**20MCA134 ADVANCED DBMS LAB**

**LAB CYCLE 1**

**Experiment No: 1**

**Familiarization of DDL Commands**

**AIM: 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.**

1). A. Consider the database for a college. Write SQL commands to implement the

following:

1. Create a database:

ans: CREATE DATABASE college;

2. Select the current database

ans: USE college;

3. Create the following tables:

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

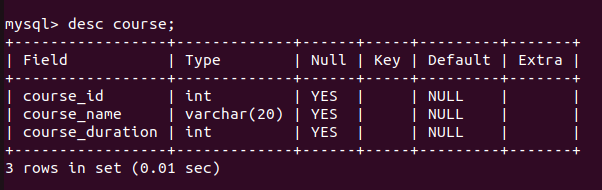
phone\_no varchar, blood\_grp varchar)

ans: create table student(roll\_no int,name varchar(20),dob date,address text(255),ph\_novarchar(10),blood\_grp varchar(50));

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

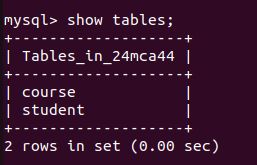
integer)

ans: create table course(course\_id int,course\_name varchar(20),course\_duration int);



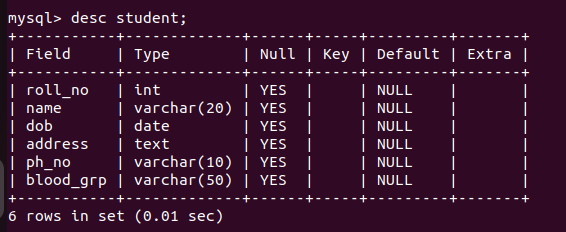
4. List all tables in the current database.

Ans: show databases;



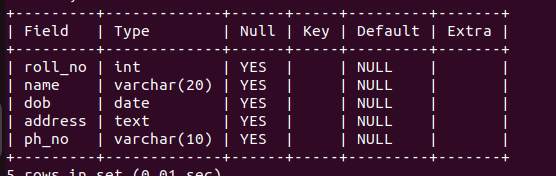
5. Display the structure of the Student table.

Ans: DESC student;



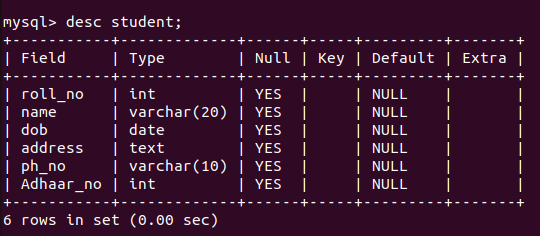
6. Drop the column blood\_grp from Student table.

Ans: ALTER TABLE student DROP blood\_grp;



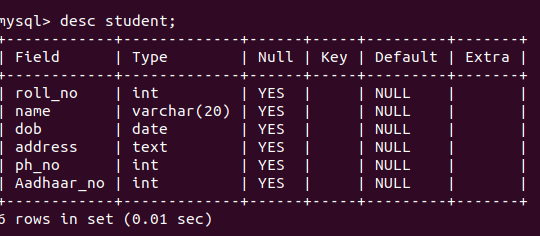
7. Add a new column Adar\_no with domain number to the table Student

ans: ALTER TABLE student ADD Adhaar\_no int(12);



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

ans: ALTER TABLE student MODIFY ph\_no int(10);



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

following:

1. Create a database

ans: CREATE DATABASE college;

2. Select the current database

ans: USE college;

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)

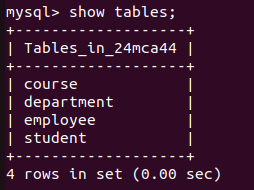
ans: create table employee(emp\_no varchar(10),emp\_name varchar(20),dob date,address text(255),ph\_no varchar(10),dept\_no varchar(50),salary int(20));

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

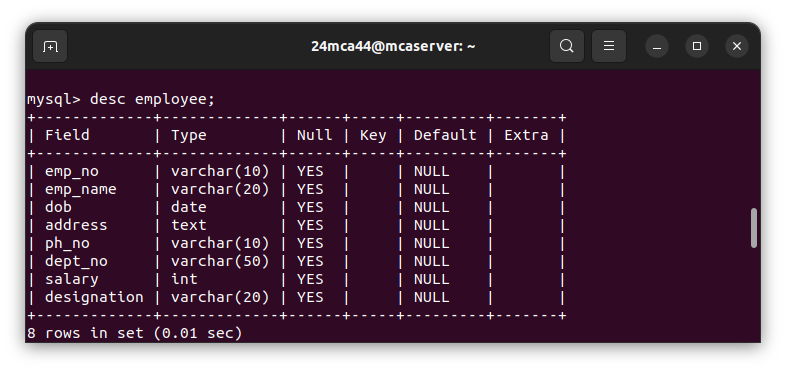
ans: create table department (dept\_no varchar(10), dept\_name varchar(20), location varchar(20));

4. List all tables in the current database.

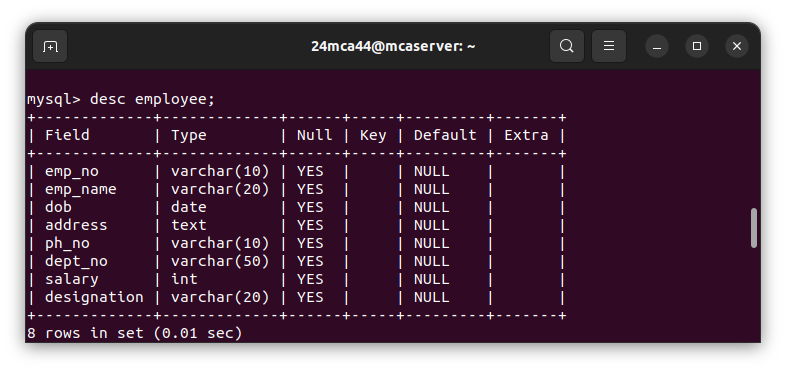
ans: show tables;



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.

ANS: ALTER TABLE department DROP location;

+-----------+-------------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+-----------+-------------+------+-----+---------+-------+

| dept\_no | varchar(10) | YES | | NULL | |

| dept\_name | varchar(20) | YES | | NULL | |

+-----------+-------------+------+-----+---------+-------+

2 rows in set (0.01 sec)

**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).**

ANS: CREATE TABLE persons(pers\_id int PRIMARY KEY,name varchar(20) NOT NULL,Aadhar INT(200) NOT NULL UNIQUE,age int CHECK(age>18));

+---------+-------------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+---------+-------------+------+-----+---------+-------+

| pers\_id | int | NO | PRI | NULL | |

| name | varchar(20) | NO | | NULL | |

| Aadhar | int | NO | UNI | NULL | |

| age | int | YES | | NULL | |

+---------+-------------+------+-----+---------+-------+

**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)**

**ANS:** CREATE TABLE orders(order\_id int PRIMARY KEY,order\_no INT(10) NOT NULL,pers\_id INT NOT NULL,FOREIGN KEY(pers\_id) REFERENCES persons(pers\_id));

+----------+------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+----------+------+------+-----+---------+-------+

| order\_id | int | NO | PRI | NULL | |

| order\_no | int | NO | | NULL | |

| pers\_id | int | NO | MUL | NULL | |

+----------+------+------+-----+---------+-------+

**3. Display the structure of Persons tables.**

**ANS:** DESC persons;

+---------+-------------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+---------+-------------+------+-----+---------+-------+

| pers\_id | int | NO | PRI | NULL | |

| name | varchar(20) | NO | | NULL | |

| Aadhar | int | NO | UNI | NULL | |

| age | int | YES | | NULL | |

**+---------+-------------+------+-----+---------+-------+**

**4. Display the structure of Orders tables.**

**ANS:** DESC orders;

+----------+------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+----------+------+------+-----+---------+-------+

| order\_id | int | NO | PRI | NULL | |

| order\_no | int | NO | | NULL | |

| pers\_id | int | NO | MUL | NULL | |

+----------+------+------+-----+---------+-------+

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

**ANS:** ALTER TABLE employee MODIFY emp\_no varchar(10) PRIMARY KEY;

+-------------+-------------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+-------------+-------------+------+-----+---------+-------+

| emp\_no | varchar(10) | NO | PRI | NULL | |

| emp\_name | varchar(20) | YES | | NULL | |

| dob | date | YES | | NULL | |

| address | text | YES | | NULL | |

| ph\_no | varchar(10) | YES | | NULL | |

| dept\_no | varchar(50) | YES | | NULL | |

| salary | int | YES | | NULL | |

| designation | varchar(20) | YES | | NULL | |

+-------------+-------------+------+-----+---------+-------+

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

**ANS:** ALTER TABLE department MODIFY dept\_no varchar(10) PRIMARY KEY;

Query OK, 0 rows affected (0.69 sec)

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.**

**ANS:** ALTER TABLE employee ADD CONSTRAINT FK\_dept\_no FOREIGN KEY(dept\_no) REFERENCES department(dept\_no);

+-------------+-------------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+-------------+-------------+------+-----+---------+-------+

| emp\_no | varchar(10) | NO | PRI | NULL | |

| emp\_name | varchar(20) | YES | | NULL | |

| dob | date | YES | | NULL | |

| address | text | YES | | NULL | |

| ph\_no | varchar(10) | YES | | NULL | |

| dept\_no | varchar(50) | YES | MUL | NULL | |

| salary | int | YES | | NULL | |

| designation | varchar(20) | YES | | NULL | |

+-------------+-------------+------+-----+---------+-------+

**8. Drop the primary key of the table Orders.**

**ANS:** ALTER TABLE orders DROP PRIMARY KEY;

+----------+------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+----------+------+------+-----+---------+-------+

| order\_id | int | NO | | NULL | |

| order\_no | int | NO | | NULL | |

| pers\_id | int | NO | MUL | NULL | |

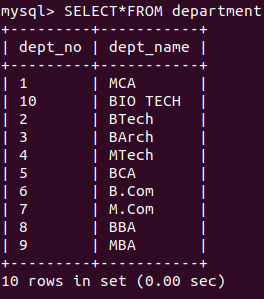
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**Experiment No: 3**

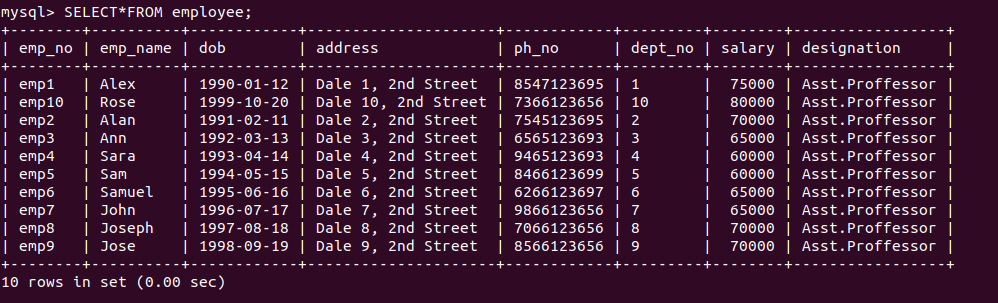
**Familiarization of DML Commands**

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

ANS: INSERT INTO department(dept\_no,dept\_name) VALUES(1,MCA);

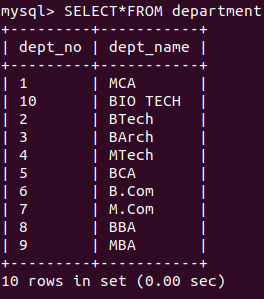


ANS: INSERT INTO employee(emp\_no,emp\_name,dob,address,dept\_no,salary) VALUES(‘emp1’,’Alex’,’Asst.Proffessor’,’1’)



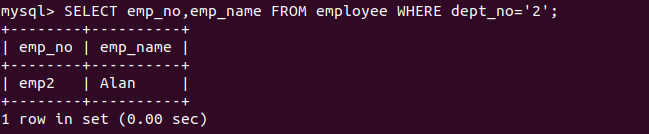
2. Display all the records from the above tables

ANS: SELECT\*FROM department;



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

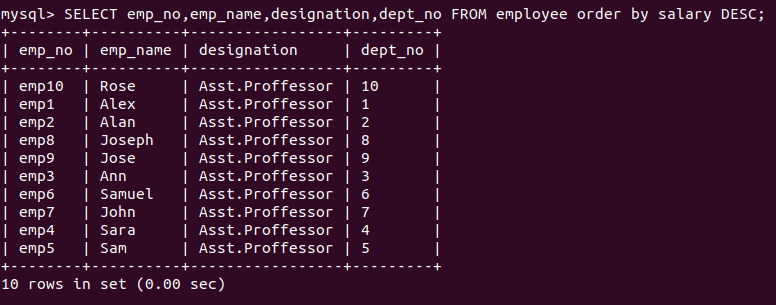
ANS: SELECT emp\_no,emp\_name FROM emplyee WHERE dept\_no=’2’;



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

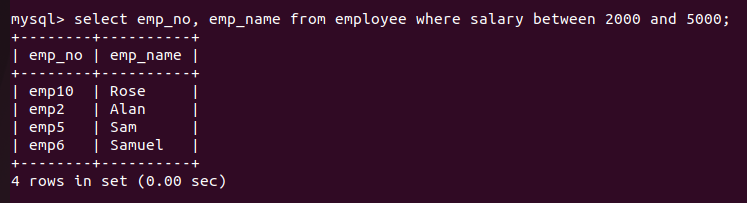
descending order of salary.

ANS: SELECT emp\_no, emp\_name FROM employee order by salary DESC;



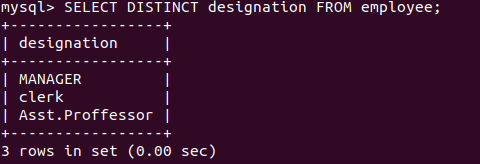
5. Display the emp\_no , name of employees whose salary is between 2000 and 5000

ANS: select emp\_no, emp\_name from employee where salary between 2000 and 5000;



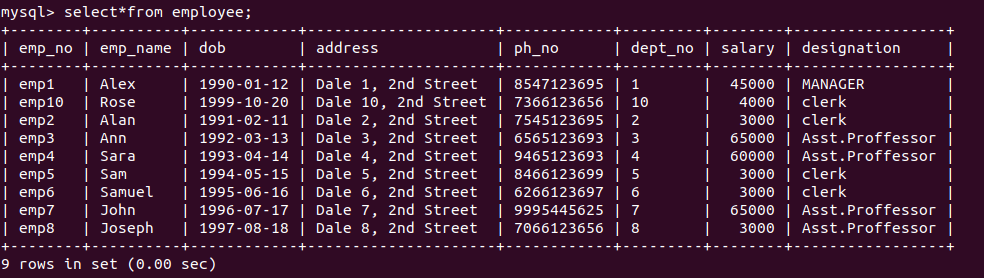
6. Display the designations without duplicate values

ANS: SELECT DISTINCT designation FROM employee;



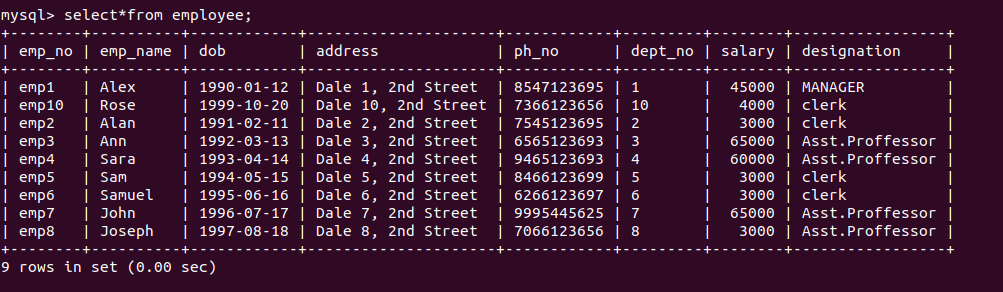
7. Change the salary of employees to 45000 whose designation is 'Manager'

ANS: UPDATE TABLE employee set salary=’45000’ where designation=’Manager’;



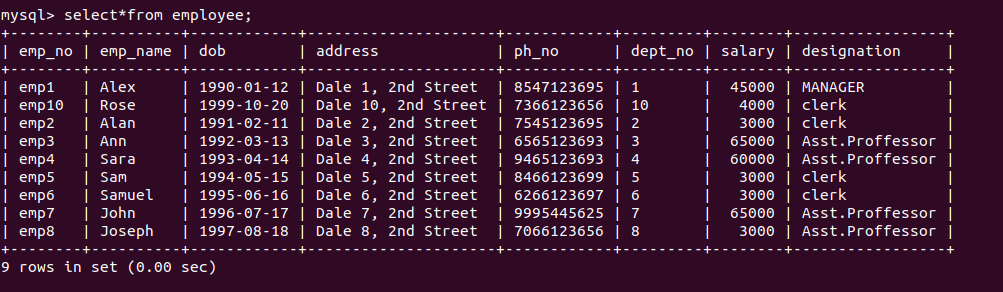
8. Change the mobile number of employees named John

ANS: UPDATE TABLE employee set ph\_no=’9995445625’ where emp\_name=’John’;



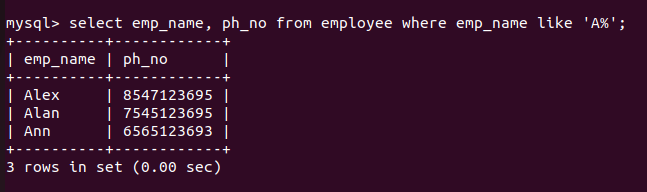
9. Delete all employees whose salary is equal to Rs.7000

ANS:DELETE FROM employee WHERE salary = ‘7000’;



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

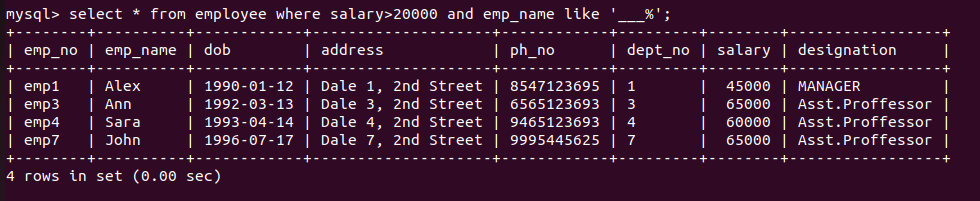
ANS: select emp\_name,ph\_no from employee where emp\_name like ‘A%’;



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

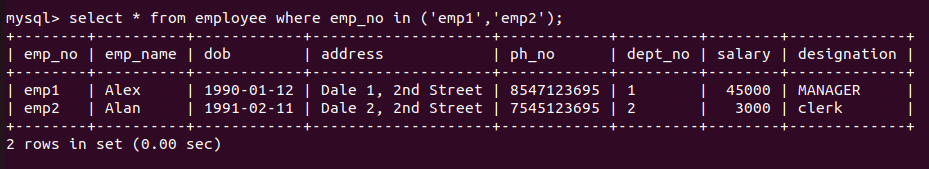
salary greater than 20000.

ANS: select \* from employee where salary>20000 and emp\_name like ‘\_\_\_%’;



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

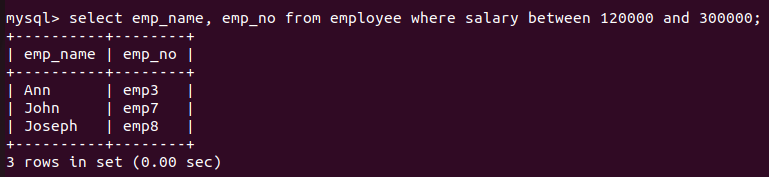
ANS: select \* from employee where emp\_no in (‘emp1’,’emp2’) ;



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

and 300000

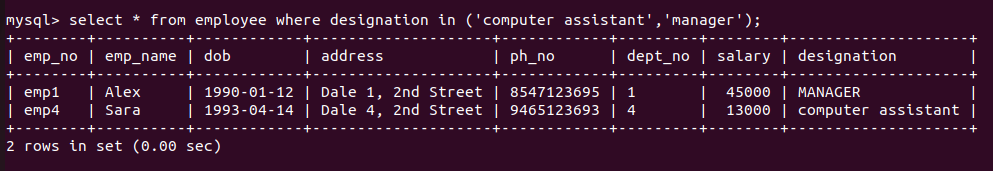
ANS: select emp\_name,emp\_no from employee where salary between 120000 and 300000;



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

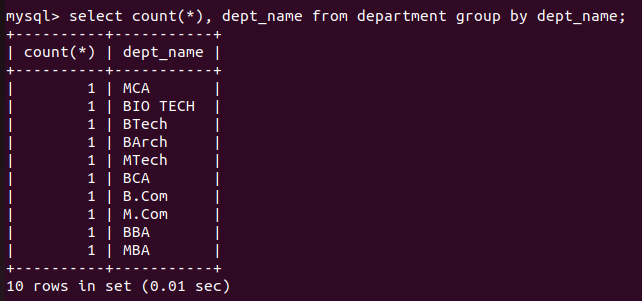
Assistant’.

ANS: select \* from employee where designation in (‘computer assistant’,’manager’);



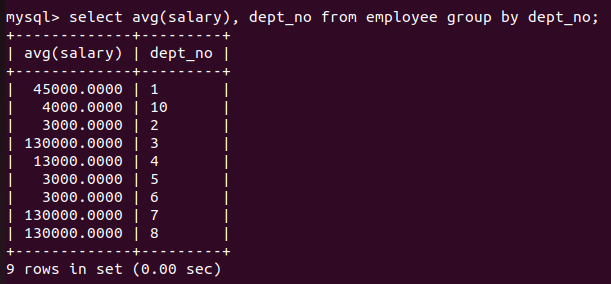
15. Displays how many employees work for each department.

ANS: select cout(\*), dept\_name from department group by dept\_name;



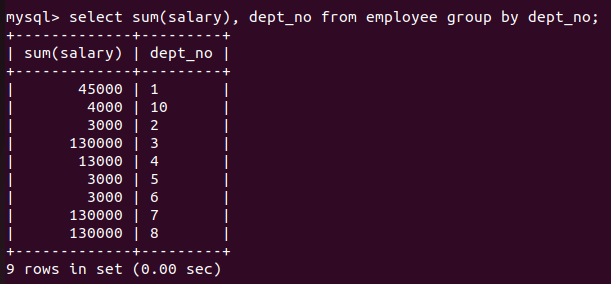
16. Displays average salary of employees in each department.

ANS: select avg(salary), dept\_no from employee group by dept\_no;



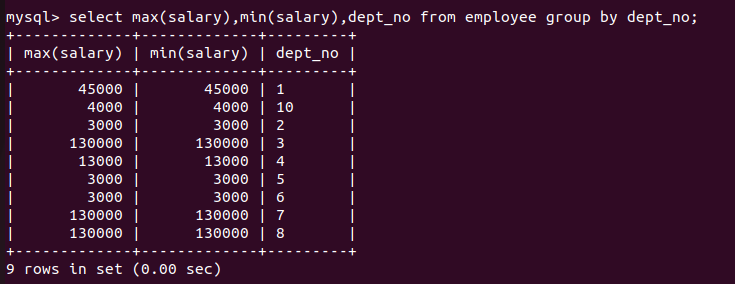
17. Displays total salary of employees in each department

ANS: select sum(salary), dept\_no from employee group by dept\_no;



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

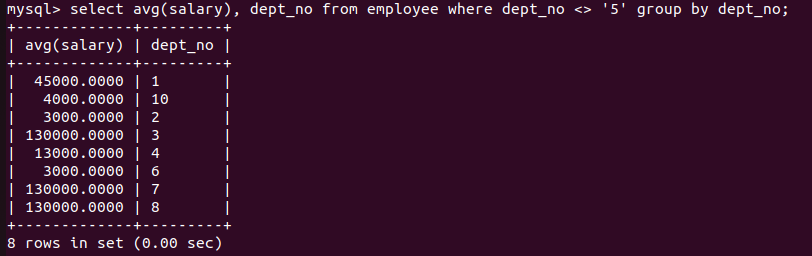
ANS: select max(salary),min(salary),dept\_no from employee group by dept\_no;



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

department number ‘D05’.

ANS: select avg(salary), dept\_no from employee where dept\_no <> ‘5’ group by dept\_no;



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.

ANS: select avg(salary), dept\_no from employee group by dept\_no having dept\_no!=’5’ and avg(salary)>20000 order by avg(salary) ASC;

