Assignment-19
Group by function
Kaviya C

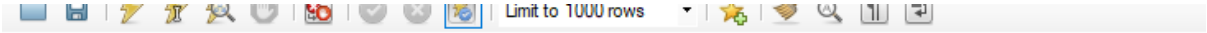
Create a table of Employees with below mentioned fields and insert the data and then write the queries to the below questions.

```
EMPLOYEE_ID | FIRST_NAME  | LAST_NAME   | EMAIL    | PHONE_NUMBER       |
HIRE_DATE  | JOB_ID     | SALARY   | COMMISSION_PCT | MANAGER_ID |
DEPARTMENT_ID |
+-------------+-------------+-------------+----------+--------------------
+------------+------------+----------+----------------+------------+-------
--------+
|         100 | Steven      | King        | SKING    | 515.123.4567       |
1987-06-17 | AD_PRES    | 24000.00 |           0.00 |          0 |
                 90 |
|         101 | Neena       | Kochhar     | NKOCHHAR | 515.123.4568       |
1987-06-18 | AD_VP      | 17000.00 |           0.00 |        100 |
90 |
|         102 | Lex         | De Haan     | LDEHAAN  | 515.123.4569       |
1987-06-19 | AD_VP      | 17000.00 |           0.00 |        100 |
90 |
|         103 | Alexander   | Hunold      | AHUNOLD  | 590.423.4567       |
1987-06-20 | IT_PROG    |  9000.00 |           0.00 |        102 |
60 |
|         104 | Bruce       | Ernst       | BERNST   | 590.423.4568       |
1987-06-21 | IT_PROG    |  6000.00 |           0.00 |        103 |
60 |
|         105 | David       | Austin      | DAUSTIN  | 590.423.4569       |
1987-06-22 | IT_PROG    |  4800.00 |           0.00 |        103 |
60 |
|         106 | Valli       | Pataballa   | VPATABAL | 590.423.4560       |
1987-06-23 | IT_PROG    |  4800.00 |           0.00 |        103 |
60 |
|         107 | Diana       | Lorentz     | DLORENTZ | 590.423.5567       |
1987-06-24 | IT_PROG    |  4200.00 |           0.00 |        103 |
60 |
|         108 | Nancy       | Greenberg   | NGREENBE | 515.124.4569       |
1987-06-25 | FI_MGR     | 12000.00 |           0.00 |        101 |
100 |
|         109 | Daniel      | Faviet      | DFAVIET  | 515.124.4169       |
1987-06-26 | FI_ACCOUNT |  9000.00 |           0.00 |        108 |
100 |
|         110 | John        | Chen        | JCHEN    | 515.124.4269       |
1987-06-27 | FI_ACCOUNT |  8200.00 |           0.00 |        108 |
100 |
|         111 | Ismael      | Sciarra     | ISCIARRA | 515.124.4369       |
1987-06-28 | FI_ACCOUNT |  7700.00 |           0.00 |        108 |
100 |
|         112 | Jose Manuel | Urman       | JMURMAN  | 515.124.4469       |
1987-06-29 | FI_ACCOUNT |  7800.00 |           0.00 |        108 |
100 |
|         113 | Luis        | Popp        | LPOPP    | 515.124.4567       |
1987-06-30 | FI_ACCOUNT |  6900.00 |           0.00 |        108 |
100 |
|         114 | Den         | Raphaely    | DRAPHEAL | 515.127.4561       |
1987-07-01 | PU_MAN     | 11000.00 |           0.00 |        100 |
30 |
```

```
|         115 | Alexander    | Khoo         | AKHOO     | 515.127.4562        |
1987-07-02 | PU_CLERK     |  3100.00 |            0.00 |         114 |
30 |
```

```sql

create database Ass20;
use Ass20;
create table Employees
(
 employee_id int primary key,
 first_name varchar(15),
 last_name varchar(10),
 email varchar(25),
 phone_number long,
 hire_date date,
 job_id varchar(15),
 salary long,
 commission_pct double,
 manager_id int ,
 department_id  int
)
;
```




```sql
insert into employees values(100,'Steven','King','SKING','515.123.4567','1987-06-17',
'AD_PRES',24000.00,0.00,0,90);
insert into employees values(101,'Neena','Kochhar','NKOCHHAR','515.123.4568','1987-06-18',
'AD_VP',17000.00,0.00,100,90);
insert into employees values(102,'Lex','De Haan','LDEHAAN','515.423.4569','1987-06-19',
'AD_VP',17000.00,0.00,100,90);
insert into employees values(103,'Alexander','Hunold','AHUNOLD','590.123.4567','1987-06-20',
'IT_PROG',9000.00,0.00,102,60);
insert into employees values(104,'Bruce','ERNST','BERNST','590.423.4568','1987-06-21',
'IT_PROG',6000.00,0.00,103,60);
insert into employees values(105,'David','Austin','DAUSTIN','590.423.4569','1987-06-22',
'IT_PROG',4800.00,0.00,103,60);
insert into employees values(106,'Vali','Pataballa','VPATABAL','590.423.4560','1987-06-23',
'IT_PROG',4800.00,0.00,103,60);
insert into employees values(107,'Diana','Lorentz','DLORENTZ','590.423.5567','1987-06-24',
'IT_PROG',4200.00,0.00,103,60);
insert into employees values(108,'Nancy','GreenBerg','NGREENBE','515.124.4569','1987-06-25',
'FI_MGR',12000.00,0.00,101,100);
insert into employees values(109,'Daniel','Faviet','DFAVIET','515.123.4169','1987-06-26',
'FI_ACCOUNT',9000.00,0.00,108,100);
insert into employees values(110,'John','Chen','JCHEN','515.123.4269','1987-06-27',
'FI_ACCOUNT',8200.00,0.00,108,100);
```

```
161 • insert into employees values(111,'Ismael','Sciarra','ISCIARRA','515.123.4369','1987-06-28',
162     'FI_ACCOUNT',7700.00,0.00,108,100);
163 • insert into employees values(112,'Jose Manuel','Urman','JMURMAN','515.123.4469','1987-06-29',
164     'FI_ACCOUNT',7800.00,0.00,108,100);
165 • insert into employees values(113,'Luis','Popp','LPOPP','515.123.4567','1987-06-30',
166     'FI_ACCOUNT',6900.00,0.00,108,100);
167 • insert into employees values(114,'Den','Raphaely','DRAPHEAL','515.123.4561','1987-07-01',
168     'PU_MAN',11000.00,0.00,100,30);
169 • insert into employees values(115,'Alexander','Khoo','AKHOO','515.123.4562','1987-07-02',
170     'PU_CLERK',31000.00,0.00,114,30);
```

Output:

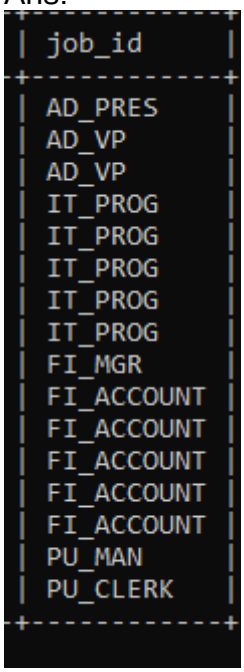
```
mysql> use ass20;
Database changed
mysql> show tables;
+-----------------+
| Tables_in_ass20 |
+-----------------+
| employees       |
+-----------------+
1 row in set (0.02 sec)

mysql> desc employees;
+-----------------+-------------+------+-----+---------+-------+
| Field           | Type        | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
| employee_id     | int         | NO   | PRI | NULL    |       |
| first_name      | varchar(15) | YES  |     | NULL    |       |
| last_name       | varchar(10) | YES  |     | NULL    |       |
| email           | varchar(25) | YES  |     | NULL    |       |
| phone_number    | mediumtext  | YES  |     | NULL    |       |
| hire_date       | date        | YES  |     | NULL    |       |
| job_id          | varchar(15) | YES  |     | NULL    |       |
| salary          | mediumtext  | YES  |     | NULL    |       |
| commission_pct  | double      | YES  |     | NULL    |       |
| manager_id      | int         | YES  |     | NULL    |       |
| department_id   | int         | YES  |     | NULL    |       |
+-----------------+-------------+------+-----+---------+-------+
```

DATA INSERTED

```
mysql> select* from employees;
+-------------+-------------+-----------+----------+--------------+------------+------------+----------+----------------+------------+---------------+
| employee_id | first_name  | last_name | email    | phone_number | hire_date  | job_id     | salary   | commission_pct | manager_id | department_id |
+-------------+-------------+-----------+----------+--------------+------------+------------+----------+----------------+------------+---------------+
|         100 | Steven      | King      | SKING    | 515.123.4567 | 1987-06-17 | AD_PRES    | 24000.00 |              0 |          0 |            90 |
|         101 | Neena       | Kochhar   | NKOCHHAR | 515.123.4568 | 1987-06-18 | AD_VP      | 17000.00 |              0 |        100 |            90 |
|         102 | Lex         | De Haan   | LDEHAAN  | 515.423.4569 | 1987-06-19 | AD_VP      | 17000.00 |              0 |        100 |            90 |
|         103 | Alexander   | Hunold    | AHUNOLD  | 590.123.4567 | 1987-06-20 | IT_PROG    | 9000.00  |              0 |        102 |            60 |
|         104 | Bruce       | ERNST     | BERNST   | 590.423.4568 | 1987-06-21 | IT_PROG    | 6000.00  |              0 |        103 |            60 |
|         105 | David       | Austin    | DAUSTIN  | 590.423.4569 | 1987-06-22 | IT_PROG    | 4800.00  |              0 |        103 |            60 |
|         106 | Vali        | Pataballa | VPATABAL | 590.423.4560 | 1987-06-23 | IT_PROG    | 4800.00  |              0 |        103 |            60 |
|         107 | Diana       | Lorentz   | DLORENTZ | 590.423.5567 | 1987-06-24 | IT_PROG    | 4200.00  |              0 |        103 |            60 |
|         108 | Nancy       | GreenBerg | NGREENBE | 515.124.4569 | 1987-06-25 | FI_MGR     | 12000.00 |              0 |        101 |           100 |
|         109 | Daniel      | Faviet    | DFAVIET  | 515.123.4169 | 1987-06-26 | FI_ACCOUNT | 9000.00  |              0 |        108 |           100 |
|         110 | John        | Chen      | JCHEN    | 515.123.4269 | 1987-06-27 | FI_ACCOUNT | 8200.00  |              0 |        108 |           100 |
|         111 | Ismael      | Sciarra   | ISCIARRA | 515.123.4369 | 1987-06-28 | FI_ACCOUNT | 7700.00  |              0 |        108 |           100 |
|         112 | Jose Manuel | Urman     | JMURMAN  | 515.123.4469 | 1987-06-29 | FI_ACCOUNT | 7800.00  |              0 |        108 |           100 |
|         113 | Luis        | Popp      | LPOPP    | 515.123.4567 | 1987-06-30 | FI_ACCOUNT | 6900.00  |              0 |        108 |           100 |
|         114 | Den         | Raphaely  | DRAPHEAL | 515.123.4561 | 1987-07-01 | PU_MAN     | 11000.00 |              0 |        100 |            30 |
|         115 | Alexander   | Khoo      | AKHOO    | 515.123.4562 | 1987-07-02 | PU_CLERK   | 31000.00 |              0 |        114 |            30 |
+-------------+-------------+-----------+----------+--------------+------------+------------+----------+----------------+------------+---------------+
16 rows in set (0.14 sec)
```

1.Write a query to list the number of jobs available in the employees table:
Ans:



job_id
AD_PRES
AD_VP
AD_VP
IT_PROG
IT_PROG
IT_PROG
IT_PROG
IT_PROG
FI_MGR
FI_ACCOUNT
FI_ACCOUNT
FI_ACCOUNT
FI_ACCOUNT
FI_ACCOUNT
PU_MAN
PU_CLERK

QUERY

```
mysql> select COUNT(DISTINCT job_id)from employees;
+------------------------+
| COUNT(DISTINCT job_id) |
+------------------------+
|                      7 |
+------------------------+
1 row in set (0.07 sec)
```

2. Write a query to get the total salaries payable to employees.

ANS:

QUERY:

```
mysql> select SUM(salary)from employees;
+-------------+
| SUM(salary) |
+-------------+
|      180400 |
+-------------+
1 row in set (0.04 sec)
```

3. Write a query to get the minimum salary from employees table.

ANS:

QUERY:

```
mysql> select MIN(salary) as minimum_salary from employees;
+----------------+
| minimum_salary |
+----------------+
| 11000.00       |
+----------------+
1 row in set (0.00 sec)
```

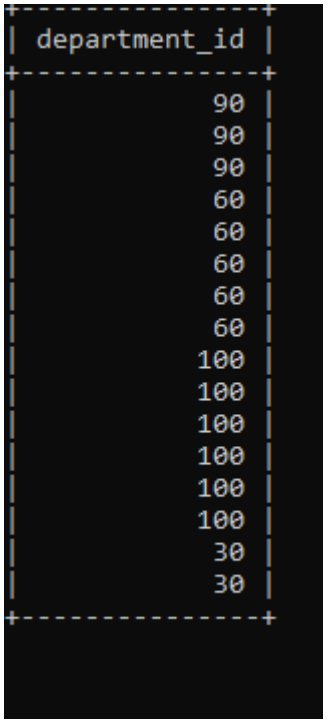
4. Write a query to get the maximum salary of an employee working as a Programmer.

QUERY:

```
mysql> select MAX(salary) as IT_Programmer_maximum_salary  from employees where job_id='IT_PROG';
+-----------------------------+
| IT_Programmer_maximum_salary |
+-----------------------------+
| 9000.00                     |
+-----------------------------+
```

5. Write a query to get the average salary and number of employees working the department 90.

QUERY:



department_id
90
90
90
60
60
60
60
60
100
100
100
100
100
100
30
30

Above only 3 employee have same department id is 90

So only count shows as 3:

```
mysql> select AVG(salary),COUNT(*) from employees where department_id=90;
+--------------------+----------+
| AVG(salary)        | COUNT(*) |
+--------------------+----------+
| 19333.333333333332 |        3 |
+--------------------+----------+
```

6. Write a query to get the highest, lowest, sum, and average salary of all employees.

QUERY:

```
mysql> select  ROUND(MAX(salary),0) 'MAXIMUM',
    -> ROUND(MIN(salary),0) 'MINIMUM',
    -> ROUND(SUM(salary),0) 'TOTAL_AMOUNT',
    -> ROUND(AVG(salary),0)   'AVERAGE'
    -> from employees;
+---------+---------+--------------+---------+
| MAXIMUM | MINIMUM | TOTAL_AMOUNT | AVERAGE |
+---------+---------+--------------+---------+
|    9000 |   11000 |       180400 |   11275 |
+---------+---------+--------------+---------+
1 row in set (0.09 sec)
```

7. Write a query to get the number of employees with the same job.

QUERY:

```
mysql> select job_id,count(*) from employees group by job_id;
+------------+----------+
| job_id     | count(*) |
+------------+----------+
| AD_PRES    |        1 |
| AD_VP      |        2 |
| IT_PROG    |        5 |
| FI_MGR     |        1 |
| FI_ACCOUNT |        5 |
| PU_MAN     |        1 |
| PU_CLERK   |        1 |
+------------+----------+
7 rows in set (0.15 sec)
```

8. Write a query to get the difference between the highest and lowest salaries.

QUERY:

```
mysql> select MAX(salary)-MIN(salary) DIFFERENCE from employees;
+------------+
| DIFFERENCE |
+------------+
|      -2000 |
+------------+
1 row in set (0.06 sec)
```

9. Write a query to find the manager ID and the salary of the lowest-paid employee for that manager.

QUERY:

```
mysql> select manager_id,MIN(salary) from employees
    -> WHERE manager_id is NOT NULL group by manager_id
    -> ORDER BY MIN(salary) DESC;
+------------+-------------+
| manager_id | MIN(salary) |
+------------+-------------+
|        102 | 9000.00     |
|        108 | 6900.00     |
|        103 | 4200.00     |
|        114 | 31000.00    |
|          0 | 24000.00    |
|        101 | 12000.00    |
|        100 | 11000.00    |
+------------+-------------+
7 rows in set (0.11 sec)
```

10. Write a query to get the department ID and the total salary payable in each department.

QUERY:

```
mysql> select department_id ,
    -> SUM(salary) from employees
    -> GROUP BY department_id;
+---------------+-------------+
| department_id | SUM(salary) |
+---------------+-------------+
|            90 |       58000 |
|            60 |       28800 |
|           100 |       51600 |
|            30 |       42000 |
+---------------+-------------+
```

11. Write a query to get the average salary for each job ID excluding programmer.

QUERY:

```
mysql> select job_id,AVG(salary) from employees where job_id <>'IT_PROG' group by job_id
    -> ;
+------------+-------------+
| job_id     | AVG(salary) |
+------------+-------------+
| AD_PRES    |       24000 |
| AD_VP      |       17000 |
| FI_MGR     |       12000 |
| FI_ACCOUNT |        7920 |
| PU_MAN     |       11000 |
| PU_CLERK   |       31000 |
+------------+-------------+
```

12. Write a query to get the total salary, maximum, minimum, average salary of employees (job ID wise), for department ID 90 only.

QUERY:

```
+------------+----------+----------------+------------+---------------+
| job_id     | salary   | commission_pct | manager_id | department_id |
+------------+----------+----------------+------------+---------------+
| AD_PRES    | 24000.00 |              0 |          0 |            90 |
| AD_VP      | 17000.00 |              0 |        100 |            90 |
| AD_VP      | 17000.00 |              0 |        100 |            90 |
```

13.Write a query to get the job ID and maximum salary of the employees where maximum salary is greater than or equal to $4000.

QUERY:

```
mysql> select job_id,
    -> MAX(salary) as maximum from employees
    -> GROUP BY job_id
    -> HAVING
    -> MAX(salary) >=4000;
+------------+----------+
| job_id     | maximum  |
+------------+----------+
| AD_PRES    | 24000.00 |
| AD_VP      | 17000.00 |
| IT_PROG    | 9000.00  |
| FI_MGR     | 12000.00 |
| FI_ACCOUNT | 9000.00  |
| PU_MAN     | 11000.00 |
| PU_CLERK   | 31000.00 |
+------------+----------+
7 rows in set (0.10 sec)
```

14. Write a query to get the average salary for all departments employing more than 10 employees.

QUERY:

```
mysql> select department_id,AVG(salary)as AVERAGE ,COUNT(*) as COUNT_greater_5 from employees group by department_id
    -> HAVING COUNT(*)>=5;
+---------------+---------+-----------------+
| department_id | AVERAGE | COUNT_greater_5 |
+---------------+---------+-----------------+
|            60 |    5760 |               5 |
|           100 |    8600 |               6 |
+---------------+---------+-----------------+
```