



Inspiring Excellence

***CSE370***

***Database system***

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**Section:** 08

**Lab assignment:** 01

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*Answer to the question no 1*

***Query:***

mysql -u root -p

```
Setting environment for using XAMPP for Windows.
Windows@REJWAN-SHAFI-WA e:\XAMPP
# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 8
Server version: 10.4.28-MariaDB mariadb.org binary distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

***Query:*** use cse370\_lab\_assignment\_23241108;

```
MariaDB [(none)]> use cse370_lab_assignment_23241108;
Database changed
```

***Query:*** 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 [cse370_lab_assignment_23241108]> 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 (0.020 sec)

```

**Query:** describe employees;

```

MariaDB [cse370_lab_assignment_23241108]> 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 (0.017 sec)

```

**Query:** insert into employees values

```

('EMP001','Rejwan','Shafi','rejwan.shafi@g.bracu.ac.bd','01154453875289','2018-01-05','JOB002',50000,21.12,'MNG001','DPT001'),
('EMP002','Fahmida','Mehjabeen','fahmida.mehjabeen@gmail.com','01644474020280','2018-01-05','JOB002',50000,21.10,'MNG001','DPT001'),
('EMP003','Ashfaq','Ahmed','ashfaq_ahmed@brown.edu','01816570545847','2015-02-03','JOB001',70000,30.55,'MNG001','DPT001'),
('EMP004','Nabila','Mashrura','nabila.mashrura@gmail.com','01103955775234','2017-01-25','JOB001',60000,28.75,'MNG002','DPT002'),

```

('EMP005','Ayan','Pal','ayan.pal@yahoo.com','01594291550999','2017-10-12','JOB002',49000,25.25,'MNG002','DPT002'),  
('EMP006','Oishi','Rahman','oishi.rahman50@gmail.com','01261023169277','2017-08-09','JOB002',50000,22.222,'MNG003','DPT003'),  
('EMP007','Fairuz','Tasfiya','fairuz@gmail.com','01544838890322','2018-11-25','JOB002',45000,25.45,'MNG003','DPT003'),  
('EMP008','Abtahi','Noor','abtahi.noor@gmail.com','01412172175975','2016-05-07','JOB001',65000,30.12,'MNG003','DPT003'),  
('EMP009','Tahiya','Hossain','tahiya.hossain@g.bracu.ac.bd','01633831058957','2017-10-10','JOB002',40000,15.25,'MNG004','DPT004'),  
('EMP010','Homairah','Ferdousia','homairah.ferdousia@g.bracu.ac.bd','01200373881831','2017-08-12','JOB001',58000,25.75,'MNG004','DPT004'),  
('EMP011','Prangon','Das','prangon.das@gmail.com','01931939376013','2018-11-25','JOB002',45000,18.65,'MNG005','DPT005'),  
('EMP012','Sadman','Sakib','sadman.sakib5966@yahoo.com','01703104223783','2017-09-12','JOB001',55000,25.85,'MNG005','DPT005'),  
('EMP013','Mahfuj','Abid','mahfuj.abid@g.bracu.ac.bd','01766039650699','2020-10-10','JOB001',57000,9.25,'MNG006','DPT006'),  
('EMP014','Sumaiya','Akter','sumaiya.akter@gmail.com','01160932009450','2022-12-18','JOB002',35000,10.25,'MNG006','DPT006'),  
('EMP015','Sarwar','Hossain','sarwar.hossain@yahoo.com','01303122881446','2023-05-07','JOB002',35000,15.65,'MNG007','DPT007'),  
('EMP016','Kawsar','Rahman','kawsar.rahman@g.bracu.ac.bd','01689560037055','2022-07-26','JOB001',45000,17.156,'MNG007','DPT007'));

```
MariaDB [cse370_lab_assignment_23241108]> insert into employees values
-> ('EMP001','Rejwan','Shafi','rejwan.shafi@g.bracu.ac.bd','01154453875289','2018-01-05','JOB002',50000,21.12,'MNG001','DPT001'),
-> ('EMP002','Fahmida','Mehjabeen','fahmida.mehjabeen@gmail.com','01644474020280','2018-01-05','JOB002',50000,21.10,'MNG001','DPT001'),
-> ('EMP003','Ashfaq','Ahmed','ashfaq_ahmed@brown.edu','01816570545847','2015-02-03','JOB001',70000,30.55,'MNG001','DPT001'),
-> ('EMP004','Nabila','Mashrura','nabila.mashrura@gmail.com','01103955775234','2017-01-25','JOB001',60000,28.75,'MNG002','DPT002'),
-> ('EMP005','Ayan','Pal','ayan.pal@yahoo.com','01594291550999','2017-10-12','JOB002',49000,25.25,'MNG002','DPT002'),
-> ('EMP006','Oishi','Rahman','oishi.rahman50@gmail.com','01261023169277','2017-08-09','JOB002',50000,22.222,'MNG003','DPT003'),
-> ('EMP007','Fairuz','Tasfiya','fairuz@gmail.com','01544838890322','2018-11-25','JOB002',45000,25.45,'MNG003','DPT003'),
-> ('EMP008','Abtahi','Noor','abtahi.noor@gmail.com','01412172175975','2016-05-07','JOB001',65000,30.12,'MNG003','DPT003'),
-> ('EMP009','Tahiya','Hossain','tahiya.hossain@g.bracu.ac.bd','01633831058957','2017-10-10','JOB002',40000,15.25,'MNG004','DPT004'),
-> ('EMP010','Homairah','Ferdousia','homairah.ferdousia@g.bracu.ac.bd','01200373881831','2017-08-12','JOB001',58000,25.75,'MNG004','DPT004'),
-> ('EMP011','Prangon','Das','prangon.das@gmail.com','01931939376013','2018-11-25','JOB002',45000,18.65,'MNG005','DPT005'),
-> ('EMP012','Sadman','Sakib','sadman.sakib5966@yahoo.com','01703104223783','2017-09-12','JOB001',55000,25.85,'MNG005','DPT005'),
-> ('EMP013','Mahfuj','Abid','mahfuj.abid@g.bracu.ac.bd','01766039650699','2020-10-10','JOB001',57000,9.25,'MNG006','DPT006'),
-> ('EMP014','Sumaiya','Akter','sumaiya.akter@gmail.com','01160932009450','2022-12-18','JOB002',35000,10.25,'MNG006','DPT006'),
-> ('EMP015','Sarwar','Hossain','sarwar.hossain@yahoo.com','01303122881446','2023-05-07','JOB002',35000,15.65,'MNG007','DPT007'),
-> ('EMP016','Kawsar','Rahman','kawsar.rahman@g.bracu.ac.bd','01689560037055','2022-07-26','JOB001',45000,17.156,'MNG007','DPT007');
Query OK, 16 rows affected (0.020 sec)
Records: 16 Duplicates: 0 Warnings: 0
```

**Query:** select \* from employees;

```
MariaDB [cse370_lab_assignment_23241108]> select * from employees;
```

employee_id	first_name	last_name	email	phone_number	hire_date	job_id	salary	commission_pct	manager_id	department_id
EMP001	Rejwan	Shafi	rejwan.shafi@bracu.ac.bd	01154453875289	2018-01-05	JOB002	50000	21.120	MNG001	DPT001
EMP002	Fahmida	Mehjabeen	fahmida.mehjabeen@gmail.com	01644474020280	2018-01-05	JOB002	50000	21.100	MNG001	DPT001
EMP003	Ashfaq	Ahmed	ashfaq_ahmed@brown.edu	01816570545847	2015-02-03	JOB001	70000	30.550	MNG001	DPT001
EMP004	Nabila	Mashrura	nabila.mashrura@gmail.com	01103955775234	2017-01-25	JOB001	60000	28.750	MNG002	DPT002
EMP005	Ayan	Pal	ayan.pal@yahoo.com	01594291550999	2017-10-12	JOB002	49000	25.250	MNG002	DPT002
EMP006	Oishi	Rahman	oishi.rahman50@gmail.com	01261023169277	2017-08-09	JOB002	50000	22.222	MNG003	DPT003
EMP007	Fairuz	Tasfiya	fairuz@gmail.com	01544838890322	2018-11-25	JOB002	45000	25.450	MNG003	DPT003
EMP008	Abtahi	Noor	abtahi.noor@gmail.com	01412172175975	2016-05-07	JOB001	65000	30.120	MNG003	DPT003
EMP009	Tahiya	Hossain	tahiya.hossain@bracu.ac.bd	01633831058957	2017-10-10	JOB002	40000	15.250	MNG004	DPT004
EMP010	Homairah	Ferdousia	homairah.ferdousia@bracu.ac.bd	01200373881831	2017-08-12	JOB001	58000	25.750	MNG004	DPT004
EMP011	Prangon	Das	prangon.das@gmail.com	01931939376013	2018-11-25	JOB002	45000	18.650	MNG005	DPT005
EMP012	Sadman	Sakib	sadman.sakib5966@yahoo.com	01703104223783	2017-09-12	JOB001	55000	25.850	MNG005	DPT005
EMP013	Mahfuj	Abid	mahfuj.abid@bracu.ac.bd	01766039650699	2020-10-10	JOB001	57000	9.250	MNG006	DPT006
EMP014	Sumaiya	Akter	sumaiya.akter@gmail.com	01160932009450	2022-12-18	JOB002	35000	10.250	MNG006	DPT006
EMP015	Sarwar	Hossain	sarwar.hossain@yahoo.com	01303122881446	2023-05-07	JOB002	35000	15.650	MNG007	DPT007
EMP016	Kawsar	Rahman	kawsar.rahman@bracu.ac.bd	01689560037055	2022-07-26	JOB001	45000	17.156	MNG007	DPT007

16 rows in set (0.009 sec)

**Query:** select first\_name, last\_name, email, phone\_number, hire\_date, department\_id from employees where hire\_date = (select max(hire\_date) from employees);

```
MariaDB [cse370_lab_assignment_23241108]> 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
Sarwar	Hossain	sarwar.hossain@yahoo.com	01303122881446	2023-05-07	DPT007

1 row in set (0.020 sec)

### Answer to the question no 2

**Query:**

```
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 [cse370_lab_assignment_23241108]> 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
Rejwan	Shafi	EMP001	01154453875289	50000	DPT001
Fahmida	Mehjabeen	EMP002	01644474020280	50000	DPT001
Ayan	Pal	EMP005	01594291550999	49000	DPT002
Fairuz	Tasfiya	EMP007	01544838890322	45000	DPT003
Tahiya	Hossain	EMP009	01633831058957	40000	DPT004
Prangon	Das	EMP011	01931939376013	45000	DPT005
Sumaiya	Akter	EMP014	01160932009450	35000	DPT006
Sarwar	Hossain	EMP015	01303122881446	35000	DPT007

8 rows in set (0.046 sec)

### Answer to the question no 3

**Query:** 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 [cse370_lab_assignment_23241108]> 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 |
+-----+-----+-----+-----+-----+
| Sarwar    | Hossain  | EMP015     | 15.650         | DPT007        |
| Kawsar    | Rahman   | EMP016     | 17.156         | DPT007        |
+-----+-----+-----+-----+-----+
2 rows in set (0.010 sec)
```

#### Answer to the question no 4

**Query:** select department\_id, count(\*) as total\_employees from employees where salary < 30000  
group by department\_id ;

```
MariaDB [cse370_lab_assignment_23241108]> select department_id, count(*) as total_employees from employees where salary < 30000
-> group by department_id ;
Empty set (0.001 sec)
```

#### Answer to the question no 5

**Query:** select department\_id, job\_id, commission\_pct  
from employees e1 where commission\_pct < any  
(select commission\_pct  
from employees e2  
where e1.department\_id = e2.department\_id and e1.job\_id <> e2.job\_id);

```
MariaDB [cse370_lab_assignment_23241108]> select department_id, job_id, commission_pct
-> from employees e1 where commission_pct < any
-> (select commission_pct
-> from employees e2
-> where e1.department_id = e2.department_id and e1.job_id <> e2.job_id);
+-----+-----+-----+
| department_id | job_id | commission_pct |
+-----+-----+-----+
| DPT001        | JOB002 | 21.120         |
| DPT001        | JOB002 | 21.100         |
| DPT002        | JOB002 | 25.250         |
| DPT003        | JOB002 | 22.222         |
| DPT003        | JOB002 | 25.450         |
| DPT004        | JOB002 | 15.250         |
| DPT005        | JOB002 | 18.650         |
| DPT006        | JOB001 | 9.250          |
| DPT007        | JOB002 | 15.650         |
+-----+-----+-----+
9 rows in set (0.001 sec)
```

### Answer to the question no 6

**Query:** select manager\_id from employees group by manager\_id having min(salary) > 3500;

```
MariaDB [cse370_lab_assignment_23241108]> select manager_id from employees
-> group by manager_id having min(salary) > 3500;
+-----+
| manager_id |
+-----+
| MNG001     |
| MNG002     |
| MNG003     |
| MNG004     |
| MNG005     |
| MNG006     |
| MNG007     |
+-----+
7 rows in set (0.000 sec)
```

### Answer to the question no 7

**Query:**

select first\_name, last\_name, employee\_id, email, salary, department\_id, commission\_pct from employees e1  
where commission\_pct = (select min(commission\_pct) from employees e2 where e2.manager\_id = e1.manager\_id);

```
MariaDB [cse370_lab_assignment_23241108]> select first_name, last_name, employee_id, email, salary, department_id, commission_pct from employees e1
-> where commission_pct = (select min(commission_pct) from employees e2 where e2.manager_id = e1.manager_id);
+-----+-----+-----+-----+-----+-----+-----+
| first_name | last_name | employee_id | email | salary | department_id | commission_pct |
+-----+-----+-----+-----+-----+-----+-----+
| Fahmida   | Mehjabeen | EMP002     | fahmida.mehjabeen@gmail.com | 50000 | DPT001 | 21.100 |
| Ayan      | Pal       | EMP005     | ayan.pal@yahoo.com | 49000 | DPT002 | 25.250 |
| Oishi     | Rahman   | EMP006     | oishi.rahman50@gmail.com | 50000 | DPT003 | 22.222 |
| Tahiya    | Hossain  | EMP009     | tahiya.hossain@g.bracu.ac.bd | 40000 | DPT004 | 15.250 |
| Prangon   | Das      | EMP011     | prangon.das@gmail.com | 45000 | DPT005 | 18.650 |
| Mahfuj    | Abid     | EMP013     | mahfuj.abid@g.bracu.ac.bd | 57000 | DPT006 | 9.250 |
| Sarwar    | Hossain  | EMP015     | sarwar.hossain@yahoo.com | 35000 | DPT007 | 15.650 |
+-----+-----+-----+-----+-----+-----+-----+
7 rows in set (0.006 sec)
```