DBMS Lab Week 6

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Section : A

SQL – Aggregate functions.

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

Command : *update employee set salary=salary+(0.1*salary) where ssn in (select essn from works_on where pno in (select pnumber from project where pname='ProductX'));*

```
company=# update employee set salary=salary+(0.1*salary) where ssn in (select essn from works_on where pno in (select pnumber from project where pname='ProductX'));
UPDATE 2
company=# select * from employee;
  fname   | minit |  lname   |    ssn    |   bdate    |       address        | gender |  salary  | super_ssn | dno
----------+-------+----------+-----------+------------+----------------------+--------+----------+-----------+-----
 James    | E     | Borg     | 888665555 | 1937-11-10 | 450 Stone, Houston,TX    | M      | 55000.00 |           |   1
 Franklin | T     | Wong     | 333445555 | 1955-12-08 | 638 voss,Houston,TX      | M      | 40000.00 | 888665555 |   5
 Alicia   | J     | Zelaya   | 999887777 | 1968-01-19 | 3321 Castle,Spring,Tx    | F      | 25000.00 | 333445555 |   4
 Jennifer | S     | Wallace  | 987654321 | 1941-06-20 | 291 Berry, Bellaire,Tx   | F      | 43000.00 | 333445555 |   4
 Ramesh   | K     | Narayan  | 666884444 | 1962-09-15 | 975 Fire Oak, Humble, TX | M      | 38000.00 | 333445555 |   5
 Ahmed    | V     | Jabbar   | 987987987 | 1969-03-29 | 980 Dallas, Houston,TX   | M      | 25000.00 | 987654321 |   4
 John     | B     | Smith    | 123456789 | 1965-01-09 | 731 Fondren,Houston,TX   | M      | 33000.00 | 888665555 |   5
 Joyce    | A     | English  | 453453453 | 1972-07-31 | 5631 Rice,Houston,TX     | F      | 27500.00 | 333445555 |   5
(8 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.

Command : *select SUM(salary),MAX(salary),MIN(salary),AVG(salary) from employee where dno in (select dnumber from department where dname='Research');*

```
company=# select SUM(salary),MAX(salary),MIN(salary),AVG(salary) from employee where dno in (select dnumber from department where dname='Research');
   sum    |   max    |   min    |          avg
----------+----------+----------+-----------------------
 138500.00 | 40000.00 | 27500.00 | 34625.000000000000
(1 row)
```

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

Command : *select COUNT(DISTINCT(salary)) from employee;*

```
company=# select COUNT(DISTINCT(salary)) from employee;
 count
-------
     7
(1 row)
```

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

Command : *select fname,minit,lname from employee as e where (select COUNT(essn) from dependent where e.ssn=essn) >=2;*

```
company=# select fname,minit,lname from employee as e where (select COUNT(essn) from dependent where e.ssn=essn) >=2;
  fname   | minit | lname
----------+-------+-------
 Franklin | T     | Wong
 John     | B     | Smith
(2 rows)
```

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

Command : *Select dno,count(ssn),AVG(salary) from employee GROUP BY dno;*

```
company=# Select dno,count(ssn),AVG(salary) from employee GROUP BY dno;
 dno | count |        avg
-----+-------+--------------------
   5 |     4 | 34625.000000000000
   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.

Command : *select fname,minit,lname from employee where salary>= (select MIN(salary) from employee)+10000;*

```
company=# select fname,minit,lname from employee where salary>= (select MIN(salary) from employee)+10000;
  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.

Command : *select fname,minit,lname from employee where dno in (select dno from employee where salary in (select MAX(salary) from employee));*

```
company=# select fname,minit,lname from employee where dno in (select dno from employee where salary in (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

Command : *select dno,count(ssn) from employee where salary>40000 GROUP BY dno;*

```
company=# select dno,count(ssn) from employee where salary>40000 GROUP BY dno;
 dno | count
-----+-------
   4 |     1
   1 |     1
(2 rows)
```