WEEK 6 SQL – Aggregate functions

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PES2UG19CS203

Creating the Company database and inserting the records using the SQL scripts

```
postgres=# \c company
You are now connected to database "company" as user "postgres".
company=# \d
             List of relations
 Schema |      Name       | Type  |  Owner
--------+-----------------+-------+----------
 public | department      | table | postgres
 public | dependent       | table | postgres
 public | dept_locations  | table | postgres
 public | employee        | table | postgres
 public | project         | table | postgres
 public | works_on        | table | postgres
(6 rows)
```

1. Show the resulting salaries if every employee working on the 'ProductX' project is given a 10% raise

```
company=# SELECT FNAME, LNAME, 1.1*SALARY FROM EMPLOYEE, WORKS_ON, PROJECT WHERE SSN=ESSN AND PNO = PNUMBER AND PNAME = 'ProductX';
 fname |  lname  | ?column?
-------+---------+----------
 John  | Smith   | 33000.000
 Joyce | English | 27500.000
(2 rows)
```

2. Find the sum of the salaries of all employees of the 'Research' department, as well as the maximum salary, the minimum salary, and the average salary in this department

```
company=# SELECT SUM (SALARY), MAX (SALARY), MIN (SALARY), AVG (SALARY) FROM EMPLOYEE, DEPARTMENT WHERE DNO = DNUMBER AND DNAME= 'Research';
   sum   |  max   |  min   |          avg
---------+--------+--------+-----------------------
 133000.00 | 40000.00 | 25000.00 | 33250.000000000000
(1 row)
```

3. Count the number of distinct salary values in the database

```
company=# SELECT COUNT (DISTINCT SALARY) FROM EMPLOYEE;
 count
-------
     6
(1 row)
```

4. Retrieve the names of all employees who have two or more dependents

```
company=# SELECT FNAME, LNAME FROM EMPLOYEE WHERE (SELECT COUNT (*) FROM DEPENDENT WHERE SSN = ESSN) >=2;
  fname   | lname
----------+-------
 John     | Smith
 Franklin | Wong
(2 rows)
```

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

```
company=# SELECT DNO, COUNT (*), AVG (SALARY) FROM EMPLOYEE GROUP BY DNO;
 dno | count |         avg
-----+-------+--------------------
   5 |     4 | 33250.000000000000
   4 |     3 | 31000.000000000000
   1 |     1 | 55000.000000000000
(3 rows)
```

6. Retrieve the names of employees who make at least $10,000 more than the employee who is paid the least in the company.

```
company=# SELECT FNAME,LNAME FROM EMPLOYEE WHERE SALARY >= 10000 + (SELECT MIN(SALARY) FROM EMPLOYEE) ;
  fname   |  lname
----------+---------
 James    | Borg
 Franklin | Wong
 Jennifer | Wallace
 Ramesh   | Narayan
(4 rows)
```

7. Retrieve the names of all employees who work in the department that has the employee with the highest salary among all employees

```
company=# SELECT FNAME,LNAME FROM EMPLOYEE WHERE DNO = (SELECT DNO FROM EMPLOYEE WHERE SALARY = (SELECT MAX(SALARY) FROM EMPLOYEE));
 fname | lname
-------+-------
 James | Borg
(1 row)
```

8. Count the total number of employees whose salaries exceed $40,000 in each department.

```
company=# SELECT DNUMBER, COUNT (*) FROM DEPARTMENT, EMPLOYEE WHERE DNUMBER = DNO AND SALARY > 40000 AND DNO IN (SELECT DNO FROM EMPLOYEE GROUP BY DNO) GROUP BY DNUMBER;
 dnumber | count
---------+-------
       4 |     1
       1 |     1
(2 rows)
```