



CSE370

Assignment 2

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Sec: 04

```
use employees;
create table employees
(
  -> 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,
  -> comission_pct decimal(5,3),
  -> manager_id char(10),
  -> department_id char(10)
  -> );
show tables;
describe employees;
```

```
MariaDB [(none)]> use employees;
Database changed
MariaDB [employees]> create table employees
  -> (
    -> 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,
    -> comission_pct decimal(5,3),
    -> manager_id char(10),
    -> department_id char(10)
    -> );
Query OK, 0 rows affected (0.007 sec)

MariaDB [employees]> show tables;
+-----+
| Tables_in_employees |
+-----+
| employees            |
+-----+
1 row in set (0.000 sec)
```

```

MariaDB [employees]> describe employees;
+-----+-----+-----+-----+-----+-----+
| 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    |       |
| comission_pct  | decimal(5,3)  | YES  |     | NULL    |       |
| manager_id     | char(10)      | YES  |     | NULL    |       |
| department_id  | char(10)      | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
11 rows in set (0.003 sec)

MariaDB [employees]> 0

```

insert into employees values

('EMP0000001','Abrab','Ome','abrabome21@gmail.com','+8801534355774','2023-05-13','JOB000001',35000,50.000,'MNG0000001','DPT0000001'),

('EMP0000002','Ashma','Khan','ashmakhan@gmail.com','+8801552358466','2022-01-13','JOB000002',65000,10.000,'MNG0000003','DPT0000003'),

('EMP0000003','Hasna','Khan','hasnakhan@yahoo.com','+8801553342532','2023-04-10','JOB000003',65000,20.000,'MNG0000003','DPT0000005'),

('EMP0000004','Mozaffar','Hossain','kazimoza@gmail.com','+8801731477215','2023-10-05','JOB0000004',15000,5.000,'MNG0000001','DPT0000003'),

('EMP0000005','Moinul','Mamun','aamonu@gmail.com','+8801657545774','2021-01-01','JOB0000005',95000,59.000,'MNG0000002','DPT0000005'),

('EMP0000006','Shafiur','Shuvo','richkid@yahoo.com','+8801567555734','2022-04-27','JOB0000006',78000,15.000,'MNG0000001','DPT0000003'),

('EMP0000007','Nazia','Mumtahina','picchinazi@gmail.com','+8801874455723','2023-02-22','JOB0000007',57000,12.000,'MNG0000001','DPT0000001'),

('EMP0000008','Mamnun','Zihad','gamerboy@gmail.com','+8801565350004','2022-04-17','JOB0000008',70000,40.000,'MNG0000003','DPT0000007'),

('EMP0000009','Faisal','Ahmed','sentifaisal@yahoo.com','+8801643525774','2023-05-10','JOB0000009',44000,20.000,'MNG0000002','DPT0000002'),

('EMP0000010','Arundhati','Sarkar','brilliantstu@gmail.com','+8801985633774','2021-04-16','JOB0000010',100000,40.000,'MNG0000002','DPT0000007'),

('EMP0000011','Sami','Zaman','darensami@gmail.com','+8801354355884','2023-07-23','JOB0000011',50000,10.000,'MNG0000003','DPT0000007');

select * from employees;

```
MariaDB [employees]> insert into employees values
-> ('EMP0000001','Abrab','Ome','abrabome21@gmail.com','+8801534355774','2023-05-13','JOB0000001',35000,50.000,'MNG0000001','DPT0000001'),
-> ('EMP0000002','Ashma','Khan','ashmakhan@gmail.com','+8801552358466','2022-01-13','JOB0000002',65000,10.000,'MNG0000003','DPT0000003'),
-> ('EMP0000003','Hasna','Khan','hasnakhan@yahoo.com','+8801553342532','2023-04-10','JOB0000003',65000,20.000,'MNG0000003','DPT0000005'),
-> ('EMP0000004','Mozaffar','Hossain','kazimoza@gmail.com','+8801731477215','2023-10-05','JOB0000004',15000,5.000,'MNG0000001','DPT0000003'),
-> ('EMP0000005','Moinul','Mamun','aamonu@gmail.com','+8801657545774','2021-01-01','JOB0000005',95000,59.000,'MNG0000002','DPT0000005'),
-> ('EMP0000006','Shafiur','Shuvo','richkid@yahoo.com','+8801567555734','2022-04-27','JOB0000006',78000,15.000,'MNG0000001','DPT0000003'),
-> ('EMP0000007','Nazia','Mumtahina','picchinazi@gmail.com','+8801874455723','2023-02-22','JOB0000007',57000,12.000,'MNG0000001','DPT0000001'),
-> ('EMP0000008','Mamnun','Zihad','gamerboy@gmail.com','+8801565350004','2022-04-17','JOB0000008',70000,40.000,'MNG0000003','DPT0000007'),
-> ('EMP0000009','Faisal','Ahmed','sentifaisal@yahoo.com','+8801643525774','2023-05-10','JOB0000009',44000,20.000,'MNG0000002','DPT0000002'),
-> ('EMP0000010','Arundhati','Sarkar','brilliantstu@gmail.com','+8801985633774','2021-04-16','JOB0000010',100000,40.000,'MNG0000002','DPT0000007'),
-> ('EMP0000011','Sami','Zaman','darensami@gmail.com','+8801354355884','2023-07-23','JOB0000011',50000,10.000,'MNG0000003','DPT0000007');
Query OK, 11 rows affected (0.003 sec)
Records: 11 Duplicates: 0 Warnings: 0

MariaDB [employees]> select * from employees;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| employee_id | first_name | last_name | email | phone_number | hire_date | job_id | salary | comission_pct | manager_id | department_id |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| EMP0000001 | Abrab | Ome | abrabome21@gmail.com | +8801534355774 | 2023-05-13 | JOB0000001 | 35000 | 50.000 | MNG0000001 | DPT0000001 |
| EMP0000002 | Ashma | Khan | ashmakhan@gmail.com | +8801552358466 | 2022-01-13 | JOB0000002 | 65000 | 10.000 | MNG0000003 | DPT0000003 |
| EMP0000003 | Hasna | Khan | hasnakhan@yahoo.com | +8801553342532 | 2023-04-10 | JOB0000003 | 65000 | 20.000 | MNG0000003 | DPT0000005 |
| EMP0000004 | Mozaffar | Hossain | kazimoza@gmail.com | +8801731477215 | 2023-10-05 | JOB0000004 | 15000 | 5.000 | MNG0000001 | DPT0000003 |
| EMP0000005 | Moinul | Mamun | aamonu@gmail.com | +8801657545774 | 2021-01-01 | JOB0000005 | 95000 | 59.000 | MNG0000002 | DPT0000005 |
| EMP0000006 | Shafiur | Shuvo | richkid@yahoo.com | +8801567555734 | 2022-04-27 | JOB0000006 | 78000 | 15.000 | MNG0000001 | DPT0000003 |
| EMP0000007 | Nazia | Mumtahina | picchinazi@gmail.com | +8801874455723 | 2023-02-22 | JOB0000007 | 57000 | 12.000 | MNG0000001 | DPT0000001 |
| EMP0000008 | Mamnun | Zihad | gamerboy@gmail.com | +8801565350004 | 2022-04-17 | JOB0000008 | 70000 | 40.000 | MNG0000003 | DPT0000007 |
| EMP0000009 | Faisal | Ahmed | sentifaisal@yahoo.com | +8801643525774 | 2023-05-10 | JOB0000009 | 44000 | 20.000 | MNG0000002 | DPT0000002 |
| EMP0000010 | Arundhati | Sarkar | brilliantstu@gmail.com | +8801985633774 | 2021-04-16 | JOB0000010 | 100000 | 40.000 | MNG0000002 | DPT0000007 |
| EMP0000011 | Sami | Zaman | darensami@gmail.com | +8801354355884 | 2023-07-23 | JOB0000011 | 50000 | 10.000 | MNG0000003 | DPT0000007 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
11 rows in set (0.000 sec)

MariaDB [employees]> _
```

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

select first_name,last_name,email,phone_number,hire_date,department_id from employees where hire_date = (select max(hire_date) from employees);

```
MariaDB [employees]> select first_name,last_name,email,phone_number,hire_date,department_id from employees where hire_date = (select max(hire_date) from employees);
+-----+-----+-----+-----+-----+-----+
| first_name | last_name | email | phone_number | hire_date | department_id |
+-----+-----+-----+-----+-----+-----+
| Mozaffar | Hossain | kazimoza@gmail.com | +8801731477215 | 2023-10-05 | DPT0000003 |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.000 sec)

MariaDB [employees]> _
```

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.

select first_name,last_name,employee_id,phone_number,salary,department_id from employees where salary in (select min(salary) from employees group by department_id);

```
MariaDB [employees]> select first_name,last_name,employee_id,phone_number,salary,department_id from employees where salary in (select min(salary) from employees group by department_id);
```

first_name	last_name	employee_id	phone_number	salary	department_id
Abrab	Ome	EMP0000001	+8801534355774	35000	DPT0000001
Ashma	Khan	EMP0000002	+8801552358466	65000	DPT0000003
Hasna	Khan	EMP0000003	+8801553342532	65000	DPT0000005
Mozaffar	Hossain	EMP0000004	+8801731477215	15000	DPT0000003
Faisal	Ahmed	EMP0000009	+8801643525774	44000	DPT0000002
Sami	Zaman	EMP0000011	+8801354355884	50000	DPT0000007

6 rows in set (0.000 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'.

select first_name,last_name,employee_id,comission_pct,department_id from employees where department_id = 'DPT0000007' and comission_pct < all(select comission_pct from employees where department_id = 'DPT0000005');

```
MariaDB [employees]> select first_name,last_name,employee_id,comission_pct,department_id from employees where department_id = 'DPT0000007'
-> and comission_pct < all(select comission_pct from employees where department_id = 'DPT0000005');
```

first_name	last_name	employee_id	comission_pct	department_id
Sami	Zaman	EMP0000011	10.000	DPT0000007

1 row in 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.

select distinct department_id, count(*) from employees I1 where not exists(select * from employees I2 where I2.department_id = I1.department_id and I2.salary> 30000);

```
MariaDB [employees]> select distinct department_id, count(*) from employees I1 where not exists(select * from employees I2 where I2.department_id = I1.department_id and I2.salary> 30000);
```

department_id	count(*)
NULL	0

1 row in set (0.001 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.

select department_id,job_id,comission_pct from employees I1 where exists(select * from employees I2 where I2.department_id = I1.department_id and I2.job_id != I1.job_id and I2.comission_pct < I1.comission_pct);

```

MariaDB [employees]> select department_id,job_id,comission_pct from employees l1 where exists(select * from employees l2 where l2.department_id = l1.department_id and l2.job_id != l1.job_id and l2.comission_pct < l1.comission_pct);
+-----+-----+-----+
| department_id | job_id | comission_pct |
+-----+-----+-----+
| DPT00000003  | JOB00000006 | 15.000 |
| DPT00000005  | JOB00000005 | 59.000 |
| DPT00000003  | JOB00000002 | 10.000 |
| DPT00000001  | JOB00000001 | 50.000 |
| DPT00000007  | JOB00000008 | 40.000 |
| DPT00000007  | JOB00000010 | 40.000 |
+-----+-----+-----+
6 rows in set (0.000 sec)

MariaDB [employees]> _

```

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

select distinct manager_id from employees l1 where not exists (select * from employees l2 where l2.salary < 3500 and l2.manager_id = l1.manager_id);

```

MariaDB [employees]> select distinct manager_id from employees l1 where not exists (select * from employees l2 where l2.salary < 3500 and l2.manager_id = l1.manager_id);
+-----+
| manager_id |
+-----+
| MNG00000001 |
| MNG00000003 |
| MNG00000002 |
+-----+
3 rows in set (0.001 sec)

MariaDB [employees]> _

```

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.

Select first_name, last_name, employee_id, email, salary, department_id, comission_pct from employees where comission_pct in (select min(comission_pct) from employees group by manager_id);

```

MariaDB [employees]> select first_name,last_name,employee_id,email,salary,department_id,comission_pct from employees where comission_pct in (select min(comission_pct) from employees group by manager_id);
+-----+-----+-----+-----+-----+-----+-----+
| first_name | last_name | employee_id | email | salary | department_id | comission_pct |
+-----+-----+-----+-----+-----+-----+-----+
| Ashma      | Khan      | EMP00000002 | ashmakhan@gmail.com | 65000 | DPT00000003 | 10.000 |
| Hasna      | Khan      | EMP00000003 | hasnakhan@yahoo.com | 65000 | DPT00000005 | 20.000 |
| Mozaffar   | Hossain   | EMP00000004 | kazimoza@gmail.com | 15000 | DPT00000003 | 5.000 |
| Faisal     | Ahmed     | EMP00000009 | sentifaisal@yahoo.com | 44000 | DPT00000002 | 20.000 |
| Sami       | Zaman     | EMP00000011 | darensami@gmail.com | 50000 | DPT00000007 | 10.000 |
+-----+-----+-----+-----+-----+-----+-----+
5 rows in set (0.001 sec)

MariaDB [employees]> _

```