Department of Computer Science and Engineering

Course Code: CSE 370	Credits: 3.0
Course Name: Database Systems	Semester: Summer 2025

Lab Assignment 2

Proving yourself worthy of being able to handle more significant tasks, the tech lead has decided to give you a challenging job. However, this time, the data you would be handling is very sensitive and no one wants this data to be leaked. Therefore, instead of getting the entire table, the tech lead has given you the list of attributes that the table contains and the table name. The information given is as follows:

You will use a database called **Company_<Your8DigitStudentID>.**

Format: CREATE DATABASE Company_<Your8DigitStudentID>; **CREATE DATABASE** Company_12345678;
USE Company_12345678;

Table Name: ***Employee***	
Attribute Name	**Attribute type**
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)

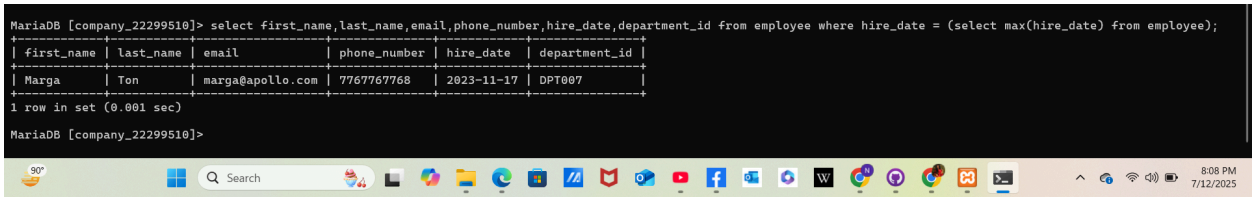
You need to insert rows (around 10 or more to test all of the queries for the following tasks) as per the data types of the attributes/columns and problem statements of the following tasks.

Employee IDs should be 'EMP001', 'EMP002', etc.
Job IDs should be 'JOB001', 'JOB002', etc.
Manager IDs should be 'MNG001', 'MNG002', etc.
Department IDs should be DPT001, ..., DPT005, ... DPT007, etc.

Write down the queries to retrieve the following information: [7 X 2 =14]

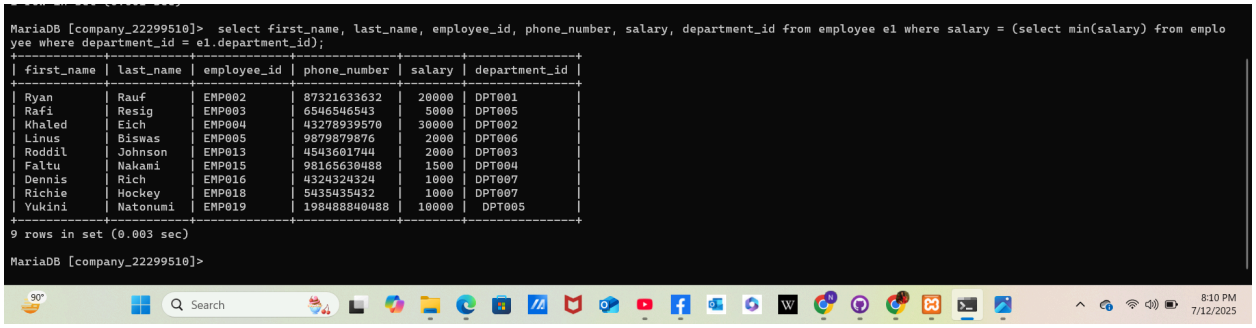
1.Find the **first_name, last_name, email, phone_number, hire_date** and **department_id** of all the employees with the latest **hire_date**.

Answer: select first_name,last_name,email,phone_number,hire_date,department_id from employee where hire_date = (select max(hire_date) from employee);



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.

Answer: select first_name, last_name, employee_id, phone_number, salary, department_id from employee e1 where salary = (select min(salary) from employee where department_id = e1.department_id);



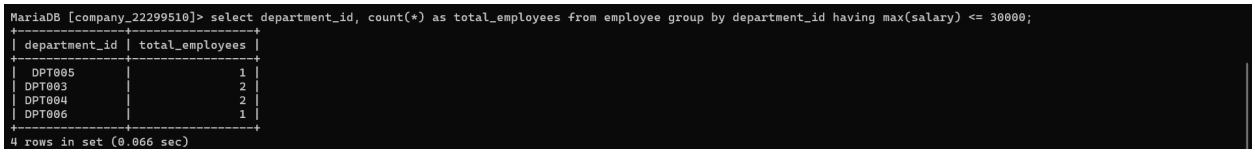
Answer :

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 department 'DPT005' employees.

Answer: SELECT first_name, last_name, employee_id, commission_pct, department_id FROM employee WHERE department_id = 'DPT007' AND commission_pct < ALL (SELECT commission_pct FROM employee WHERE department_id = 'DPT005');

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.

Answer: select department_id, count(*) as total_employees from employee group by department_id having max(salary) <= 30000;



5.For each department, find the ***department_id***, ***job_id*** and ***commission_pct*** with ***commission_pct*** less than at least one other ***job_id*** in that department.

Answer:select e1.department_id, e1.job_id, e1.commission_pct from employee e1 where exists (select 1 from employee e2 where e1.department_id = e2.department_id and e1.job_id <> e2.job_id and e1.commission_pct < e2.commission_pct);

```
MariaDB [company_22299510]> select e1.department_id, e1.job_id, e1.commission_pct from employee e1 where exists (select 1 from employee e2 where e1.department_id = e2.dep
artment_id and e1.job_id <> e2.job_id and e1.commission_pct < e2.commission_pct);
+---------------+--------+----------------+
| department_id | job_id | commission_pct |
+---------------+--------+----------------+
| DPT003        | JOB012 |          0.000 |
| DPT005        | JOB018 |          0.002 |
| DPT005        | JOB013 |          0.023 |
| DPT001        | JOB008 |          0.000 |
| DPT001        | JOB006 |          0.852 |
| DPT002        | JOB009 |          0.000 |
| DPT001        | JOB007 |          1.000 |
| DPT007        | JOB014 |          0.023 |
| DPT007        | JOB019 |          0.009 |
| DPT007        | JOB020 |          0.001 |
| DPT004        | JOB005 |          0.000 |
| DPT007        | JOB017 |          0.230 |
+---------------+--------+----------------+
12 rows in set (0.001 sec)

MariaDB [company_22299510]>
```

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

Answer: Select distinct E1.manager_id from employee e1 where e1.manager_id IS NOT NULL and not exists (select 1 from employee e2 where e2.manager_id = e1.manager_id and e2.salary < 3500);

```
MariaDB [company_22299510]> Select distinct E1.manager_id  from employee e1 where e1.manager_id IS NOT NULL and not exists (select 1 from employee e2 where e2.manager_id
= e1.manager_id and e2.salary < 3500);
Empty set (0.001 sec)

MariaDB [company_22299510]>
```

7.Find the ***first_name, last_name, employee_id, email, salary, department_id*** *and* ***commission_pct*** of the employee with the lowest ***commission_pct*** under each manager.

Answer: select e1.first_name, e1.last_name, e1.employee_id, e1.email, e1.salary, e1.department_id, e1.commission_pct from employee e1 where e1.commission_pct = (select min(e2.commission_pct) from employee e2 where e2.manager_id = e1.manager_id);

```
MariaDB [company_22299510]> select e1.first_name, e1.last_name, e1.employee_id, e1.email, e1.salary, e1.department_id, e1.commission_pct from employee e1 where e1.commiss
ion_pct = (select min(e2.commission_pct) from employee e2 where e2.manager_id = e1.manager_id);
+------------+-----------+-------------+--------------------+--------+---------------+----------------+
| first_name | last_name | employee_id | email              | salary | department_id | commission_pct |
+------------+-----------+-------------+--------------------+--------+---------------+----------------+
| Ryan       | Rauf      | EMP002      | rauf@nodejs.org    |  20000 | DPT001        |          0.000 |
| Khaled     | Eich      | EMP004      | eich@javascript.com|  30000 | DPT002        |          0.000 |
| James      | Gosl      | EMP011      | james@java.com     |   7000 | DPT004        |          0.000 |
| Roddil     | Johnson   | EMP013      | roddil@spring.io   |   2000 | DPT003        |          0.000 |
+------------+-----------+-------------+--------------------+--------+---------------+----------------+
4 rows in set (0.032 sec)
```