Assignment-02

CSE370, Sec-03, Summer-2024

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Creating Table

```
create database assignment2;
use assignment2;
create table employee
(
    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)]> create database assignment2;
Query OK, 1 row affected (0.001 sec)

MariaDB [(none)]> use assignment2;
Database changed
MariaDB [assignment2]> create table employee
    -> (
    -> 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 (0.005 sec)
```

```
insert into employee (employee_id, first_name, last_name, email, phone_number, hire_date, job_id,
salary, commission_pct, manager_id, department_id) values
('EMP001', 'John', 'Doe', 'john.doe@example.com', '1234567890', '2022-01-15', 'JOB001', 50000,
0.10, 'MNG001', 'DPT001'),
('EMP002', 'Jane', 'Smith', 'jane.smith@example.com', '1234567891', '2022-02-20', 'JOB002', 60000,
0.15, 'MNG002', 'DPT005'),
('EMP003', 'Alice', 'Johnson', 'alice.johnson@example.com', '1234567892', '2022-03-25', 'JOB003',
55000, 0.12, 'MNG001', 'DPT003'),
('EMP004', 'Bob', 'Brown', 'bob.brown@example.com', '1234567893', '2022-04-30', 'JOB004', 45000,
0.08, 'MNG003', 'DPT007'),
('EMP005', 'Charlie', 'Davis', 'charlie.davis@example.com', '1234567894', '2022-05-05', 'JOB005',
70000, 0.20, 'MNG002', 'DPT005'),
('EMP006', 'David', 'Wilson', 'david.wilson@example.com', '1234567895', '2022-06-10', 'JOB006',
52000, 0.10, 'MNG001', 'DPT001'),
('EMP007', 'Eva', 'Moore', 'eva.moore@example.com', '1234567896', '2022-07-15', 'JOB007', 58000,
0.14, 'MNG003', 'DPT007'),
('EMP008', 'Frank', 'Taylor', 'frank.taylor@example.com', '1234567897', '2022-08-20', 'JOB008',
49000, 0.09, 'MNG002', 'DPT005'),
('EMP009', 'Grace', 'Anderson', 'grace.anderson@example.com', '1234567898', '2022-09-25',
'JOB009', 53000, 0.11, 'MNG001', 'DPT001'),
('EMP010', 'Hank', 'Thomas', 'hank.thomas@example.com', '1234567899', '2022-10-30', 'JOB010',
62000, 0.13, 'MNG003', 'DPT005'),
('EMP011', 'Ivy', 'Harris', 'ivy.harris@example.com', '1234567800', '2022-11-05', 'JOB011', 51000,
0.12, 'MNG001', 'DPT007'),
('EMP012', 'Jack', 'White', 'jack.white@example.com', '1234567801', '2022-12-15', 'JOB012', 56000,
0.14, 'MNG002', 'DPT002');
```

```
MariaDB [assignment2]> insert into employee (employee_id, first_name, last_name, email, phone_number, hire_date, job_id, salary, commission_pct, manager_id,
department_id) values
    -> ('EMP001', 'John', 'Doe', 'john.doe@example.com', '1234567890', '2022-01-15', 'JOB001', 50000, 0.10, 'MNG001', 'DPT001'),
    -> ('EMP002', 'Jane', 'Smith', 'jane.smith@example.com', '1234567891', '2022-02-20', 'JOB002', 60000, 0.15, 'MNG002', 'DPT005'),
    -> ('EMP003', 'Alice', 'Johnson', 'alice.johnson@example.com', '1234567892', '2022-03-25', 'JOB003', 55000, 0.12, 'MNG001', 'DPT003'),
    -> ('EMP004', 'Bob', 'Brown', 'bob.brown@example.com', '1234567893', '2022-04-30', 'JOB004', 45000, 0.08, 'MNG003', 'DPT007'),
    -> ('EMP005', 'Charlie', 'Davis', 'charlie.davis@example.com', '1234567894', '2022-05-05', 'JOB005', 70000, 0.20, 'MNG002', 'DPT005'),
    -> ('EMP006', 'David', 'Wilson', 'david.wilson@example.com', '1234567895', '2022-06-10', 'JOB006', 52000, 0.10, 'MNG001', 'DPT001'),
    -> ('EMP007', 'Eva', 'Moore', 'eva.moore@example.com', '1234567896', '2022-07-15', 'JOB007', 58000, 0.14, 'MNG003', 'DPT007'),
    -> ('EMP008', 'Frank', 'Taylor', 'frank.taylor@example.com', '1234567897', '2022-08-20', 'JOB008', 49000, 0.09, 'MNG002', 'DPT005'),
    -> ('EMP009', 'Grace', 'Anderson', 'grace.anderson@example.com', '1234567898', '2022-09-25', 'JOB009', 53000, 0.11, 'MNG001', 'DPT001'),
    -> ('EMP010', 'Hank', 'Thomas', 'hank.thomas@example.com', '1234567899', '2022-10-30', 'JOB010', 62000, 0.13, 'MNG003', 'DPT005'),
    -> ('EMP011', 'Ivy', 'Harris', 'ivy.harris@example.com', '1234567800', '2022-11-05', 'JOB011', 51000, 0.12, 'MNG001', 'DPT007'),
    -> ('EMP012', 'Jack', 'White', 'jack.white@example.com', '1234567801', '2022-12-15', 'JOB012', 56000, 0.14, 'MNG002', 'DPT002');
Query OK, 12 rows affected (0.003 sec)
Records: 12  Duplicates: 0  Warnings: 0

MariaDB [assignment2]> select * from employee;
+-------------+------------+-----------+---------------------------+--------------+------------+--------+--------+----------------+------------+-----------
----+
| employee_id | first_name | last_name | email                     | phone_number | hire_date  | job_id | salary | commission_pct | manager_id | department
_id |
+-------------+------------+-----------+---------------------------+--------------+------------+--------+--------+----------------+------------+-----------
----+
| EMP001      | John       | Doe       | john.doe@example.com      | 1234567890   | 2022-01-15 | JOB001 | 50000  |          0.100 | MNG001     | DPT001
    |
| EMP002      | Jane       | Smith     | jane.smith@example.com    | 1234567891   | 2022-02-20 | JOB002 | 60000  |          0.150 | MNG002     | DPT005
    |
| EMP003      | Alice      | Johnson   | alice.johnson@example.com | 1234567892   | 2022-03-25 | JOB003 | 55000  |          0.120 | MNG001     | DPT003
    |
| EMP004      | Bob        | Brown     | bob.brown@example.com     | 1234567893   | 2022-04-30 | JOB004 | 45000  |          0.080 | MNG003     | DPT007
    |
| EMP005      | Charlie    | Davis     | charlie.davis@example.com | 1234567894   | 2022-05-05 | JOB005 | 70000  |          0.200 | MNG002     | DPT005
    |
| EMP006      | David      | Wilson    | david.wilson@example.com  | 1234567895   | 2022-06-10 | JOB006 | 52000  |          0.100 | MNG001     | DPT001
    |
| EMP007      | Eva        | Moore     | eva.moore@example.com     | 1234567896   | 2022-07-15 | JOB007 | 58000  |          0.140 | MNG003     | DPT007
    |
| EMP008      | Frank      | Taylor    | frank.taylor@example.com  | 1234567897   | 2022-08-20 | JOB008 | 49000  |          0.090 | MNG002     | DPT005
    |
| EMP009      | Grace      | Anderson  | grace.anderson@example.com| 1234567898   | 2022-09-25 | JOB009 | 53000  |          0.110 | MNG001     | DPT001
    |
| EMP010      | Hank       | Thomas    | hank.thomas@example.com   | 1234567899   | 2022-10-30 | JOB010 | 62000  |          0.130 | MNG003     | DPT005
    |
| EMP011      | Ivy        | Harris    | ivy.harris@example.com    | 1234567800   | 2022-11-05 | JOB011 | 51000  |          0.120 | MNG001     | DPT007
    |
| EMP012      | Jack       | White     | jack.white@example.com    | 1234567801   | 2022-12-15 | JOB012 | 56000  |          0.140 | MNG002     | DPT002
    |
+-------------+------------+-----------+---------------------------+--------------+------------+--------+--------+----------------+------------+-----------
----+
12 rows in set (0.000 sec)
```

Task-01

```
select first_name, last_name, email, phone_number, hire_date, department_id from employee order by
hire_date desc;
```

```
MariaDB [assignment2]> select first_name, last_name, email, phone_number, hire_date, department_id from employee order by hire_date desc;
+------------+-----------+---------------------------+--------------+------------+---------------+
| first_name | last_name | email                     | phone_number | hire_date  | department_id |
+------------+-----------+---------------------------+--------------+------------+---------------+
| Jack       | White     | jack.white@example.com    | 1234567801   | 2022-12-15 | DPT002        |
| Ivy        | Harris    | ivy.harris@example.com    | 1234567800   | 2022-11-05 | DPT007        |
| Hank       | Thomas    | hank.thomas@example.com   | 1234567899   | 2022-10-30 | DPT005        |
| Grace      | Anderson  | grace.anderson@example.com| 1234567898   | 2022-09-25 | DPT001        |
| Frank      | Taylor    | frank.taylor@example.com  | 1234567897   | 2022-08-20 | DPT005        |
| Eva        | Moore     | eva.moore@example.com     | 1234567896   | 2022-07-15 | DPT007        |
| David      | Wilson    | david.wilson@example.com  | 1234567895   | 2022-06-10 | DPT001        |
| Charlie    | Davis     | charlie.davis@example.com | 1234567894   | 2022-05-05 | DPT005        |
| Bob        | Brown     | bob.brown@example.com     | 1234567893   | 2022-04-30 | DPT007        |
| Alice      | Johnson   | alice.johnson@example.com | 1234567892   | 2022-03-25 | DPT003        |
| Jane       | Smith     | jane.smith@example.com    | 1234567891   | 2022-02-20 | DPT005        |
| John       | Doe       | john.doe@example.com      | 1234567890   | 2022-01-15 | DPT001        |
+------------+-----------+---------------------------+--------------+------------+---------------+
12 rows in set (0.000 sec)
```

Task-02

```
select first_name, last_name, employee_id, phone_number, salary, department_id from employee e1
where salary=(select min(salary) from employee e2 where e2.department_id = e1.department_id);
```

```
MariaDB [assignment2]> select first_name, last_name, employee_id, phone_number, salary, department_id from employee e1 where salary=(select min(salary) from
  employee e2 where e2.department_id = e1.department_id);
+------------+-----------+-------------+--------------+--------+---------------+
| first_name | last_name | employee_id | phone_number | salary | department_id |
+------------+-----------+-------------+--------------+--------+---------------+
| John       | Doe       | EMP001      | 1234567890   | 50000  | DPT001        |
| Alice      | Johnson   | EMP003      | 1234567892   | 55000  | DPT003        |
| Bob        | Brown     | EMP004      | 1234567893   | 45000  | DPT007        |
| Frank      | Taylor    | EMP008      | 1234567897   | 49000  | DPT005        |
| Jack       | White     | EMP012      | 1234567801   | 56000  | DPT002        |
+------------+-----------+-------------+--------------+--------+---------------+
5 rows in set (0.001 sec)
```

Task-03

```
select first_name, last_name, employee_id, commission_pct, department_id from employee where
department_id='DPT007' and commission_pct < (select min(commission_pct) from employee where
department_id='DPT005');
```

```
MariaDB [assignment2]> select first_name, last_name, employee_id, commission_pct, department_id from employee where department_id='DPT007' and commission_pc
t < (select min(commission_pct) from employee where department_id='DPT005');
+------------+-----------+-------------+----------------+---------------+
| first_name | last_name | employee_id | commission_pct | department_id |
+------------+-----------+-------------+----------------+---------------+
| Bob        | Brown     | EMP004      |          0.080 | DPT007        |
+------------+-----------+-------------+----------------+---------------+
1 row in set (0.001 sec)
```

Task-04

select department_id, count(*) as total_employees from employee group by department_id having max(salary)<=30000;

(N.B. I had to update the salaries to get the desired output)

```
MariaDB [assignment2]> update employee set salary=24000 where employee_id='E
MP003';
Query OK, 1 row affected (0.002 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [assignment2]> update employee set salary=25000 where employee_id='E
MP006';
Query OK, 1 row affected (0.002 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [assignment2]> update employee set salary=28000 where employee_id='E
MP009';
Query OK, 1 row affected (0.001 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [assignment2]> select department_id, count(*) as total_employees from employee group by department_id having max(salary)<=30000;
+---------------+-----------------+
| department_id | total_employees |
+---------------+-----------------+
| DPT001        |               3 |
| DPT003        |               1 |
+---------------+-----------------+
2 rows in set (0.001 sec)
```

Task-05

select department_id, job_id, commission_pct from employee e1 where exists (select * from employee e2 where e2.department_id=e1.department_id and e1.commission_pct<e2.commission_pct);

```
MariaDB [assignment2]> select department_id, job_id, commission_pct from employee e1 where exists (select * from employee e2 where e2.department_id=e1.depar
tment_id and e1.commission_pct<e2.commission_pct);
+---------------+--------+----------------+
| department_id | job_id | commission_pct |
+---------------+--------+----------------+
| DPT005        | JOB008 |          0.090 |
| DPT005        | JOB010 |          0.130 |
| DPT005        | JOB002 |          0.150 |
| DPT007        | JOB004 |          0.080 |
| DPT007        | JOB011 |          0.120 |
| DPT001        | JOB001 |          0.100 |
| DPT001        | JOB006 |          0.100 |
+---------------+--------+----------------+
7 rows in set (0.000 sec)
```

Task-06

select distinct manager_id from employee e1 where not exists (select * from employee e2 where e2.manager_id = e1.manager_id and e2.salary<3500);

(N.B. I had to update the salaries to get the desired output)

```
MariaDB [assignment2]> update employee set salary=3000 where employee_id='EMP003';
Query OK, 1 row affected (0.001 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [assignment2]> select distinct manager_id from employee e1 where not exists (select * from employee e2 where e2.manager_id = e1.manager_id and e2.sa
lary<3500);
+------------+
| manager_id |
+------------+
| MNG002     |
| MNG003     |
+------------+
2 rows in set (0.001 sec)
```

Task-07

select first_name, last_name, employee_id, email, salary, department_id, commission_pct from employee e1 where commission_pct=(select min(commission_pct) from employee e2 where e2.manager_id=e1.manager_id);

```
MariaDB [assignment2]> select first_name, last_name, employee_id, email, salary, department_id, commission_pct from employee e1 where commission_pct=(select
 min(commission_pct) from employee e2 where e2.manager_id=e1.manager_id);
+------------+-----------+-------------+---------------------------+--------+---------------+----------------+
| first_name | last_name | employee_id | email                     | salary | department_id | commission_pct |
+------------+-----------+-------------+---------------------------+--------+---------------+----------------+
| John       | Doe       | EMP001      | john.doe@example.com      |  20000 | DPT001        |          0.100 |
| Bob        | Brown     | EMP004      | bob.brown@example.com     |  45000 | DPT007        |          0.080 |
| David      | Wilson    | EMP006      | david.wilson@example.com  |  25000 | DPT001        |          0.100 |
| Frank      | Taylor    | EMP008      | frank.taylor@example.com  |  49000 | DPT005        |          0.090 |
+------------+-----------+-------------+---------------------------+--------+---------------+----------------+
4 rows in set (0.001 sec)
```