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CS457

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Exercise 7.5:

a.

```
MariaDB [19610dm]> SELECT Dname, count(*)
    -> from DEPARTMENT, EMPLOYEE
    -> WHERE Dnumber=Dno
    -> group by Dname
    -> having avg(Salary)>30000;
+----------------+----------+
| Dname          | count(*) |
+----------------+----------+
| Administration |        2 |
| Headquarters   |        1 |
| Research       |        4 |
+----------------+----------+
3 rows in set (0.000 sec)
```

First, the query will select the group of employees with an average salary of over 30000. Next, it will check the Dno which is the Department number from the EMPLOYEE and DEPARTMENT table to match the group of employees. Then it selects the Dname and counts the number of employees in the department, returns the total number of employees in the department and sorts by the Department name.

b.

```
MariaDB [19610dm]> SELECT Dname, count(*)
    -> from DEPARTMENT, EMPLOYEE
    -> WHERE Dnumber=Dno AND Sex='M'
    -> group by Dname
    -> having avg(Salary)>30000;
+----------------+----------+
| Dname          | count(*) |
+----------------+----------+
| Administration |        1 |
| Headquarters   |        1 |
| Research       |        3 |
+----------------+----------+
3 rows in set (0.001 sec)
```

The query will process the same way as the question (a) but since it has the adding condition, it will select the group of employees where sex is male.

Exercise 7.6:

　a.

SELECT Name, Major FROM STUDENT

WHERE NOT EXISTS

(SELECT * FROM GRADE_REPORT

WHERE Student_number = STUDENT.Student_number AND NOT(Grade = 'A'));

=> The query will select the students who don't have a grade A and put them in a group. Then it selects the Name and Major values of students who are not in the previous group (as that group contains grades that differ from A)

　b.

SELECT Name, Major FROM STUDENT

WHERE NOT EXISTS

(SELECT * FROM GRADE_REPORT

WHERE Student_number = STUDENT.Student_number AND Grade = 'A');

=> Since the query will do the opposite of the query in question (a), we just need to eliminate the

group of students who get at least one A in their grades.

Exercise 7.7:

  a.

```
MariaDB [19610dm]> select Fname, Lname from EMPLOYEE where Dno =
    -> (select Dno from EMPLOYEE where Salary =
    -> (select max(Salary) from EMPLOYEE));
+-------+-------+
| Fname | Lname |
+-------+-------+
| James | Borg  |
+-------+-------+
1 row in set (0.000 sec)
```

The query will first select the max value of the salary in EMPLOYEE, then select the Dno of that

employee, and choose out Lname and Fname values.

  b.

```
MariaDB [19610dm]> select Fname, Lname from EMPLOYEE where Ssn in
    -> (select Ssn from EMPLOYEE where Super_ssn = '888665555');
+----------+-------+
| Fname    | Lname |
+----------+-------+
| Alicia   | Smith |
| Franklin | Wong  |
+----------+-------+
2 rows in set (0.000 sec)
```

The query will select a group of Ssn numbers corresponding to the Super_ssn of 888665555,

then choose the Fname and Lname values corresponding to those Ssn numbers.

c.

```
MariaDB [19610dm]> select Fname, Lname from EMPLOYEE
    -> where Salary >= 10000 + (select min(Salary) from EMPLOYEE);
+----------+---------+
| Fname    | Lname   |
+----------+---------+
| Alicia   | Smith   |
| Franklin | Wong    |
| Ramesh   | Narayan |
| John     | Zelaya  |
| James    | Borg    |
+----------+---------+
5 rows in set (0.000 sec)
```

The query will select the minimum salary in EMPLOYEE, and choose the Lname and Fname values of the employees whose salary is equal to or greater than 10000 + min(Salary)