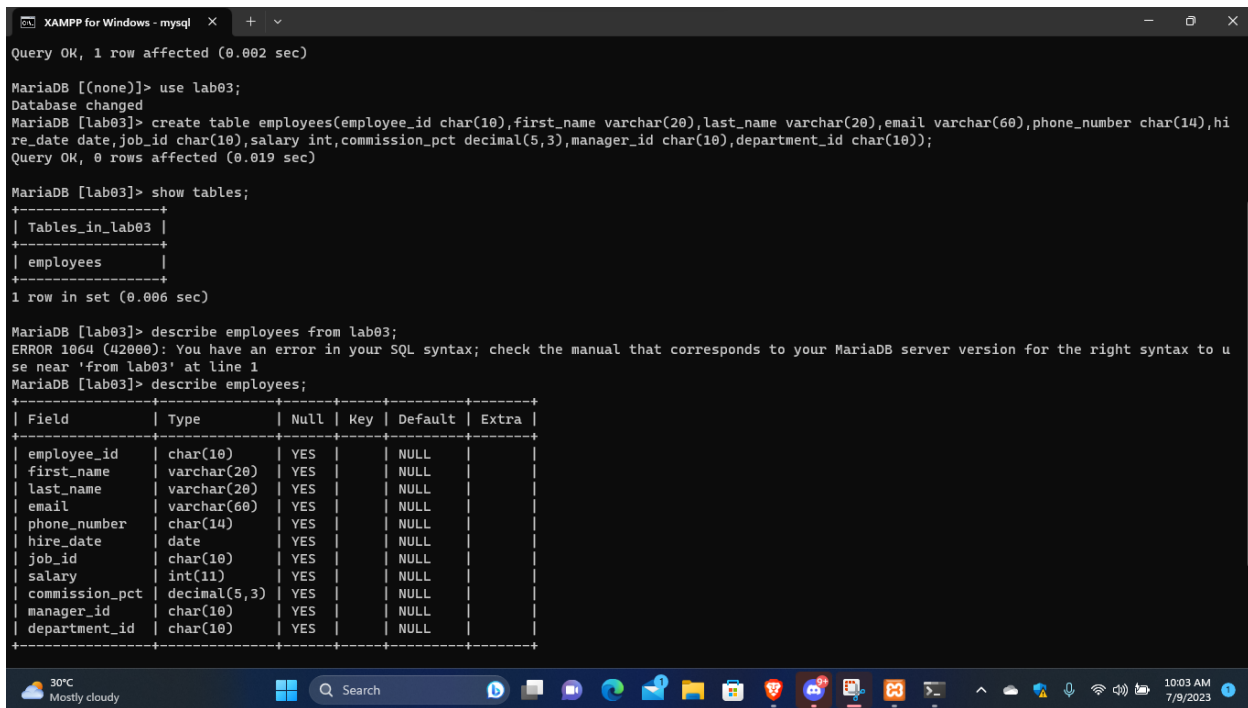


For creating new database i used those following codes:

- `mysql -u root -p`
- `create database lab03;`
- `use lab03;`
- For creating table i used `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));`
- `describe employees;`



```
Query OK, 1 row affected (0.002 sec)

MariaDB [(none)]> use lab03;
Database changed
MariaDB [lab03]> 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 (0.019 sec)

MariaDB [lab03]> show tables;
+-----+
| Tables_in_lab03 |
+-----+
| employees        |
+-----+
1 row in set (0.006 sec)

MariaDB [lab03]> describe employees from lab03;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near 'from lab03' at line 1
MariaDB [lab03]> 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    |       |
+-----+-----+-----+-----+-----+-----+
```

For inserting rows values i used `INSERT INTO employees VALUES ('EMP001', 'Fateha', 'jannat', 'fatehajannat@gmail.com', '017456789012', '2022-01-01', 'JOB001', 50000, 0.100, 'MNG001', 'DPT001'),('EMP002', 'Mary', 'Johnson', 'mary.johnson@gmail.com', '017567890123', '2022-02-01', 'JOB002', 60000, 0.050, 'MNG001', 'DPT001'),('EMP003', 'Robert', 'Brown', 'robert.brown@outlook.com', '018678901234', '2022-03-01', 'JOB003', 55000, 0.075, 'MNG002', 'DPT007'),('EMP004', 'Jennifer', 'Abedin', 'jenniferabedin@gmail.com', '013789012345', '2022-04-01', 'JOB002', 65000, 0.025, 'MNG002', 'DPT002'),('EMP005', 'Hamim', 'Nasim', 'nasim@gmail.com', '018890123456', '2022-02-01', 'JOB004', 45000, 0.150, 'MNG002', 'DPT002'), ('EMP006', 'Nusrat', 'Srabonti', 'nusrat@yahoo.com', '013901234567', '2022-06-01', 'JOB003', 55000, 0.050, 'MNG003', 'DPT007'),('EMP007', 'David', 'Miller', 'david@gmail.com', '013012345678', '2022-07-01', 'JOB001', 25000, 0.100, 'MNG003', 'DPT003'), ('EMP008', 'Abdullah',`

'Onim', 'onim@gmail.com', '013123456789', '2022-08-01', 'JOB004', 45000, 0.075, 'MNG003', 'DPT003'), ('EMP009', 'James', 'Thomas', 'james.thomas@gmail.com', '018234567890', '2022-09-01', 'JOB001', 50000, 0.025, 'MNG003', 'DPT003'), ('EMP010', 'Sarah', 'Haq', 'sarah.haq@gmail.com', '013345678901', '2022-10-01', 'JOB002', 60000, 0.100, 'MNG004', 'DPT004'), ('EMP011', 'Tasfia', 'Tazri', 'tasfia@gamil.com', '018456789012', '2022-11-01', 'JOB003', 55000, 0.050, 'MNG004', 'DPT004'), ('EMP012', 'Lisa', 'haq', 'lisa@yahoo.com', '013567890123', '2022-12-01', 'JOB004', 45000, 0.075, 'MNG005', 'DPT005'), ('EMP013', 'Jannat', 'Iqra', 'jannatiqra@gmail.com', '019678901234', '2023-01-01', 'JOB002', 60000, 0.025, 'MNG005', 'DPT005');

```
MariaDB [lab03]> INSERT INTO employees VALUES ('EMP001', 'Fateha', 'jannat', 'fatehajannat@gmail.com', '017456789012', '2022-01-01', 'JOB001', 50000, 0.100, 'MNG001', 'DPT001');
-> ('EMP002', 'Mary', 'Johnson', 'mary.johnson@gmail.com', '017567890123', '2022-02-01', 'JOB002', 60000, 0.050, 'MNG001', 'DPT001');
-> ('EMP003', 'Robert', 'Brown', 'robert.brown@outlook.com', '018678901234', '2022-03-01', 'JOB003', 55000, 0.075, 'MNG002', 'DPT007');
-> ('EMP004', 'Jennifer', 'Abedin', 'jenniferabedin@gmail.com', '013789012345', '2022-04-01', 'JOB002', 65000, 0.025, 'MNG002', 'DPT002');
-> ('EMP005', 'Hamim', 'Nasim', 'nasim@gmail.com', '018890123456', '2022-02-01', 'JOB004', 45000, 0.150, 'MNG002', 'DPT002');
-> ('EMP006', 'Nusrat', 'Srabonti', 'nusrat@yahoo.com', '013901234567', '2022-06-01', 'JOB003', 55000, 0.050, 'MNG003', 'DPT007');
-> ('EMP007', 'David', 'Miller', 'david@gmail.com', '013012345678', '2022-07-01', 'JOB001', 25000, 0.100, 'MNG003', 'DPT003');
-> ('EMP008', 'Abdullah', 'Onim', 'onim@gmail.com', '013123456789', '2022-08-01', 'JOB004', 45000, 0.075, 'MNG003', 'DPT003');
-> ('EMP009', 'James', 'Thomas', 'james.thomas@gmail.com', '018234567890', '2022-09-01', 'JOB001', 50000, 0.025, 'MNG003', 'DPT003');
-> ('EMP010', 'Sarah', 'Haq', 'sarah.haq@gmail.com', '013345678901', '2022-10-01', 'JOB002', 60000, 0.100, 'MNG004', 'DPT004');
-> ('EMP011', 'Tasfia', 'Tazri', 'tasfia@gamil.com', '018456789012', '2022-11-01', 'JOB003', 55000, 0.050, 'MNG004', 'DPT004');
-> ('EMP012', 'Lisa', 'haq', 'lisa@yahoo.com', '013567890123', '2022-12-01', 'JOB004', 45000, 0.075, 'MNG005', 'DPT005');
-> ('EMP013', 'Jannat', 'Iqra', 'jannatiqra@gmail.com', '019678901234', '2023-01-01', 'JOB002', 60000, 0.025, 'MNG005', 'DPT005');
Query OK, 13 rows affected (0.186 sec)
Records: 13 Duplicates: 0 Warnings: 0

MariaDB [lab03]> select * from employees;
```

employee_id	first_name	last_name	email	phone_number	hire_date	job_id	salary	commission_pct	manager_id	department_id
EMP001	Fateha	jannat	fatehajannat@gmail.com	017456789012	2022-01-01	JOB001	50000	0.100	MNG001	DPT001
EMP002	Mary	Johnson	mary.johnson@gmail.com	017567890123	2022-02-01	JOB002	60000	0.050	MNG001	DPT001
EMP003	Robert	Brown	robert.brown@outlook.com	018678901234	2022-03-01	JOB003	55000	0.075	MNG002	DPT007
EMP004	Jennifer	Abedin	jenniferabedin@gmail.com	013789012345	2022-04-01	JOB002	65000	0.025	MNG002	DPT002
EMP005	Hamim	Nasim	nasim@gmail.com	018890123456	2022-02-01	JOB004	45000	0.150	MNG002	DPT002
EMP006	Nusrat	Srabonti	nusrat@yahoo.com	013901234567	2022-06-01	JOB003	55000	0.050	MNG003	DPT007
EMP007	David	Miller	david@gmail.com	013012345678	2022-07-01	JOB001	25000	0.100	MNG003	DPT003
EMP008	Abdullah	Onim	onim@gmail.com	013123456789	2022-08-01	JOB004	45000	0.075	MNG003	DPT003
EMP009	James	Thomas	james.thomas@gmail.com	018234567890	2022-09-01	JOB001	50000	0.025	MNG003	DPT003
EMP010	Sarah	Haq	sarah.haq@gmail.com	013345678901	2022-10-01	JOB002	60000	0.100	MNG004	DPT004
EMP011	Tasfia	Tazri	tasfia@gamil.com	018456789012	2022-11-01	JOB003	55000	0.050	MNG004	DPT004
EMP012	Lisa	haq	lisa@yahoo.com	013567890123	2022-12-01	JOB004	45000	0.075	MNG005	DPT005
EMP013	Jannat	Iqra	jannatiqra@gmail.com	019678901234	2023-01-01	JOB002	60000	0.025	MNG005	DPT005

```
13 rows in set (0.008 sec)
```

- To find the first_name, last_name, email, phone_number, hire_date and department_id of all the employees with the latest hire_date i used **select first_name, last_name, email, phone_number, hire_date, department_id from employees order by hire_date desc;**

```
MariaDB [lab03]> select first_name, last_name, email, phone_number, hire_date, department_id from employees order by hire_date desc;
```

first_name	last_name	email	phone_number	hire_date	department_id
Jannat	Iqra	jannatiqra@gmail.com	019678901234	2023-01-01	DPT005
Lisa	haq	lisa@yahoo.com	013567890123	2022-12-01	DPT005
Tasfia	Tazri	tasfia@gamil.com	018456789012	2022-11-01	DPT004
Sarah	Haq	sarah.haq@gmail.com	013345678901	2022-10-01	DPT004
James	Thomas	james.thomas@gmail.com	018234567890	2022-09-01	DPT003
Abdullah	Onim	onim@gmail.com	013123456789	2022-08-01	DPT003
David	Miller	david@gmail.com	013012345678	2022-07-01	DPT003
Nusrat	Srabonti	nusrat@yahoo.com	013901234567	2022-06-01	DPT007
Jennifer	Abedin	jenniferabedin@gmail.com	013789012345	2022-04-01	DPT002
Robert	Brown	robert.brown@outlook.com	018678901234	2022-03-01	DPT007
Hamim	Nasim	nasim@gmail.com	018890123456	2022-02-01	DPT002
Mary	Johnson	mary.johnson@gmail.com	017567890123	2022-02-01	DPT001
Fateha	jannat	fatehajannat@gmail.com	017456789012	2022-01-01	DPT001

```
13 rows in set (0.001 sec)

MariaDB [lab03]>
```

2. To 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 i used **select first_name, last_name, employee_id, phone_number, salary, department_id from employees group by department_id order by salary asc;**

```
MariaDB [lab03]> select first_name, last_name, employee_id, phone_number, salary, department_id from employees group by department_id order by salary asc;
```

first_name	last_name	employee_id	phone_number	salary	department_id
David	Miller	EMP007	013012345678	25000	DPT003
Lisa	haq	EMP012	013567890123	45000	DPT005
Fateha	jannat	EMP001	017456789012	50000	DPT001
Robert	Brown	EMP003	018678901234	55000	DPT007
Sarah	Haq	EMP010	013345678901	60000	DPT004
Jennifer	Abadin	EMP004	013789012345	65000	DPT002

6 rows in set (0.007 sec)

3. To 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' i used, **select first_name, last_name, employee_id, commission_pct, department_id from employees where department_id='DPT007' and commission_pct<(select min(commission_pct) from employees where department_id='DPT005');**

```
MariaDB [lab03]> select first_name, last_name, employee_id, commission_pct, department_id from employees where department_id='DPT007' and commission_pct<(select min(commission_pct) from employees where department_id='DPT005');
```

Empty set (0.007 sec)

4. To 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 i used, **Select department_id , count(*) from employees where department_id not in (select department_id from employees where salary > 30000);**

```
MariaDB [lab03]> Select department_id , count(*) from employees where department_id not in ( select department_id from employees where salary > 30000);
```

department_id	count(*)
NULL	0

1 row in set (0.005 sec)

5. 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 i used, **Select department_id, job_id , commission_pct from employees p where commission_pct < (Select max(commission_pct) from employees H where p.department_id = H.department_id and p.job_id!=H.job_id) group by department_id;**

```
MariaDB [lab03]> Select department_id, job_id , commission_pct from employees p where commission_pct < (Select max(comm
ission_pct) from employees H where p.department_id = H.department_id and p.job_id!=H.job_id ) group by department_id;
```

department_id	job_id	commission_pct
DPT001	JOB002	0.050
DPT002	JOB002	0.025
DPT003	JOB004	0.075
DPT004	JOB003	0.050
DPT005	JOB002	0.025

5 rows in set (0.005 sec)

6. To Find the *manager_id* who does not have any employee under them with a *salary* less than 3500 i used, **Select distinct manager_id from employees where manager_id not in (select manager_id from employees where salary <3500);**

```
MariaDB [lab03]> Select distinct manager_id from employees where manager_id not in ( select manager_id from employees where salary <3500);
```

manager_id
MNG001
MNG002
MNG003
MNG004
MNG005

```
5 rows in set (0.002 sec)
```

7. To 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 i used, **select first_name, last_name, employee_id, email, salary, department_id , commission_pct from employees p where commission_pct= (select min(commission_pct) from employees h where h.manager_id=p.manager_id)group by manager_id;**

```
MariaDB [lab03]> select first_name, last_name, employee_id, email, salary, department_id , commission_pct from employees p where commission_pct= (select min(commission_pct) from employees h where h.manager_id=p.manager_id )group by manager_id;
```

first_name	last_name	employee_id	email	salary	department_id	commission_pct
Mary	Johnson	EMP002	mary.johnson@gmail.com	60000	DPT001	0.050
Jennifer	Abedin	EMP004	jenniferabedin@gmail.com	65000	DPT002	0.025
James	Thomas	EMP009	james.thomas@gmail.com	50000	DPT003	0.025
Tasfia	Tazri	EMP011	tasfia@gmail.com	55000	DPT004	0.050
Jannat	Iqra	EMP013	jannatiqra@gmail.com	60000	DPT005	0.025

```
5 rows in set (0.007 sec)
```