

CSE370- Homework 02

Submitted by:

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Student ID: 23231072

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;
                                   Null | Key | Default | Extra
 Field
                   Type
  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');

```
rt into employees values
'Doe', 'johndoe@gmail.com', '+8801334567890', '2019-01-15', 'J0B001', 50000, 25.350, 'MNG001', 'DPT001'),
'Smith', 'janesmith@gmail.com', '+880176543210', '2019-02-20', 'J0B002', 60000, 30.330, 'MNG002', 'DPT002'),
','Johnson', 'robertjohnson@gmail.com', '+8801768135790', '2019-03-25', 'J0B002', 75000, 31.450, 'MNG001', 'DPT003'),
,'Williams', 'alicewilliams@gmail.com', '+8801357924680', '2019-04-30', 'J0B002', 90000, 50.040, 'MNG001', 'DPT001'),
,'Brown', 'davidbrown@gmail.com', '+8801642097531', '2019-05-10', 'J0B002', 100000, 45.120, 'MNG002', 'DPT001'),
,'Jones', 'emilyjones@gmail.com', '+8801534567890', '2020-06-15', 'J0B002', 60000, 27.670, 'MNG002', 'DPT001'),
,'Wilson', 'michaelwilson@gmail.com', '+8801876543210', '2020-07-20', 'J0B002', 75000, 30.310, 'MNG003', 'DPT002'),
,'Davis', 'sarahdavis@gmail.com', '+8801468135790', '2021-08-25', 'J0B003', 90000, 35.110, 'MNG003', 'DPT003'),
,'Miller', 'kevinmiller@gmail.com', '+8801857524680', '2021-09-30', 'J0B002', 100000, 40.120, 'MNG003', 'DPT002'),
,'Anderson', 'jamesanderson@gmail.com', '+8801642097531', '2022-10-10', 'J0B001', 120000, 48.120, 'MNG002', 'DPT003'),
,'Anderson', 'jamesanderson@gmail.com', '+8801876543210', '2022-11-15', 'J0B001', 120000, 48.120, 'MNG002', 'DPT003'),
a', 'Garcia', 'jessicagarcia@gmail.com', '+8801876543210', '2022-11-15', 'J0B002', 160000, 33.130, 'MNG003', 'DPT001'),
'Baker', 'liambaker@gmail.com', '+8801317389211', '2019-02-25', 'J0B002', 160000, 33.130, 'MNG002', 'DPT001'),
'Baker', 'liambaker@gmail.com', '+8801310689543', '2019-04-10', 'J0B002', 54000, 30.130, 'MNG002', 'DPT002'),
'Carter', 'noahcarter@gmail.com', '+8801317235684', '2019-04-10', 'J0B001', 66000, 35.120, 'MNG002', 'DPT002'),
'Carter', 'emmacooper@gmail.com', '+8801317235684', '2020-06-05', 'J0B001', 66000, 35.120, 'MNG002', 'DPT007'),
MariaDB [370lab1_f]> insert into employees values
                                     John',
        -> ('EMP001'
              ('EMP002'
                 'EMP003
              ('EMP004'
              ('EMP005'
              ('EMP006'
                                     'Emily'
                                     Michael
              ('EMP007'
                 'EMP008
                                      Sarah',
              ('EMP009'
              ('EMP010'
                                    'Linda'
              ('EMP011'
                                     'James'
                 'EMP012'
                                     'Jessica',
                                    'Liam',
'Olivia'
                 EMP013
              ('EMP014'
                                                   'Carter',
              ('EMP015'
                                     'Noah',
                                                     'Carter', 'noahcarter@gmail.com', '+8801714587921', '2020-06-05', 'JOB001', 66000, 35.120, 'MNG003', 'DPT002'), 'Cooper', 'emmacooper@gmail.com', '+8801317235684', '2020-09-15', 'JOB003', 72000, 10.000, 'MNG002', 'DPT007'), 'Perez', 'aidenperez@gmail.com', '+88017898741562', '2021-01-20', 'JOB002', 80000, 43.235, 'MNG003', 'DPT007'), 'Howard', 'sophiahoward@gmail.com', '+8801734567890', '2021-04-30', 'JOB001', 74000, 34.250, 'MNG002', 'DPT005') 'Sanchez', 'lucassanchez@gmail.com', '+8801934567890', '2022-07-07', 'JOB003', 92000, 30.001, 'MNG002', 'DPT005') 'Bennett', 'averybennett@gmail.com', '+8801834567790', '2022-07-07', 'JOB003', 92000, 30.2126, 'MNG002', 'DPT004') 'Torres', 'masontorres@gmail.com', '+8801994567790', '2023-03-15', 'JOB002', 88000, 42.025, 'MNG003', 'DPT006'), 'Gnzy', 'harpergray@gmail.com', '+8801777567790', '2023-06-20', 'JOB001', 82000, 43.125, 'MNG003', 'DPT006');
                                                    'Cooper'
              ('FMP016'
                                     'Emma'
                                     'Aiden'
              ('EMP017'
                                     Sophia'
                 'EMP018'
              ('EMP019'
              ('EMP020'
                                                                                                                                                                                                                                                                      'DPT004'),
                                     'Avery
              ('EMP021'
                                    'Mason'
                                    'Harper'
-> ('EMP022', 'Harper', 'Gray', 'ha
Query OK, 22 rows affected (0.003 sec)
Records: 22 Duplicates: 0 Warnings: 0
        -> ('EMP022'.
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
                                                                                  johndoe@gmail.com
                                                                                                                                      +8801334567890
                                                                                                                                                                        2019-01-15
   EMP002
                               Jane
                                                          Smith
                                                                                  janesmith@gmail.com
                                                                                                                                      +8801776543210
                                                                                                                                                                        2019-02-20
                                                                                                                                                                                                  J0B002
                                                                                                                                                                                                                      60000
                                                                                                                                                                                                                                                      30.330
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   EMP003
                               Robert
                                                                                                                                      +8801768135790
                                                                                                                                                                                                  J0B002
                                                                                                                                                                                                                      75000
                                                                                                                                                                                                                                                      31.450
                                                                                                                                                                                                                                                                        MNG001
                                                          Johnson
                                                                                  robertjohnson@gmail.com
                                                                                                                                                                                                                                                                                                  DPT003
   EMP004
                               Alice
                                                          Williams
                                                                                  alicewilliams@gmail.com
                                                                                                                                      +8801357924680
                                                                                                                                                                        2019-04-30
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                               David
                                                          Brown
                                                                                  davidbrown@gmail.com
   EMP006
                               Emily
                                                          Jones
                                                                                  emilyjones@gmail.com
                                                                                                                                      +8801534567890
                                                                                                                                                                        2020-06-15
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                               Michael
   EMP007
                                                          Wilson
                                                                                  michaelwilson@gmail.com
                                                                                                                                      +8801876543210
                                                                                                                                                                        2020-07-20
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                                                                                                                                                                                                                      75000
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                                                                                                                                      +8801468135790
                                                                                                                                                                        2021-08-25
   EMP008
                               Sarah
                                                          Davis
                                                                                  sarahdavis@gmail.com
                                                                                                                                                                                                  J0B003
                                                                                                                                                                                                                      90000
                                                                                                                                                                                                                                                      35.110
                                                                                                                                                                                                                                                                        MNG003
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                                                                                                                                                                                                                                                                                                   DPT002
   EMP009
                                                          Miller
                                                                                  kevinmiller@gmail.com
                                                                                                                                       +8801357924680
                                                                                                                                                                        2021-09-30
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                               Kevin
   EMP010
                               Linda
                                                          Martinez
                                                                                  lindamartinez@gmail.com
                                                                                                                                       +8801642097531
                                                                                                                                                                        2022-10-10
                                                                                                                                                                                                                    120000
                                                                                                                                                                                                                                                      48.120
                                                                                                                                                                                                                                                                         MNG002
                                                                                                                                                                                                                                                                                                   DPT003
   EMP011
                                                                                  jamesanderson@gmail.com
                                                                                                                                      +8801834567890
                                                                                                                                                                        2022-11-15
                                                                                                                                                                                                  J0B003
                                                                                                                                                                                                                    140000
                                                                                                                                                                                                                                                      20.120
                                                                                                                                                                                                                                                                        MNG003
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                                James
                                                          Anderson
                                                                                 jessicagarcia@gmail.com
liambaker@gmail.com
oliviahill@gmail.com
   EMP012
                               Jessica
                                                          Garcia
                                                                                                                                      +8801876543210
                                                                                                                                                                        2023-12-20
                                                                                                                                                                                                  J0B002
                                                                                                                                                                                                                    160000
                                                                                                                                                                                                                                                      33.130
                                                                                                                                                                                                                                                                        MNG003
                                                                                                                                                                                                                                                                                                  DPT001
   EMP013
                               Liam
                                                          Baker
                                                                                                                                      +8801347389211
                                                                                                                                                                        2019-02-25
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                                                                                                                                                                                                                      62000
                                                                                                                                                                                                                                                      22.230
                                                                                                                                                                                                                                                                                                  DPT001
                                                                                                                                      +8801310689543
   EMP014
                               Olivia
                                                          Hill
                                                                                                                                                                        2019-04-10
                                                                                                                                                                                                   J0B002
                                                                                                                                                                                                                                                      30.130
                                                                                                                                                                                                                                                                        MNG002
                                                                                                                                                                                                                                                                                                   DPT002
   EMP015
                                                                                                                                       +8801714587921
                                                                                                                                                                        2020-06-05
                                                                                                                                                                                                                      66000
                                                                                                                                                                                                                                                      35.120
                                                                                                                                                                                                                                                                         MNG003
                                                                                                                                                                                                                                                                                                   DPT002
                               Noah
                                                          Carter
                                                                                  noahcarter@gmail.com
                                                                                                                                                                                                   J0B001
   EMP016
                               Emma
                                                                                  emmacooper@gmail.com
                                                                                                                                      +8801317235684
                                                                                                                                                                        2020-09-15
                                                                                                                                                                                                   J0B003
                                                                                                                                                                                                                      72000
                                                                                                                                                                                                                                                      10.000
                                                                                                                                                                                                                                                                        MNG002
                                                                                                                                                                                                                                                                                                  DPT007
                                                          Cooper
                                                                                                                                                                        2021-01-20
   EMP017
                               Aiden
                                                          Perez
                                                                                  aidenperez@gmail.com
                                                                                                                                      +8801789874562
                                                                                                                                                                                                  J0B002
                                                                                                                                                                                                                      80000
                                                                                                                                                                                                                                                      43.235
                                                                                                                                                                                                                                                                        MNG003
                                                                                                                                                                                                                                                                                                  DPT007
   EMP018
                                                                                                                                                                                                  J0B001
                                                                                                                                      +8801734567890
                                                                                                                                                                        2021-04-30
                                                                                                                                                                                                                                                                        MNG002
                               Sophia
                                                          Howard
                                                                                  sophiahoward@gmail.com
                                                                                                                                                                                                                      74000
                                                                                                                                                                                                                                                      34.250
                                                                                                                                                                                                                                                                                                  DPT005
   EMP019
                                                                                                                                      +8801934567890
                                                                                                                                                                        2022-07-07
                                                                                                                                                                                                   J0B003
                                                                                                                                                                                                                      92000
                                                                                                                                                                                                                                                      30.001
                                                                                                                                                                                                                                                                        MNG003
                                                                                                                                                                                                                                                                                                   DPT005
                                                          Sanchez
                                                                                  lucassanchez@gmail.com
                               Lucas
                                                                                  averybennett@gmail.com
   EMP020
                               Avery
                                                                                                                                       +8801834567790
                                                                                                                                                                                                                                                                        MNG002
                                                                                                                                                                                                                                                                                                   DPT004
                                                          Bennett
                                                                                                                                                                        2022-10-10
                                                                                                                                                                                                   J0B003
                                                                                                                                      +8801994567790
   EMP021
                               Mason
                                                                                   masontorres@gmail.com
                                                                                                                                                                        2023-03-15
                                                                                                                                                                                                   J0B002
                                                                                                                                                                                                                      88000
                                                                                                                                                                                                                                                      42.025
                                                                                                                                                                                                                                                                        MNG003
                                                                                                                                                                                                                                                                                                   DPT006
                                                          Torres
   FMP022
                               Harper
                                                          Gray
                                                                                 harpergray@gmail.com
                                                                                                                                      +8801777567790
                                                                                                                                                                        2023-06-20
                                                                                                                                                                                                  JOB001
                                                                                                                                                                                                                      82000
                                                                                                                                                                                                                                                      43.125
                                                                                                                                                                                                                                                                        MNGOO3
                                                                                                                                                                                                                                                                                                  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			
l 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);

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	

Task 3:

select first_name, last_name, employee_id, commission_pct, department_idfrom employees

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

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 |
                  J0B001
  DPT001
                                    25.350
                                    30.330
31.450
  DPT002
                  JOB002
JOB002
  DPT003
  DPT001
                   J0B003
                                    45.120
  DPT001
                  J0B002
                                    27.670
  DPT002
                  J0B002
                                    30.310
  DPT003
                  J0B003
                                    35.110
                  J0B003
  DPT003
                                    20.120
  DPT001
                   J0B002
                                    33.130
  DPT001
                   J0B003
                                    22.230
  DPT002
                  J0B002
                                    30.130
  DPT002
                  J0B001
                                    35.120
 DPT007
                  J0B003
                                    10.000
  DPT005
                   J0B003
                                    30.001
                  J0B002
                                    42.025
  DPT006
15 rows in set (0.003 sec)
```

Task 6:

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

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 EMP001 johndoe@gmail.com 50000 DPT001 25.350 Doe jamesanderson@gmail.com 140000 20.120 James Anderson EMP011 DPT003 Emma Cooper EMP016 emmacooper@gmail.com 72000 DPT007 10.000 rows in set (0.004 sec)