



**CSE370**

**Database Systems**

**Spring-24**

**Lab Assignment - 2**

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**Section: 13**

## DATABASE + TABLE CREATE

CREATE DATABASE 22301061\_FAIAZ\_PRONoy\_LAB\_02;

SHOW DATABASES;

USE 22301061\_FAIAZ\_PRONoy\_LAB\_02;

```
MariaDB [(none)]> SHOW DATABASES;
+-----+
| Database |
+-----+
| 22301061_faiaz_pronoy_lab_01 |
| information_schema |
| mysql |
| performance_schema |
| phpmyadmin |
| test |
+-----+
6 rows in set (0.001 sec)

MariaDB [(none)]> CREATE DATABASE 22301061_FAIAZ_PRONoy_LAB_02;
Query OK, 1 row affected (0.001 sec)

MariaDB [(none)]> SHOW DATABASES;
+-----+
| Database |
+-----+
| 22301061_faiaz_pronoy_lab_01 |
| 22301061_faiaz_pronoy_lab_02 |
| information_schema |
| mysql |
| performance_schema |
| phpmyadmin |
| test |
+-----+
7 rows in set (0.001 sec)

MariaDB [(none)]> USE 22301061_FAIAZ_PRONoy_LAB_02;
Database changed
MariaDB [22301061_FAIAZ_PRONoy_LAB_02]>
```

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 [22301061_FAIAZ_PRONoy_LAB_02]> 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 (0.008 sec)
```

DESCRIBE Employee;

```
MariaDB [22301061_FAIAZ_PRONoy_LAB_02]> DESCRIBE Employee;  
+-----+-----+-----+-----+-----+-----+  
| 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 (0.013 sec)
```

INSERT INTO Employee VALUES

('EMP001', 'Faiaz', 'Pronoy', 'fazpronoy@gmail.com', '+8801620044333', '2021-01-21', 'JOB001', 90000, 15.63, 'MNG001', 'DPT001'),

('EMP002', 'Sinthia', 'Khandoker', 'sinthiakhandoker@gmail.com', '+8801620044366', '2013-10-29', 'JOB002', 10000, 10.52, 'MNG001', 'DPT003'),

('EMP003', 'Jahirul', 'Zishan', 'jahirulzishan@yahoo.com', '+8801620044360', '2022-10-03', 'JOB003', 50000, 8.02, 'MNG002', 'DPT007'),

('EMP004', 'Niamul', 'Hasan', 'niamulhasan@gmail.com', '+8801620044390', '2017-05-14', 'JOB003', 28000, 12.67, 'MNG002', 'DPT005'),

('EMP005', 'Talha', 'Islam', 'talhaislam@gmail.com', '+8801620044345', '2015-07-05', 'JOB001', 25000, 18.12, 'MNG001', 'DPT005'),

('EMP006', 'Dokhan', 'Kamal', 'dokhankamal@gmail.com', '+8801620044125', '2011-11-04', 'JOB006', 72000, 6.07, 'MNG003', 'DPT007'),

('EMP007', 'Ishrak', 'Hamim', 'ishrak@gmail.com', '+8801620044355', '2023-10-07', 'JOB002', 16000, 13.55, 'MNG003', 'DPT007'),

('EMP008', 'Siam', 'Ferdous', 'siam@yahoo.com', '+8801620044377', '2023-10-18', 'JOB003', 79000, 9.1, 'MNG002', 'DPT007'),

('EMP009', 'Uday', 'Khan', 'uday@yahoo.com', '+8801620044399', '2022-06-09', 'JOB004', 60000, 7, 'MNG002', 'DPT003'),

('EMP010', 'Sirajum', 'Munira', 'munira@yahoo.com', '+8801620044344', '2018-06-06', 'JOB004', 44000, 11.543, 'MNG001', 'DPT002'),

('EMP011', 'Zaynul', 'Abedin', 'abed@gmail.com', '+8801620044345', '2020-07-11', 'JOB001', 3000, 16.06, 'MNG003', 'DPT005'),

('EMP012', 'Nowshin', 'Sumaiya', 'nowshinsumaiya@outlook.com', '+8801620044321', '2023-04-02', 'JOB001', 78300, 19.147, 'MNG002', 'DPT002');

```
MariaDB [22301061_FAIAZ_PRONoy_LAB_02]> INSERT INTO Employee VALUES
-> ('EMP001', 'Faiaz', 'Pronoy', 'fazpronoy@gmail.com', '+8801620044333', '2021-01-21', 'JOB001', 90000, 15.63, 'MNG001', 'DPT001'),
-> ('EMP002', 'Sinthia', 'Khandoker', 'sinthiakhandoker@gmail.com', '+8801620044366', '2013-10-29', 'JOB002', 10000, 10.52, 'MNG001', 'DPT003'),
-> ('EMP003', 'Jahirul', 'Zishan', 'jahirulzishan@yahoo.com', '+8801620044360', '2022-10-03', 'JOB003', 50000, 8.02, 'MNG002', 'DPT007'),
-> ('EMP004', 'Niamul', 'Hasan', 'niamulhasan@gmail.com', '+8801620044390', '2017-05-14', 'JOB003', 28000, 12.67, 'MNG002', 'DPT005'),
-> ('EMP005', 'Talha', 'Islam', 'talhaislam@gmail.com', '+8801620044345', '2015-07-05', 'JOB001', 25000, 18.12, 'MNG001', 'DPT005'),
-> ('EMP006', 'Dokhan', 'Kamal', 'dokhankamal@gmail.com', '+8801620044125', '2011-11-04', 'JOB006', 72000, 6.07, 'MNG003', 'DPT007'),
-> ('EMP007', 'Ishrak', 'Hamim', 'ishrak@gmail.com', '+8801620044355', '2023-10-07', 'JOB002', 16000, 13.55, 'MNG003', 'DPT007'),
-> ('EMP008', 'Siam', 'Ferdous', 'siam@yahoo.com', '+8801620044377', '2023-10-18', 'JOB003', 79000, 9.1, 'MNG002', 'DPT007'),
-> ('EMP009', 'Uday', 'Khan', 'uday@yahoo.com', '+8801620044399', '2022-06-09', 'JOB004', 60000, 7, 'MNG002', 'DPT003'),
-> ('EMP010', 'Sirajum', 'Munira', 'munira@yahoo.com', '+8801620044344', '2018-06-06', 'JOB004', 44000, 11.543, 'MNG001', 'DPT002'),
-> ('EMP011', 'Zaynul', 'Abedin', 'abed@gmail.com', '+8801620044345', '2020-07-11', 'JOB001', 3000, 16.06, 'MNG003', 'DPT005'),
-> ('EMP012', 'Nowshin', 'Sumaiya', 'nowshinsumaiya@outlook.com', '+8801620044321', '2023-04-02', 'JOB001', 78300, 19.147, 'MNG002', 'DPT002');
Query OK, 12 rows affected (0.002 sec)
Records: 12 Duplicates: 0 Warnings: 0
```

SELECT \* FROM Employee;

```
MariaDB [22301061_FAIAZ_PRONoy_LAB_02]> SELECT * FROM Employee;
```

employee_id	first_name	last_name	email	phone_number	hire_date	job_id	salary	commission_pct	manager_id	department_id
EMP001	Faiaz	Pronoy	fazpronoy@gmail.com	+8801620044333	2021-01-21	JOB001	90000	15.630	MNG001	DPT001
EMP002	Sinthia	Khandoker	sinthiakhandoker@gmail.com	+8801620044366	2013-10-29	JOB002	10000	10.520	MNG001	DPT003
EMP003	Jahirul	Zishan	jahirulzishan@yahoo.com	+8801620044360	2022-10-03	JOB003	50000	8.020	MNG002	DPT007
EMP004	Niamul	Hasan	niamulhasan@gmail.com	+8801620044390	2017-05-14	JOB003	28000	12.670	MNG002	DPT005
EMP005	Talha	Islam	talhaislam@gmail.com	+8801620044345	2015-07-05	JOB001	25000	18.120	MNG001	DPT005
EMP006	Dokhan	Kamal	dokhankamal@gmail.com	+8801620044125	2011-11-04	JOB006	72000	6.070	MNG003	DPT007
EMP007	Ishrak	Hamim	ishrak@gmail.com	+8801620044355	2023-10-07	JOB002	16000	13.550	MNG003	DPT007
EMP008	Siam	Ferdous	siam@yahoo.com	+8801620044377	2023-10-18	JOB003	79000	9.100	MNG002	DPT007
EMP009	Uday	Khan	uday@yahoo.com	+8801620044399	2022-06-09	JOB004	60000	7.000	MNG002	DPT003
EMP010	Sirajum	Munira	munira@yahoo.com	+8801620044344	2018-06-06	JOB004	44000	11.543	MNG001	DPT002
EMP011	Zaynul	Abedin	abed@gmail.com	+8801620044345	2020-07-11	JOB001	3000	16.060	MNG003	DPT005
EMP012	Nowshin	Sumaiya	nowshinsumaiya@outlook.com	+8801620044321	2023-04-02	JOB001	78300	19.147	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

WHERE hire\_date = (SELECT MAX(hire\_date) FROM Employee);

```
MariaDB [22301061_FAIAZ_PRONoy_LAB_02]> SELECT first_name, last_name, email, phone_number, hire_date, department_id FROM Employee
-> WHERE hire_date = (SELECT MAX(hire_date) FROM Employee);
+-----+-----+-----+-----+-----+-----+
| first_name | last_name | email          | phone_number | hire_date | department_id |
+-----+-----+-----+-----+-----+-----+
| Siam       | Ferdous   | siam@yahoo.com | +8801620044377 | 2023-10-18 | DPT007        |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.001 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 e1.department\_id = e2.department\_id) GROUP BY department\_id;

```
MariaDB [22301061_FAIAZ_PRONoy_LAB_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 e1.department_id = e2.department_id) GROUP BY department_id;
+-----+-----+-----+-----+-----+-----+
| first_name | last_name | employee_id | phone_number | salary | department_id |
+-----+-----+-----+-----+-----+-----+
| Faiaz      | Pronoy    | EMP001      | +8801620044333 | 90000 | DPT001        |
| Sirajum    | Munira    | EMP010      | +8801620044344 | 44000 | DPT002        |
| Sinthia    | Khandoker | EMP002      | +8801620044366 | 10000 | DPT003        |
| Zaynul     | Abedin    | EMP011      | +8801620044345 | 3000  | DPT005        |
| Ishrak     | Hamim     | EMP007      | +8801620044355 | 16000 | DPT007        |
+-----+-----+-----+-----+-----+-----+
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 < ALL(SELECT MIN(commission\_pct) FROM Employee WHERE department\_id = 'DPT005');

```
MariaDB [22301061_FAIAZ_PRONoy_LAB_02]> SELECT first_name, last_name, employee_id, commission_pct, department_id FROM Employee
-> WHERE department_id = 'DPT007' AND commission_pct < ALL(SELECT MIN(commission_pct) FROM Employee WHERE department_id = 'DPT005');
+-----+-----+-----+-----+-----+
| first_name | last_name | employee_id | commission_pct | department_id |
+-----+-----+-----+-----+-----+
| Jahirul    | Zishan    | EMP003      | 8.020          | DPT007        |
| Dokhan     | Kamal     | EMP006      | 6.070          | DPT007        |
| Siam       | Ferdous   | EMP008      | 9.100          | DPT007        |
+-----+-----+-----+-----+-----+
3 rows in set (0.001 sec)
```

## TASK\_04

```
SELECT department_id, salary, count(*) AS total_employees FROM Employee GROUP BY department_id  
HAVING salary <= 30000;
```

```
MariaDB [22301061_FAIAZ_PRONOVY_LAB_02]> SELECT department_id, salary, count(*) AS total_employees FROM Employee GROUP BY department_id  
-> HAVING salary <= 30000;  
+-----+-----+-----+  
| department_id | salary | total_employees |  
+-----+-----+-----+  
| DPT003        | 10000  | 2               |  
| DPT005        | 28000  | 3               |  
+-----+-----+-----+  
2 rows in set (0.001 sec)
```

## TASK\_05

```
SELECT department_id, job_id, commission_pct FROM Employee e1  
WHERE commission_pct < ANY(SELECT commission_pct FROM Employee e2  
WHERE e1.department_id = e2.department_id AND e1.job_id != e2.job_id);
```

```
MariaDB [22301061_FAIAZ_PRONOVY_LAB_02]> SELECT department_id, job_id, commission_pct FROM Employee e1  
-> WHERE commission_pct < ANY(SELECT commission_pct FROM Employee e2  
-> WHERE e1.department_id = e2.department_id AND e1.job_id != e2.job_id);  
+-----+-----+-----+  
| department_id | job_id | commission_pct |  
+-----+-----+-----+  
| DPT007        | JOB003 | 8.020          |  
| DPT005        | JOB003 | 12.670         |  
| DPT007        | JOB006 | 6.070          |  
| DPT007        | JOB003 | 9.100          |  
| DPT003        | JOB004 | 7.000          |  
| DPT002        | JOB004 | 11.543         |  
+-----+-----+-----+  
6 rows in set (0.001 sec)
```

## TASK\_06

SELECT manager\_id FROM Employee GROUP BY manager\_id HAVING MIN(salary) >= 3500;

```
MariaDB [22301061_FAIAZ_PRONoy_LAB_02]> SELECT manager_id FROM Employee GROUP BY manager_id HAVING MIN(salary) >= 3500;
+-----+
| manager_id |
+-----+
| MNG001     |
| MNG002     |
+-----+
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 e1.manager\_id = e2.manager\_id);

```
MariaDB [22301061_FAIAZ_PRONoy_LAB_02]> 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 e1.manager_id = e2.manager_id);
+-----+-----+-----+-----+-----+-----+-----+
| first_name | last_name | employee_id | email | salary | department_id | commission_pct |
+-----+-----+-----+-----+-----+-----+-----+
| Sinthia   | Khandoker | EMP002      | sinthiakhandoker@gmail.com | 10000 | DPT003 | 10.520 |
| Dokhan    | Kamal     | EMP006      | dokhankamal@gmail.com | 72000 | DPT007 | 6.070 |
| Uday      | Khan      | EMP009      | uday@yahoo.com | 60000 | DPT003 | 7.000 |
+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.000 sec)
```

```
MariaDB [22301061_FAIAZ_PRONoy_LAB_02]>
```