CSE 370
Lab Assignment -2

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Section - 3

First create the table and input the data into the table :

Query : create table employess (
employee_id char(10),
first_name varchar(20),
last_name varchar(20),
email varchar(60),
phone_number char(14),
hire_date date,
job_id char(10),
salary int,
commission_pct decimal(5,3),
manager_id char(10),
department_id char(10)
);

```
MariaDB [(none)]> use 23241078_lab2;
Database changed
MariaDB [23241078_lab2]> create table employess (
    ->  employee_id char(10),
    ->  first_name varchar(20),
    ->  last_name varchar(20),
    ->  email varchar(60),
    ->  phone_number char(14),
    ->  hire_date date,
    ->  job_id char(10),
    ->  salary int,
    ->  commission_pct decimal(5,3),
    ->  manager_id char(10),
    ->  department_id char(10)
    -> );
Query OK, 0 rows affected (0.032 sec)
```

```
MariaDB [23241078_lab2]> describe employess;
+----------------+--------------+------+-----+---------+-------+
| Field          | Type         | Null | Key | Default | Extra |
+----------------+--------------+------+-----+---------+-------+
| employee_id    | char(10)     | YES  |     | NULL    |       |
| first_name     | varchar(20)  | YES  |     | NULL    |       |
| last_name      | varchar(20)  | YES  |     | NULL    |       |
| email          | varchar(60)  | YES  |     | NULL    |       |
| phone_number   | char(14)     | YES  |     | NULL    |       |
| hire_date      | date         | YES  |     | NULL    |       |
| job_id         | char(10)     | YES  |     | NULL    |       |
| salary         | int(11)      | YES  |     | NULL    |       |
| commission_pct | decimal(5,3) | YES  |     | NULL    |       |
| manager_id     | char(10)     | YES  |     | NULL    |       |
| department_id  | char(10)     | YES  |     | NULL    |       |
+----------------+--------------+------+-----+---------+-------+
11 rows in set (0.022 sec)
```

Insert into employess values
("E001", "Ashraful", "Islam", "ashrafulislam@gmail.com", "21301501", "1999-09-20",
"JOB001", 100000, 0.05, "MNG001", "DPT001"),
("E002", "Pulak", "DebRoy", "pulakdebroy@gmail.com", "21301502", "2004-09-30",
"JOB002", 60000, 0.05, "MNG002", "DPT002"),
("E003", "Didar", "Islam", "didarislam@gmail.com", "21301503", "2003-09-30",
"JOB003", 25000, 0.3, "MNG003", "DPT003"),
("E004", "Zawad", "Redwan", "zawadredwan@gmail.com", "21301504", "2005-09-28",
"JOB004", 65000, 0.08, "MNG004", "DPT005"),
("E005", "Arundhati", "Sarkar", "arundhatisarkar@gmail.com", "21301505", "2003-09-30",
"JOB005", 60000, 0.32, "MNG001", "DPT007"),
("E006", "Mahfuz", "Mukto", "mahfuzmukto@gmail.com", "21301506", "2003-09-30",
"JOB006", 45000, 0.25, "MNG002", "DPT002"),
("E007", "Nirvik", "Saha", "nirviksaha@gmail.com", "21301507", "2007-05-10",
"JOB002", 3000, 0.45, "MNG003", "DPT007"),
("E008", "Utshob", "Bose", "utshobbose@gmail.com", "21301508", "2004-10-30",
"JOB004", 20000, 0.025, "MNG004", "DPT005"),
("E009", "Tasnim", "Alam", "tasnimalam@gmail.com", "21301509", "2004-09-30",
"JOB007", 30000, 0.3, "MNG001", "DPT007"),
("E010", "Towfiq", "Alam", "towfiqalam@gmail.com", "21301510", "1999-09-20",
"JOB002", 2110, 0.5, "MNG002", "DPT002"),
("E011", "Prangon", "Das", "prangondas@gmail.com", "21301511", "1980-06-01",
"JOB002", 18000, 0.35, "MNG003", "DPT005");

```
MariaDB [23241078_lab2]> Insert into employess values
    -> ("E001", "Ashraful", "Islam", "ashrafulislam@gmail.com", "21301501", "1999-09-20",
    -> "JOB001", 100000, 0.05, "MNG001", "DPT001"),
    -> ("E002", "Pulak", "DebRoy", "pulakdebroy@gmail.com", "21301502", "2004-09-30",
    -> "JOB002", 60000, 0.05, "MNG002", "DPT002"),
    -> ("E003", "Didar", "Islam", "didarislam@gmail.com", "21301503", "2003-09-30",
    -> "JOB003", 25000, 0.3, "MNG003", "DPT003"),
    -> ("E004", "Zawad", "Redwan", "zawadredwan@gmail.com", "21301504", "2005-09-28",
    -> "JOB004", 65000, 0.08, "MNG004", "DPT005"),
    -> ("E005", "Arundhati", "Sarkar", "arundhatisarkar@gmail.com", "21301505", "2003-09-30",
    -> "JOB005", 60000, 0.32, "MNG001", "DPT007"),
    -> ("E006", "Mahfuz", "Mukto", "mahfuzmukto@gmail.com", "21301506", "2003-09-30",
    -> "JOB006", 45000, 0.25, "MNG002", "DPT002"),
    -> ("E007", "Nirvik", "Saha", "nirviksaha@gmail.com", "21301507", "2007-05-10",
    -> "JOB002", 3000, 0.45, "MNG003", "DPT007"),
    -> ("E008", "Utshob", "Bose", "utshobbose@gmail.com", "21301508", "2004-10-30",
    -> "JOB004", 20000, 0.025, "MNG004", "DPT005"),
    -> ("E009", "Tasnim", "Alam", "tasnimalam@gmail.com", "21301509", "2004-09-30",
    -> "JOB007", 30000, 0.3, "MNG001", "DPT007"),
    -> ("E010", "Towfiq", "Alam", "towfiqalam@gmail.com", "21301510", "1999-09-20",
    -> "JOB002", 2110, 0.5, "MNG002", "DPT002"),
    -> ("E011", "Prangon", "Das", "prangondas@gmail.com", "21301511", "1980-06-01",
    -> "JOB002", 18000, 0.35, "MNG003", "DPT005");
Query OK, 11 rows affected (0.007 sec)
Records: 11  Duplicates: 0  Warnings: 0
```

```
MariaDB [23241078_lab2]> select * from employess;
+-------------+------------+-----------+-------------------------+--------------+------------+--------+--------+----------------+------------+---------------+
| employee_id | first_name | last_name | email                   | phone_number | hire_date  | job_id | salary | commission_pct | manager_id | department_id |
+-------------+------------+-----------+-------------------------+--------------+------------+--------+--------+----------------+------------+---------------+
| E001        | Ashraful   | Islam     | ashrafulislam@gmail.com | 21301501     | 1999-09-20 | JOB001 | 100000 |          0.050 | MNG001     | DPT001        |
| E002        | Pulak      | DebRoy    | pulakdebroy@gmail.com   | 21301502     | 2004-09-30 | JOB002 |  60000 |          0.050 | MNG002     | DPT002        |
| E003        | Didar      | Islam     | didarislam@gmail.com    | 21301503     | 2003-09-30 | JOB003 |  25000 |          0.300 | MNG003     | DPT003        |
| E004        | Zawad      | Redwan    | zawadredwan@gmail.com   | 21301504     | 2005-09-28 | JOB004 |  65000 |          0.080 | MNG004     | DPT005        |
| E005        | Arundhati  | Sarkar    | arundhatisarkar@gmail.com | 21301505   | 2003-09-30 | JOB005 |  60000 |          0.320 | MNG001     | DPT007        |
| E006        | Mahfuz     | Mukto     | mahfuzmukto@gmail.com   | 21301506     | 2003-09-30 | JOB006 |  45000 |          0.250 | MNG002     | DPT002        |
| E007        | Nirvik     | Saha      | nirviksaha@gmail.com    | 21301507     | 2007-05-10 | JOB002 |   3000 |          0.450 | MNG003     | DPT007        |
| E008        | Utshob     | Bose      | utshobbose@gmail.com    | 21301508     | 2004-10-30 | JOB004 |  20000 |          0.025 | MNG004     | DPT005        |
| E009        | Tasnim     | Alam      | tasnimalam@gmail.com    | 21301509     | 2004-09-30 | JOB007 |  30000 |          0.300 | MNG001     | DPT007        |
| E010        | Towfiq     | Alam      | towfiqalam@gmail.com    | 21301510     | 1999-09-20 | JOB002 |   2110 |          0.500 | MNG002     | DPT002        |
| E011        | Prangon    | Das       | prangondas@gmail.com    | 21301511     | 1980-06-01 | JOB002 |  18000 |          0.350 | MNG003     | DPT005        |
+-------------+------------+-----------+-------------------------+--------------+------------+--------+--------+----------------+------------+---------------+
11 rows in set (0.001 sec)
```

1. Find the **first_name, last_name, email, phone_number, hire_date** and **department_id** of all the employees with the latest **hire_date**.

   Query : select first_name, last_name, email, phone_number, hire_date, department_id FROM employess WHERE hire_date = (SELECT MAX(hire_date) FROM employess);

```
MariaDB [23241078_lab2]> select first_name, last_name, email, phone_number, hire_date,
    -> department_id FROM employess WHERE hire_date = (SELECT
    -> MAX(hire_date) FROM employess);
+------------+-----------+---------------------+--------------+------------+---------------+
| first_name | last_name | email               | phone_number | hire_date  | department_id |
+------------+-----------+---------------------+--------------+------------+---------------+
| Nirvik     | Saha      | nirviksaha@gmail.com | 21301507     | 2007-05-10 | DPT007        |
+------------+-----------+---------------------+--------------+------------+---------------+
1 row in set (0.019 sec)
```

2. Find the ***first_name***, ***last_name***, ***employee_id***, ***phone_number, salary*** and ***department_id*** of all the employees with the lowest **salary** in each department.

   Query : select e.first_name, e.last_name, e.employee_id, e.phone_number, e.salary, e.department_id from employess e inner join (select department_id, min(salary) as min_salary from employess group by department_id) m on e.department_id = m.department_id and e.salary = m.min_salary;

```
MariaDB [23241078_lab2]> select e.first_name, e.last_name, e.employee_id, e.phone_number, e.salary,
    -> e.department_id from employess e inner join (select department_id,
    -> min(salary) as min_salary from employess group by department_id) m
    -> on e.department_id = m.department_id and e.salary = m.min_salary;
+------------+-----------+-------------+--------------+--------+---------------+
| first_name | last_name | employee_id | phone_number | salary | department_id |
+------------+-----------+-------------+--------------+--------+---------------+
| Ashraful   | Islam     | E001        | 21301501     | 100000 | DPT001        |
| Didar      | Islam     | E003        | 21301503     |  25000 | DPT003        |
| Nirvik     | Saha      | E007        | 21301507     |   3000 | DPT007        |
| Towfiq     | Alam      | E010        | 21301510     |   2110 | DPT002        |
| Prangon    | Das       | E011        | 21301511     |  18000 | DPT005        |
+------------+-----------+-------------+--------------+--------+---------------+
5 rows in set (0.010 sec)
```

3. Find the ***first_name***, ***last_name***, ***employee_id***, ***commission_pct*** *and* ***department_id*** of all the employees in the department 'DPT007' who have a lower commission_pct than all of the employees of the department 'DPT005'.

   Query : select e.first_name, e.last_name, e.employee_id, e.commission_pct, e.department_id from employess e where e.department_id = 'DPT007' and e.commission_pct < all (select commission_pct from employess where department_id = 'DPT005');

```
MariaDB [23241078_lab2]> select e.first_name, e.last_name, e.employee_id, e.commission_pct,
    -> e.department_id from employess e where e.department_id = 'DPT007'
    -> and e.commission_pct < all (select commission_pct from employess
    -> where department_id = 'DPT005');
Empty set (0.001 sec)
```

4. Find the **department_id** and total number of employees of each department which does not have a single employee under it with a **salary** more than 30,000.

   Query : select department_id, count(*) as total_employees from employess where department_id not in (select department_id from employess where salary > 30000) group by department_id;

```
MariaDB [23241078_lab2]> select department_id, count(*) as total_employees from employess where
    -> department_id not in ( select department_id from employess where
    -> salary > 30000) group by department_id;
+---------------+-----------------+
| department_id | total_employees |
+---------------+-----------------+
| DPT003        |               1 |
+---------------+-----------------+
1 row in set (0.006 sec)
```

5. For each of the departments, find the ***department_id***, ***job_id*** and ***commission_pct*** with ***commission_pct*** less than at least one other ***job_id*** in that department.

   Query : select e.department_id, e.job_id, e.commission_pct from employess e where e.commission_pct < any (select commission_pct from employess where department_id = e.department_id and job_id != e.job_id);

```
MariaDB [23241078_lab2]> select e.department_id, e.job_id, e.commission_pct from employess e where
    -> e.commission_pct < any ( select commission_pct from employess where
    -> department_id = e.department_id and job_id != e.job_id );
+---------------+--------+----------------+
| department_id | job_id | commission_pct |
+---------------+--------+----------------+
| DPT002        | JOB002 |          0.050 |
| DPT005        | JOB004 |          0.080 |
| DPT007        | JOB005 |          0.320 |
| DPT002        | JOB006 |          0.250 |
| DPT005        | JOB004 |          0.025 |
| DPT007        | JOB007 |          0.300 |
+---------------+--------+----------------+
6 rows in set (0.002 sec)
```

6. Find the ***manager_id*** who does not have any employee under them with a ***salary*** less than 3500.

   Query : select distinct manager_id from employess where manager_id not in (select distinct manager_id from employess where salary < 3500);

```
MariaDB [23241078_lab2]> select distinct manager_id from employess where manager_id not in (
    -> select distinct manager_id from employess where salary < 3500 );
+------------+
| manager_id |
+------------+
| MNG001     |
| MNG004     |
+------------+
2 rows in set (0.001 sec)
```

7. Find the ***first_name***, ***last_name***, ***employee_id***, ***email***, ***salary***, ***department_id*** *and* ***commission_pct*** of the employee who has the lowest ***commission_pct*** under each manager.

Query : select e.first_name, e.last_name, e.employee_id, e.email, e.salary, e.department_id, e.commission_pct from employess e where (e.manager_id, e.commission_pct) in (select manager_id, min(commission_pct) from employess group by manager_id);

```
MariaDB [23241078_lab2]> select e.first_name, e.last_name, e.employee_id, e.email, e.salary, e.department_id,
    -> e.commission_pct from employess e where (e.manager_id, e.commission_pct) in (
    -> select manager_id, min(commission_pct) from employess group by
    -> manager_id );
+------------+-----------+-------------+-------------------------+--------+---------------+----------------+
| first_name | last_name | employee_id | email                   | salary | department_id | commission_pct |
+------------+-----------+-------------+-------------------------+--------+---------------+----------------+
| Ashraful   | Islam     | E001        | ashrafulislam@gmail.com | 100000 | DPT001        |          0.050 |
| Pulak      | DebRoy    | E002        | pulakdebroy@gmail.com   |  60000 | DPT002        |          0.050 |
| Didar      | Islam     | E003        | didarislam@gmail.com    |  25000 | DPT003        |          0.300 |
| Utshob     | Bose      | E008        | utshobbose@gmail.com    |  20000 | DPT005        |          0.025 |
+------------+-----------+-------------+-------------------------+--------+---------------+----------------+
4 rows in set (0.005 sec)
```