dept_no   | varchar(10) | NO   | PRI | NULL    |       |
| dept_name | varchar(10) | 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)rferences 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 (0.98 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> describe employee;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| emp_no      | varchar(10) | NO   | PRI | NULL    |       |
| emp_name    | varchar(10) | YES  |     | NULL    |       |
| dob         | date        | YES  |     | NULL    |       |
| address     | varchar(10) | YES  |     | NULL    |       |
| mobile_no   | int         | YES  |     | NULL    |       |
| dept_no     | varchar(10) | YES  | MUL | NULL    |       |
| salary      | int         | YES  |     | NULL    |       |
| designation | varchar(10) | 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 (0.97 sec)
Records: 0  Duplicates: 0  Warnings: 0

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

Experiment No: 3

Date : 20/02/2025

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','delivary'),('D08','export'),('D09','service'),('D10','purchase');

```
mysql> insert into department values('D01','sales');
Query OK, 1 row affected (0.06 sec)

mysql> select * from department;
+---------+-----------+
| dept_no | dept_name |
+---------+-----------+
| D01     | sales     |
+---------+-----------+
1 row in set (0.00 sec)
```

>> insert into employee values('emp1','john','1989-
14','london','8763926489','D01','4000','staff');

```
mysql> insert into employee values('emp1','john','1989-5-14','london','8763926489','D01','4000','
staff');
Query OK, 1 row affected (0.05 sec)

mysql> select * from employee;
+--------+----------+------------+---------+------------+---------+--------+-------------+
| emp_no | emp_name | dob        | address | mobile_no  | dept_no | salary | designation |
+--------+----------+------------+---------+------------+---------+--------+-------------+
| emp1   | john     | 1989-05-14 | london  | 8763926489 | D01     |   4000 | staff       |
+--------+----------+------------+---------+------------+---------+--------+-------------+
1 row in set (0.01 sec)
```

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     | delivary  |
| D08     | export    |
| D09     | service   |
| D10     | purchase  |
+---------+-----------+
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='D02';

```
mysql> select emp_no,emp_name from employee where dept_no='D02';
+--------+----------+
| emp_no | emp_name |
+--------+----------+
| emp3   | vijay    |
+--------+----------+
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 |
+--------+----------+--------------------+---------+--------+
| emp5   | adam     | manager            | D08     | 200000 |
| emp7   | minna    | computer assistant | D06     | 180000 |
| emp6   | linta    | manager            | D04     | 150000 |
| emp2   | ajin     | manager            | D03     |  30000 |
| emp9   | shine    | staff              | D10     |  30000 |
| emp4   | mary     | computer assistant | D05     |  25000 |
| emp10  | anjali   | staff              | D09     |   7000 |
| emp3   | vijay    | staff              | D02     |   7000 |
| emp8   | david    | staff              | D07     |   4500 |
| emp1   | john     | staff              | D01     |   4000 |
+--------+----------+--------------------+---------+--------+
10 rows in set (0.01 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     |
| emp8   | david    |
+--------+----------+
2 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              |
| manager            |
| computer assistant |
+--------------------+
3 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, 3 rows affected (0.06 sec)
Rows matched: 3  Changed: 3  Warnings: 0
```

>> describe employee;

```
+--------+----------+------------+---------+------------+---------+--------+--------------------+
| 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     |  45000 | 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     |  45000 | manager            |
| emp6   | linta    | 1998-05-13 | delhi   | 9363926489 | D04     |  45000 | 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 (0.00 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, 1 row affected (0.06 sec)
Rows matched: 1  Changed: 1  Warnings: 0

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  | 7834563489 | D01     |   4000 | staff              |
| emp2   | ajin     | 1985-05-13 | bombay  | 9763926489 | D03     |  45000 | 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     |  45000 | manager            |
| emp6   | linta    | 1998-05-13 | delhi   | 9363926489 | D04     |  45000 | 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 (0.00 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, 2 rows affected (0.05 sec)

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  | 7834563489 | D01     |   4000 | staff              |
| emp2   | ajin     | 1985-05-13 | bombay  | 9763926489 | D03     |  45000 | manager            |
| emp4   | mary     | 1996-05-13 | france  | 8363926489 | D05     |  25000 | computer assistant |
| emp5   | adam     | 1988-05-13 | uk      | 7363926489 | D08     |  45000 | manager            |
| emp6   | linta    | 1998-05-13 | delhi   | 9363926489 | D04     |  45000 | 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              |
+--------+----------+------------+---------+------------+---------+--------+--------------------+
8 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   |
+----------+-------------+
| ajin     | 9763926489 |
| adam     | 7363926489 |
+----------+-------------+
2 rows 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 emp_name,mobile_no from employee where emp_name like'a%';

```
mysql> select * from employee where emp_name like'___%' and salary>'200000';
+--------+----------+------------+---------+------------+---------+--------+--------------------+
| emp_no | emp_name | dob        | address | mobile_no  | dept_no | salary | designation        |
+--------+----------+------------+---------+------------+---------+--------+--------------------+
| emp4   | mary     | 1996-05-13 | france  | 8363926489 | D05     | 250000 | computer assistant |
+--------+----------+------------+---------+------------+---------+--------+--------------------+
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     | 1989-05-14 | london  | 7834563489 | D01     |   4000 | staff       |
| emp2   | ajin     | 1985-05-13 | bombay  | 9763926489 | D03     |  45000 | manager     |
| emp6   | linta    | 1998-05-13 | delhi   | 9363926489 | D04     |  45000 | manager     |
+--------+----------+------------+---------+------------+---------+--------+-------------+
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;

```
ERROR 1054 (42S22): Unknown column 'emp_name' in 'field list'
mysql> select emp_name,emp_no from employee where salary between 120000 and 300000;
+----------+--------+
| emp_name | emp_no |
+----------+--------+
| mary     | emp4   |
| minna    | emp7   |
+----------+--------+
2 rows 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   | ajin     | 1985-05-13 | bombay  | 9763926489 | D03     |  45000 | manager            |
| emp4   | mary     | 1996-05-13 | france  | 8363926489 | D05     | 250000 | computer assistant |
| emp5   | adam     | 1988-05-13 | uk      | 7363926489 | D08     |  45000 | manager            |
| emp6   | linta    | 1998-05-13 | delhi   | 9363926489 | D04     |  45000 | manager            |
| emp7   | minna    | 2000-05-13 | kerala  | 9763926489 | D06     | 180000 | computer assistant |
+--------+----------+------------+---------+------------+---------+--------+--------------------+
5 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 |
| D03     |              1 |
| D04     |              1 |
| D05     |              1 |
| D06     |              1 |
| D07     |              1 |
| D08     |              1 |
| D10     |              1 |
+---------+----------------+
8 rows in set (0.00 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     |   4000.0000 |
| D03     |  45000.0000 |
| D04     |  45000.0000 |
| D05     | 250000.0000 |
| D06     | 180000.0000 |
| D07     |   4500.0000 |
| D08     |  45000.0000 |
| D10     |  30000.0000 |
+---------+-------------+
8 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     |        4000 |
| D03     |       45000 |
| D04     |       45000 |
| D05     |      250000 |
| D06     |      180000 |
| D07     |        4500 |
| D08     |       45000 |
| D10     |       30000 |
+---------+-------------+
8 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     |        4000 |        4000 |
| D03     |       45000 |       45000 |
| D04     |       45000 |       45000 |
| D05     |      250000 |      250000 |
| D06     |      180000 |      180000 |
| D07     |        4500 |        4500 |
| D08     |       45000 |       45000 |
| D10     |       30000 |       30000 |
+---------+-------------+-------------+
8 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     |   4000.0000 |
| D03     |  45000.0000 |
| D04     |  45000.0000 |
| D06     | 180000.0000 |
| D07     |   4500.0000 |
| D08     |  45000.0000 |
| D10     |  30000.0000 |
+---------+-------------+
7 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(s
alary)>'20000' order by avg(salary) asc;
+---------+-------------+
| dept_no | avg(salary) |
+---------+-------------+
| D10     |  30000.0000 |
| D03     |  45000.0000 |
| D04     |  45000.0000 |
| D08     |  45000.0000 |
| D06     | 180000.0000 |
| D05     | 250000.0000 |
+---------+-------------+
6 rows in set (0.00 sec)
```