Database Management System (DBMS)

Practical File

B.Sc (H) Computer Science, Semester IV, 2022

Department of Computer Science

Aryabhatta College
(University of Delhi)

Submitted By:

Name	**:** Deepak Kumar
Clg.Roll No.	**:** CSC/20/22
Univ.Roll No.	**:** 20059570016
Year/Semester	**:** IInd/Sem-4rth

Submitted to:

Ms. Neha Kumari
(Ass. Professor)

Question:

Create the following database schema
EMP-DEPT with all specified constraints and use it to answer the given queries.

EMPLOYEE Schema
Field Type NULL KEY DEFAULT

Eno Char(3) NO PRI NIL
Ename Varchar(50) NO NIL
Job_type Varchar(50) NO NIL
SupervisonENO Char(3) Yes FK NIL
Hire_date Date NO NIL
Dno Integer YES FK NIL
Commission Decimal(10,2) YES NIL
Salary Decimal(7,2) NO NIL

DEPARTMENT Schema
Dno Integer No PRI NULL
Dname Varchar(50) Yes NULL
Location Varchar(50) Yes New DelhiCode

Query:

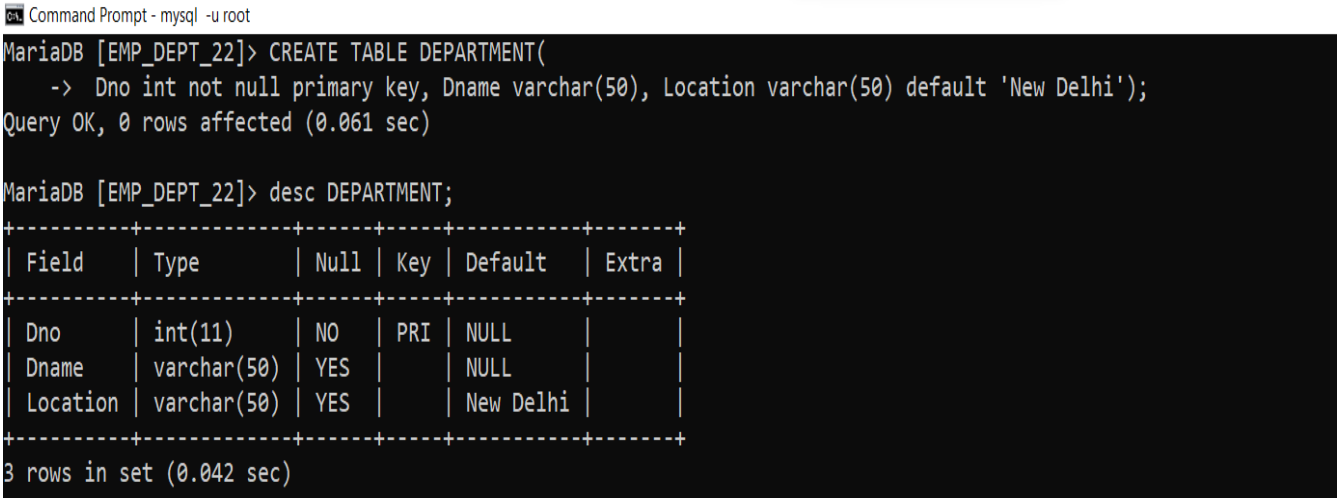
```
CREATE TABLE EMPLOYEE
 (
 Eno char(3) NOT NULL PRIMARY KEY,
 Ename varchar(50),
 Job_type varchar(50) NOT NULL,
 SupervisionENO char(3),
 Hire_date date NOT NULL,
 Dno int,
 Constraint fk_Dno
Foreign key (Dno) references DEPARTMENT (Dno),
Commission decimal(10,2),
Salary decimal(7,2) not null
);

INSERT INTO EMPLOYEE VALUES
('736','Smith','Clerk','7902','1980-12-17',20,0.00,800.00),
('749','Allen','Sales_man','7698','1981-02-20',30,300.00,1600.00),
('752','Ward','Sales_man','7698','1981-02-22',30,500.00,1250.00),
```

('756','Jones','Manager','7839','1981-04-02',20,0.00,2975.00),
('765','Martin','Sales_man','7698','1981-04-22',30,1400.00,1250.00),
('769','Blake','Manager','7839','1981-05-01',30,0.00,2850.00),
('778','Clark','Manager','7839','1981-06-09',10,0.00,2450.00),
('778','Scott','Analyst','7566','1982-12-09',20,0.00,3000.00),
('783','King','President',0,'1981-11-17',10,0.00,5000.00),
('784','Turner','Sales_man','7698','1981-09-08',30,0.00,1500.00),
('787','Adams','Clerk','7788','1983-01-12',20,0.00,1100.00),
('790','James','Clerk','7698','1981-12-03',30,0.00,950.00),
('791','Ford','Analyst','7566','1981-12-03',20,0.00,3000.00),
('793','Miller','Clerk','7782','1982-01-23',10,0.00,1300.00);

SELECT * FROM EMPLOYEE;

Screenshots of Queries outputs:

Table Creations:



```
MariaDB [EMP_DEPT_22]> CREATE TABLE EMPLOYEE(
    -> Eno char(3) not null primary key,
    -> Ename varchar(50),
    -> Job_type varchar(50) not null,
    -> SupervisionENO char(3),
    -> Hire_Date date not null,
    -> Dno int,
    -> constraint fk_Dno
    -> foreign key (Dno) references DEPARTMENT (Dno),
    -> Commission decimal(10,2),
    -> salary decimal(7,2) not null
    -> );
Query OK, 0 rows affected (0.086 sec)

MariaDB [EMP_DEPT_22]> desc EMPLOYEE;
+----------------+---------------+------+-----+---------+-------+
| Field          | Type          | Null | Key | Default | Extra |
+----------------+---------------+------+-----+---------+-------+
| Eno            | char(3)       | NO   | PRI | NULL    |       |
| Ename          | varchar(50)   | YES  |     | NULL    |       |
| Job_type       | varchar(50)   | NO   |     | NULL    |       |
| SupervisionENO | char(3)       | YES  |     | NULL    |       |
| Hire_Date      | date          | NO   |     | NULL    |       |
| Dno            | int(11)       | YES  | MUL | NULL    |       |
| Commission     | decimal(10,2) | YES  |     | NULL    |       |
| salary         | decimal(7,2)  | NO   |     | NULL    |       |
+----------------+---------------+------+-----+---------+-------+
8 rows in set (0.034 sec)
```

Data insertion in tables:

```
MariaDB [EMP_DEPT_22]> INSERT INTO DEPARTMENT VALUES(10, 'ACCOUNTING', 'new york'), (20, 'RESEARCH', 'dallas'),
    -> (30, 'SALES', 'chicago'), (40, 'OPERATIONS', 'boston');
Query OK, 4 rows affected (0.052 sec)
Records: 4  Duplicates: 0  Warnings: 0

MariaDB [EMP_DEPT_22]> SELECT* FROM DEPARTMENT;
+-----+------------+----------+
| Dno | Dname      | Location |
+-----+------------+----------+
|  10 | ACCOUNTING | new york |
|  20 | RESEARCH   | dallas   |
|  30 | SALES      | chicago  |
|  40 | OPERATIONS | boston   |
+-----+------------+----------+
4 rows in set (0.001 sec)
```

```
MariaDB [EMP_DEPT_22]> INSERT INTO EMPLOYEE VALUES
    -> ('736', 'SMITH', 'CLERK', 'E79', '1980-12-17', 20, '', 800);
Query OK, 1 row affected, 1 warning (0.058 sec)

MariaDB [EMP_DEPT_22]> INSERT INTO EMPLOYEE VALUES
    -> ('749', 'ALLEN', 'SALESMAN', 'E76', '1981-02-20', 30, '300' ,1600);
Query OK, 1 row affected (0.045 sec)

MariaDB [EMP_DEPT_22]> INSERT INTO EMPLOYEE VALUES
    -> ('752', 'WARD', 'SALESMAN', 'E76', '1981-02-22', 30, 500, 1250),
    -> ('756', 'JONES', 'MANAGER', 'E78', '1981-04-02', 20, 0, 2975),
    -> ('765', 'MARTIN', 'SALESMAN', 'E76', '1981-09-28', 30, 1400, 1250),
    -> ('769', 'BLAKE', 'MANAGER', 'E28', '1981-05-01', 30, 0, 2850),
    -> ('778', 'CLARK', 'MANAGER', 'E78', '1981-06-09', 10, 0, 2450),
    -> ('779', 'SCOTT', 'ANALYST', 'E75', '1987-04-19', 20, 0, 3000),
    -> ('783', 'KING', 'PRESIDENT', '0', '1981-11-17', 10, 0, 5000),
    -> ('784', 'TURNER', 'SALESMAN', 'E76', '1981-09-08', 30, 0, 1500),
    -> ('787', 'ADAMS', 'CLERK', 'E77', '1987-05-23', 20, 0, 1100),
    -> ('790', 'FORD', 'ANALYST', 'E75', '1981-12-03', 20, 0, 3000),
    -> ('791', 'JAMES', 'CLERK', 'E76', '1981-12-03', 30, 0, 950),
    -> ('793', 'MILLER', 'CLERK', 'E77', '1982-01-23', 10, 0, 1300);
Query OK, 12 rows affected (0.065 sec)
Records: 12  Duplicates: 0  Warnings: 0

MariaDB [EMP_DEPT_22]> SELECT* FROM EMPLOYEE;
+-----+--------+-----------+----------------+------------+------+------------+---------+
| Eno | Ename  | Job_type  | SupervisionENO | Hire_Date  | Dno  | Commission | salary  |
+-----+--------+-----------+----------------+------------+------+------------+---------+
| 736 | SMITH  | CLERK     | E79            | 1980-12-17 |   20 |       0.00 |  800.00 |
| 749 | ALLEN  | SALESMAN  | E76            | 1981-02-20 |   30 |     300.00 | 1600.00 |
| 752 | WARD   | SALESMAN  | E76            | 1981-02-22 |   30 |     500.00 | 1250.00 |
| 756 | JONES  | MANAGER   | E78            | 1981-04-02 |   20 |       0.00 | 2975.00 |
| 765 | MARTIN | SALESMAN  | E76            | 1981-09-28 |   30 |    1400.00 | 1250.00 |
| 769 | BLAKE  | MANAGER   | E28            | 1981-05-01 |   30 |       0.00 | 2850.00 |
| 778 | CLARK  | MANAGER   | E78            | 1981-06-09 |   10 |       0.00 | 2450.00 |
| 779 | SCOTT  | ANALYST   | E75            | 1987-04-19 |   20 |       0.00 | 3000.00 |
| 783 | KING   | PRESIDENT | 0              | 1981-11-17 |   10 |       0.00 | 5000.00 |
| 784 | TURNER | SALESMAN  | E76            | 1981-09-08 |   30 |       0.00 | 1500.00 |
| 787 | ADAMS  | CLERK     | E77            | 1987-05-23 |   20 |       0.00 | 1100.00 |
| 790 | FORD   | ANALYST   | E75            | 1981-12-03 |   20 |       0.00 | 3000.00 |
| 791 | JAMES  | CLERK     | E76            | 1981-12-03 |   30 |       0.00 |  950.00 |
| 793 | MILLER | CLERK     | E77            | 1982-01-23 |   10 |       0.00 | 1300.00 |
+-----+--------+-----------+----------------+------------+------+------------+---------+
14 rows in set (0.000 sec)
```

Q1- Query to display Employee Name, Job, Hire Date, Employee Number;for each employee with the Employee Number appearing first.

SELECT Ename, Job_type, Hire_date, Eno FROM EMPLOYEE;

```
MariaDB [EMP_DEPT_22]> SELECT Ename, Job_type, Hire_Date, Eno FROM EMPLOYEE;
+--------+-----------+------------+-----+
| Ename  | Job_type  | Hire_Date  | Eno |
+--------+-----------+------------+-----+
| SMITH  | CLERK     | 1980-12-17 | 736 |
| ALLEN  | SALESMAN  | 1981-02-20 | 749 |
| WARD   | SALESMAN  | 1981-02-22 | 752 |
| JONES  | MANAGER   | 1981-04-02 | 756 |
| MARTIN | SALESMAN  | 1981-09-28 | 765 |
| BLAKE  | MANAGER   | 1981-05-01 | 769 |
| CLARK  | MANAGER   | 1981-06-09 | 778 |
| SCOTT  | ANALYST   | 1987-04-19 | 779 |
| KING   | PRESIDENT | 1981-11-17 | 783 |
| TURNER | SALESMAN  | 1981-09-08 | 784 |
| ADAMS  | CLERK     | 1987-05-23 | 787 |
| FORD   | ANALYST   | 1981-12-03 | 790 |
| JAMES  | CLERK     | 1981-12-03 | 791 |
| MILLER | CLERK     | 1982-01-23 | 793 |
+--------+-----------+------------+-----+
14 rows in set (0.001 sec)
```

Q2- Query to display unique Jobs from the Employee Table.

SELECT DISTINCT Job_type FROM EMPLOYEE;

```
MariaDB [EMP_DEPT_22]> SELECT DISTINCT(Job_type) FROM EMPLOYEE;
+-----------+
| Job_type  |
+-----------+
| CLERK     |
| SALESMAN  |
| MANAGER   |
| ANALYST   |
| PRESIDENT |
+-----------+
5 rows in set (0.001 sec)
```

Q3- Query to display the Employee Name concatenated by a Job separatedby a comma.

SELECT CONCAT(Ename , ',' , Job_type) FROM EMPLOYEE;

```
MariaDB [EMP_DEPT_22]> SELECT CONCAT(Ename,',',Job_type) FROM EMPLOYEE;
+----------------------------+
| CONCAT(Ename,',',Job_type) |
+----------------------------+
| SMITH,CLERK                |
| ALLEN,SALESMAN             |
| WARD,SALESMAN              |
| JONES,MANAGER              |
| MARTIN,SALESMAN            |
| BLAKE,MANAGER              |
| CLARK,MANAGER              |
| SCOTT,ANALYST              |
| KING,PRESIDENT             |
| TURNER,SALESMAN            |
| ADAMS,CLERK                |
| FORD,ANALYST               |
| JAMES,CLERK                |
| MILLER,CLERK               |
+----------------------------+
14 rows in set (0.000 sec)
```

Q4- Query to display all the data from the Employee Table. Separate eachColumn by a comma and name the said column as THE_OUTPUT.

SELECT CONCAT(Eno , ', ', Ename, ',', Job_type, ', ',Manager, ',' ,Hire_date, ',' ,Dno, ',' ,Commission, ',' ,Salary) FROM EMPLOYEE AS THE_OUTPUT;

```
MariaDB [EMP_DEPT_22]> SELECT CONCAT(Eno,',',Ename,',',Job_type,',',Hire_Date,',',Dno,',',Commission,',', salary) FROM EMPLOYEE AS THE_OUTPUT;
+-----------------------------------------------------------------------------+
| CONCAT(Eno,',',Ename,',',Job_type,',',Hire_Date,',',Dno,',',Commission,',', salary) |
+-----------------------------------------------------------------------------+
| 736,SMITH,CLERK,1980-12-17,20,0.00,800.00                                   |
| 749,ALLEN,SALESMAN,1981-02-20,30,300.00,1600.00                             |
| 752,WARD,SALESMAN,1981-02-22,30,500.00,1250.00                              |
| 756,JONES,MANAGER,1981-04-02,20,0.00,2975.00                                |
| 765,MARTIN,SALESMAN,1981-09-28,30,1400.00,1250.00                           |
| 769,BLAKE,MANAGER,1981-05-01,30,0.00,2850.00                                |
| 778,CLARK,MANAGER,1981-06-09,10,0.00,2450.00                                |
| 779,SCOTT,ANALYST,1987-04-19,20,0.00,3000.00                                |
| 783,KING,PRESIDENT,1981-11-17,10,0.00,5000.00                               |
| 784,TURNER,SALESMAN,1981-09-08,30,0.00,1500.00                              |
| 787,ADAMS,CLERK,1987-05-23,20,0.00,1100.00                                  |
| 790,FORD,ANALYST,1981-12-03,20,0.00,3000.00                                 |
| 791,JAMES,CLERK,1981-12-03,30,0.00,950.00                                   |
| 793,MILLER,CLERK,1982-01-23,10,0.00,1300.00                                 |
+-----------------------------------------------------------------------------+
14 rows in set (0.001 sec)
```

Q5- Query to display the Employee Name and Salary of all the employeesearning more than $2850.

SELECT Ename, Salary FROM EMPLOYEE WHERE salary > 2850;

```
MariaDB [EMP_DEPT_22]> SELECT Ename, salary FROM EMPLOYEE WHERE salary > 2850;
+-------+---------+
| Ename | salary  |
+-------+---------+
| JONES | 2975.00 |
| SCOTT | 3000.00 |
| KING  | 5000.00 |
| FORD  | 3000.00 |
+-------+---------+
4 rows in set (0.046 sec)
```

Q6- Query to display Employee Name and Department Number for theEmployee No= 79.

SELECT Ename,Dno FROM EMPLOYEE WHERE Eno LIKE ‘79%’;

```
MariaDB [EMP_DEPT_22]> SELECT Ename, Dno FROM EMPLOYEE WHERE Eno LIKE '79%';
+--------+------+
| Ename  | Dno  |
+--------+------+
| FORD   |   20 |
| JAMES  |   30 |
| MILLER |   10 |
+--------+------+
3 rows in set (0.034 sec)
```

Q7- Query to display Employee Name and Salary for all employees whosesalary is not in the range of $1500 and $2850.

SELECT Ename,Salary FROM EMPLOYEE WHERE Salary NOT BETWEEN 1500 AND 2850;

```
MariaDB [EMP_DEPT_22]> SELECT Ename, salary FROM EMPLOYEE WHERE salary NOT BETWEEN 1500 AND 2850;
+--------+---------+
| Ename  | salary  |
+--------+---------+
| SMITH  |  800.00 |
| WARD   | 1250.00 |
| JONES  | 2975.00 |
| MARTIN | 1250.00 |
| SCOTT  | 3000.00 |
| KING   | 5000.00 |
| ADAMS  | 1100.00 |
| FORD   | 3000.00 |
| JAMES  |  950.00 |
| MILLER | 1300.00 |
+--------+---------+
10 rows in set (0.000 sec)
```

Q8- Query to display Employee Name and Department No. of all the employees in Dept 10 and Dept 30 in the alphabetical order by name.

SELECT Ename,Dno FROM EMPLOYEE WHERE Dno=10 OR Dno=30 ORDER BY (Ename);

```
MariaDB [EMP_DEPT_22]> SELECT Ename, Dno FROM EMPLOYEE WHERE Dno IN(10,30) ORDER BY (Ename);
+--------+------+
| Ename  | Dno  |
+--------+------+
| ALLEN  |   30 |
| BLAKE  |   30 |
| CLARK  |   10 |
| JAMES  |   30 |
| KING   |   10 |
| MARTIN |   30 |
| MILLER |   10 |
| TURNER |   30 |
| WARD   |   30 |
+--------+------+
9 rows in set (0.001 sec)
```

Q9- Query to display Name and Hire Date of every Employee who washired in 1981.

SELECT Ename,Hire_date FROM EMPLOYEE WHERE Hire_date LIKE '1981%';

```
MariaDB [EMP_DEPT_22]> SELECT Ename, Hire_Date FROM EMPLOYEE WHERE Hire_Date LIKE '1981%';
+--------+------------+
| Ename  | Hire_Date  |
+--------+------------+
| ALLEN  | 1981-02-20 |
| WARD   | 1981-02-22 |
| JONES  | 1981-04-02 |
| MARTIN | 1981-09-28 |
| BLAKE  | 1981-05-01 |
| CLARK  | 1981-06-09 |
| KING   | 1981-11-17 |
| TURNER | 1981-09-08 |
| FORD   | 1981-12-03 |
| JAMES  | 1981-12-03 |
+--------+------------+
10 rows in set (0.000 sec)
```

Q10- Query to display Name and Job of all employees who have notassigned a supervisor.

SELECT Ename,Job_type FROM EMPLOYEE WHERE SupervisionENO LIKE ‘0%’;

```
MariaDB [EMP_DEPT_22]> SELECT Ename, Job_type FROM EMPLOYEE WHERE SupervisionENO LIKE '0%';
+-------+-----------+
| Ename | Job_type  |
+-------+-----------+
| KING  | PRESIDENT |
+-------+-----------+
1 row in set (0.000 sec)
```

Q11- Query to display the Name, Salary and Commission for all theemployees who earn commission.

SELECT Ename, salary, Commission FROM EMPLOYEE WHERE Commission > 0;

```
MariaDB [EMP_DEPT_22]> SELECT Ename, salary, Commission FROM EMPLOYEE WHERE Commission > 0;
+--------+---------+------------+
| Ename  | salary  | Commission |
+--------+---------+------------+
| ALLEN  | 1600.00 |     300.00 |
| WARD   | 1250.00 |     500.00 |
| MARTIN | 1250.00 |    1400.00 |
+--------+---------+------------+
3 rows in set (0.000 sec)
```

Q12- Sort the data in descending order of Salary and Commission.

SELECT* FROM EMPLOYEE ORDER BY(salary) DESC;

```
MariaDB [EMP_DEPT_22]> SELECT* FROM EMPLOYEE ORDER BY(salary) DESC;
+-----+--------+-----------+----------------+------------+------+------------+---------+
| Eno | Ename  | Job_type  | SupervisionENO | Hire_Date  | Dno  | Commission | salary  |
+-----+--------+-----------+----------------+------------+------+------------+---------+
| 783 | KING   | PRESIDENT | 0              | 1981-11-17 |   10 |       0.00 | 5000.00 |
| 779 | SCOTT  | ANALYST   | E75            | 1987-04-19 |   20 |       0.00 | 3000.00 |
| 790 | FORD   | ANALYST   | E75            | 1981-12-03 |   20 |       0.00 | 3000.00 |
| 756 | JONES  | MANAGER   | E78            | 1981-04-02 |   20 |       0.00 | 2975.00 |
| 769 | BLAKE  | MANAGER   | E28            | 1981-05-01 |   30 |       0.00 | 2850.00 |
| 778 | CLARK  | MANAGER   | E78            | 1981-06-09 |   10 |       0.00 | 2450.00 |
| 749 | ALLEN  | SALESMAN  | E76            | 1981-02-20 |   30 |     300.00 | 1600.00 |
| 784 | TURNER | SALESMAN  | E76            | 1981-09-08 |   30 |       0.00 | 1500.00 |
| 793 | MILLER | CLERK     | E77            | 1982-01-23 |   10 |       0.00 | 1300.00 |
| 765 | MARTIN | SALESMAN  | E76            | 1981-09-28 |   30 |    1400.00 | 1250.00 |
| 752 | WARD   | SALESMAN  | E76            | 1981-02-22 |   30 |     500.00 | 1250.00 |
| 787 | ADAMS  | CLERK     | E77            | 1987-05-23 |   20 |       0.00 | 1100.00 |
| 791 | JAMES  | CLERK     | E76            | 1981-12-03 |   30 |       0.00 |  950.00 |
| 736 | SMITH  | CLERK     | E79            | 1980-12-17 |   20 |       0.00 |  800.00 |
+-----+--------+-----------+----------------+------------+------+------------+---------+
14 rows in set (0.001 sec)
```

Q13- Query to display Name of all the employees where the third letter oftheir name is ‘A’.

SELECT Ename FROM EMPLOYEE WHERE Ename LIKE ‘__A%’;

```
MariaDB [EMP_DEPT_22]> SELECT Ename FROM EMPLOYEE WHERE Ename LIKE '__A%';
+-------+
| Ename |
+-------+
| BLAKE |
| CLARK |
| ADAMS |
+-------+
3 rows in set (0.000 sec)
```

Q14- Query to display Name of all employees either have two ‘R’s or havetwo ‘A’s in their name and are either in Dept No = 30 or their Manger’s Employee No = 7788.

SELECT Ename FROM EMPLOYEE WHERE Ename LIKE ‘%R%R%’ OR Ename LIKE ‘%A%A%’ AND (Dno = 30 OR SupervisionENO = ‘E77’);

```
MariaDB [EMP_DEPT_22]> SELECT Ename FROM EMPLOYEE WHERE Ename LIKE '%R%R%' OR Ename LIKE '%A%A%' AND (Dno = 30 OR SupervisionENO = 'E77');
+--------+
| Ename  |
+--------+
| TURNER |
| ADAMS  |
+--------+
2 rows in set (0.001 sec)
```

Q15- Query to display Name, Salary and Commission for all employees whose Commission amount is greater than their Salary increased by 5%.

SELECT Ename, salary, Commision FROM EMPLOYEE WHERE Commission > (salary+salary*0.05);

```
MariaDB [EMP_DEPT_22]> SELECT Ename, salary, Commission FROM EMPLOYEE WHERE Commission > (salary+salary*0.05);
+--------+---------+------------+
| Ename  | salary  | Commission |
+--------+---------+------------+
| MARTIN | 1250.00 |    1400.00 |
+--------+---------+------------+
1 row in set (0.048 sec)
```

Q16- Query to display the Current Date along with the day name.
SELECT CURDATE() AS ‘TODAY\’S DATE’, DAYNAME(CURDATE()) AS ‘TODAY\’S DAY’;

```
MariaDB [emp_dept_22]> SELECT CURDATE() AS 'TODAY\'S DATE', DAYNAME(CURDATE()) AS 'TODAY\'S DAY';
+--------------+-------------+
| TODAY'S DATE | TODAY'S DAY |
+--------------+-------------+
| 2022-04-18   | Monday      |
+--------------+-------------+
1 row in set (0.044 sec)
```

Q17- Query to display Name, Hire Date and Salary Review Date which is the 1st Monday after six months of employment.

SELECT Ename,Hire_date,date_add(date_add(Hire_date,INTERVAL 6 MONTH),INTERVAL (7-WEEKDAY(date_add(Hire_date,INTERVAL 6 MONTH))) DAY) AS REVIEW_DATE FROM employee;

```
MariaDB [emp_dept_22]> SELECT Ename,Hire_date,date_add(date_add(Hire_date,INTERVAL 6 MONTH),INTERVAL (7-WEEKDAY(date_add(Hire_
date,INTERVAL 6 MONTH))) DAY) AS REVIEW_DATE FROM employee;
+--------+------------+-------------+
| Ename  | Hire_date  | REVIEW_DATE |
+--------+------------+-------------+
| SMITH  | 1980-12-17 | 1981-06-22  |
| ALLEN  | 1981-02-20 | 1981-08-24  |
| WARD   | 1981-02-22 | 1981-08-24  |
| JONES  | 1981-04-02 | 1981-10-05  |
| MARTIN | 1981-09-28 | 1982-03-29  |
| BLAKE  | 1981-05-01 | 1981-11-02  |
| CLARK  | 1981-06-09 | 1981-12-14  |
| SCOTT  | 1987-04-19 | 1987-10-26  |
| KING   | 1981-11-17 | 1982-05-24  |
| TURNER | 1981-09-08 | 1982-03-15  |
| ADAMS  | 1987-05-23 | 1987-11-30  |
| FORD   | 1981-12-03 | 1982-06-07  |
| JAMES  | 1981-12-03 | 1982-06-07  |
| MILLER | 1982-01-23 | 1982-07-26  |
+--------+------------+-------------+
14 rows in set (0.099 sec)
```

Q18- Query to display Name and calculate the number of months between today and the date on which employee was hired of department 'Purchase'.

SELECT Ename, 12* (YEAR(CURDATE()) -YEAR(Hire_date)) + MONTH(CURDATE() – MONTH(Hire_date)) AS 'MONTHS' FROM EMPLOYEE, DEPARTMENT D WHERE D.Dname=EMPLOYEE.Dno;

```
MariaDB [emp_dept_22]> SELECT Ename, 12 * (YEAR(CURDATE()) - YEAR(Hire_date)) + MONTH(CURDATE() - MONTH(Hire_date)) AS 'MONTHS
' FROM EMPLOYEE, DEPARTMENT D WHERE D.Dname=EMPLOYEE.Dno;
Empty set, 56 warnings (0.001 sec)
```

Q19- Query to display the following for each employee <E-Name> earns < Salary> monthly but wants < 3 * Current Salary >. Label the Column as Dream Salary.

SELECT CONCAT(Ename,' earns ',Salary,' monthly but wants ',3*Salary) AS DREAMY_SALARY FROM employee;

```
MariaDB [emp_dept_22]> SELECT CONCAT(Ename, ' earns ', Salary, ' monthly but wants ', 3 * Salary) AS 'DREAM SALARY' FROM EMPLO
YEE;
+-----------------------------------------------+
| DREAM SALARY                                  |
+-----------------------------------------------+
| SMITH earns 800.00 monthly but wants 2400.00  |
| ALLEN earns 1600.00 monthly but wants 4800.00 |
| WARD earns 1250.00 monthly but wants 3750.00  |
| JONES earns 2975.00 monthly but wants 8925.00 |
| MARTIN earns 1250.00 monthly but wants 3750.00 |
| BLAKE earns 2850.00 monthly but wants 8550.00 |
| CLARK earns 2450.00 monthly but wants 7350.00 |
| SCOTT earns 3000.00 monthly but wants 9000.00 |
| KING earns 5000.00 monthly but wants 15000.00 |
| TURNER earns 1500.00 monthly but wants 4500.00 |
| ADAMS earns 1100.00 monthly but wants 3300.00 |
| FORD earns 3000.00 monthly but wants 9000.00  |
| JAMES earns 950.00 monthly but wants 2850.00  |
| MILLER earns 1300.00 monthly but wants 3900.00 |
+-----------------------------------------------+
14 rows in set (0.043 sec)
```

Q20- Query to display Name with the 1st letter capitalized and all other letter lower case and length of their name of all the employees whose name starts with ‘J’, ’A’ and ‘M’.

SELECT CONCAT(UPPER(SUBSTRING(Ename,1,1)) , LOWER(SUBSTRING(Ename,2,50))) AS NAME,LENGTH(Ename) AS LENGTH FROM employee WHERE Ename LIKE 'J%' OR Ename LIKE 'A%' OR Ename LIKE 'M%';

```
MariaDB [emp_dept_22]> SELECT CONCAT(UPPER(SUBSTRING(Ename, 1, 1)), LOWER(SUBSTRING(Ename, 2, 50))) AS NAME, LENGTH(Ename) AS
LENGTH FROM EMPLOYEE WHERE Ename LIKE 'J%' OR Ename LIKE 'A%' OR Ename LIKE 'M%';
+--------+--------+
| NAME   | LENGTH |
+--------+--------+
| Allen  |      5 |
| Jones  |      5 |
| Martin |      6 |
| Adams  |      5 |
| James  |      5 |
| Miller |      6 |
+--------+--------+
6 rows in set (0.001 sec)
```

Q21- Query to display Name, Hire Date and Day of the week on which the employee started.

SELECT Ename,Hire_date,dayname(Hire_date) as ‘DAY STARTED’ from EMPLOYEE;

```
MariaDB [emp_dept_22]> SELECT Ename, Hire_date, DAYNAME(Hire_date) AS 'DAY STARTED' FROM EMPLOYEE;
+--------+------------+-------------+
| Ename  | Hire_date  | DAY STARTED |
+--------+------------+-------------+
| SMITH  | 1980-12-17 | Wednesday   |
| ALLEN  | 1981-02-20 | Friday      |
| WARD   | 1981-02-22 | Sunday      |
| JONES  | 1981-04-02 | Thursday    |
| MARTIN | 1981-09-28 | Monday      |
| BLAKE  | 1981-05-01 | Friday      |
| CLARK  | 1981-06-09 | Tuesday     |
| SCOTT  | 1987-04-19 | Sunday      |
| KING   | 1981-11-17 | Tuesday     |
| TURNER | 1981-09-08 | Tuesday     |
| ADAMS  | 1987-05-23 | Saturday    |
| FORD   | 1981-12-03 | Thursday    |
| JAMES  | 1981-12-03 | Thursday    |
| MILLER | 1982-01-23 | Saturday    |
+--------+------------+-------------+
14 rows in set (0.001 sec)
```

Q22- Query to display Name, Department Name and Department No for all the employees.

SELECT Ename, Dname, EMPLOYEE.Dno FROM EMPLOYEE, DEPARTMENT WHERE EMPLOYEE.Dno=DEPARTMENT.Dno;

```
MariaDB [emp_dept_22]> SELECT Ename, Dname, EMPLOYEE.Dno FROM  EMPLOYEE, DEPARTMENT WHERE EMPLOYEE.Dno=DEPARTMENT.Dno;
+--------+------------+------+
| Ename  | Dname      | Dno  |
+--------+------------+------+
| SMITH  | RESEARCH   |   20 |
| ALLEN  | SALES      |   30 |
| WARD   | SALES      |   30 |
| JONES  | RESEARCH   |   20 |
| MARTIN | SALES      |   30 |
| BLAKE  | SALES      |   30 |
| CLARK  | ACCOUNTING |   10 |
| SCOTT  | RESEARCH   |   20 |
| KING   | ACCOUNTING |   10 |
| TURNER | SALES      |   30 |
| ADAMS  | RESEARCH   |   20 |
| FORD   | RESEARCH   |   20 |
| JAMES  | SALES      |   30 |
| MILLER | ACCOUNTING |   10 |
+--------+------------+------+
14 rows in set (0.002 sec)
```

Q23- Query to display Unique Listing of all Jobs that are in Department number 30.

SELECT DISTINCT Job_type FROM EMPLOYEE, DEPARTMENT WHERE EMPLOYEE.Dno=DEPARTMENT.Dno AND EMPLOYEE.Dno=30;

```
MariaDB [emp_dept_22]> SELECT DISTINCT Job_type FROM EMPLOYEE, DEPARTMENT WHERE EMPLOYEE.Dno=DEPARTMENT.Dno AND EMPLOYEE.Dno=3
0;
+----------+
| Job_type |
+----------+
| SALESMAN |
| MANAGER  |
| CLERK    |
+----------+
3 rows in set (0.055 sec)
```

Q24- Query to display Name, Dept Name of all employees who have an ‘A’ in their name.

SELECT e.Ename,d.Dname from EMPLOYEE e, DEPARTMENT d where e.Dno=d.Dno and e.Ename like '%A%';

```
MariaDB [emp_dept_22]> SELECT Ename, Dname FROM EMPLOYEE, DEPARTMENT WHERE EMPLOYEE.Dno=DEPARTMENT.Dno AND EMPLOYEE.Ename LIKE
 '%A%';
+--------+------------+
| Ename  | Dname      |
+--------+------------+
| ALLEN  | SALES      |
| WARD   | SALES      |
| MARTIN | SALES      |
| BLAKE  | SALES      |
| CLARK  | ACCOUNTING |
| ADAMS  | RESEARCH   |
| JAMES  | SALES      |
+--------+------------+
7 rows in set (0.001 sec)
```

Q25- Query to display Name, Job, Department No. And Department Name for all the employees working at the Dallas location.

SELECT Ename, Job_type, EMPLOYEE.Dno, Dname FROM EMPLOYEE, DEPARTMENT WHERE EMPLOYEE.Dno=DEPARTMENT.Dno AND DEPARTMENT.Location=’DALLAS’;

```
MariaDB [emp_dept_22]> SELECT Ename, Job_type, EMPLOYEE.Dno, Dname FROM EMPLOYEE, DEPARTMENT WHERE EMPLOYEE.Dno=DEPARTMENT.Dno
 AND DEPARTMENT.Location='DALLAS';
+-------+----------+------+----------+
| Ename | Job_type | Dno  | Dname    |
+-------+----------+------+----------+
| SMITH | CLERK    |   20 | RESEARCH |
| JONES | MANAGER  |   20 | RESEARCH |
| SCOTT | ANALYST  |   20 | RESEARCH |
| ADAMS | CLERK    |   20 | RESEARCH |
| FORD  | ANALYST  |   20 | RESEARCH |
+-------+----------+------+----------+
5 rows in set (0.052 sec)
```

Q26- Query to display Name and Employee no. Along with their supervisor's Name and the supervisor's employee no; along with the Employees' Name who do not have a supervisor.

SELECT e.Ename,e.Eno,d.Ename,d.Eno FROM employee AS e LEFT OUTER JOIN EMPLOYEE D ON e.Eno=d.SupervisionENO;

```
MariaDB [emp_dept_22]> SELECT e.Ename, e.ENO, D.Eno FROM EMPLOYEE e LEFT OUTER JOIN EMPLOYEE D ON e.Eno=d.SupervisionENO;
+--------+-----+------+
| Ename  | ENO | Eno  |
+--------+-----+------+
| SMITH  | 736 | NULL |
| ALLEN  | 749 | NULL |
| WARD   | 752 | NULL |
| JONES  | 756 | NULL |
| MARTIN | 765 | NULL |
| BLAKE  | 769 | NULL |
| CLARK  | 778 | NULL |
| SCOTT  | 779 | NULL |
| KING   | 783 | NULL |
| TURNER | 784 | NULL |
| ADAMS  | 787 | NULL |
| FORD   | 790 | NULL |
| JAMES  | 791 | NULL |
| MILLER | 793 | NULL |
+--------+-----+------+
14 rows in set (0.001 sec)
```

Q27- Query to display Name, Dept No. And Salary of any employee whose department No. and salary matches both the department no. And the salary of any employee who earns a commission.

SELECT Ename,Dno,Salary FROM employee WHERE (Dno,Salary) IN (SELECT Dno,Salary FROM employee WHERE Commission>0);

```
MariaDB [emp_dept_22]> SELECT e1.Ename, e1.Dno, e1.Salary FROM EMPLOYEE e1, EMPLOYEE e2 WHERE e1.Dno=e2.Dno AND e1.Salary=e2.S
alary AND E1.Ename!=E2.Ename AND e1.Commission>0;
+--------+------+---------+
| Ename  | Dno  | Salary  |
+--------+------+---------+
| MARTIN |   30 | 1250.00 |
| WARD   |   30 | 1250.00 |
+--------+------+---------+
2 rows in set (0.039 sec)
```

Q28- Query to display Name and Salaries represented by asterisks, where each asterisk (*) signifies $100.

SELECT Ename,REPEAT ('*',(Salary/100)) AS SALARY_IN_STAR FROM EMPLOYEE;

```
MariaDB [emp_dept_22]> SELECT Ename, REPEAT('*', salary/100) AS SALARY_CODED FROM EMPLOYEE;
+--------+--------------------------------------------------+
| Ename  | SALARY_CODED                                     |
+--------+--------------------------------------------------+
| SMITH  | ********                                         |
| ALLEN  | ****************                                 |
| WARD   | *************                                    |
| JONES  | ******************************                   |
| MARTIN | *************                                    |
| BLAKE  | ****************************                     |
| CLARK  | ************************                         |
| SCOTT  | ******************************                   |
| KING   | ************************************************** |
| TURNER | ***************                                  |
| ADAMS  | ***********                                      |
| FORD   | ******************************                   |
| JAMES  | **********                                       |
| MILLER | *************                                    |
+--------+--------------------------------------------------+
14 rows in set (0.001 sec)
```

Q29- Query to display the Highest, Lowest, Sum and Average Salaries of all the employees

SELECT MAX(Salary) AS 'HIGHEST-SALARY', MIN(Salary) AS 'LOWEST-SALARY', SUM(Salary) AS 'SUM OF ALL SALARY', AVG(Salary) AS 'AVERAGE SALARY' FROM EMPLOYEE;

```
MariaDB [emp_dept_22]> SELECT MAX(Salary) AS 'HIGHEST-SALARY', MIN(Salary) AS 'LOWEST-SALARY', SUM(Salary) AS 'SUM OF ALL SALA
RY', AVG(Salary) AS 'AVERAGE SALARY' FROM EMPLOYEE;
+----------------+--------------+------------------+----------------+
| HIGHEST-SALARY | LOWEST-SALARY | SUM OF ALL SALARY | AVERAGE SALARY |
+----------------+--------------+------------------+----------------+
|        5000.00 |       800.00 |          29025.00 |    2073.214286 |
+----------------+--------------+------------------+----------------+
1 row in set (0.045 sec)
```

Q30- Query to display the number of employees performing the same Job type functions.

SELECT Job_type, COUNT(*) FROM EMPLOYEE GROUP BY(Job_type);

```
MariaDB [emp_dept_22]> SELECT Job_type, COUNT(*) FROM EMPLOYEE GROUP BY(Job_type);
+-----------+----------+
| Job_type  | COUNT(*) |
+-----------+----------+
| ANALYST   |        2 |
| CLERK     |        4 |
| MANAGER   |        3 |
| PRESIDENT |        1 |
| SALESMAN  |        4 |
+-----------+----------+
5 rows in set (0.029 sec)
```

31. Query to display the total number of supervisors without listing their names.

SELECT COUNT(DISTINCT(SupervisionENO)) FROM EMPLOYEE;

```
MariaDB [emp_dept_22]> SELECT COUNT(DISTINCT(SupervisionENO)) FROM EMPLOYEE;
+----------------------------------+
| COUNT(DISTINCT(SupervisionENO)) |
+----------------------------------+
|                                7 |
+----------------------------------+
1 row in set (0.049 sec)
```

32. Query to display the Department Name, Location Name, No. of Employees and the average salary for all employees in that department.

SELECT Dname, Location, COUNT(DEPARTMENT.Dno) AS EMPLOYEE, AVG(salary) AS 'AVG-SALARY' FROM EMPLOYEE, DEPARTMENT WHERE EMPLOYEE.Dno = DEPARTMENT.Dno GROUP BY(DEPARTMENT.Dno);

```
MariaDB [emp_dept_22]> SELECT Dname, Location, COUNT(DEPARTMENT.Dno) AS EMPLOYEE, AVG(salary) AS 'AVG-SALARY' FROM EMPLOYEE, DEPARTMENT WHERE EMPLOYEE.Dno = D
EPARTMENT.Dno GROUP BY(DEPARTMENT.Dno);
+------------+----------+----------+-------------+
| Dname      | Location | EMPLOYEE | AVG-SALARY  |
+------------+----------+----------+-------------+
| ACCOUNTING | new york |        3 | 2916.666667 |
| RESEARCH   | dallas   |        5 | 2175.000000 |
| SALES      | chicago  |        6 | 1566.666667 |
+------------+----------+----------+-------------+
3 rows in set (0.066 sec)
```

33. Query to display Name and Hire Date for all employees in the same dept. as Blake.

SELECT Ename, Hire_Date FROM EMPLOYEE WHERE Dno IN(SELECT Dno FROM EMPLOYEE WHERE Ename = "BLAKE");

```
MariaDB [emp_dept_22]> SELECT Ename, Hire_Date FROM EMPLOYEE WHERE Dno IN(SELECT Dno FROM EMPLOYEE WHERE Ename = "BLAKE");
+--------+-----------+
| Ename  | Hire_Date |
+--------+-----------+
| ALLEN  | 1981-02-20 |
| WARD   | 1981-02-22 |
| MARTIN | 1981-09-28 |
| BLAKE  | 1981-05-01 |
| TURNER | 1981-09-08 |
| JAMES  | 1981-12-03 |
+--------+-----------+
6 rows in set (0.001 sec)
```

34. Query to display the Employee No. And Name for all employees who earn more than the average salary.

SELECT Eno,Ename FROM employee WHERE Salary > (Select AVG(Salary) FROM EMPLOYEE);

```
MariaDB [emp_dept_22]> SELECT Eno,Ename FROM employee WHERE Salary > (Select AVG(Salary) FROM EMPLOYEE);
+-----+-------+
| Eno | Ename |
+-----+-------+
| 756 | JONES |
| 769 | BLAKE |
| 778 | CLARK |
| 779 | SCOTT |
| 783 | KING  |
| 790 | FORD  |
+-----+-------+
6 rows in set (0.048 sec)

MariaDB [emp_dept_22]>
```

35. Query to display Employee Number and Name for all employees who work in a department with any employee whose name contains a 'T'.

SELECT Eno, Ename FROM EMPLOYEE WHERE Ename LIKE '%T%';

```
MariaDB [emp_dept_22]> SELECT Eno, Ename FROM EMPLOYEE WHERE Ename LIKE '%T%';
+-----+--------+
| Eno | Ename  |
+-----+--------+
| 736 | SMITH  |
| 765 | MARTIN |
| 779 | SCOTT  |
| 784 | TURNER |
+-----+--------+
4 rows in set (0.044 sec)
```

36. Query to display the names and salaries of all employees who report to supervisor named 'King'

SELECT Ename, salary FROM employee WHERE SupervisionENO IN(SELECT Eno FROM EMPLOYEE WHERE Ename = "KING");

```
MariaDB [emp_dept_22]> SELECT Ename, salary FROM employee WHERE SupervisionENO IN(SELECT Eno FROM EMPLOYEE WHERE Ename = "KING");
Empty set (0.001 sec)
```

37. Query to display the department no, name and job for all employees in the Sales department

SELECT d.Dno, d.Dname, e.Job_type FROM EMPLOYEE e, DEPARTMENT d WHERE e.Dno IN(SELECT Dno FROM DEPARTMENT WHERE Dname = "SALES") AND e.Dno = d.Dno;

```
MariaDB [emp_dept_22]> SELECT d.Dno, d.Dname, e.Job_type FROM EMPLOYEE e, DEPARTMENT d WHERE e.Dno IN(SELECT Dno FROM DEPARTMENT WHERE Dname = "SALES") AND e.
Dno = d.Dno;
+-----+-------+----------+
| Dno | Dname | Job_type |
+-----+-------+----------+
|  30 | SALES | SALESMAN |
|  30 | SALES | SALESMAN |
|  30 | SALES | SALESMAN |
|  30 | SALES | MANAGER  |
|  30 | SALES | SALESMAN |
|  30 | SALES | CLERK    |
+-----+-------+----------+
6 rows in set (0.045 sec)
```

38. Display names of employees along with their department name who have more than 20 years of experience

SELECT Ename, Dno FROM EMPLOYEE WHERE CURDATE()-Hire_Date>'200000';

```
MariaDB [emp_dept_22]> SELECT Ename, Dno FROM EMPLOYEE WHERE CURDATE()-Hire_Date>'200000';
+--------+------+
| Ename  | Dno  |
+--------+------+
| SMITH  |   20 |
| ALLEN  |   30 |
| WARD   |   30 |
| JONES  |   20 |
| MARTIN |   30 |
| BLAKE  |   30 |
| CLARK  |   10 |
| SCOTT  |   20 |
| KING   |   10 |
| TURNER |   30 |
| ADAMS  |   20 |
| FORD   |   20 |
| JAMES  |   30 |
| MILLER |   10 |
+--------+------+
14 rows in set (0.035 sec)
```

39. Display total number of departments at each location

SELECT Location, COUNT(*) AS 'No. of Department' FROM DEPARTMENT GROUP BY(Location);

```
MariaDB [emp_dept_22]> SELECT Location, COUNT(*) AS 'No. of Department' FROM DEPARTMENT GROUP BY(Location);
+----------+-------------------+
| Location | No. of Department |
+----------+-------------------+
| boston   |                 1 |
| chicago  |                 1 |
| dallas   |                 1 |
| new york |                 1 |
+----------+-------------------+
4 rows in set (0.001 sec)
```

40. Find the department name in which at least 20 employees work in.

SELECT Dname FROM DEPARTMENT WHERE Dno IN(SELECT a.Dno FROM(SELECT Dno, Count(Dno) AS NUM FROM EMPLOYEE GROUP BY(Dno)) AS a WHERE a.NUM>19);

```
MariaDB [emp_dept_22]> SELECT Dname FROM DEPARTMENT WHERE Dno IN(SELECT a.Dno FROM(SELECT Dno, Count(Dno) AS NUM FROM EMPLOYEE GROUP BY(Dno)) AS a WHERE a.NUM
>19);
Empty set (0.058 sec)
```

41. Query to find the employee' name who is not supervisor and name of supervisor supervising more than 5 employees.

select Ename from employee where Eno in(select a.Mname from(select SupervisionENO as
-> Mname,count(SupervisionEno) as JUNIORS from employee group by(SupervisionEno) having
-> JUNIORS>3) as a) or Eno in (select distinct SupervisionENO from employee) is not true;

```
MariaDB [emp_dept_22]> select Ename from employee where Eno in(select a.Mname from(select SupervisionENO as
    -> Mname,count(SupervisionEno) as JUNIORS from employee group by(SupervisionEno) having
    -> JUNIORS>3) as a) or Eno in (select distinct SupervisionENO from employee) is not true;
+--------+
| Ename  |
+--------+
| SMITH  |
| ALLEN  |
| WARD   |
| JONES  |
| MARTIN |
| BLAKE  |
| CLARK  |
| SCOTT  |
| KING   |
| TURNER |
| ADAMS  |
| FORD   |
| JAMES  |
| MILLER |
+--------+
14 rows in set (0.071 sec)
```

42. Query to display the job type with maximum and minimum employees

select Job_type,count(Job_type) as num from employee group by(Job_type) having num in (select min(a.cnt)
-> as tum from (select job_type,count(Job_type) as cnt from employee group by(Job_type)) as a) or num
-> in(select max(a.cnt) as tum from (select job_type,count(Job_type) as cnt from employee group
-> by(Job_type)) as a);

```
MariaDB [emp_dept_22]> select Job_type,count(Job_type) as num from employee group by(Job_type) having num in (select min(a.cnt)
    -> as tum from (select job_type,count(Job_type) as cnt from employee group by(Job_type)) as a) or num
    -> in(select max(a.cnt) as tum from (select job_type,count(Job_type) as cnt from employee group
    -> by(Job_type)) as a);
+-----------+-----+
| Job_type  | num |
+-----------+-----+
| CLERK     |   4 |
| PRESIDENT |   1 |
| SALESMAN  |   4 |
+-----------+-----+
3 rows in set (0.052 sec)
```