DBMS LAB
SECOND ASSIGNMENT ON SQL

1. From the EMP table show the minimum, maximum and average basic for each department (show dept. Code).
2. Find the number of female employees in each department (show dept. Code).
3. Find the city wise no. of employees for each department (show dept. Code).
4. Show the designation wise no of employees who have joined in the year 2000 in each department. The listing should appear in the ascending order of no. of employees.
5. Find the department code wise total basic of male employees only for the departments for which such total is more than 50,000 and the listing should appear in the descending order of total basic.
6. Show the employee name, Designation description and basic for all employees.
7. Show the employee name, Designation description, Department Name & Basic for all employees.
8. Find the department Codes in which no employee works.
9. Find the department names where at least one employee works.
10. Find the department names where at least 10 employees work.
11. Find the department code in which employee with highest Basic works.
12. Find the Designation description of the employee with highest basic.
13. Find the no. of managers in each department.
14. Find the maximum basic from EMP table without using MAX().
15. Find the minimum basic from EMP table without using MIN().
16. Find the name of the department with highest total basic. Do the same for highest average basic and maximum no. of employee.
17. Insert same rows into EMP table with designation code not existing in DESIGNATION table.
18. Delete the rows from EMP table with invalid DESIG_CODE.
19. Find the name of the female employees with basic greater than the average basic of their respective department.
20. Find the number of female managers.

Answers

1.

```
=# select dept_code,max(basic) as maximum_pay, min(basic) as minimum_pay,
avg(basic) as average_pay from emp group by dept_code;
 dept_code | maximum_pay | minimum_pay |    average_pay
-----------+-------------+-------------+--------------------
 RND       |       80000 |           0 | 40000.000000000000
 FIN       |       60000 |           0 | 40000.000000000000
(2 rows)
```

2.

```
select dept_code, count(sex) as num_females from emp where sex='F' group by
dept_code;
 dept_code | num_females
-----------+-------------
 FIN       |           1
 RND       |           2
(2 rows)
```

3.

```
select city , dept_code, count(*)  as num_employees  from emp  group by city,
dept_code;
  city    | dept_code | num_employees
----------+-----------+---------------
 INDORE   | FIN       |             3
 KOLKATA | RND       |             2
 MUMBAI   | RND       |             2
(3 rows)
```

4.

```
=# select desig_code, dept_code, count(*) as num_emp from emp where
EXTRACT(YEAR from jn_dt)=2000 group by desig_code, dept_code order by num_emp;
 desig_code | dept_code | num_emp
------------+-----------+---------
 EXE        | PUR       |       1
 OFF        | PRO       |       1
 CLE        | PER       |       2
(3 rows)
```

5.

```
=# select dept_code, sum(basic) as total_basic from emp where sex='M' group by
dept_code having sum(basic) > 50000 order by total_basic desc;
 dept_code | total_basic
-----------+-------------
 RND       |      130000
 FIN       |       60000
(2 rows)
```

6.

```
select e.emp_name as name, d.desig_desc as designation_description, e.basic as
basic from emp as e, designation as d where e.desig_code = d.desig_code;
        name         | designation_description | basic
---------------------+-------------------------+-------
 Shuvayan G Dastidar | Manager                 | 80000
 RAMESH KUMAR        | Executive               | 50000
 PRIYA KUMAR         | Clerk                   | 30000
 MANPREET BORRA      | Officer                 | 60000
 ANISHA SAHA         | Officer                 |     0
 Ganesh Ram Kalla    | Manager                 |     0
 JANE COOPER         | Officer                 | 60000
 ASHLEY SINGH        | Officer                 | 60000
 ROHIT SINGH         | Clerk                   | 20000
 SHILEY SHAMAN       | Executive               | 40000
 ROSHAN SINGH        | Clerk                   | 30000
(11 rows)
```

7.

```
=# select e.emp_name as name, d.desig_desc as designation_description, e.basic
as basic, de.dept_name as department_name from emp as e, designation as d,
department as de where e.desig_code = d.desig_code and e.dept_code =
de.dept_code;
        name         | designation_description | basic | department_name
---------------------+-------------------------+-------+-----------------
 Shuvayan G Dastidar | Manager                 | 80000 | Research dept
 RAMESH KUMAR        | Executive               | 50000 | Research dept
 PRIYA KUMAR         | Clerk                   | 30000 | Research dept
 MANPREET BORRA      | Officer                 | 60000 | Finance
 ANISHA SAHA         | Officer                 |     0 | Research dept
 Ganesh Ram Kalla    | Manager                 |     0 | Finance
 JANE COOPER         | Officer                 | 60000 | Finance
 ASHLEY SINGH        | Officer                 | 60000 | Production
 ROHIT SINGH         | Clerk                   | 20000 | Personnnel
 SHILEY SHAMAN       | Executive               | 40000 | Purchase
 ROSHAN SINGH        | Clerk                   | 30000 | Personnnel
(11 rows)
```

8.

```
select emp_code, dept_code from emp;
 emp_code | dept_code
----------+-----------
 SHU      | RND
 RAM      | RND
 PRI      | RND
 MAN      | FIN
 ANI      | RND
 GAN      | FIN
 JAN      | FIN
 ROH      | PER
 ROS      | PER
(9 rows)

=# select * from department d where not exists( select * from emp e where
e.dept_code = d.dept_code );
 dept_code | dept_name
-----------+------------
 PRO       | Production
 PUR       | Purchase
(2 rows)
```

9.

```
select d.dept_code ,d.dept_name, count(*) as num_employees from department d ,
emp e where d.dept_code = e.dept_code group by e.dept_code,d.dept_code having
count(*) >= 1;
 dept_code |   dept_name    | num_employees
-----------+----------------+---------------
 FIN       | Finance        |             3
 RND       | Research dept  |             4
 PER       | Personnnel     |             2
(3 rows)
```

10.

```
=# select d.dept_code ,d.dept_name, count(*) as num_employees from department d
, emp e where d.dept_code = e.dept_code group by e.dept_code,d.dept_code having
count(*) >= 10;
 dept_code | dept_name | num_employees
-----------+-----------+---------------
(0 rows)
```

11.

```
=# select dept_code from emp where basic=( select max(basic) from emp);
 dept_code
-----------
 RND
(1 row)
```

12.

```
=# select d.desig_desc from emp e, designation d where basic=( select
max(basic) from emp) and e.desig_code = d.desig_code;
 desig_desc
------------
 Manager
(1 row)
```

13.

```
=# select dept_code, count(*) as count_managers from emp where desig_code='MAN'
group by dept_code;
 dept_code | count_managers
-----------+----------------
 FIN       |              1
 RND       |              1
(2 rows)
```

14.

```
=# select distinct basic as max_basic from emp e1 where not exists ( select 1
from emp e2 where e2.basic > e1.basic);
 max_basic
-----------
     80000
(1 row)
```

15.

```
=# select distinct basic as min_basic from emp e1 where not exists ( select 1
from emp e2 where e2.basic < e1.basic);
 min_basic
-----------
     0
(1 row)
```

16.

```
with CTE as ( select d.dept_name, e.dept_code,sum(basic) as total_basic from
emp e, department d where d.dept_code= e.dept_code group by
e.dept_code,d.dept_name )
select dept_name, total_basic from CTE where total_basic=( select
max(total_basic) from CTE);
   dept_name    | total_basic
---------------+-------------
 Research dept |      160000
(1 row)
```

```
with CTE as ( select d.dept_name, e.dept_code,avg(basic) as total_basic from
emp e, department d where d.dept_code= e.dept_code group by
e.dept_code,d.dept_name )
select dept_name, total_basic as max_avg_basic from CTE where
total_basic=( select max(total_basic) from CTE);
   dept_name    |   max_avg_basic
---------------+--------------------
 Finance       | 40000.000000000000
 Research dept | 40000.000000000000
(2 rows)
```

```
with CTE as ( select d.dept_name, e.dept_code, count(*) as num_employees from
emp e, department d where d.dept_code= e.dept_code group by
e.dept_code,d.dept_name )
select dept_name, num_employees as max_num_employees from CTE where
num_employees=( select max(num_employees) from CTE);
   dept_name    | max_num_employees
---------------+-------------------
 Research dept |                 4
(1 row)
```

19.

```
select * from emp;
 emp_code |      emp_name       | dept_code | desig_code | sex |        address
|  city   |    state     |  pin   | basic |   jn_dt
----------+---------------------+-----------+------------+-----
+---------------------+---------+-------------+--------+-------+------------
 SHU      | Shuvayan G Dastidar | RND       | MAN        | M   | KOLKATA-30
| KOLKATA | WEST BENGAL  | 700030 | 80000 | 2021-06-01
 RAM      | RAMESH KUMAR        | RND       | EXE        | M   | KOLKATA-30,
man road  | KOLKATA | WEST BENGAL  | 700020 | 50000 | 2021-06-01
 PRI      | PRIYA KUMAR         | RND       | CLE        | F   | MUMBAI-30,
CREEK ROAD | MUMBAI  | MAHARASHTRA  | 700067 | 30000 | 2021-06-01
 MAN      | MANPREET BORRA      | FIN       | OFF        | M   | 70, Dadar,
| INDORE  | UTTARPRADESH | 351942 | 60000 | 2021-06-01
 ANI      | ANISHA SAHA         | RND       | OFF        | F   | MUMBAI-30
| MUMBAI  | MAHARASHTRA  | 700087 |     0 | 2021-06-01
 GAN      | Ganesh Ram Kalla    | FIN       | MAN        | M   | 70, Dadar,
| INDORE  | UTTARPRADESH | 351942 |     0 | 2021-06-01
 JAN      | JANE COOPER         | FIN       | OFF        | F   | 70, Dadar,
| INDORE  | UTTARPRADESH | 351942 | 60000 | 2021-01-01
 ROH      | ROHIT SINGH         | PER       | CLE        | M   | 70, Dadar,
| GUJARAT | UTTARPRADESH | 351942 | 20000 | 2000-04-12
 ROS      | ROSHAN SINGH        | PER       | CLE        | M   | 70, Dadar,
| GUJARAT | UTTARPRADESH | 351942 | 30000 | 2000-07-12
(9 rows)

=# select emp_name from emp e where sex='F' and basic > ( select avg(basic)
from emp e2 where e2.dept_code = e.dept_code);
  emp_name
-------------
 JANE COOPER
(1 row)
```

20.

```
select count(*) as female_managers from emp where sex='F' and desig_code='MAN';
 female_managers
-----------------
               0
(1 row)
```