MUTHOOT INSTITUTE OF TECHNOLOGY AND SCIENCE

DEPARTMENT OF COMPUTER APPLICATIONS

20MCA134 ADVANCED DBMS LAB
LAB ASSIGNMENT -3

ISSUE DATE: 04/03/25

Submission Date: 07-Mar-2025   **Mark: 20 Marks**

Mode of Submission:

   a. **Download this document. Use the appropriate DDL, DML, DCL, TCL, or DQL commands and execute the queries in MySQL. Take a screenshot of result and paste under each question in this document. After the execution of all queries, upload this document to ADBMS LAB ET Lab.**
   b. **The file naming should be in the format LabPgm3_RollNo_Name.pdf**
   c. **The same file should be uploaded to GitHub as well.**

1. Create a table books (<u>title</u>, author). Set underlined attribute as primary key at table level.

```
MariaDB [company]> CREATE TABLE books (title VARCHAR(30) PRIMARY KEY ,author VARCHAR(30));
Query OK, 0 rows affected (0.040 sec)
```

2. Populate the table books with following values

Title	Author
DBMS	NAVATHE
C	Dennis Richie
OS	Korth

```
MariaDB [company]> INSERT INTO books (title, author) VALUES ('DBMS', 'NAVATHE');
Query OK, 1 row affected (0.034 sec)

MariaDB [company]> INSERT INTO books (title, author) VALUES ('C', 'Dennis Richie');
Query OK, 1 row affected (0.032 sec)

MariaDB [company]> INSERT INTO books (title, author) VALUES ('OS', 'Korth');
Query OK, 1 row affected (0.032 sec)

MariaDB [company]> select * from books;
+-------+---------------+
| title | author        |
+-------+---------------+
| C     | Dennis Richie |
| DBMS  | NAVATHE       |
| OS    | Korth         |
+-------+---------------+
3 rows in set (0.001 sec)
```

3. Create a table library (title, author, no of copies). set title as foriegn key at column level with respect to table books.

```
MariaDB [company]> CREATE TABLE library(title varchar(30), author varchar(30),no_of_copies int, FOREIGN KEY(title) REFERENCES books(t
itle));
Query OK, 0 rows affected (0.032 sec)
```

4. Populate table library with following values

TITLE	AUTHOR	NO OF COPIES
C	Dennis Richie	5
DBMS	Navathe	10
OS	Korth	20

```
MariaDB [company]> INSERT INTO library VALUES ('C', 'Dennis Rich
ie',10);
Query OK, 1 row affected (0.034 sec)

MariaDB [company]> INSERT INTO library VALUES ('DBMS', 'NAVATHE'
,20);
Query OK, 1 row affected (0.032 sec)

MariaDB [company]> INSERT INTO library VALUES ('OS', 'Korth', 30
);
Query OK, 1 row affected (0.032 sec)

MariaDB [company]> select * from library;
+-------+---------------+--------------+
| title | author        | no_of_copies |
+-------+---------------+--------------+
| C     | Dennis Richie |           10 |
| DBMS  | NAVATHE       |           20 |
| OS    | Korth         |           30 |
+-------+---------------+--------------+
3 rows in set (0.001 sec)
```

5. Set title,author as primary key for the table library

```
MariaDB [company]> ALTER TABLE library ADD PRIMARY KEY (title, a
uthor);
Query OK, 0 rows affected (0.074 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

6. Try to populate book table with values null

```
MariaDB [company]> INSERT INTO books VALUES(NULL, NULL);
ERROR 1048 (23000): Column 'title' cannot be null
MariaDB [company]>
```

7. Apply DCL and TCL commands to impose restrictions on database.

1. Connect as 'root'

```
Setting environment for using XAMPP for Windows.
M S I@ASWIN c:\xampp
# mysql -u root
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 261
Server version: 10.4.32-MariaDB mariadb.org binary distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

a.   Create a user s2 with a password

```
MariaDB [(none)]> CREATE USER s2 IDENTIFIED BY '12345';
Query OK, 0 rows affected (0.032 sec)
```

b.   Grant SELECT and UPDATE privileges on the employee table to 's2'

```
MariaDB [(none)]> use company;
Database changed
MariaDB [company]> grant select, update on employees to s2;
Query OK, 0 rows affected (0.032 sec)
```

2.   Connect as 's2' user and start a transaction

```
M S I@ASWIN c:\xampp
# mysql -u s2 -p
Enter password: *****
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 279
Server version: 10.4.32-MariaDB mariadb.org binary distribution
```

a.   Select the database 'company'

```
MariaDB [(none)]> use company;
Database changed
```

b.   attempt to update employee salary

```
MariaDB [company]> update employees set salary=45000 where employee_id=1;
Query OK, 1 row affected (0.032 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

c.   check the update record.

```
MariaDB [company]> select * from employees where employee_id=1;
+-------------+------------+-----------+--------------------+--------------+------------+--------+--------+------------+------------
--+
| employee_id | first_name | last_name | email              | phone_number | hire_date  | job_id | salary | manager_id | department_i
d |
+-------------+------------+-----------+--------------------+--------------+------------+--------+--------+------------+------------
--+
|           1 | Abhishek   | Sharma    | abhishek@gmail.com | 9756456626   | 2020-03-18 |      1 | 45000  |       NULL |
1 |
+-------------+------------+-----------+--------------------+--------------+------------+--------+--------+------------+------------
--+
1 row in set (0.001 sec)
```

3.   Set a savepoint 'A'.

```
MariaDB [company]> BEGIN;
Query OK, 0 rows affected (0.000 sec)

MariaDB [company]> savepoint A;
Query OK, 0 rows affected (0.000 sec)
```

a.   attempt to update employee salary

```
MariaDB [company]> update employees set salary=55000 where emplo
yee_id=1;
Query OK, 1 row affected (0.031 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

b.   check the update record

```
MariaDB [company]> select * from employees where employee_id=1;
+-------------+------------+-----------+--------------------+--------------+------------+--------+--------+------------+------------
--+
| employee_id | first_name | last_name | email              | phone_number | hire_date  | job_id | salary | manager_id | department_i
d |
+-------------+------------+-----------+--------------------+--------------+------------+--------+--------+------------+------------
--+
|           1 | Abhishek   | Sharma    | abhishek@gmail.com | 9756456626   | 2020-03-18 |      1 | 55000  |       NULL |
1 |
+-------------+------------+-----------+--------------------+--------------+------------+--------+--------+------------+------------
--+
1 row in set (0.001 sec)
```

4.   Roll back to savepoint 'A'

```
MariaDB [company]> ROLLBACK TO A;
Query OK, 0 rows affected (0.032 sec)
```

a.   check employee's salary after the rollback (should be unchanged)

```
MariaDB [company]> select * from employees where employee_id=1;
+-------------+------------+-----------+-------------------+--------------+------------+--------+--------+------------+-------------
--+
| employee_id | first_name | last_name | email             | phone_number | hire_date  | job_id | salary | manager_id | department_i
d |
+-------------+------------+-----------+-------------------+--------------+------------+--------+--------+------------+-------------
--+
|           1 | Abhishek   | Sharma    | abhishek@gmail.com | 9756456626  | 2020-03-18 |      1 |  45000 |       NULL |
1 |
+-------------+------------+-----------+-------------------+--------------+------------+--------+--------+------------+-------------
--+
1 row in set (0.001 sec)
```

b.   attempt to delete empid = 1

```
MariaDB [company]> DELETE FROM employees where employee_id=1;
ERROR 1142 (42000): DELETE command denied to user 's2'@'localhost' for table `company`.`employees`
MariaDB [company]> commit;
Query OK, 0 rows affected (0.000 sec)
```

c.   commit the transaction.

```
MariaDB [company]> commit;
Query OK, 0 rows affected (0.000 sec)
```

5. Connect as 'root' user

```
M S I@ASWIN c:\xampp
# mysql -u root
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 280
Server version: 10.4.32-MariaDB mariadb.org binary distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

a.   use database company

```
MariaDB [(none)]> use company;
Database changed
```

b.   revoke update privilege on a table from 's2' user

```
MariaDB [company]> revoke update on employees from s2;
Query OK, 0 rows affected (0.032 sec)
```

6. Connect as 's2' user

```
M S I@ASWIN c:\xampp
# mysql -u s2 -p
Enter password: *****
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 282
Server version: 10.4.32-MariaDB mariadb.org binary distribution
```

a.   select database 'company'

```
MariaDB [(none)]> use company;
Database changed
```

b.   attempt to update an employee's salary

```
MariaDB [company]> update employees set salary=35000 where emplo
yee_id=1;
ERROR 1142 (42000): UPDATE command denied to user 's2'@'localhost' for table `company`.`employees`
MariaDB [company]>
```