



CSE370- Homework 02

Submitted by:

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Section: 11

Department: CS

Table creation:

```
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, commission_pct decimal(5, 3),  
    manager_id char(10),  
    department_id char(10) );
```

```
MariaDB [370lab1_f]> 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,  
-> commission_pct decimal(5, 3),  
-> manager_id char(10),  
-> department_id char(10)  
-> );
```

Query OK, 0 rows affected (0.010 sec)

```
MariaDB [370lab1_f]> 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	
commission_pct	decimal(5,3)	YES		NULL	
manager_id	char(10)	YES		NULL	
department_id	char(10)	YES		NULL	

11 rows in set (0.010 sec)

Inserting Values:

Insert into employees values

```
('EMP001', 'John', 'Doe', 'johndoe@gmail.com', '+8801334567890', '2019-01-15',  
'JOB001', 50000, 25.350, 'MNG001', 'DPT001'),  
( 'EMP002', 'Jane', 'Smith', 'janesmith@gmail.com', '+8801776543210', '2019-02-20',  
'JOB002', 60000, 30.330, 'MNG002', 'DPT002'),  
( 'EMP003', 'Robert', 'Johnson', 'robertjohnson@gmail.com', '+8801768135790',  
'2019-03-25', 'JOB002', 75000, 31.450, 'MNG001', 'DPT003'),  
( 'EMP004', 'Alice', 'Williams', 'alicewilliams@gmail.com', '+8801357924680',  
'2019-04-30', 'JOB002', 90000, 50.040, 'MNG001', 'DPT001'),  
( 'EMP005', 'David', 'Brown', 'davidbrown@gmail.com', '+8801642097531', '2019-05-10',  
'JOB003', 100000, 45.120, 'MNG002', 'DPT001'),  
( 'EMP006', 'Emily', 'Jones', 'emilyjones@gmail.com', '+8801534567890', '2020-06-15',  
'JOB002', 60000, 27.670, 'MNG002', 'DPT001'),  
( 'EMP007', 'Michael', 'Wilson', 'michaelwilson@gmail.com', '+8801876543210',  
'2020-07-20', 'JOB002', 75000, 30.310, 'MNG003', 'DPT002'),  
( 'EMP008', 'Sarah', 'Davis', 'sarahdavis@gmail.com', '+8801468135790', '2021-08-25',  
'JOB003', 90000, 35.110, 'MNG003', 'DPT003'),  
( 'EMP009', 'Kevin', 'Miller', 'kevinmiller@gmail.com', '+8801357924680', '2021-09-30',  
'JOB002', 100000, 40.120, 'MNG001', 'DPT002'),  
( 'EMP010', 'Linda', 'Martinez', 'lindamartinez@gmail.com', '+8801642097531',  
'2022-10-10', 'JOB001', 120000, 48.120, 'MNG002', 'DPT003'),  
( 'EMP011', 'James', 'Anderson', 'jamesanderson@gmail.com', '+8801834567890',  
'2022-11-15', 'JOB003', 140000, 20.120, 'MNG003', 'DPT003'),  
( 'EMP012', 'Jessica', 'Garcia', 'jessicagarcia@gmail.com', '+8801876543210',  
'2023-12-20', 'JOB002', 160000, 33.130, 'MNG003', 'DPT001'),  
( 'EMP013', 'Liam', 'Baker', 'liambaker@gmail.com', '+8801347389211', '2019-02-25',  
'JOB003', 62000, 22.230, 'MNG002', 'DPT001'),  
( 'EMP014', 'Olivia', 'Hill', 'oliviahill@gmail.com', '+8801310689543', '2019-04-10',  
'JOB002', 54000, 30.130, 'MNG002', 'DPT002'),  
( 'EMP015', 'Noah', 'Carter', 'noahcarter@gmail.com', '+8801714587921', '2020-06-05',  
'JOB001', 66000, 35.120, 'MNG003', 'DPT002'),  
( 'EMP016', 'Emma', 'Cooper', 'emmacooper@gmail.com', '+8801317235684',  
'2020-09-15', 'JOB003', 72000, 10.000, 'MNG002', 'DPT007'),  
( 'EMP017', 'Aiden', 'Perez', 'aidenperez@gmail.com', '+8801789874562', '2021-01-20',  
'JOB002', 80000, 43.235, 'MNG003', 'DPT007'),  
( 'EMP018', 'Sophia', 'Howard', 'sophiahoward@gmail.com', '+8801734567890',  
'2021-04-30', 'JOB001', 74000, 34.250, 'MNG002', 'DPT005'),  
( 'EMP019', 'Lucas', 'Sanchez', 'lucassanchez@gmail.com', '+8801934567890',  
'2022-07-07', 'JOB003', 92000, 30.001, 'MNG003', 'DPT005'),  
( 'EMP020', 'Avery', 'Bennett', 'averybennett@gmail.com', '+8801834567790',  
'2022-10-10', 'JOB003', 96000, 35.126, 'MNG002', 'DPT004'),
```

('EMP021', 'Mason', 'Torres', 'masontorres@gmail.com', '+8801994567790',
'2023-03-15', 'JOB002', 88000, 42.025, 'MNG003', 'DPT006'),
('EMP022', 'Harper', 'Gray', 'harpergray@gmail.com', '+8801777567790', '2023-06-20',
'JOB001', 82000, 43.125, 'MNG003', 'DPT006');

MariaDB [370lab1_f]> insert into employees values

```
-> ('EMP001', 'John', 'Doe', 'johndoe@gmail.com', '+8801334567890', '2019-01-15', 'JOB001', 50000, 25.350, 'MNG001', 'DPT001'),
-> ('EMP002', 'Jane', 'Smith', 'janesmith@gmail.com', '+8801776543210', '2019-02-20', 'JOB002', 60000, 30.330, 'MNG002', 'DPT002'),
-> ('EMP003', 'Robert', 'Johnson', 'robertjohnson@gmail.com', '+8801768135790', '2019-03-25', 'JOB002', 75000, 31.450, 'MNG001', 'DPT003'),
-> ('EMP004', 'Alice', 'Williams', 'alicewilliams@gmail.com', '+8801357924680', '2019-04-30', 'JOB002', 90000, 50.040, 'MNG001', 'DPT001'),
-> ('EMP005', 'David', 'Brown', 'davidbrown@gmail.com', '+8801642097531', '2019-05-10', 'JOB003', 100000, 45.120, 'MNG002', 'DPT001'),
-> ('EMP006', 'Emily', 'Jones', 'emilyjones@gmail.com', '+8801534567890', '2020-06-15', 'JOB002', 60000, 27.670, 'MNG002', 'DPT001'),
-> ('EMP007', 'Michael', 'Wilson', 'michaelwilson@gmail.com', '+8801876543210', '2020-07-20', 'JOB002', 75000, 30.310, 'MNG003', 'DPT002'),
-> ('EMP008', 'Sarah', 'Davis', 'sarahdavis@gmail.com', '+8801468135790', '2021-08-25', 'JOB003', 90000, 35.110, 'MNG003', 'DPT003'),
-> ('EMP009', 'Kevin', 'Miller', 'kevinmiller@gmail.com', '+8801357924680', '2021-09-30', 'JOB002', 100000, 40.120, 'MNG001', 'DPT002'),
-> ('EMP010', 'Linda', 'Martinez', 'lindamartinez@gmail.com', '+8801642097531', '2022-10-10', 'JOB001', 120000, 48.120, 'MNG002', 'DPT003'),
-> ('EMP011', 'James', 'Anderson', 'jamesanderson@gmail.com', '+8801834567890', '2022-11-15', 'JOB003', 140000, 20.120, 'MNG003', 'DPT003'),
-> ('EMP012', 'Jessica', 'Garcia', 'jessicagarcia@gmail.com', '+8801876543210', '2023-12-20', 'JOB002', 160000, 33.130, 'MNG003', 'DPT001'),
-> ('EMP013', 'Liam', 'Baker', 'liambaker@gmail.com', '+8801347389211', '2019-02-25', 'JOB003', 62000, 22.230, 'MNG002', 'DPT001'),
-> ('EMP014', 'Olivia', 'Hill', 'oliviahill@gmail.com', '+8801310689543', '2019-04-10', 'JOB002', 54000, 30.130, 'MNG002', 'DPT002'),
-> ('EMP015', 'Noah', 'Carter', 'noahcarter@gmail.com', '+8801714587921', '2020-06-05', 'JOB001', 66000, 35.120, 'MNG003', 'DPT002'),
-> ('EMP016', 'Emma', 'Cooper', 'emmacooper@gmail.com', '+8801317235684', '2020-09-15', 'JOB003', 72000, 10.000, 'MNG002', 'DPT007'),
-> ('EMP017', 'Aiden', 'Perez', 'aidenperez@gmail.com', '+8801789874562', '2021-01-20', 'JOB002', 80000, 43.235, 'MNG003', 'DPT007'),
-> ('EMP018', 'Sophia', 'Howard', 'sophiahoward@gmail.com', '+8801734567890', '2021-04-30', 'JOB001', 74000, 34.250, 'MNG002', 'DPT005'),
-> ('EMP019', 'Lucas', 'Sanchez', 'lucassanchez@gmail.com', '+8801934567890', '2022-07-07', 'JOB003', 92000, 30.001, 'MNG003', 'DPT005'),
-> ('EMP020', 'Avery', 'Bennett', 'averybennett@gmail.com', '+8801834567790', '2022-10-10', 'JOB003', 96000, 35.126, 'MNG002', 'DPT004'),
-> ('EMP021', 'Mason', 'Torres', 'masontorres@gmail.com', '+8801994567790', '2023-03-15', 'JOB002', 88000, 42.025, 'MNG003', 'DPT006'),
-> ('EMP022', 'Harper', 'Gray', 'harpergray@gmail.com', '+8801777567790', '2023-06-20', 'JOB001', 82000, 43.125, 'MNG003', 'DPT006');
```

Query OK, 22 rows affected (0.003 sec)

Records: 22 Duplicates: 0 Warnings: 0

MariaDB [370lab1_f]> select* from employees;

employee_id	first_name	last_name	email	phone_number	hire_date	job_id	salary	commission_pct	manager_id	department_id
EMP001	John	Doe	johndoe@gmail.com	+8801334567890	2019-01-15	JOB001	50000	25.350	MNG001	DPT001
EMP002	Jane	Smith	janesmith@gmail.com	+8801776543210	2019-02-20	JOB002	60000	30.330	MNG002	DPT002
EMP003	Robert	Johnson	robertjohnson@gmail.com	+8801768135790	2019-03-25	JOB002	75000	31.450	MNG001	DPT003
EMP004	Alice	Williams	alicewilliams@gmail.com	+8801357924680	2019-04-30	JOB002	90000	50.040	MNG001	DPT001
EMP005	David	Brown	davidbrown@gmail.com	+8801642097531	2019-05-10	JOB003	100000	45.120	MNG002	DPT001
EMP006	Emily	Jones	emilyjones@gmail.com	+8801534567890	2020-06-15	JOB002	60000	27.670	MNG002	DPT001
EMP007	Michael	Wilson	michaelwilson@gmail.com	+8801876543210	2020-07-20	JOB002	75000	30.310	MNG003	DPT002
EMP008	Sarah	Davis	sarahdavis@gmail.com	+8801468135790	2021-08-25	JOB003	90000	35.110	MNG003	DPT003
EMP009	Kevin	Miller	kevinmiller@gmail.com	+8801357924680	2021-09-30	JOB002	100000	40.120	MNG001	DPT002
EMP010	Linda	Martinez	lindamartinez@gmail.com	+8801642097531	2022-10-10	JOB001	120000	48.120	MNG002	DPT003
EMP011	James	Anderson	jamesanderson@gmail.com	+8801834567890	2022-11-15	JOB003	140000	20.120	MNG003	DPT003
EMP012	Jessica	Garcia	jessicagarcia@gmail.com	+8801876543210	2023-12-20	JOB002	160000	33.130	MNG003	DPT001
EMP013	Liam	Baker	liambaker@gmail.com	+8801347389211	2019-02-25	JOB003	62000	22.230	MNG002	DPT001
EMP014	Olivia	Hill	oliviahill@gmail.com	+8801310689543	2019-04-10	JOB002	54000	30.130	MNG002	DPT002
EMP015	Noah	Carter	noahcarter@gmail.com	+8801714587921	2020-06-05	JOB001	66000	35.120	MNG003	DPT002
EMP016	Emma	Cooper	emmacooper@gmail.com	+8801317235684	2020-09-15	JOB003	72000	10.000	MNG002	DPT007
EMP017	Aiden	Perez	aidenperez@gmail.com	+8801789874562	2021-01-20	JOB002	80000	43.235	MNG003	DPT007
EMP018	Sophia	Howard	sophiahoward@gmail.com	+8801734567890	2021-04-30	JOB001	74000	34.250	MNG002	DPT005
EMP019	Lucas	Sanchez	lucassanchez@gmail.com	+8801934567890	2022-07-07	JOB003	92000	30.001	MNG003	DPT005
EMP020	Avery	Bennett	averybennett@gmail.com	+8801834567790	2022-10-10	JOB003	96000	35.126	MNG002	DPT004
EMP021	Mason	Torres	masontorres@gmail.com	+8801994567790	2023-03-15	JOB002	88000	42.025	MNG003	DPT006
EMP022	Harper	Gray	harpergray@gmail.com	+8801777567790	2023-06-20	JOB001	82000	43.125	MNG003	DPT006

22 rows in set (0.000 sec)

Task 1:

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

```
MariaDB [370lab1_f]> 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
Jessica	Garcia	jessicagarcia@gmail.com	+8801876543210	2023-12-20	DPT001

1 row in set (0.000 sec)

Task 2:

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

```
MariaDB [370lab1_f]> select first_name, last_name, employee_id, phone_number, salary, department_id from employees
-> where (department_id, salary) in (SELECT department_id, min(salary) from employees group by department_id);
```

first_name	last_name	employee_id	phone_number	salary	department_id
John	Doe	EMP001	+8801334567890	50000	DPT001
Robert	Johnson	EMP003	+8801768135790	75000	DPT003
Olivia	Hill	EMP014	+8801310689543	54000	DPT002
Emma	Cooper	EMP016	+8801317235684	72000	DPT007
Sophia	Howard	EMP018	+8801734567890	74000	DPT005
Avery	Bennett	EMP020	+8801834567790	96000	DPT004
Harper	Gray	EMP022	+8801777567790	82000	DPT006

7 rows in set (0.001 sec)

Task 3:

select first_name, last_name, employee_id, commission_pct, department_id from employees

-> where department_id = 'dpt007' and commission_pct < all (select commission_pct from employees where department_id='dpt005');

```
MariaDB [370lab1_f]> select first_name, last_name, employee_id, commission_pct, department_id from employees
-> where department_id = 'dpt007' and commission_pct < all (select commission_pct from employees where department_id='dpt005');
+-----+-----+-----+-----+-----+
| first_name | last_name | employee_id | commission_pct | department_id |
+-----+-----+-----+-----+-----+
| Emma      | Cooper   | EMP016      | 10.000         | DPT007        |
+-----+-----+-----+-----+-----+
1 row in set (0.000 sec)
```

Task 4:

select department_id, count(*) as total_dept_emp from employees

-> where department_id not in (select department_id from employees where salary > 30000) group by department_id;

```
MariaDB [370lab1_f]> select department_id, count(*) as total_dept_emp from employees
-> where department_id not in (select department_id from employees where salary > 30000) group by department_id;
Empty set (0.004 sec)
```

Task5:

select department_id, job_id, commission_pct from employees as emp
->where commission_pct < any (select commission_pct from employees where
department_id = emp.department_id and job_id != emp.job_id);

```
MariaDB [370lab1_f]> select department_id, job_id, commission_pct from employees as emp
-> where commission_pct < any (select commission_pct from employees where department_id=emp.department_id and job_id!=emp.job_id);
```

department_id	job_id	commission_pct
DPT001	JOB001	25.350
DPT002	JOB002	30.330
DPT003	JOB002	31.450
DPT001	JOB003	45.120
DPT001	JOB002	27.670
DPT002	JOB002	30.310
DPT003	JOB003	35.110
DPT003	JOB003	20.120
DPT001	JOB002	33.130
DPT001	JOB003	22.230
DPT002	JOB002	30.130
DPT002	JOB001	35.120
DPT007	JOB003	10.000
DPT005	JOB003	30.001
DPT006	JOB002	42.025

15 rows in set (0.003 sec)

Task 6:

select manager_id from employees group by manager_id having min(salary) >= 3500;

```
MariaDB [370lab1_f]> select manager_id from employees group by manager_id having min(salary) >= 3500;
```

manager_id
MNG001
MNG002
MNG003

3 rows in set (0.000 sec)

Task 7:

```
select first_name, last_name, employee_id, email, salary, department_id,
commission_pct from employees
    -> where (manager_id, commission_pct) in (select manager_id,
min(commission_pct) from employees group by manager_id);
```

```
MariaDB [370lab1_f]> select first_name, last_name, employee_id, email, salary, department_id, commission_pct from employees
    -> where (manager_id, commission_pct) in (select manager_id, min(commission_pct) from employees group by manager_id);
```

first_name	last_name	employee_id	email	salary	department_id	commission_pct
John	Doe	EMP001	johndoe@gmail.com	50000	DPT001	25.350
James	Anderson	EMP011	jamesanderson@gmail.com	140000	DPT003	20.120
Emma	Cooper	EMP016	emmacooper@gmail.com	72000	DPT007	10.000

```
3 rows in set (0.004 sec)
```