**LAB CYCLE 1**

**Experiment No: 1**

**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

2. Select the current database

3. Create the following tables:

a) Student (roll\_no integer, name varchar, dob date, address text,

phone\_no varchar, blood\_grp varchar)

b) Course (Course\_id integer, Course\_name varchar, course\_duration

integer)

4. List all tables in the current database.

5. Display the structure of the Student table.

6. Drop the column blood\_grp from Student table.

7. Add a new column Adar\_no with domain number to the table Student.

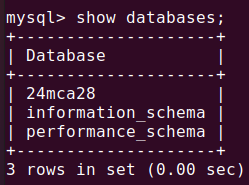
8. Change the datatype of phone\_no from varchar to int

9. Drop the tables.

10. Delete the database.

**Queries:**

1) create database 24mca28;



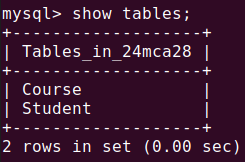
2) use 24mca28;



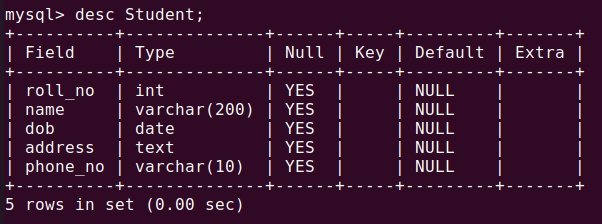
3) create table Student(roll\_no int, name varchar(200), dob date, address text, phone\_no varchar(10), blood\_grp varchar(3));

create table Course(course\_id int, course\_name varchar(50), course\_duration int);

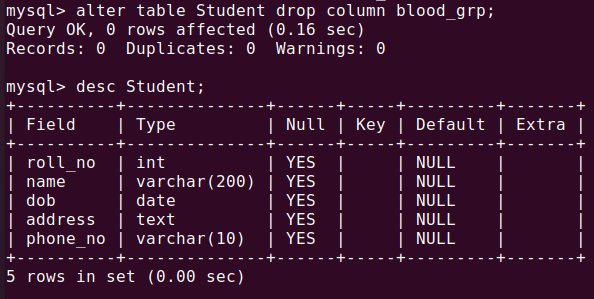
4) show tables;



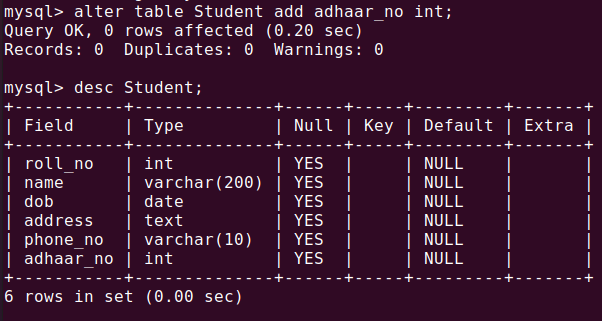
5) desc Student;



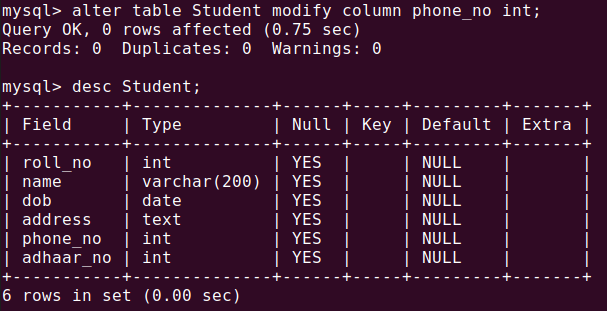
6) alter table Student drop column blood\_grp;



7) alter table Student add adhaar\_no int;

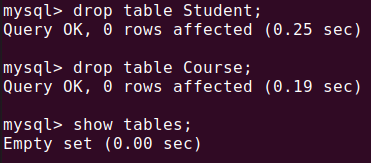


8) alter table Student modify column phone\_no int;



9) drop table Student;

drop table Course;



10) drop database 24mca28;

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

following:

1. Create a database

2. Select the current database

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)

b) Department (dept\_no varchar, dept\_name varchar, location varchar)

4. List all tables in the current database.

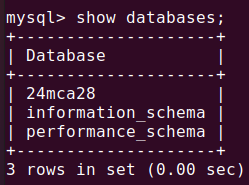
5. Display the structure of the Employee table and Department table.

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

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

**Queries:**

1) create database 24mca28;



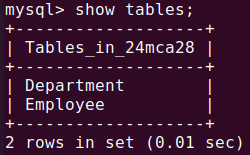
2) use 24mca28;



3) create table Employee(emp\_no varchar(10), emp\_name varchar(100), dob date, address text, mobile\_no int, dept\_no varchar(20), salary int);

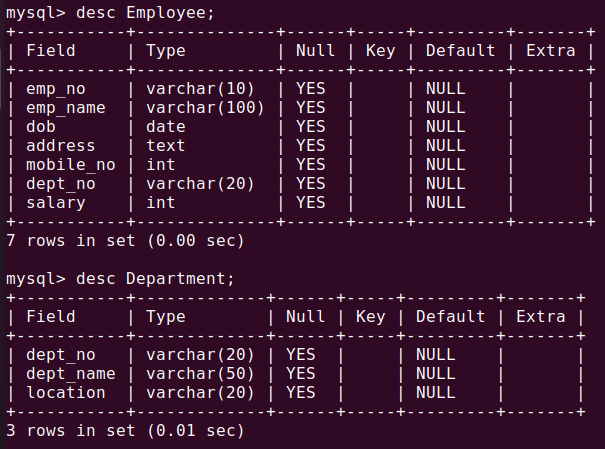
create table Department(dept\_no varchar(20), dept\_name varchar(50), location varchar(20));

4) show tables;

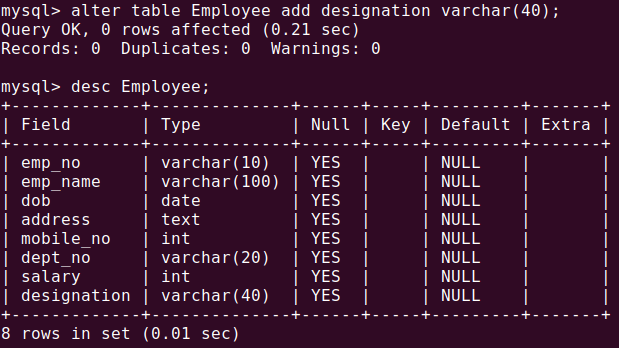


5) desc Employee;

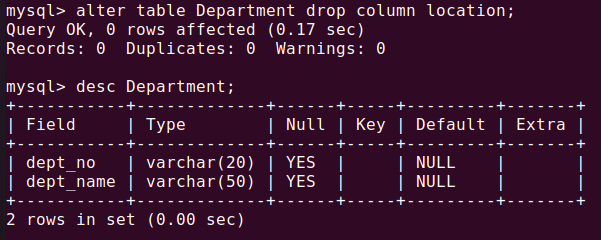
desc Department;



6) alter table Employee add designation varchar(40);



7) alter table Department drop column location;



**Experiment No: 2**

**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).

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)

3. Display the structure of Persons tables.

4. Display the structure of Orders tables.

5. Add emp\_no as the primary key of the table Employee.

6. Add dept\_no as the primary key of the table Department.

7. Add dept\_no in Employee table as the foreign key reference to the table

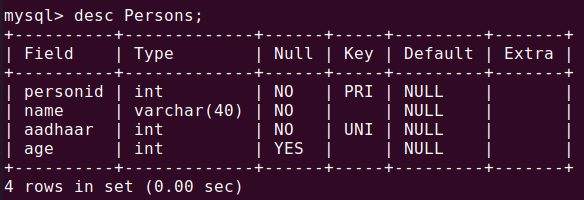
Department with on delete cascade.

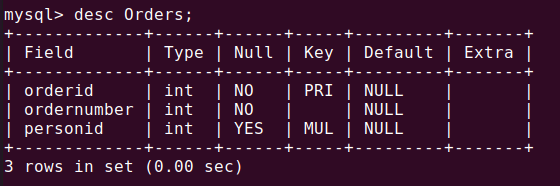
8. Drop the primary key of the table Orders

**Queries:**

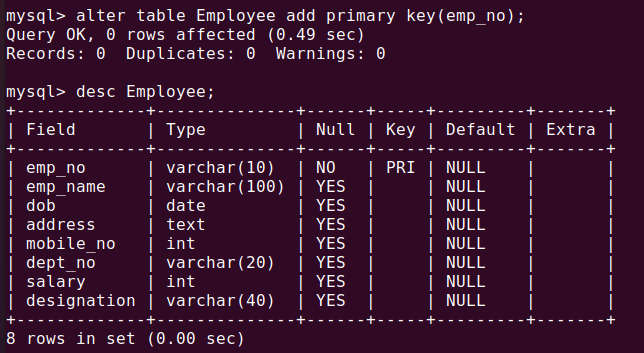
1) create table Persons(personid int primary key, name varchar(40) not null, aadhaar int not null unique, age int, check (age>18));

2) create table Orders(orderid int primary key, ordernumber int not null, personid int, foreign key (personid) references Persons(personid));

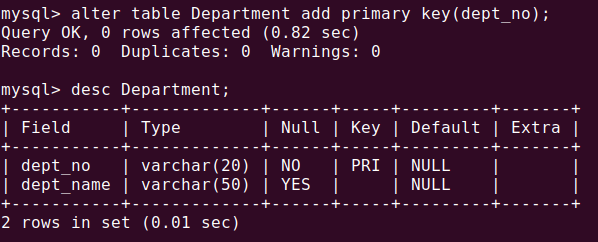
3) desc Persons;

4) desc Orders;

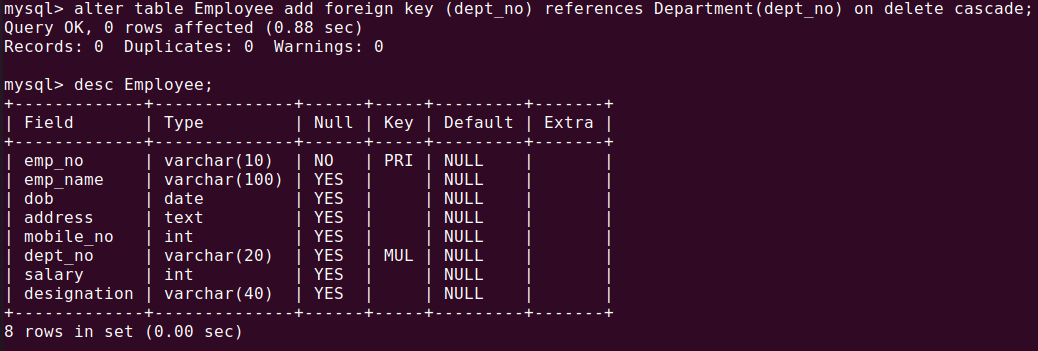
5) alter table Employee add primary key(emp\_no);



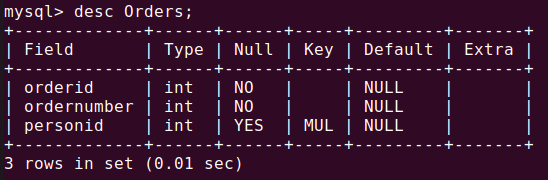
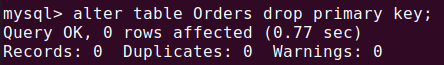
6) alter table Department add primary key(dept\_no);



7) alter table Employee add foreign key (dept\_no) references Department(dept\_no) on delete cascade;



8) alter table Orders drop primary key;



**Experiment No: 3**

**Familiarization of DML Commands.**

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

2. Display all the records from the above tables.

3. Display the emp\_no and name of employees from department no ‘D02’.

4. Display emp\_no, emp\_name , designation, deptno and salary of employees in the

descending order of salary.

5. Display the emp\_no , name of employees whose salary is between 2000 and 5000

6. Display the designations without duplicate values

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

8. Change the mobile number of employees named John

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

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

11. Display the details of the employee whose name has at least three characters and

salary greater than 20000.

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

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

and 300000.

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

Assistant’.

15. Displays how many employees work for each department.

16. Displays average salary of employees in each department.

17. Displays total salary of employees in each department.

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

19. Displays average salary of employees in all departments except department with

department number ‘D05’.

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

**Queries:**

1) insert into Department values('D01','IT'),('D02','Network'),('D03','Cybersecurity'),('DO4','Data Science'),('DO5','AI'),('DO6','Database Management'),('DO7','Testing'),('DO8','UI/UX Design'),('DO9','Software Development'),('D10','Cloud Computing');

insert into Employee (emp\_no, emp\_name, dob, address, mobile\_no, dept\_no, salary, designation) values

('emp1', 'James', '1979-03-12', 'ryrtyrgh', '912345678', 'D02', 4500, 'Computer Assistant'),

('emp2', 'Akhil', '2001-03-12', 'fghrjjyy', '912445650', 'D02', 40000, 'Manager'),

('emp3', 'Anshul', '2001-02-11', 'frteryhh', '915774950', 'D01', 4100, 'Manager'),

('emp4', 'Melbin', '2002-03-14', 'frfperoei', '915774670', 'D05', 4500, 'Computer Assistant'),

('emp5', 'Yadhu', '2001-07-26', 'frfferetg', '915775670', 'D01', 4500000, 'HR'),

('emp6', 'Vinayak', '2003-09-22', 'frfferetg', '915775670', 'D01', 4500000, 'Developer'),

('emp7', 'John', '1993-05-12', 'fieryirettg', '423876860', 'D07', 7000, 'Tester'),

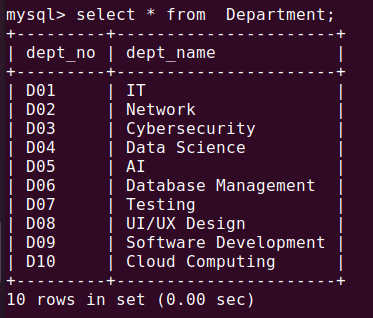
('emp8', 'Sharon', '2003-04-08', 'sdhjytiyirettg', '687973669', 'D01', 70000, 'HR'),

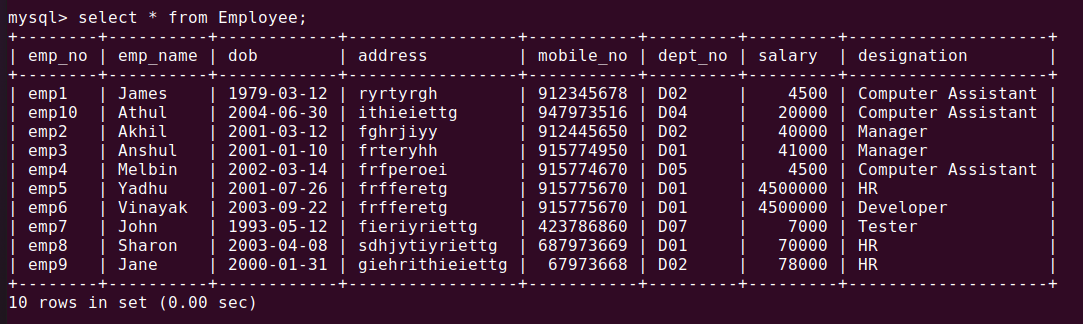
('emp9', 'Jane', '2000-01-31', 'giehrithieiettg', '67973668', 'D02', 78000, 'HR'),

('emp10', 'Athul', '2004-06-30', 'ithieiettg', '947973516', 'D04', 20000, 'Computer Assistant');

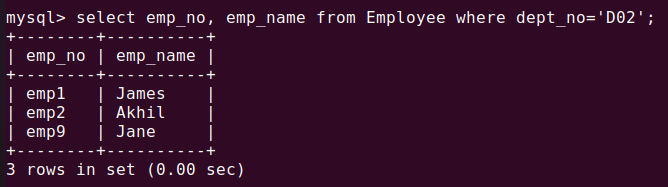
2) select \* from Department;

select \* from Employee;

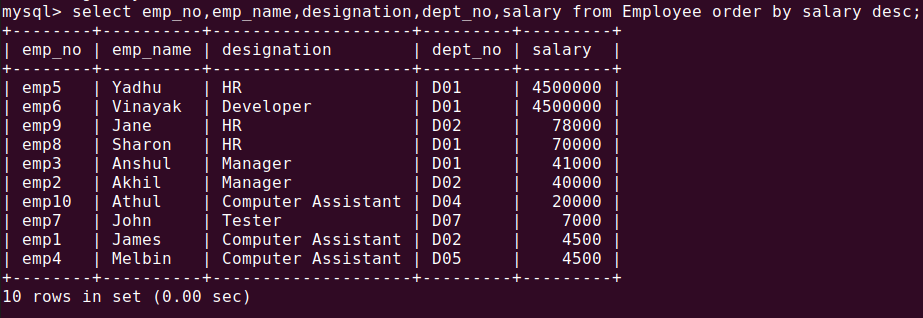




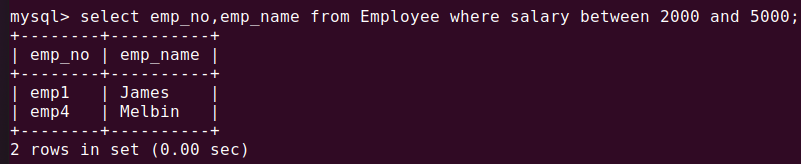
3) select emp\_no, emp\_name from Employee where dept\_no='D02';



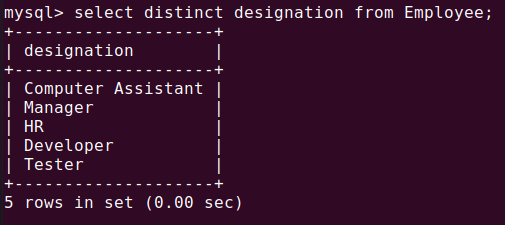
4) select emp\_no,emp\_name,designation,dept\_no,salary from Employee order by salary desc;



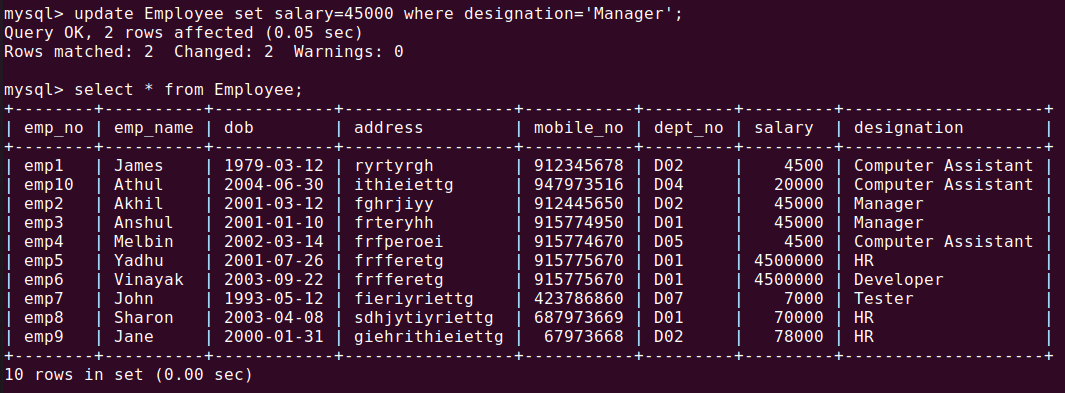
5) select emp\_no,emp\_name from Employee where salary between 2000 and 5000;



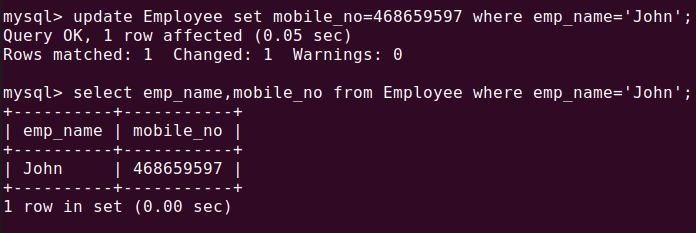
6) select distinct designation from Employee;



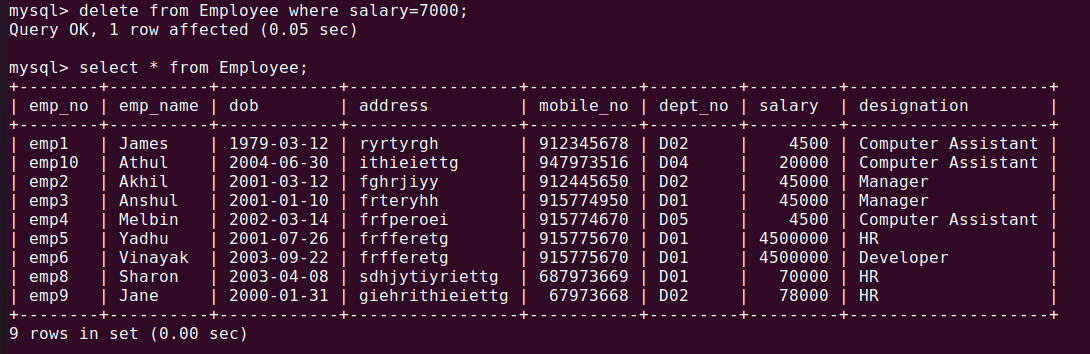
7) update Employee set salary=45000 where designation='Manager';



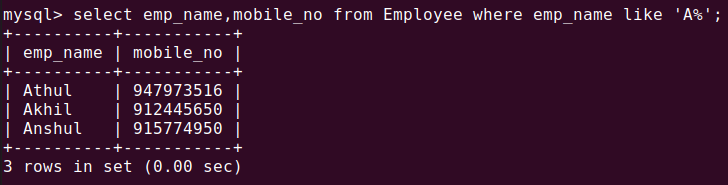
8) update Employee set mobile\_no=468659597 where emp\_name='John';



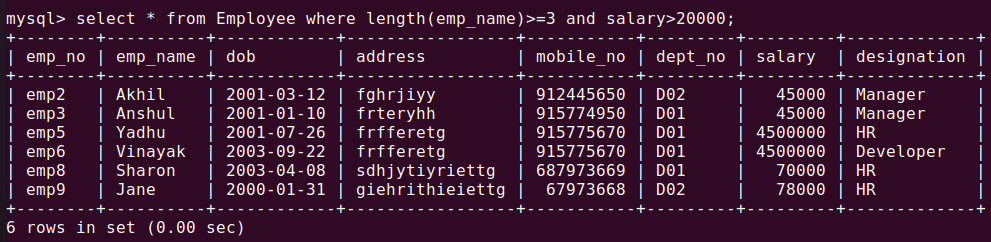
9) delete from Employee where salary=7000;



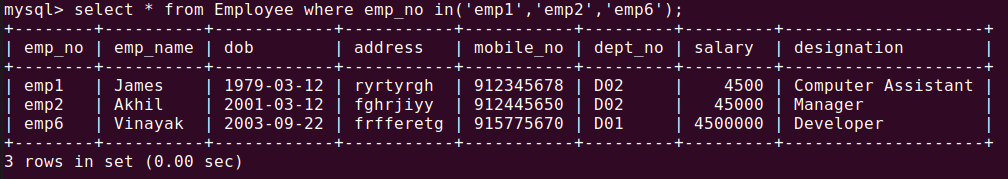
10) select emp\_name,mobile\_no from Employee where emp\_name like 'A%';



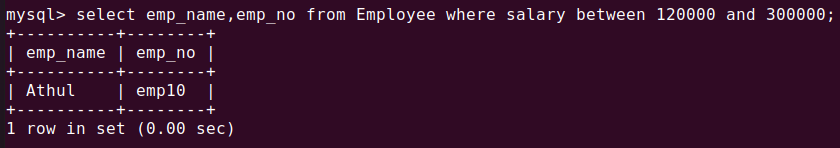
11) select \* from Employee where length(emp\_name)>=3 and salary>20000;



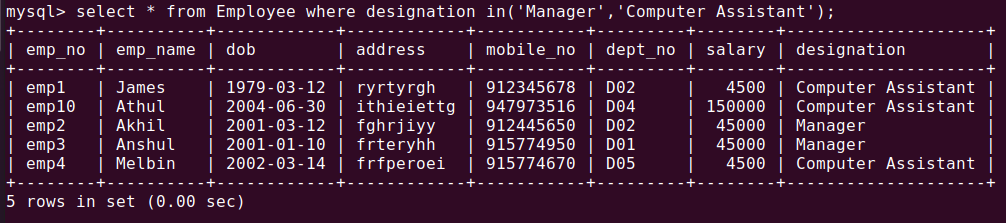
12) select \* from Employee where emp\_no in('emp1','emp2','emp6');



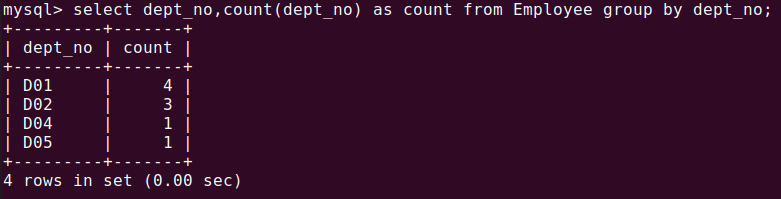
13) select emp\_name,emp\_no from Employee where salary between 120000 and 300000;



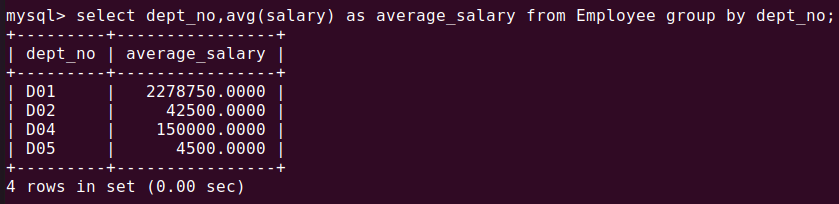
14) select \* from Employee where designation in('Manager','Computer Assistant');



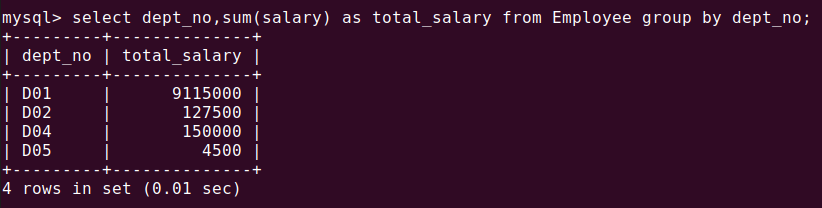
15) select dept\_no,count(dept\_no) as count from Employee group by dept\_no;



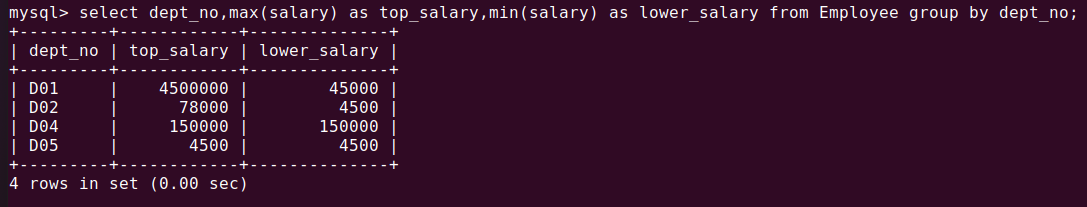
16) select dept\_no,avg(salary) as average\_salary from Employee group by dept\_no;



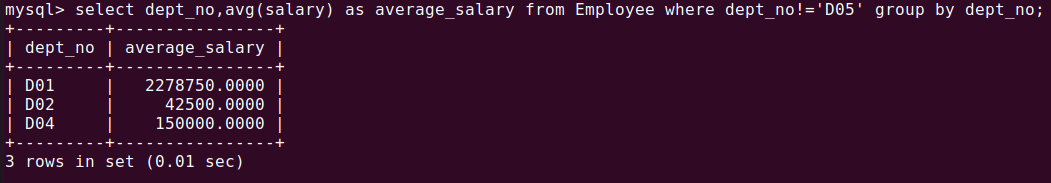
17) select dept\_no,sum(salary) as total\_salary from Employee group by dept\_no;



18) select dept\_no,max(salary) as top\_salary,min(salary) as lower\_salary from Employee group by dept\_no;



19) select dept\_no,avg(salary) as average\_salary from Employee group by dept\_no having dept\_no!='D05';



20) select dept\_no,avg(salary) as average\_salary from Employee where dept\_no!='D01' group by dept\_no having avg(salary)>20000 order by avg(salary);

