Lab Assignment 02 (CSE370)

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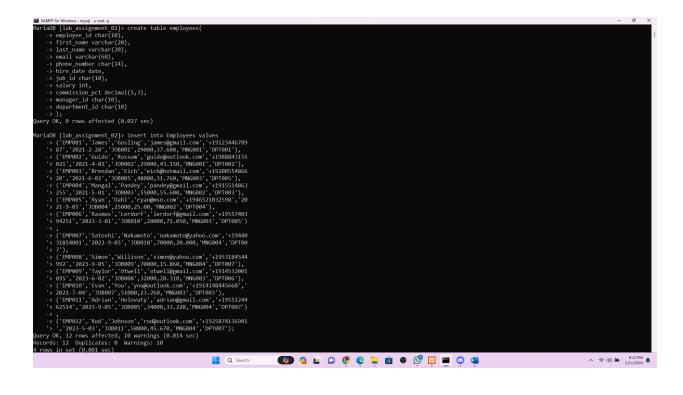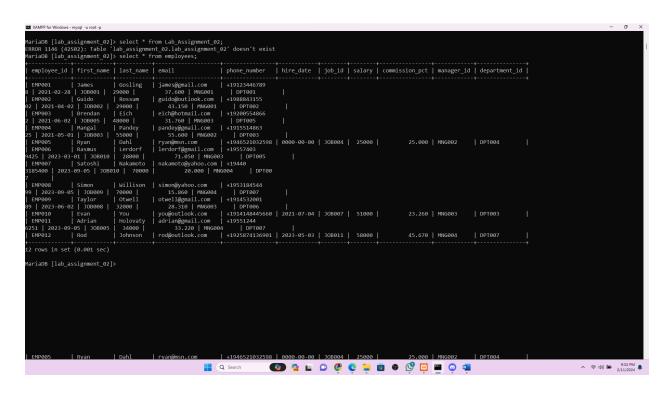**Section: 07**

MySQL commands:
- **mysql -u root -p**
- **""**
- **show databases;**
- **create database lab_assignment_02;**
- **use lab_assignment_02;**

Constructing the table

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));

Insert into Employees values
('EMP001','James','Gosling','james@gmail.com','+1912344678987','2021-2-28','JOB001',29000,37.600,'MNG001','DPT001'),
('EMP002','Guido','Rossum','guido@outlook.com','+1988843155021','2021-4-02','JOB002',29000,43.150,'MNG001','DPT002'),
('EMP003','Brendan','Eich','eich@hotmail.com','+1920055486620','2021-6-02','JOB005',48000,31.760,'MNG003','DPT005'),
('EMP004','Mangal','Pandey','pandey@gmail.com','+1915514863255','2021-5-01','JOB003',55000,55.600,'MNG002','DPT003'),
('EMP005','Ryan','Dahl','ryan@msn.com','+1946521032598','2021-9-05','JOB004',25000,25.00,'MNG002','DPT004'),
('EMP006','Rasmus','Lerdorf','lerdorf@gmail.com','+1955740394251','2023-3-01','JOB010',28000,71.050,'MNG003','DPT005') ,
('EMP007','Satoshi','Nakamoto','nakamoto@yahoo.com','+1944031854001','2023-9-05','JOB010',70000,20.000,'MNG004','DPT00 7'),
('EMP008','Simon','Willison','simon@yahoo.com','+1953184544992','2023-9-05','JOB009',70000,15.860,'MNG004','DPT007'),
('EMP009','Taylor','Otwell','otwell@gmail.com','+1914532001895','2023-6-02','JOB008',32000,28.310,'MNG003','DPT006'),
('EMP010','Evan','You','you@outlook.com','+1914148445660','2021-7-04','JOB007',51000,23.260,'MNG003','DPT003'),
('EMP011','Adrian','Holovaty','adrian@gmail.com','+1955124462514','2023-9-05','JOB005',34000,33.220,'MNG004','DPT007') ,
('EMP012','Rod','Johnson','rod@outlook.com','+1925874136901','2023-5-03','JOB011',58000,45.670,'MNG004','DPT007');

```
MariaDB [lab_assignment_02]> 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 (0.027 sec)

MariaDB [lab_assignment_02]> insert into Employees values
    -> ('EMP001','James','Gosling','james@gmail.com','+19123446789
    '> 87','2021-2-28','JOB001',29000,37.600,'MNG001','DPT001'),
    -> ('EMP002','Guido','Rossum','guido@outlook.com','+1988843155
    '> 021','2021-4-02','JOB002',29000,43.150,'MNG001','DPT002'),
    -> ('EMP003','Brendan','Eich','eich@hotmail.com','+19200554866
    '> 20','2021-6-02','JOB005',48000,31.760,'MNG003','DPT005'),
    -> ('EMP004','Mangal','Pandey','pandey@gmail.com','+1915514863
    '> 255','2021-5-01','JOB003',55000,55.600,'MNG002','DPT003'),
    -> ('EMP005','Ryan','Dahl','ryan@msn.com','+1946521032598','20
    '> 21-9-05','JOB004',25000,25.00,'MNG002','DPT004'),
    -> ('EMP006','Rasmus','Lerdorf','lerdorf@gmail.com','+19557403
    '> 94251','2023-3-01','JOB010',28000,71.050,'MNG003','DPT005')
    -> ,
    -> ('EMP007','Satoshi','Nakamoto','nakamoto@yahoo.com','+19440
    '> 31854001','2023-9-05','JOB010',70000,20.000,'MNG004','DPT00
    '> 7'),
    -> ('EMP008','Simon','Willison','simon@yahoo.com','+1953184544
    '> 992','2023-9-05','JOB009',70000,15.860,'MNG004','DPT007'),
    -> ('EMP009','Taylor','Otwell','otwell@gmail.com','+1914532001
    '> 895','2023-6-02','JOB008',32000,28.310,'MNG003','DPT006'),
    -> ('EMP010','Evan','You','you@outlook.com','+1914148445660','
    '> 2021-7-04','JOB007',51000,23.260,'MNG003','DPT003'),
    -> ('EMP011','Adrian','Holovaty','adrian@gmail.com','+19551244
    '> 62514','2023-9-05','JOB005',34000,33.220,'MNG004','DPT007')
    -> ,
    -> ('EMP012','Rod','Johnson','rod@outlook.com','+1925874136901
    '> ','2023-5-03','JOB011',58000,45.670,'MNG004','DPT007');
Query OK, 12 rows affected, 10 warnings (0.014 sec)
Records: 12  Duplicates: 0  Warnings: 10
4 rows in set (0.001 sec)
```

```
MariaDB [lab_assignment_02]> select * from Lab_Assignment_02;
ERROR 1146 (42S02): Table 'lab_assignment_02.lab_assignment_02' doesn't exist
MariaDB [lab_assignment_02]> select * from employees;
```

employee_id	first_name	last_name	email	phone_number	hire_date	job_id	salary	commission_pct	manager_id	department_id
EMP001	James	Gosling	james@gmail.com	+19123446789 8	2021-02-28	JOB001	29000	37.600	MNG001	DPT001
EMP002	Guido	Rossum	guido@outlook.com	+1988843155 02	2021-04-02	JOB002	29000	43.150	MNG001	DPT002
EMP003	Brendan	Eich	eich@hotmail.com	+19200554866 2	2021-06-02	JOB005	48000	31.760	MNG003	DPT005
EMP004	Mangal	Pandey	pandey@gmail.com	+1915514863 25	2021-05-01	JOB003	55000	55.600	MNG002	DPT003
EMP005	Ryan	Dahl	ryan@msn.com	+1946521032598	0000-00-00	JOB004	25000	25.000	MNG002	DPT004
EMP006	Rasmus	Lerdorf	lerdorf@gmail.com	+19557403 9425	2023-03-01	JOB010	28000	71.050	MNG003	DPT005
EMP007	Satoshi	Nakamoto	nakamoto@yahoo.com	+19440 3185400	2023-09-05	JOB010	70000	20.000	MNG004	DPT00 7
EMP008	Simon	Willison	simon@yahoo.com	+1953184544 99	2023-09-05	JOB009	70000	15.860	MNG004	DPT007
EMP009	Taylor	Otwell	otwell@gmail.com	+1914532001 89	2023-06-02	JOB008	32000	28.310	MNG003	DPT006
EMP010	Evan	You	you@outlook.com	+1914148445660	2021-07-04	JOB007	51000	23.260	MNG003	DPT003
EMP011	Adrian	Holovaty	adrian@gmail.com	+19551244 6251	2023-09-05	JOB005	34000	33.220	MNG004	DPT007
EMP012	Rod	Johnson	rod@outlook.com	+1925874136901	2023-05-03	JOB011	58000	45.670	MNG004	DPT007

```
12 rows in set (0.001 sec)

MariaDB [lab_assignment_02]>
```

EMP005	Ryan	Dahl	ryan@msn.com	+1946521032598	0000-00-00	JOB004	25000	25.000	MNG002	DPT004

#Task-01

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

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

```
MariaDB [lab_assignment_02]> 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 |
+------------+------------+---------------------+----------------+------------+---------------+
| Satoshi    | Nakamoto   | nakamoto@yahoo.com  | +19440         | 2023-09-05 | DPT00         |
| 3185400    |            |                     |                |            | 7             |
| 7          |            |                     |                |            |               |
| Simon      | Willison   | simon@yahoo.com     | +1953184544    | 2023-09-05 | DPT007        |
| 99         |            |                     |                |            |               |
| Adrian     | Holovaty   | adrian@gmail.com    | +19551244      | 2023-09-05 | DPT007        |
| 6251       |            |                     |                |            |               |
+------------+------------+---------------------+----------------+------------+---------------+
MariaDB [lab_assignment_02]> select first_name, last_name, employee_id
```

#Task-02

- **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.**

- Select first_name, last_name, employee_id, phone_number, salary, department_id from employees g1 where g1.salary = (select min(salary) from employees g2 where g1.department_id = g2.department_id);

```
MariaDB [lab_assignment_02]> select first_name, last_name, employee_id,
    -> phone_number, salary, department_id from employees g1
    -> where g1.salary = (select min(salary) from employees
    -> g2
    -> where g1.department_id = g2.department_id);
+------------+-----------+-------------+----------------+--------+---------------+
| first_name | last_name | employee_id | phone_number   | salary | department_id |
+------------+-----------+-------------+----------------+--------+---------------+
| James      | Gosling   | EMP001      | +19123446789   |        |               |
8 |   29000 | DPT001    |
| Guido      | Rossum    | EMP002      | +1988843155    |        |               |
02 |   29000 | DPT002    |
| Ryan       | Dahl      | EMP005      | +1946521032598 |  25000 | DPT004        |
| Rasmus     | Lerdorf   | EMP006      | +19557403      |        |               |
9425 |   28000 | DPT005    |
| Satoshi    | Nakamoto  | EMP007      | +19440         |        |               |
3185400 |   70000 | DPT00      |
7 |
| Taylor     | Otwell    | EMP009      | +1914532001    |        |               |
89 |   32000 | DPT006    |
| Evan       | You       | EMP010      | +1914148445660 |  51000 | DPT003        |
| Adrian     | Holovaty  | EMP011      | +19551244      |        |               |
6251 |   34000 | DPT007    |
+------------+-----------+-------------+----------------+--------+---------------+
8 rows in set (0.001 sec)
```

#Task-03

- **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 employees of the department 'DPT005'.**

- 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 [lab_assignment_02]> 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 |
+------------+-----------+-------------+----------------+---------------+
| Simon      | Willison  | EMP008      |         15.860 | DPT007        |
+------------+-----------+-------------+----------------+---------------+
1 row in set (0.009 sec)
```

#Task-04

- **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.**

- Select department_id, count(employee_id) as total_employees from employees group BY department_id having max(salary) <= 30000;

```
MariaDB [lab_assignment_02]> select department_id, count(employee_id) as
    -> total_employees from employees
    -> group BY department_id having max(salary) <= 30000;
+---------------+-----------------+
| department_id | total_employees |
+---------------+-----------------+
| DPT001        |               1 |
| DPT002        |               1 |
| DPT004        |               1 |
+---------------+-----------------+
3 rows in set (0.001 sec)
```

#Task-05

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

- Select department_id, job_id, commission_pct from employees g1 where g1.commission_pct < any (select g2.commission_pct from employees g2 where g2.department_id = g1.department_id and g2.job_id != g1.job_id);

```
MariaDB [lab_assignment_02]> select department_id, job_id, commission_pct from employees
    -> g1
    -> where g1.commission_pct < any (select g2.commission_pct
    -> from employees g2
    -> where g2.department_id = g1.department_id and g2.job_id !=
    -> g1.job_id);
+---------------+--------+----------------+
| department_id | job_id | commission_pct |
+---------------+--------+----------------+
| DPT005        | JOB005 |         31.760 |
| DPT007        | JOB009 |         15.860 |
| DPT003        | JOB007 |         23.260 |
| DPT007        | JOB005 |         33.220 |
+---------------+--------+----------------+
4 rows in set (0.001 sec)
```

#Task-06

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

- Select distinct manager_id from employees where salary > 3500;

```
MariaDB [lab_assignment_02]> select distinct manager_id from employees where salary
    -> > 3500;
+------------+
| manager_id |
+------------+
| MNG001     |
| MNG003     |
| MNG002     |
| MNG004     |
+------------+
4 rows in set (0.001 sec)
```

#Task-07

- **Find the first_name, last_name, employee_id, email, salary, department_id and commission_pct of the employee who has the lowest commission_pct under each manager.**

- 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 [lab_assignment_02]> 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 |
+------------+-----------+-------------+-----------------+--------+---------------+----------------+
| James      | Gosling   | EMP001      | james@gmail.com |  29000 | DPT001        |         37.600 |
| Ryan       | Dahl      | EMP005      | ryan@msn.com    |  25000 | DPT004        |         25.000 |
| Simon      | Willison  | EMP008      | simon@yahoo.com |  70000 | DPT007        |         15.860 |
| Evan       | You       | EMP010      | you@outlook.com |  51000 | DPT003        |         23.260 |
+------------+-----------+-------------+-----------------+--------+---------------+----------------+
4 rows in set (0.001 sec)
```