21. Find the sum of the salaries of all employees, the maximum salary, the minimum and the average salary. Display with proper headings

SELECT SUM(SALARY), MAX(SALARY), MIN(SALARY), AVG(SALARY) FROM EMPLOYEE;

```
Database changed
MariaDB [company]> SELECT SUM(SALARY), MAX(SALARY), MIN(SALARY), AVG(SALARY) FROM EMPLOYEE;
+-------------+-------------+-------------+--------------+
| SUM(SALARY) | MAX(SALARY) | MIN(SALARY) | AVG(SALARY)  |
+-------------+-------------+-------------+--------------+
|   887500.00 |    68000.00 |    25000.00 | 49305.555556 |
+-------------+-------------+-------------+--------------+
1 row in set (0.070 sec)
```

22. Find the sum of the salaries and number of employees of all employees of the ‘Marketing’ department, as well as the maximum salary, the minimum salary, and the average salary in this department.

SELECT SUM(SALARY), COUNT(*) ,MAX(SALary), MIN(SALARY) FROM EMPLOYEE, DEPARTMENT WHERE DNO=DNUMBER AND DNAME ="Marketing";

```
MariaDB [company]> SELECT SUM(SALARY), COUNT(*) ,MAX(SALary), MIN(SALARY) FROM EMPLOYEE, DEPARTMENT WHERE DNO=DNUMBER AND DNAME ="Marketing";
+-------------+----------+-------------+-------------+
| SUM(SALARY) | COUNT(*) | MAX(SALary) | MIN(SALARY) |
+-------------+----------+-------------+-------------+
|   632500.00 |       11 |    68000.00 |    42000.00 |
+-------------+----------+-------------+-------------+
1 row in set (0.015 sec)
```

23. Select the names of employees whose salary is greater than the average salary of all employees in department 10

SELECT FNAME, LNAME FROM EMPLOYEE WHERE SALARY>(SELECT AVG(SALARY) FROM EMPLOYEE WHERE DNO=10);

```
MariaDB [company]> SELECT FNAME, LNAME FROM EMPLOYEE WHERE SALARY>(SELECT AVG(SALARY) FROM EMPLOYEE WHERE DNO=10);
+--------+---------+
| FNAME  | LNAME   |
+--------+---------+
| Terisa | lopez   |
| Rosy   | Beth    |
| Daniel | Michael |
| Ankit  | Kohli   |
| Andrew | Thomas  |
| Elley  | Michael |
+--------+---------+
6 rows in set (0.004 sec)
```

24. For each department, retrieve the department number, the number of employees in the department, and their average salary

SELECT DNO, COUNT(*), AVG(SALARY) FROM EMPLOYEE GROUP BY DNO;

```
MariaDB [company]> SELECT DNO, COUNT(*), AVG(SALARY) FROM EMPLOYEE GROUP BY DNO;
+-----+----------+---------------+
| DNO | COUNT(*) | AVG(SALARY)   |
+-----+----------+---------------+
|   1 |        1 | 55000.000000 |
|   4 |        2 | 34000.000000 |
|   5 |        3 | 35666.666667 |
|   7 |        1 | 25000.000000 |
|  10 |       11 | 57500.000000 |
+-----+----------+---------------+
5 rows in set (0.001 sec)
```

25. For each project, retrieve the project number, the project name, and the number of employees who work on that project.

SELECT PNUMBER, PNAME, COUNT(ESSN) AS NO_OF_EMP FROM PROJECT, WORKS_ON, WHERE PNUMBER=PNO GROUP BY PNUMBER;

```
MariaDB [company]> SELECT PNUMBER, PNAME, COUNT(ESSN) AS NO_OF_EMP FROM PROJECT, WORKS_ON WHERE PNUMBER=PNO GROUP BY PNUMBER;
+---------+----------------+-----------+
| PNUMBER | PNAME          | NO_OF_EMP |
+---------+----------------+-----------+
|       1 | ProductX       |         1 |
|       2 | ProductY       |         3 |
|       3 | ProductZ       |         1 |
|      10 | Computerization |         6 |
|      20 | Reorganisation |         2 |
|      30 | Newbenefite    |         2 |
+---------+----------------+-----------+
6 rows in set (0.001 sec)
```

26. Change the location and controlling department number for all projects having

more than 5 employees to ‘Bellaire’ and 6 respectively

UPDATE PROJECT SET PLOCATION='BELLAIRE' WHERE (SELECT COUNT(ESSN) FROM WORKS_ON WHERE PNO=PNUMBER)>5;

SELECT * FROM PROJECT;

```
MariaDB [(none)]> use company;
Database changed
MariaDB [company]> UPDATE PROJECT SET PLOCATION='BELLAIRE' WHERE (SELECT COUNT(ESSN) FROM WORKS_ON WHERE PNO=PNUMBER)>5;
Query OK, 1 row affected (0.055 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [company]> SELECT * FROM PROJECT;
+-----------------+---------+-----------+------+
| Pname           | Pnumber | Plocation | Dnum |
+-----------------+---------+-----------+------+
| ProductX        |       1 | Belliare  |    5 |
| ProductY        |       2 | Sugarland |    5 |
| ProductZ        |       3 | Housten   |    5 |
| Computerization |      10 | BELLAIRE  |    4 |
| Reorganisation  |      20 | Housten   |    1 |
| Newbenefite     |      30 | Stafford  |    4 |
+-----------------+---------+-----------+------+
6 rows in set (0.000 sec)
```

27. For each department having more than 10 employees, retrieve the department no, no of employees drawing more than 40,000 as salary.

SELECT DNO, COUNT(*) AS NO_OF_EMPLOYEEE FROM EMPLOYEE, DEPARTMENT WHERE SALARY>40000 GROUP BY DNO HAVING COUNT(*)>5;

```
MariaDB [company]> SELECT DNO, COUNT(*) AS NO_OF_EMPLOYEEE FROM EMPLOYEE, DEPARTMENT WHERE SALARY>40000 GROUP BY DNO HAVING COUNT(*)>5;
+-----+----------------+
| DNO | NO_OF_EMPLOYEEE |
+-----+----------------+
|  10 |             55 |
+-----+----------------+
1 row in set (0.028 sec)
```

28. Insert a record in Project table which violates referntial integrity constraint with respect to Department number. Now remove the violation by making necessary insertion in the Department table.

```
MariaDB [company]> Insert into department values("Management",9,"123","20-08-2012");
ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails (`company`.`department`, CONSTRAINT `department_ibfk_1` FOREIGN KEY (`Mgr_ssn`) REF
ERENCES `employee` (`Ssn`))
MariaDB [company]> INSERT INTO `department` (`Dname`, `Dnumber`, `Mgr_ssn`, `Mgr_start_date`) VALUES ('Management', '40', '981242457', '2002-01-26');
Query OK, 1 row affected (0.003 sec)

MariaDB [company]> Select * from Department;
+--------------+---------+-----------+----------------+
| Dname        | Dnumber | Mgr_ssn   | Mgr_start_date |
+--------------+---------+-----------+----------------+
| Headquaters  |       1 | 888665555 | 1981-06-19     |
| Admistration |       4 | 987987987 | 1995-01-01     |
| Research     |       5 | 333445555 | 1988-05-22     |
| Sales        |       7 | 981242457 | 1968-05-22     |
| Marketing    |      10 | 123456789 | 1981-05-01     |
| Management   |      40 | 981242457 | 2002-01-26     |
+--------------+---------+-----------+----------------+
6 rows in set (0.002 sec)

MariaDB [company]> Insert into project values("Management",25,"Bhopal",40);
Query OK, 1 row affected (0.003 sec)

MariaDB [company]> Select * from project;
+-----------------+---------+-----------+------+
| Pname           | Pnumber | Plocation | Dnum |
+-----------------+---------+-----------+------+
| ProductX        |       1 | Belliare  |    5 |
| ProductY        |       2 | Sugarland |    5 |
| ProductZ        |       3 | Housten   |    5 |
| Computerization |      10 | BELLAIRE  |    4 |
| Reorganisation  |      20 | Housten   |    1 |
| Management      |      25 | Bhopal    |   40 |
| Newbenefite     |      30 | Stafford  |    4 |
+-----------------+---------+-----------+------+
7 rows in set (0.000 sec)
```

29. Delete all dependents of employee whose ssn is ‘123456789’.

```
MariaDB [company]> Delete from dependent where essn=123456789;
Query OK, 2 rows affected (0.015 sec)

MariaDB [company]> Select * from Dependent;
+-----------+-----------------+------+------------+--------------+
| Essn      | Dependent_name  | Sex  | Bdate      | Relationship |
+-----------+-----------------+------+------------+--------------+
| 333445555 | ALICE           | F    | 1986-04-05 | DAUGHTER     |
| 333445555 | JOY             | F    | 1958-05-03 | SPOUSE       |
| 333445555 | THEODORE        | M    | 1983-10-25 | SON          |
| 987654321 | ABNER           | M    | 1942-02-28 | SPOUSE       |
| 999887777 | Alicia          | F    | 1988-12-30 | DAUGHTER     |
+-----------+-----------------+------+------------+--------------+
5 rows in set (0.000 sec)
```

30. Delete an employee from Employee table with ssn = ‘12345’(make sure that this employee has some dependents, is working on some project, is a manager of some salary, department and is supervising some employees). Check and display the cascading effect on Dependent and Works on table. In Department table MGRSSN should be set to default value and in Employee table SUPERSSN should be set to NULL.

```
ariaDB [company]> delete from employee
    -> where ssn=1234567891 cascade****;
```

31. Perform a query using alter command to drop/add field and a constraint in Employee table.

```
ariaDB [company]> alter table
    -> drop foreign key(superssn);
```