

UE19CS304 – DBMS LABORATORY

SRN: PES1UG19CS545

Name: Tushar Y S

Week6 : SQL – Aggregate functions.

- Creating Database and inserting data:

```
C:\Program Files\PostgreSQL\13\bin>psql -U postgres -f C:\Users\LENOVO\Desktop\companyddl.sql
Password for user postgres:
DROP DATABASE
CREATE DATABASE
You are now connected to database "company" as user "postgres".
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
CREATE TABLE
ALTER TABLE

C:\Program Files\PostgreSQL\13\bin>psql -U postgres -f C:\Users\LENOVO\Desktop\company_insert.sql
Password for user postgres:
You are now connected to database "company" as user "postgres".
ALTER TABLE
INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
```

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

- SELECT Fname,Minit,Lname, 1.1*Salary from employee as E, project as P, works_on as W where P.Pname='ProductX' and P.Pnumber=W.Pno and W.Essn=Ssn;

```
tushar_cs545=# SELECT Fname,Minit,Lname, 1.1*Salary from employee as E,project as P,works_on as W where P.Pname='ProductX' and P.Pnumber=W.Pno and W.Essn=E.Ssn;
 fname | minit | lname | ?column?
-----+-----+-----+-----
 John  | B     | Smith | 33000.000
 Joyce | A     | 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.

- SELECT sum(Salary),max(Salary),min(Salary),avg(Salary) from employee as E, department as D where D.Dname='Research' and D.Dnumber=E.Dno;

```
tushar_cs545=# SELECT sum(Salary),max(Salary),min(Salary),avg(Salary) from employee as E, department as D where D.Dname='Research' and D.Dnumber=E.Dno;
   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.

- SELECT count(distinct Salary) from employee;

```
tushar_cs545=# SELECT count (distinct Salary) from employee;
 count
-----
      6
(1 row)
```

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

- SELECT Fname,Minit,Lname from employee as E where (SELECT count(*) from dependent as D where D.Essn=E.Ssn)>=2;

```
tushar_cs545=# SELECT Fname,Minit,Lname from employee as E where (SELECT count(*) from dependent as D where D.Essn=E.Ssn)>=2;
  fname | minit | lname
-----+-----+-----
  John  | B     | Smith
Franklin | T     | Wong
(2 rows)
```

5. 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;

```
tushar_cs545=# 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.

- SELECT Fname,Minit,Lname from employee as E where (Select min(Salary)+1000 from employee) < Salary;

```
tushar_cs545=# SELECT Fname,Minit,Lname from employee as E where (Select min(Salary)+10000 from employee) < Salary;
 fname | minit | lname
-----+-----+-----
James  | E     | Borg
Franklin | T     | Wong
Jennifer | S     | Wallace
Ramesh  | K     | 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.

-SELECT Fname,Minit,Lname from employee as E where E.Dno= (Select E.Dno from employee as E where Salary= (select max(Salary) from employee));

```
tushar_cs545=# SELECT Fname,Minit,Lname from employee as E where E.Dno= (Select E.Dno from employee as E where Salary= (select max(Salary) from employee));
 fname | minit | lname
-----+-----+-----
James  | E     | Borg
(1 row)
```

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

- SELECT Dno,count(*) from employee where Salary > 40000 group by Dno;

```
tushar_cs545=# SELECT Dno,count(*) from employee where Salary > 40000 group by Dno;
```

```
 dno | count
```

```
-----+-----
```

```
  4  |      1
```

```
  1  |      1
```

```
(2 rows)
```