ASSIGNMENT-1

Rao Nauman

[COMPANY NAME] [Company address]

QUESTION-1:

MariaDB [employees]> select *

-> from employees

-> where lower(last_name like "%a%" or last_name like "%e%" or last_name like "%i%" or last_name like "%o%" or last_name like "%u%") limit 15;

```
MariaDB [employees]>
MariaDB [employees]> select *
    -> from employees
    -> where lower(last_name like "%a%" or last_name like "%e%" or last_name like "%i%" or last_name like "%o%"
or last_name like "%u%")  limit 15;
+--------+------------+------------+-----------+--------+------------+
| emp_no | birth_date | first_name | last_name | gender | hire_date  |
+--------+------------+------------+-----------+--------+------------+
|  10001 | 1953-09-02 | Georgi     | Facello   | M      | 1986-06-26 |
|  10002 | 1964-06-02 | Bezalel    | Simmel    | F      | 1985-11-21 |
|  10003 | 1959-12-03 | Parto      | Bamford   | M      | 1986-08-28 |
|  10004 | 1954-05-01 | Chirstian  | Koblick   | M      | 1986-12-01 |
|  10005 | 1955-01-21 | Kyoichi    | Maliniak  | M      | 1989-09-12 |
|  10006 | 1953-04-20 | Anneke     | Preusig   | F      | 1989-06-02 |
|  10007 | 1957-05-23 | Tzvetan    | Zielinski | F      | 1989-02-10 |
|  10008 | 1958-02-19 | Saniya     | Kalloufi  | M      | 1994-09-15 |
|  10009 | 1952-04-19 | Sumant     | Peac      | F      | 1985-02-18 |
|  10010 | 1963-06-01 | Duangkaew  | Piveteau  | F      | 1989-08-24 |
|  10011 | 1953-11-07 | Mary       | Sluis     | F      | 1990-01-22 |
|  10012 | 1960-10-04 | Patricio   | Bridgland | M      | 1992-12-18 |
|  10013 | 1963-06-07 | Eberhardt  | Terkki    | M      | 1985-10-20 |
|  10014 | 1956-02-12 | Berni      | Genin     | M      | 1987-03-11 |
|  10015 | 1959-08-19 | Guoxiang   | Nooteboom | M      | 1987-07-02 |
+--------+------------+------------+-----------+--------+------------+
15 rows in set (0.001 sec)
```

QUESTION-2:

SELECT GENDER , COUNT(GENDER) FROM EMPLOYEES GROUP BY GENDER ;

```
MariaDB [employees]> SELECT GENDER , COUNT(GENDER) FROM EMPLOYEES GROUP BY GENDER  ;
+--------+---------------+
| GENDER | COUNT(GENDER) |
+--------+---------------+
| M      |        179973 |
| F      |        120051 |
+--------+---------------+
2 rows in set (0.333 sec)
```

QUESTION-3:

select emp_no, sum(salary) as total_SALARY from salaries where emp_no in (10001,401829) group by emp_no;

```
MariaDB [employees]> select emp_no, sum(salary) as total_SALARY from salaries where emp_no in (10001,401829) gro
up by emp_no;
+--------+--------------+
| emp_no | total_SALARY |
+--------+--------------+
|  10001 |      1281612 |
| 401829 |       441457 |
+--------+--------------+
2 rows in set (0.001 sec)
```

QUESTION-4:

select emp_no, first_name, last_name, salary from employees natural join salaries where salary = (select min(salary) from salaries);

```
MariaDB [employees]> select emp_no, first_name, last_name, salary from employees natural join salaries where sal
ary = (select min(salary) from salaries);
+--------+------------+-----------+--------+
| emp_no | first_name | last_name | salary |
+--------+------------+-----------+--------+
| 401786 | Sachar     | Nicolson  |  38942 |
+--------+------------+-----------+--------+
1 row in set (0.006 sec)
```

QUESTION-5:

SELECT EMP_NO , FIRST_NAME , LAST_NAME ,COUNT(DEPT_NO) FROM EMPLOYEES NATURAL JOIN DEPT_EMP GROUP BY EMP_NO HAVING COUNT(DEPT_NO)>=2 LIMIT 10 ;

```
MariaDB [employees]> SELECT EMP_NO , FIRST_NAME , LAST_NAME ,COUNT(DEPT_NO) FROM EMPLOYEES NATURAL JOIN DEPT_EMP
 GROUP BY EMP_NO HAVING COUNT(DEPT_NO)>=2 LIMIT 10 ;
+--------+------------+------------+----------------+
| EMP_NO | FIRST_NAME | LAST_NAME  | COUNT(DEPT_NO) |
+--------+------------+------------+----------------+
|  10010 | Duangkaew  | Piveteau   |              2 |
|  10018 | Kazuhide   | Peha       |              2 |
|  10029 | Otmar      | Herbst     |              2 |
|  10040 | Weiyi      | Meriste    |              2 |
|  10050 | Yinghua    | Dredge     |              2 |
|  10060 | Breannda   | Billingsley|              2 |
|  10070 | Reuven     | Garigliano |              2 |
|  10080 | Premal     | Baek       |              2 |
|  10088 | Jungsoon   | Syrzycki   |              2 |
|  10098 | Sreekrishna| Servieres  |              2 |
+--------+------------+------------+----------------+
10 rows in set (0.001 sec)
```

QUESTION:6

MariaDB [employees]> SELECT emp_no , first_name , last_name , salary

-> FROM employees natural join salaries

-> ORDER BY salary DESC

-> LIMIT 1,2;

```
MariaDB [employees]> SELECT emp_no , first_name , last_name , salary
    -> FROM employees natural join salaries
    -> ORDER BY salary DESC
    -> LIMIT 1,2;
+--------+------------+-----------+--------+
| emp_no | first_name | last_name | salary |
+--------+------------+-----------+--------+
| 201777 | Wonhee     | Perl      | 110796 |
| 401801 | Subhash    | Baek      | 110589 |
+--------+------------+-----------+--------+
2 rows in set (0.003 sec)
```

Question:7

SELECT DISTINCT EMP_NO , FIRST_NAME , LAST_NAME , DEPT_NAME FROM EMPLOYEES JOIN DEPT_EMP USING(EMP_NO) JOIN DEPARTMENTS USING(DEPT_NO) LIMIT 11;

```
MariaDB [employees]> SELECT DISTINCT EMP_NO , FIRST_NAME , LAST_NAME , DEPT_NAME FROM EMPLOYEES JOIN DEPT_EMP US
ING(EMP_NO) JOIN DEPARTMENTS USING(DEPT_NO) ORDER BY EMP_NO LIMIT 11;
+--------+------------+-----------+--------------------+
| EMP_NO | FIRST_NAME | LAST_NAME | DEPT_NAME          |
+--------+------------+-----------+--------------------+
|  10001 | Georgi     | Facello   | Development        |
|  10002 | Bezalel    | Simmel    | Sales              |
|  10003 | Parto      | Bamford   | Production         |
|  10004 | Chirstian  | Koblick   | Production         |
|  10005 | Kyoichi    | Maliniak  | Human Resources    |
|  10006 | Anneke     | Preusig   | Development        |
|  10007 | Tzvetan    | Zielinski | Research           |
|  10008 | Saniya     | Kalloufi  | Development        |
|  10009 | Sumant     | Peac      | Quality Management |
|  10010 | Duangkaew  | Piveteau  | Quality Management |
|  10010 | Duangkaew  | Piveteau  | Production         |
+--------+------------+-----------+--------------------+
11 rows in set (0.005 sec)
```

QUESTION : 8

SELECT emp_no , first_name , last_name , salary

-> FROM employees natural join salaries

-> ORDER BY salary DESC

-> LIMIT 2,1;

```
MariaDB [employees]> SELECT emp_no , first_name , last_name , salary
    -> FROM employees natural join salaries
    -> ORDER BY salary DESC
    -> LIMIT 2,1;
+--------+------------+-----------+--------+
| emp_no | first_name | last_name | salary |
+--------+------------+-----------+--------+
| 401801 | Subhash    | Baek      | 110589 |
+--------+------------+-----------+--------+
1 row in set (0.001 sec)
```

QUESTION:9

select * from dept_emp where emp_no = "10004"

delete from employees where emp_no = "10004"

```
MariaDB [employees]> select * from dept_emp where emp_no = "10004"
    -> ;
+--------+---------+------------+------------+
| emp_no | dept_no | from_date  | to_date    |
+--------+---------+------------+------------+
|  10004 | d004    | 1986-12-01 | 9999-01-01 |
+--------+---------+------------+------------+
1 row in set (0.001 sec)

MariaDB [employees]> delete from employees where emp_no = "10004";
Query OK, 1 row affected (0.006 sec)

MariaDB [employees]> select * from dept_emp where emp_no = "10004"
    -> ;
Empty set (0.001 sec)
```

QUESTION : 10

delete from employees where hire_date > '1999-12-31';

```
MariaDB [employees]> delete from employees where hire_date > '1999-12-31';
Query OK, 13 rows affected (0.321 sec)
```

QUESTION 11:

UPDATE TITLES SET TITLE="PROJECT MANAGER" WHERE EMP_NO=10004;

```
MariaDB [employees]> UPDATE TITLES SET TITLE="PROJECT MANAGER" WHERE EMP_NO=10004;
Query OK, 2 rows affected (0.006 sec)
Rows matched: 2  Changed: 2  Warnings: 0

MariaDB [employees]> SELECT EMP_NO , TITLE FROM TITLES WHERE EMP_NO=10004;
+--------+-----------------+
| EMP_NO | TITLE           |
+--------+-----------------+
|  10004 | PROJECT MANAGER |
|  10004 | PROJECT MANAGER |
+--------+-----------------+
2 rows in set (0.000 sec)
```

QUESTION : 12

ALTER TABLE DEPARTMENTS

-> MODIFY COLUMN DEPT_NAME varchar(60) not null ;

```
MariaDB [employees]> DESCRIBE DEPARTMENTS
    -> ;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| dept_no   | char(4)     | NO   | PRI | NULL    |       |
| DEPT_NAME | varchar(40) | NO   | UNI | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
2 rows in set (0.042 sec)

MariaDB [employees]> ALTER TABLE  DEPARTMENTS
    -> MODIFY COLUMN DEPT_NAME varchar(60) not null ;
Query OK, 0 rows affected (0.018 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [employees]> DESCRIBE DEPARTMENTS
    -> ;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| dept_no   | char(4)     | NO   | PRI | NULL    |       |
| DEPT_NAME | varchar(60) | NO   | UNI | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
2 rows in set (0.038 sec)
```

QUESTION 13:

alter table salaries

-> change salary payslip int(11) not null;

```
MariaDB [employees]> describe salaries;
+-----------+---------+------+-----+---------+-------+
| Field     | Type    | Null | Key | Default | Extra |
+-----------+---------+------+-----+---------+-------+
| emp_no    | int(11) | NO   | PRI | NULL    |       |
| salary    | int(11) | NO   |     | NULL    |       |
| from_date | date    | NO   | PRI | NULL    |       |
| to_date   | date    | NO   |     | NULL    |       |
+-----------+---------+------+-----+---------+-------+
4 rows in set (0.042 sec)

MariaDB [employees]> alter table salaries
    -> change salary payslip int(11) not null;
Query OK, 0 rows affected (0.019 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [employees]> describe salaries;
+-----------+---------+------+-----+---------+-------+
| Field     | Type    | Null | Key | Default | Extra |
+-----------+---------+------+-----+---------+-------+
| emp_no    | int(11) | NO   | PRI | NULL    |       |
| payslip   | int(11) | NO   |     | NULL    |       |
| from_date | date    | NO   | PRI | NULL    |       |
| to_date   | date    | NO   |     | NULL    |       |
+-----------+---------+------+-----+---------+-------+
4 rows in set (0.047 sec)
```

QUESTION 14:

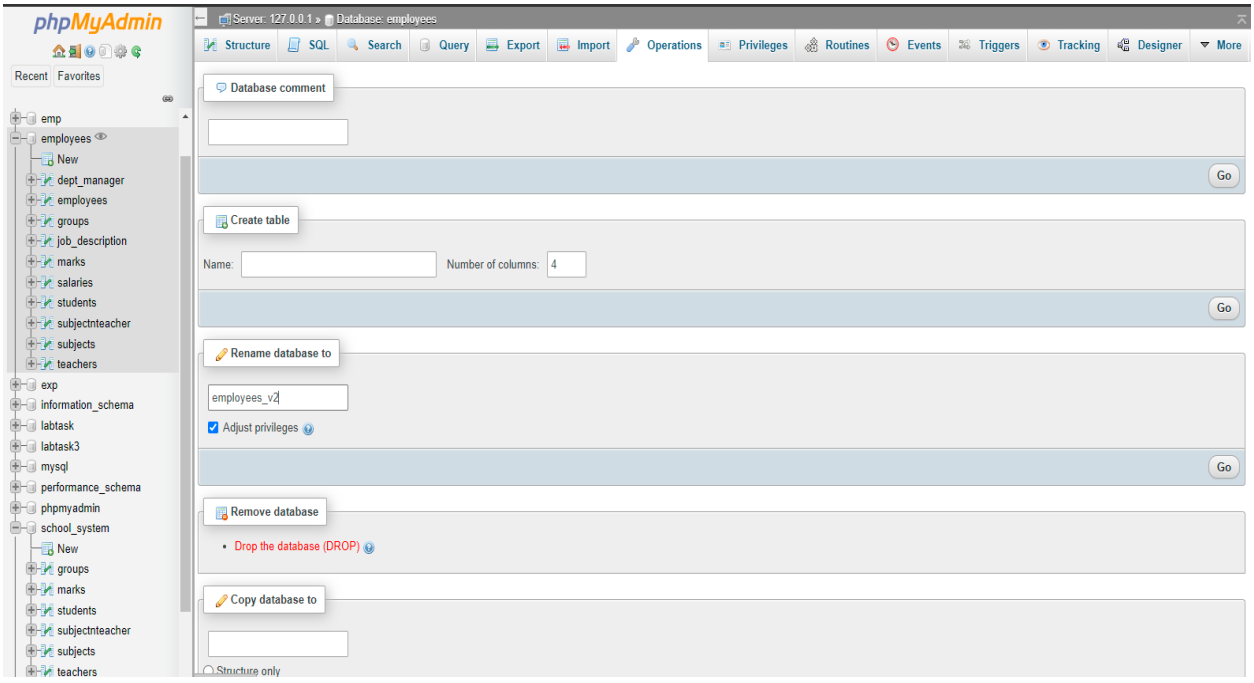
alter table titles rename to job_description;

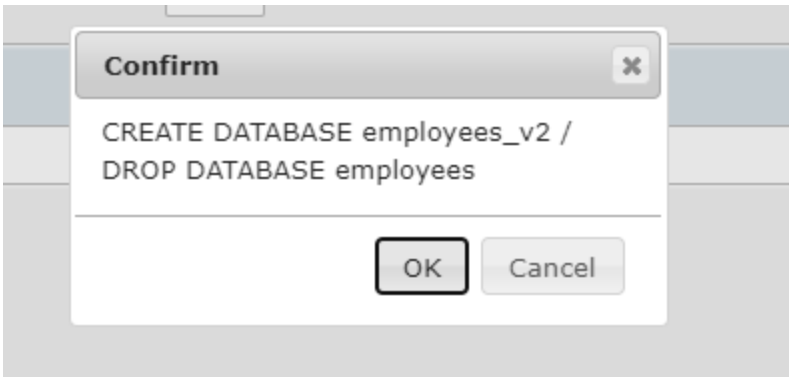
```
MariaDB [employees]> show tables;
+----------------------+
| Tables_in_employees  |
+----------------------+
| departments          |
| dept_emp             |
| dept_manager         |
| employees            |
| salaries             |
| titles               |
+----------------------+
6 rows in set (0.001 sec)

MariaDB [employees]> ALTER TABLE titles RENAME TO job_description;
Query OK, 0 rows affected (0.123 sec)

MariaDB [employees]> show tables;
+----------------------+
| Tables_in_employees  |
+----------------------+
| departments          |
| dept_emp             |
| dept_manager         |
| employees            |
| job_description      |
| salaries             |
+----------------------+
6 rows in set (0.002 sec)
```

QUESTION 15






```
MariaDB [(none)]> drop database  employees_v2;
Query OK, 12 rows affected (0.180 sec)

MariaDB [(none)]>
```

Part-2:

```
DROP DATABASE IF EXISTS school_system;

CREATE DATABASE IF NOT EXISTS school_system;

USE school_system;


SELECT 'CREATING DATABASE STRUCTURE' as 'INFO';


DROP TABLE IF EXISTS groups,
                     subjects,
                     teachers,
                     subjectnteacher,
                     students,
                     marks;



create table groups(
```

```
group_id int  not null,
name varchar(40) not null,
PRIMARY KEY(group_id)
);


create table subjects (
subject_id int not null,
title varchar(40) not null,
PRIMARY KEY(subject_id)
);

CREATE TABLE teachers(
   teacher_id   INT                NOT NULL,
   first_name   VARCHAR(16)  NOT NULL,
   last_name    VARCHAR(16)  NOT NULL,
   PRIMARY KEY(teacher_id)
);

CREATE TABLE students (
   student_id  INT           NOT NULL,
   first_name  VARCHAR(14)     NOT NULL,
   last_name   VARCHAR(16)     NOT NULL,
   group_id      INT                NOT NULL,
   FOREIGN KEY (group_id)  REFERENCES groups (group_id)    ON DELETE CASCADE,
   PRIMARY KEY (student_id)
);
```

```
CREATE TABLE marks(
   mark_id      INT              NOT NULL,
   student_id   INT              NOT NULL,
   subject_id   INT              NOT NULL,
   date DATE            NOT NULL,
   markINT              NOT NULL,
   FOREIGN KEY (student_id) REFERENCES students (student_id) ON DELETE CASCADE,
   FOREIGN KEY (subject_id) REFERENCES subjects (subject_id) ON DELETE CASCADE,
   PRIMARY KEY(mark_id)
);

CREATE TABLE subjectnteacher(
   subject_id   INT              NOT NULL,
   teacher_id   INT              NOT NULL,
   group_id     INT              NOT NULL,
   FOREIGN KEY (subject_id) REFERENCES subjects (subject_id) ON DELETE CASCADE,
   FOREIGN KEY (teacher_id) REFERENCES teachers (teacher_id) ON DELETE CASCADE,
   FOREIGN KEY (group_id)   REFERENCES groups (group_id) ON DELETE CASCADE
);

show tables;
```

```
MariaDB [(none)]> source E:\Datbase Lab\Assignment1\question_2.sql
Query OK, 0 rows affected, 1 warning (0.000 sec)

Query OK, 1 row affected (0.001 sec)

Database changed
+----------------------------+
| INFO                       |
+----------------------------+
| CREATING DATABASE STRUCTURE |
+----------------------------+
1 row in set (0.000 sec)

Query OK, 0 rows affected, 6 warnings (0.001 sec)

Query OK, 0 rows affected (0.052 sec)

Query OK, 0 rows affected (0.086 sec)

Query OK, 0 rows affected (0.051 sec)

Query OK, 0 rows affected (0.055 sec)

Query OK, 0 rows affected (0.050 sec)

Query OK, 0 rows affected (0.057 sec)

+-------------------------+
| Tables_in_school_system |
+-------------------------+
| groups                  |
| marks                   |
| students                |
| subjectnteacher         |
| subjects                |
| teachers                |
+-------------------------+
6 rows in set (0.001 sec)

MariaDB [school_system]>
```