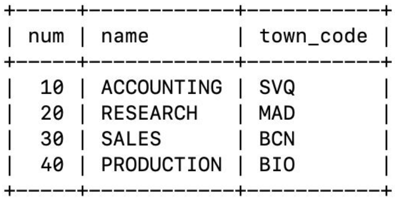
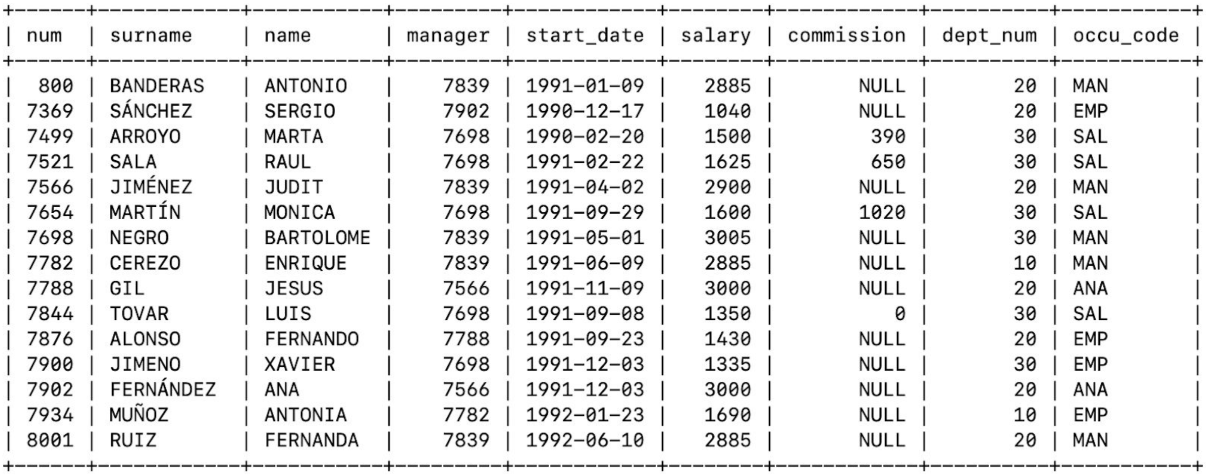
Check the following database:

DEPARTMENTS:



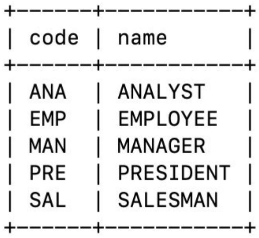
```
+-----+------------+-----------+
| num | name       | town_code |
+-----+------------+-----------+
|  10 | ACCOUNTING | SVQ       |
|  20 | RESEARCH   | MAD       |
|  30 | SALES      | BCN       |
|  40 | PRODUCTION | BIO       |
+-----+------------+-----------+
```

EMPLOYEES:



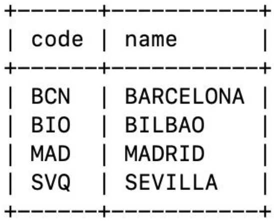
```
+------+-----------+----------+---------+------------+--------+------------+----------+-----------+
| num  | surname   | name     | manager | start_date | salary | commission | dept_num | occu_code |
+------+-----------+----------+---------+------------+--------+------------+----------+-----------+
|  800 | BANDERAS  | ANTONIO  |    7839 | 1991-01-09 |   2885 |       NULL |       20 | MAN       |
| 7369 | SÁNCHEZ   | SERGIO   |    7902 | 1990-12-17 |   1040 |       NULL |       20 | EMP       |
| 7499 | ARROYO    | MARTA    |    7698 | 1990-02-20 |   1500 |        390 |       30 | SAL       |
| 7521 | SALA      | RAUL     |    7698 | 1991-02-22 |   1625 |        650 |       30 | SAL       |
| 7566 | JIMÉNEZ   | JUDIT    |    7839 | 1991-04-02 |   2900 |       NULL |       20 | MAN       |
| 7654 | MARTÍN    | MONICA   |    7698 | 1991-09-29 |   1600 |       1020 |       30 | SAL       |
| 7698 | NEGRO     | BARTOLOME |   7839 | 1991-05-01 |   3005 |       NULL |       30 | MAN       |
| 7782 | CEREZO    | ENRIQUE  |    7839 | 1991-06-09 |   2885 |       NULL |       10 | MAN       |
| 7788 | GIL       | JESUS    |    7566 | 1991-11-09 |   3000 |       NULL |       20 | ANA       |
| 7844 | TOVAR     | LUIS     |    7698 | 1991-09-08 |   1350 |          0 |       30 | SAL       |
| 7876 | ALONSO    | FERNANDO |    7788 | 1991-09-23 |   1430 |       NULL |       20 | EMP       |
| 7900 | JIMENO    | XAVIER   |    7698 | 1991-12-03 |   1335 |       NULL |       30 | EMP       |
| 7902 | FERNÁNDEZ | ANA      |    7566 | 1991-12-03 |   3000 |       NULL |       20 | ANA       |
| 7934 | MUÑOZ     | ANTONIA  |    7782 | 1992-01-23 |   1690 |       NULL |       10 | EMP       |
| 8001 | RUIZ      | FERNANDA |    7839 | 1992-06-10 |   2885 |       NULL |       20 | MAN       |
+------+-----------+----------+---------+------------+--------+------------+----------+-----------+
```

OCCUPATIONS:



```
+------+-----------+
| code | name      |
+------+-----------+
| ANA  | ANALYST   |
| EMP  | EMPLOYEE  |
| MAN  | MANAGER   |
| PRE  | PRESIDENT |
| SAL  | SALESMAN  |
+------+-----------+
```

TOWNS:



```
+------+-----------+
| code | name      |
+------+-----------+
| BCN  | BARCELONA |
| BIO  | BILBAO    |
| MAD  | MADRID    |
| SVQ  | SEVILLA   |
+------+-----------+
```

Import the next database:

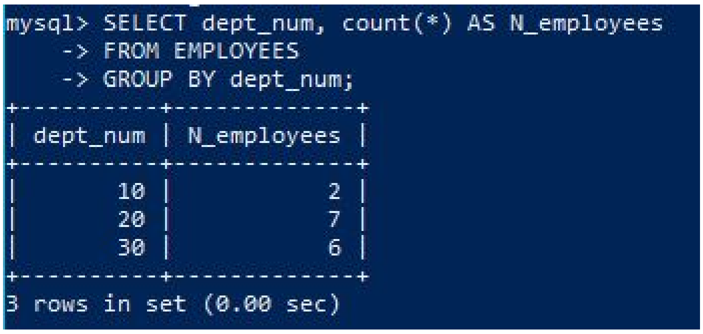
```
CREATE DATABASE IF NOT EXISTS `EMPLOYEESDBNORMAL`;
USE `EMPLOYEESDBNORMAL`;

CREATE TABLE IF NOT EXISTS `DEPARTMENTS` (
  `num` int(11) NOT NULL,
  `name` varchar(30) NOT NULL,
  `town_code` varchar(3) DEFAULT NULL,
  PRIMARY KEY (`num`),
  KEY `town_code` (`town_code`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

INSERT INTO `DEPARTMENTS` (`num`, `name`, `town_code`) VALUES
(10, 'ACCOUNTING', 'SVQ'),
(20, 'RESEARCH', 'MAD'),
(30, 'SALES', 'BCN'),
(40, 'PRODUCTION', 'BIO');

CREATE TABLE IF NOT EXISTS `EMPLOYEES` (
  `num` int(11) NOT NULL,
  `surname` varchar(50) NOT NULL,
  `name` varchar(50) NOT NULL,
  `manager` int(11) DEFAULT NULL,
  `start_date` date DEFAULT NULL,
  `salary` int(11) DEFAULT NULL,
  `commission` int(11) DEFAULT NULL,
  `dept_num` int(11) DEFAULT NULL,
  `occu_code` varchar(3) DEFAULT NULL,
  PRIMARY KEY (`num`),
  KEY `dept_num` (`dept_num`),
  KEY `occu_code` (`occu_code`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

INSERT INTO `EMPLOYEES` (`num`, `surname`, `name`, `manager`, `start_date`, `salary`,
`commission`, `dept_num`, `occu_code`) VALUES
(800, 'BANDERAS', 'ANTONIO', 7839, '1991-01-09', 2885, NULL, 20, 'MAN'),
(7369, 'SÁNCHEZ', 'SERGIO', 7902, '1990-12-17', 1040, NULL, 20, 'EMP'),
(7499, 'ARROYO', 'MARTA', 7698, '1990-02-20', 1500, 390, 30, 'SAL'),
(7521, 'SALA', 'RAUL', 7698, '1991-02-22', 1625, 650, 30, 'SAL'),
(7566, 'JIMÉNEZ', 'JUDIT', 7839, '1991-04-02', 2900, NULL, 20, 'MAN'),
(7654, 'MARTÍN', 'MONICA', 7698, '1991-09-29', 1600, 1020, 30, 'SAL'),
(7698, 'NEGRO', 'BARTOLOME', 7839, '1991-05-01', 3005, NULL, 30, 'MAN'),
(7782, 'CEREZO', 'ENRIQUE', 7839, '1991-06-09', 2885, NULL, 10, 'MAN'),
(7788, 'GIL', 'JESUS', 7566, '1991-11-09', 3000, NULL, 20, 'ANA'),
(7844, 'TOVAR', 'LUIS', 7698, '1991-09-08', 1350, 0, 30, 'SAL'),
(7876, 'ALONSO', 'FERNANDO', 7788, '1991-09-23', 1430, NULL, 20, 'EMP'),
(7900, 'JIMENO', 'XAVIER', 7698, '1991-12-03', 1335, NULL, 30, 'EMP'),
(7902, 'FERNÁNDEZ', 'ANA', 7566, '1991-12-03', 3000, NULL, 20, 'ANA'),
(7934, 'MUÑOZ', 'ANTONIA', 7782, '1992-01-23', 1690, NULL, 10, 'EMP'),
(8001, 'RUIZ', 'FERNANDA', 7839, '1992-06-10', 2885, NULL, 20, 'MAN');

CREATE TABLE IF NOT EXISTS `OCCUPATIONS` (
  `code` varchar(3) NOT NULL,
  `name` varchar(30) NOT NULL,
  PRIMARY KEY (`code`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

INSERT INTO `OCCUPATIONS` (`code`, `name`) VALUES
('ANA', 'ANALYST'),
('EMP', 'EMPLOYEE'),
('MAN', 'MANAGER'),
('PRE', 'PRESIDENT'),
('SAL', 'SALESMAN');
```

```
CREATE TABLE IF NOT EXISTS `TOWNS` (
  `code` varchar(3) NOT NULL,
  `name` varchar(30) NOT NULL,
  PRIMARY KEY (`code`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

INSERT INTO `TOWNS` (`code`, `name`) VALUES
('BCN', 'BARCELONA'),
('BIO', 'BILBAO'),
('MAD', 'MADRID'),
('SVQ', 'SEVILLA');

ALTER TABLE `DEPARTMENTS`
  ADD CONSTRAINT `DEPARTMENTS_ibfk_1` FOREIGN KEY (`town_code`) REFERENCES `TOWNS`
(`code`);

ALTER TABLE `EMPLOYEES`
  ADD CONSTRAINT `EMPLOYEES_ibfk_1` FOREIGN KEY (`dept_num`) REFERENCES `DEPARTMENTS`
(`num`),
  ADD CONSTRAINT `EMPLOYEES_ibfk_2` FOREIGN KEY (`occu_code`) REFERENCES `OCCUPATIONS`
(`code`);
```

Do the following queries with that database:

1. Display the number of employees in each department. Use GROUP BY to group by department.

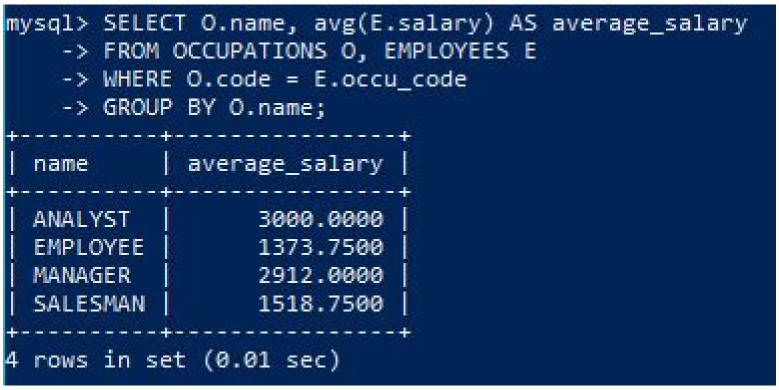
```
+----------+-------------+
| dept_num | N_employees |
+----------+-------------+
|       10 |           2 |
|       20 |           7 |
|       30 |           6 |
+----------+-------------+
3 rows in set (0.001 sec)
```



```
mysql> SELECT dept_num, count(*) AS N_employees
    -> FROM EMPLOYEES
    -> GROUP BY dept_num;
+----------+-------------+
| dept_num | N_employees |
+----------+-------------+
|       10 |           2 |
|       20 |           7 |
|       30 |           6 |
+----------+-------------+
3 rows in set (0.00 sec)
```

2. For each occupation obtain the average of salary.

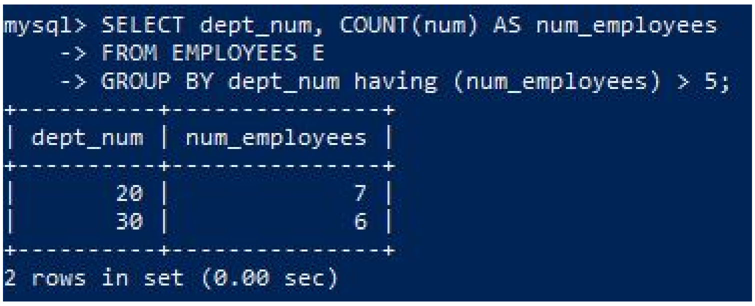
```
+----------+----------------+
| name     | average_salary |
+----------+----------------+
| ANALYST  |      3000.0000 |
| EMPLOYEE |      1373.7500 |
| MANAGER  |      2912.0000 |
| SALESMAN |      1518.7500 |
+----------+----------------+
4 rows in set (0.001 sec)
```



```
mysql> SELECT O.name, avg(E.salary) AS average_salary
    -> FROM OCCUPATIONS O, EMPLOYEES E
    -> WHERE O.code = E.occu_code
    -> GROUP BY O.name;
+----------+----------------+
| name     | average_salary |
+----------+----------------+
| ANALYST  |      3000.0000 |
| EMPLOYEE |      1373.7500 |
| MANAGER  |      2912.0000 |
| SALESMAN |      1518.7500 |
+----------+----------------+
4 rows in set (0.01 sec)
```

3. Display the departments with more than 5 employees. Use GROUP BY to group by department and HAVING to establish the condition on the groups.

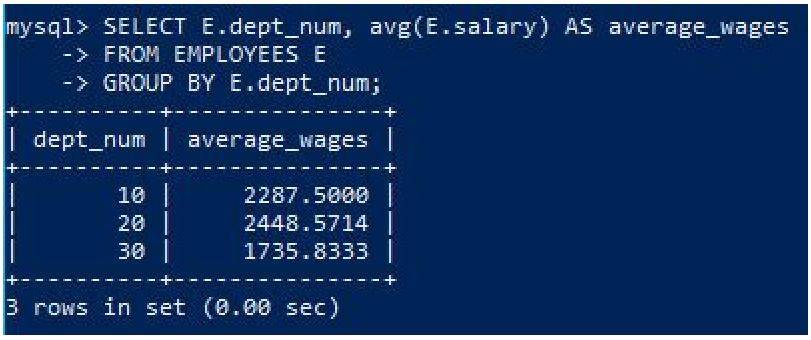
```
+----------+---------------+
| dept_num | num_employees |
+----------+---------------+
|       20 |             7 |
|       30 |             6 |
+----------+---------------+
2 rows in set (0.001 sec)
```



```
mysql> SELECT dept_num, COUNT(num) AS num_employees
    -> FROM EMPLOYEES E
    -> GROUP BY dept_num having (num_employees) > 5;
+----------+---------------+
| dept_num | num_employees |
+----------+---------------+
|       20 |             7 |
|       30 |             6 |
+----------+---------------+
2 rows in set (0.00 sec)
```

4. Find the average wages (=”*media de los salarios*”) of each department (use the function avg and GROUP BY).

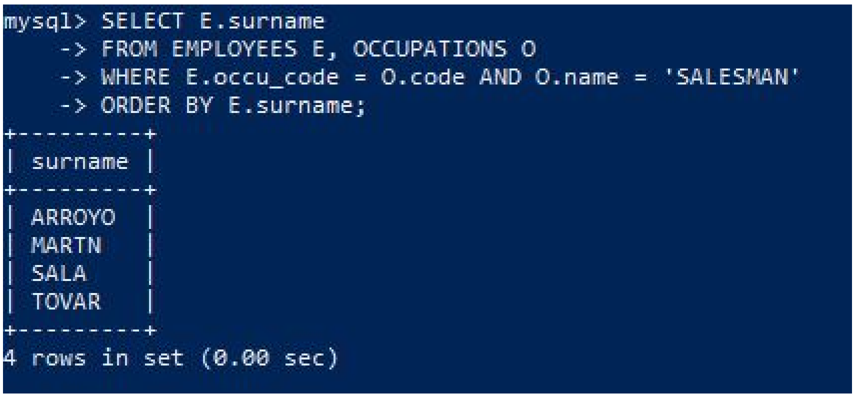
```
+----------+---------------+
| dept_num | average_wages |
+----------+---------------+
|       10 |     2287.5000 |
|       20 |     2448.5714 |
|       30 |     1735.8333 |
+----------+---------------+
3 rows in set (0.002 sec)
```



```
mysql> SELECT E.dept_num, avg(E.salary) AS average_wages
    -> FROM EMPLOYEES E
    -> GROUP BY E.dept_num;
+----------+---------------+
| dept_num | average_wages |
+----------+---------------+
|       10 |     2287.5000 |
|       20 |     2448.5714 |
|       30 |     1735.8333 |
+----------+---------------+
3 rows in set (0.00 sec)
```

5. Display the surname of the salesmen of the 'SALES' department.

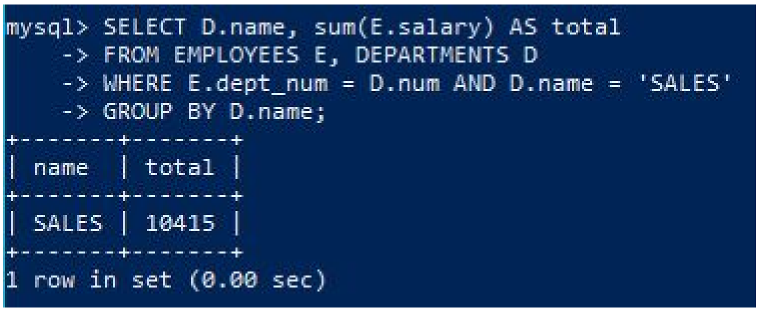
```
+---------+
| surname |
+---------+
| ARROYO  |
| SALA    |
| MARTÍN  |
| TOVAR   |
+---------+
4 rows in set (0.001 sec)
```



```
mysql> SELECT E.surname
    -> FROM EMPLOYEES E, OCCUPATIONS O
    -> WHERE E.occu_code = O.code AND O.name = 'SALESMAN'
    -> ORDER BY E.surname;
+---------+
| surname |
+---------+
| ARROYO  |
| MARTN   |
| SALA    |
| TOVAR   |
+---------+
4 rows in set (0.00 sec)
```

6. Display the sum of salaries of the 'SALES' department.

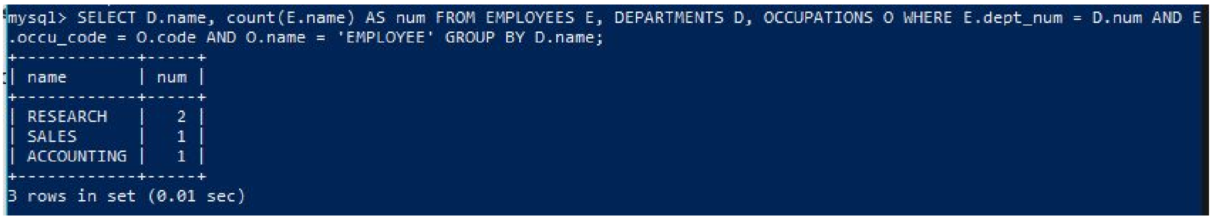
```
+-------+-------+
| name  | total |
+-------+-------+
| SALES | 10415 |
+-------+-------+
1 row in set (0.001 sec)
```



```
mysql> SELECT D.name, sum(E.salary) AS total
    -> FROM EMPLOYEES E, DEPARTMENTS D
    -> WHERE E.dept_num = D.num AND D.name = 'SALES'
    -> GROUP BY D.name;
+-------+-------+
| name  | total |
+-------+-------+
| SALES | 10415 |
+-------+-------+
1 row in set (0.00 sec)
```

7. Display the count of employees with occupation “EMPLOYEE” in every department (show the name of the department).

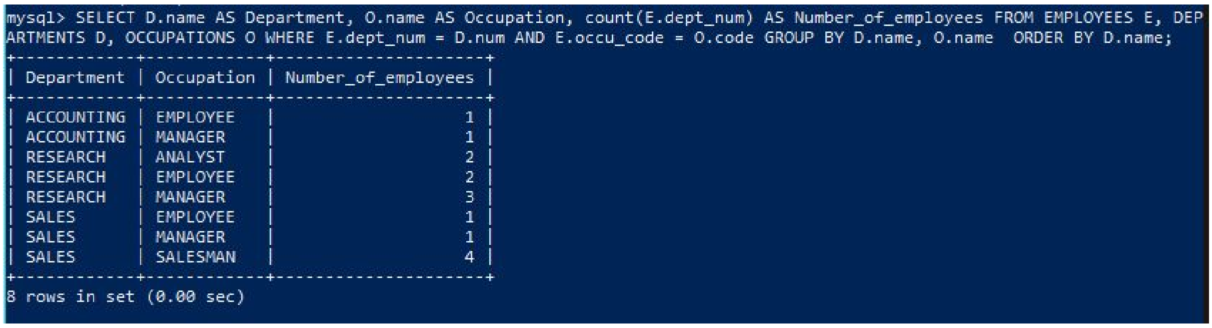
```
+------------+-----+
| name       | num |
+------------+-----+
| ACCOUNTING |   1 |
| RESEARCH   |   2 |
| SALES      |   1 |
+------------+-----+
3 rows in set (0.001 sec)
```



```
mysql> SELECT D.name, count(E.name) AS num FROM EMPLOYEES E, DEPARTMENTS D, OCCUPATIONS O WHERE E.dept_num = D.num AND E
.occu_code = O.code AND O.name = 'EMPLOYEE' GROUP BY D.name;
+------------+-----+
| name       | num |
+------------+-----+
| RESEARCH   |   2 |
| SALES      |   1 |
| ACCOUNTING |   1 |
+------------+-----+
3 rows in set (0.01 sec)
```

8. Show the number of different occupations in each department.

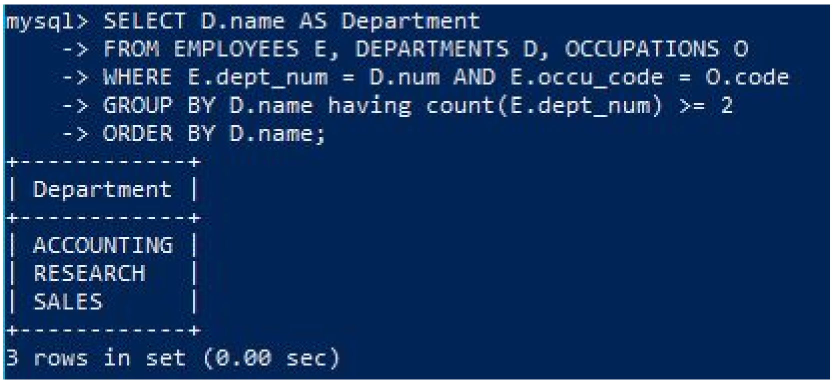
```
+------------+------------+---------------------+
| Department | Occupation | Number_of_employees |
+------------+------------+---------------------+
| ACCOUNTING | EMPLOYEE   |                   1 |
| ACCOUNTING | MANAGER    |                   1 |
| RESEARCH   | ANALYST    |                   2 |
| RESEARCH   | EMPLOYEE   |                   2 |
| RESEARCH   | MANAGER    |                   3 |
| SALES      | EMPLOYEE   |                   1 |
| SALES      | MANAGER    |                   1 |
| SALES      | SALESMAN   |                   4 |
+------------+------------+---------------------+
8 rows in set (0.004 sec)
```



```
mysql> SELECT D.name AS Department, O.name AS Occupation, count(E.dept_num) AS Number_of_employees FROM EMPLOYEES E, DEP
ARTMENTS D, OCCUPATIONS O WHERE E.dept_num = D.num AND E.occu_code = O.code GROUP BY D.name, O.name  ORDER BY D.name;
+------------+------------+---------------------+
| Department | Occupation | Number_of_employees |
+------------+------------+---------------------+
| ACCOUNTING | EMPLOYEE   |                   1 |
| ACCOUNTING | MANAGER    |                   1 |
| RESEARCH   | ANALYST    |                   2 |
| RESEARCH   | EMPLOYEE   |                   2 |
| RESEARCH   | MANAGER    |                   3 |
| SALES      | EMPLOYEE   |                   1 |
| SALES      | MANAGER    |                   1 |
| SALES      | SALESMAN   |                   4 |
+------------+------------+---------------------+
8 rows in set (0.00 sec)
```

9. Show departments that have more than two people working in the same occupation.

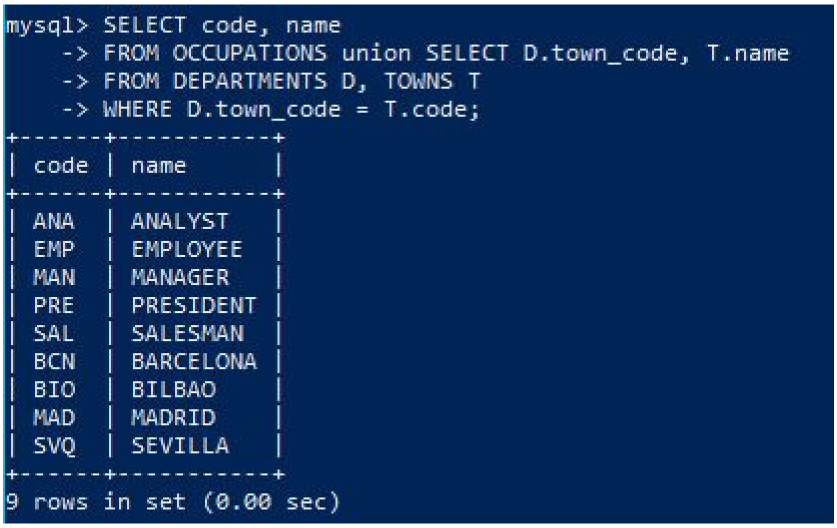
```
+------------+
| Department |
+------------+
| RESEARCH   |
| SALES      |
+------------+
2 rows in set (0.002 sec)
```



```
mysql> SELECT D.name AS Department
    -> FROM EMPLOYEES E, DEPARTMENTS D, OCCUPATIONS O
    -> WHERE E.dept_num = D.num AND E.occu_code = O.code
    -> GROUP BY D.name having count(E.dept_num) >= 2
    -> ORDER BY D.name;
+------------+
| Department |
+------------+
| ACCOUNTING |
| RESEARCH   |
| SALES      |
+------------+
3 rows in set (0.00 sec)
```

10. Displays a query that is the union between the table OCCUPATIONS and TOWNS.

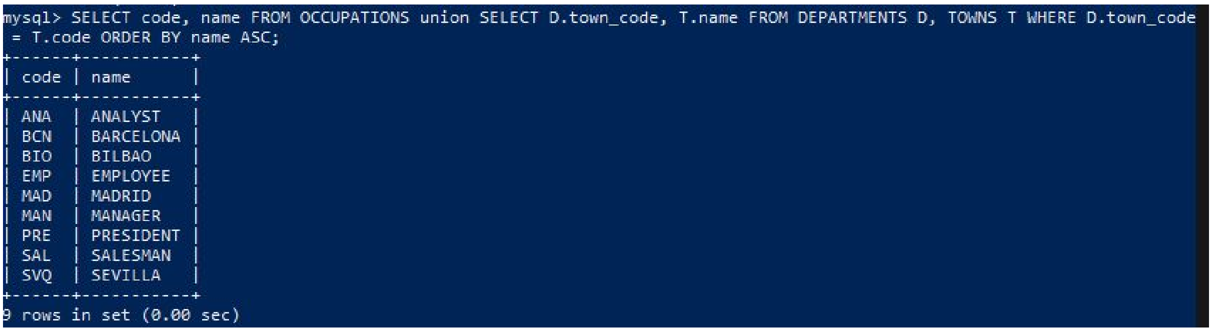
```
+------+-----------+
| code | name      |
+------+-----------+
| ANA  | ANALYST   |
| EMP  | EMPLOYEE  |
| MAN  | MANAGER   |
| PRE  | PRESIDENT |
| SAL  | SALESMAN  |
| BCN  | BARCELONA |
| BIO  | BILBAO    |
| MAD  | MADRID    |
| SVQ  | SEVILLA   |
+------+-----------+
9 rows in set (0.001 sec)
```



```
mysql> SELECT code, name
    -> FROM OCCUPATIONS union SELECT D.town_code, T.name
    -> FROM DEPARTMENTS D, TOWNS T
    -> WHERE D.town_code = T.code;
+------+-----------+
| code | name      |
+------+-----------+
| ANA  | ANALYST   |
| EMP  | EMPLOYEE  |
| MAN  | MANAGER   |
| PRE  | PRESIDENT |
| SAL  | SALESMAN  |
| BCN  | BARCELONA |
| BIO  | BILBAO    |
| MAD  | MADRID    |
| SVQ  | SEVILLA   |
+------+-----------+
9 rows in set (0.00 sec)
```

11. Do the same query than in exercise 10 but order the results by name.

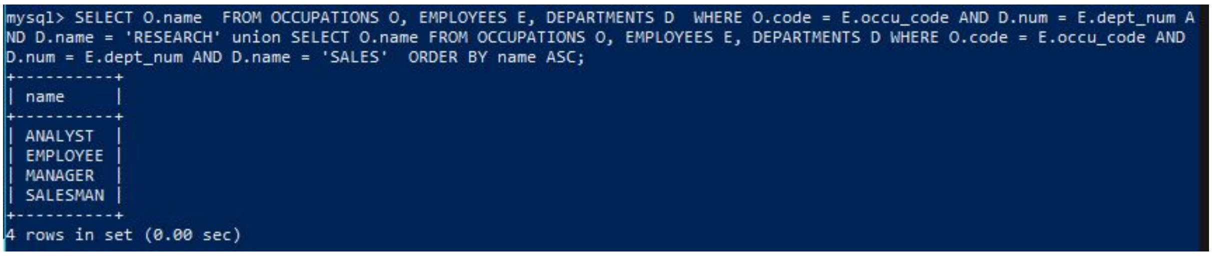
```
+------+-----------+
| code | name      |
+------+-----------+
| ANA  | ANALYST   |
| BCN  | BARCELONA |
| BIO  | BILBAO    |
| EMP  | EMPLOYEE  |
| MAD  | MADRID    |
| MAN  | MANAGER   |
| PRE  | PRESIDENT |
| SAL  | SALESMAN  |
| SVQ  | SEVILLA   |
+------+-----------+
9 rows in set (0.001 sec)
```



```
mysql> SELECT code, name FROM OCCUPATIONS union SELECT D.town_code, T.name FROM DEPARTMENTS D, TOWNS T WHERE D.town_code
 = T.code ORDER BY name ASC;
+------+-----------+
| code | name      |
+------+-----------+
| ANA  | ANALYST   |
| BCN  | BARCELONA |
| BIO  | BILBAO    |
| EMP  | EMPLOYEE  |
| MAD  | MADRID    |
| MAN  | MANAGER   |
| PRE  | PRESIDENT |
| SAL  | SALESMAN  |
| SVQ  | SEVILLA   |
+------+-----------+
9 rows in set (0.00 sec)
```

12. Select the occupation names of all the employees of the department with name 'RESEARCH' and do the union of this query with the selection of the occupation names of the employees of the department with name 'SALES'. Use union operator.

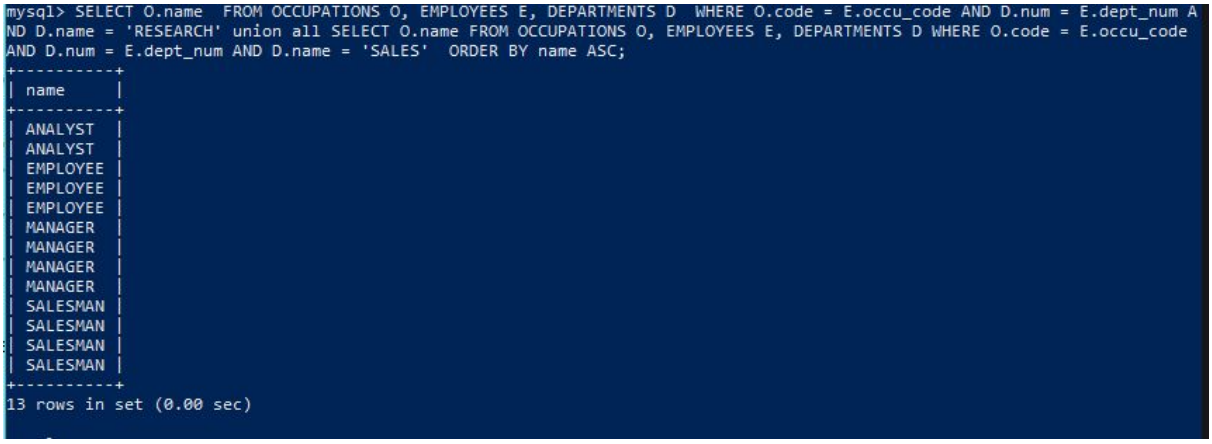
```
+----------+
| name     |
+----------+
| ANALYST  |
| EMPLOYEE |
| MANAGER  |
| SALESMAN |
+----------+
4 rows in set (0.001 sec)
```



```
mysql> SELECT O.name  FROM OCCUPATIONS O, EMPLOYEES E, DEPARTMENTS D  WHERE O.code = E.occu_code AND D.num = E.dept_num A
ND D.name = 'RESEARCH' union SELECT O.name FROM OCCUPATIONS O, EMPLOYEES E, DEPARTMENTS D WHERE O.code = E.occu_code AND
D.num = E.dept_num AND D.name = 'SALES'  ORDER BY name ASC;
+----------+
| name     |
+----------+
| ANALYST  |
| EMPLOYEE |
| MANAGER  |
| SALESMAN |
+----------+
4 rows in set (0.00 sec)
```

13. Repeat the last query showing the repeated results (union all).

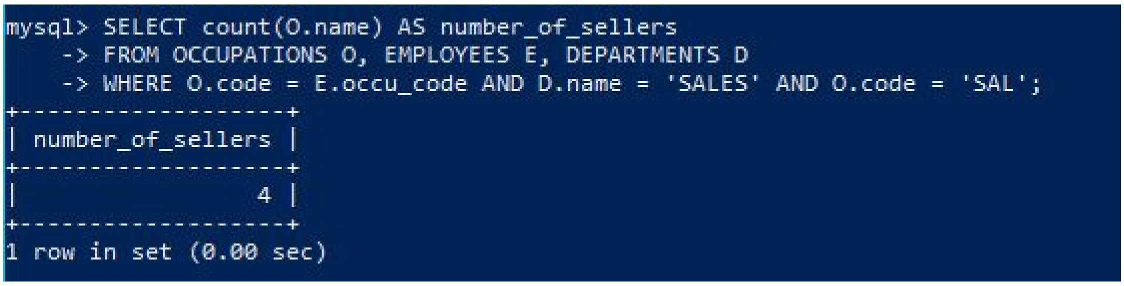
```
+----------+
| name     |
+----------+
| ANALYST  |
| ANALYST  |
| EMPLOYEE |
| EMPLOYEE |
| MANAGER  |
| MANAGER  |
| MANAGER  |
| EMPLOYEE |
| MANAGER  |
| SALESMAN |
| SALESMAN |
| SALESMAN |
| SALESMAN |
+----------+
13 rows in set (0.001 sec)
```



```
mysql> SELECT O.name  FROM OCCUPATIONS O, EMPLOYEES E, DEPARTMENTS D  WHERE O.code = E.occu_code AND D.num = E.dept_num A
ND D.name = 'RESEARCH' union all SELECT O.name FROM OCCUPATIONS O, EMPLOYEES E, DEPARTMENTS D WHERE O.code = E.occu_code
AND D.num = E.dept_num AND D.name = 'SALES'  ORDER BY name ASC;
+----------+
| name     |
+----------+
| ANALYST  |
| ANALYST  |
| EMPLOYEE |
| EMPLOYEE |
| EMPLOYEE |
| MANAGER  |
| MANAGER  |
| MANAGER  |
| MANAGER  |
| SALESMAN |
| SALESMAN |
| SALESMAN |
| SALESMAN |
+----------+
13 rows in set (0.00 sec)
```

14. Display the number of sellers in the 'SALES' department.

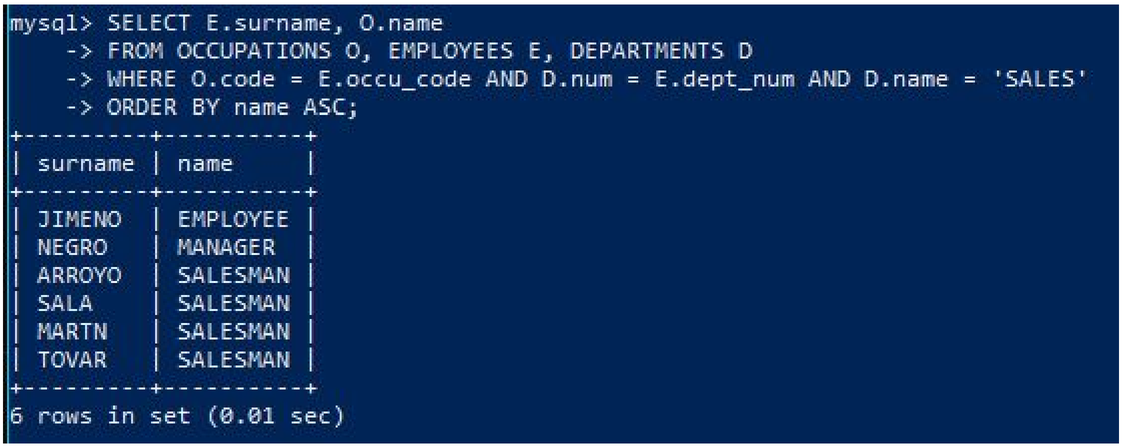
```
+--------------------+
| number_of_sellers |
+--------------------+
|                  4 |
+--------------------+
1 row in set (0.001 sec)
```



```
mysql> SELECT count(O.name) AS number_of_sellers
    -> FROM OCCUPATIONS O, EMPLOYEES E, DEPARTMENTS D
    -> WHERE O.code = E.occu_code AND D.name = 'SALES' AND O.code = 'SAL';
+-------------------+
| number_of_sellers |
+-------------------+
|                 4 |
+-------------------+
1 row in set (0.00 sec)
```

15. Display the surnames and occupations of the employees of the 'SALES' department.

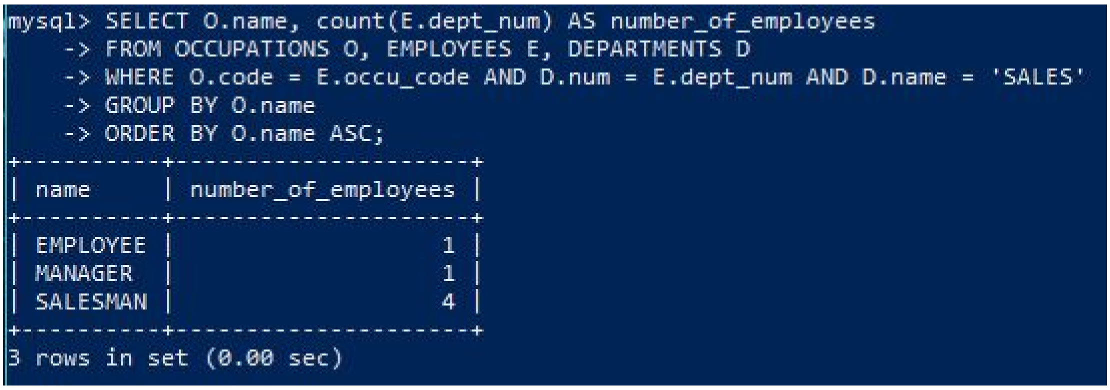
```
+---------+----------+
| surname | name     |
+---------+----------+
| JIMENO  | EMPLOYEE |
| NEGRO   | MANAGER  |
| ARROYO  | SALESMAN |
| SALA    | SALESMAN |
| MARTÍN  | SALESMAN |
| TOVAR   | SALESMAN |
+---------+----------+
6 rows in set (0.001 sec)
```



```
mysql> SELECT E.surname, O.name
    -> FROM OCCUPATIONS O, EMPLOYEES E, DEPARTMENTS D
    -> WHERE O.code = E.occu_code AND D.num = E.dept_num AND D.name = 'SALES'
    -> ORDER BY name ASC;
+---------+----------+
| surname | name     |
+---------+----------+
| JIMENO  | EMPLOYEE |
| NEGRO   | MANAGER  |
| ARROYO  | SALESMAN |
| SALA    | SALESMAN |
| MARTN   | SALESMAN |
| TOVAR   | SALESMAN |
+---------+----------+
6 rows in set (0.01 sec)
```

16. Display the number of employees and occupations of the employees of the 'SALES' department.

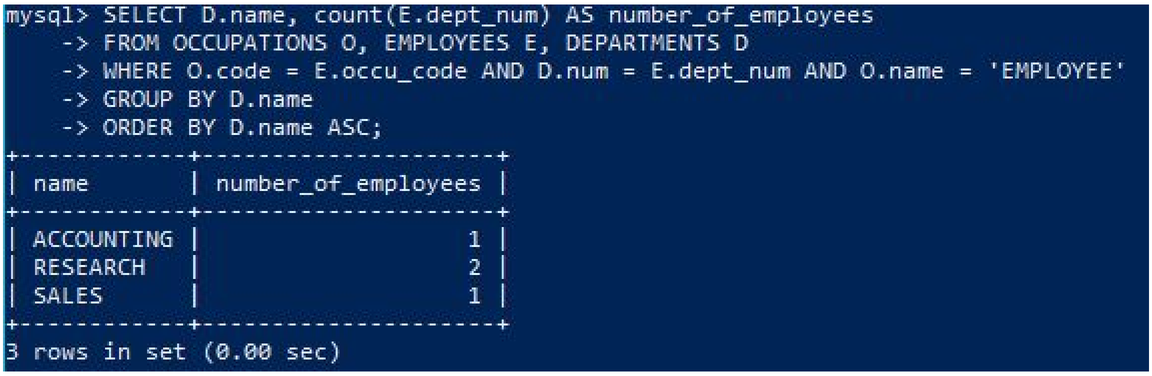
```
+----------+---------------------+
| name     | number_of_employees |
+----------+---------------------+
| EMPLOYEE |                   1 |
| MANAGER  |                   1 |
| SALESMAN |                   4 |
+----------+---------------------+
3 rows in set (0.001 sec)
```



```
mysql> SELECT O.name, count(E.dept_num) AS number_of_employees
    -> FROM OCCUPATIONS O, EMPLOYEES E, DEPARTMENTS D
    -> WHERE O.code = E.occu_code AND D.num = E.dept_num AND D.name = 'SALES'
    -> GROUP BY O.name
    -> ORDER BY O.name ASC;
+----------+---------------------+
| name     | number_of_employees |
+----------+---------------------+
| EMPLOYEE |                   1 |
| MANAGER  |                   1 |
| SALESMAN |                   4 |
+----------+---------------------+
3 rows in set (0.00 sec)
```

17. Display the number of employees of each department whose profession is "EMPLOYEE".

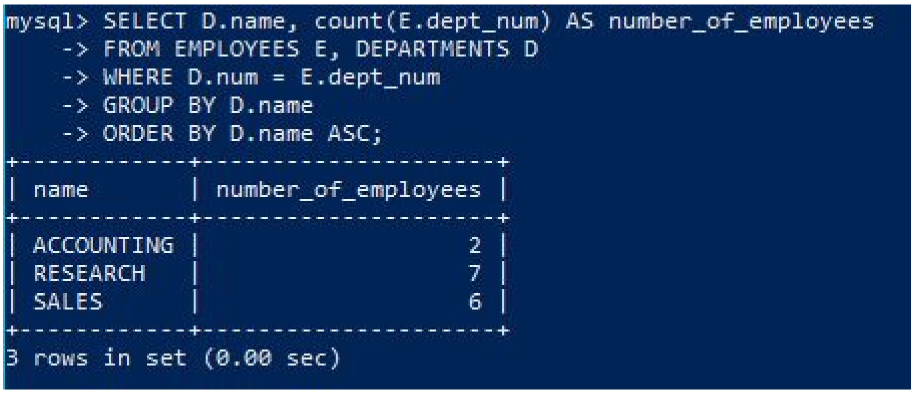
```
+------------+---------------------+
| name       | number_of_employees |
+------------+---------------------+
| ACCOUNTING |                   1 |
| RESEARCH   |                   2 |
| SALES      |                   1 |
+------------+---------------------+
3 rows in set (0.001 sec)
```



```
mysql> SELECT D.name, count(E.dept_num) AS number_of_employees
    -> FROM OCCUPATIONS O, EMPLOYEES E, DEPARTMENTS D
    -> WHERE O.code = E.occu_code AND D.num = E.dept_num AND O.name = 'EMPLOYEE'
    -> GROUP BY D.name
    -> ORDER BY D.name ASC;
+------------+---------------------+
| name       | number_of_employees |
+------------+---------------------+
| ACCOUNTING |                   1 |
| RESEARCH   |                   2 |
| SALES      |                   1 |
+------------+---------------------+
3 rows in set (0.00 sec)
```

18. Display de department names and the count of employees working into them.

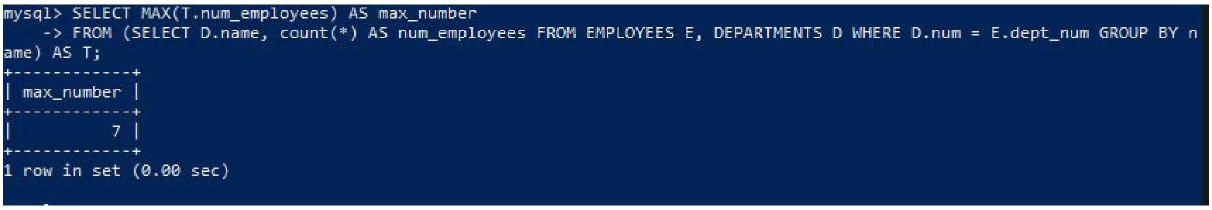
```
+------------+---------------------+
| name       | number_of_employees |
+------------+---------------------+
| ACCOUNTING |                   2 |
| RESEARCH   |                   7 |
| SALES      |                   6 |
+------------+---------------------+
3 rows in set (0.001 sec)
```



```
mysql> SELECT D.name, count(E.dept_num) AS number_of_employees
    -> FROM EMPLOYEES E, DEPARTMENTS D
    -> WHERE D.num = E.dept_num
    -> GROUP BY D.name
    -> ORDER BY D.name ASC;
+------------+---------------------+
| name       | number_of_employees |
+------------+---------------------+
| ACCOUNTING |                   2 |
| RESEARCH   |                   7 |
| SALES      |                   6 |
+------------+---------------------+
3 rows in set (0.00 sec)
```

19. Display the maximum number of employees of all the departments (clue: you need exercise 18 as a subquery and you should use MAX function).

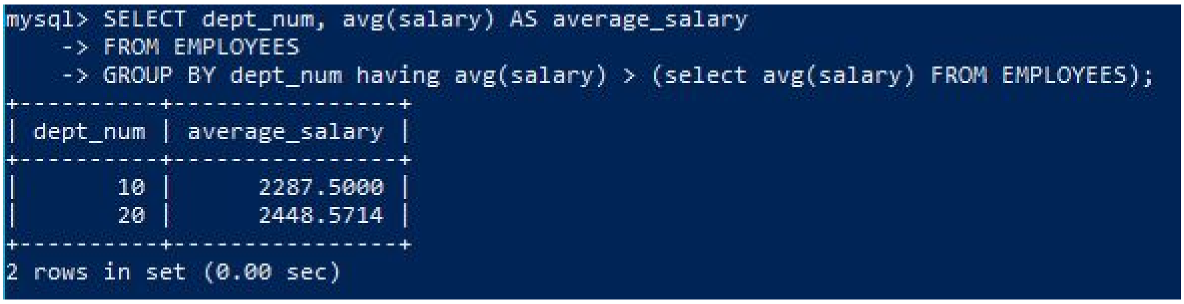
```
+------------+
| max_number |
+------------+
|          7 |
+------------+
1 row in set (0.001 sec)
```



```
mysql> SELECT MAX(T.num_employees) AS max_number
    -> FROM (SELECT D.name, count(*) AS num_employees FROM EMPLOYEES E, DEPARTMENTS D WHERE D.num = E.dept_num GROUP BY n
ame) AS T;
+------------+
| max_number |
+------------+
|          7 |
+------------+
1 row in set (0.00 sec)
```

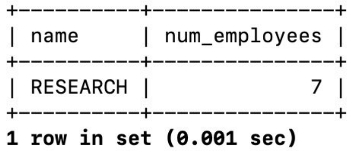
20. Show the departments whose average salary is greater than the average of salaries of all employees.

```
+----------+----------------+
| dept_num | average_salary |
+----------+----------------+
|       10 |      2287.5000 |
|       20 |      2448.5714 |
+----------+----------------+
2 rows in set (0.001 sec)
```



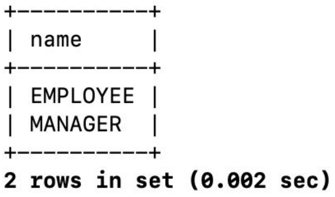
```
mysql> SELECT dept_num, avg(salary) AS average_salary
    -> FROM EMPLOYEES
    -> GROUP BY dept_num having avg(salary) > (select avg(salary) FROM EMPLOYEES);
+----------+----------------+
| dept_num | average_salary |
+----------+----------------+
|       10 |      2287.5000 |
|       20 |      2448.5714 |
+----------+----------------+
2 rows in set (0.00 sec)
```

21. DANGER, this is for PROS: Display the name of the department with more employees and its number of employees (clue you must use HAVING with a subselect inside).



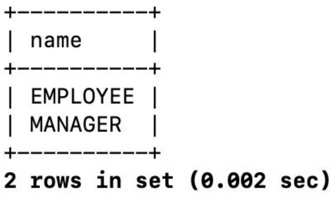
```
+-----------+---------------+
| name      | num_employees |
+-----------+---------------+
| RESEARCH  |             7 |
+-----------+---------------+
1 row in set (0.001 sec)
```

22. Repeat 12 changing “union” for “intersect”.



```
+-----------+
| name      |
+-----------+
| EMPLOYEE  |
| MANAGER   |
+-----------+
2 rows in set (0.002 sec)
```

23. Repeat 22 but do not use intersect operator to query the same data (clue: IN operator).



```
+-----------+
| name      |
+-----------+
| EMPLOYEE  |
| MANAGER   |
+-----------+
2 rows in set (0.002 sec)
```