DBMS Lab 4

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PES1UG20CS084

Task 2

1. **Grant privileges on different tables to users and observe the effect.**

   1. First I create a new user:
      ```
      MariaDB [mysql]> create user pes1ug20cs084@localhost identified by 'password';
      Query OK, 0 rows affected (0.009 sec)
      ```

   2. I then grant `SELECT` to said user for table `train` in database `lab4_pes1ug20cs084`:
      ```
      MariaDB [mysql]> grant select on lab4_pes1ug20cs084.train to pes1ug20cs084@localhost;
      Query OK, 0 rows affected (0.093 sec)
      ```

   3. Now, I log in to mysql using account `pes1ug20cs084` and try accessing beyond my granted permissions:
      ```
         #  >  4ms  >  D:\SEM5\DBMS\PES1UG20CS084_Lab4   🐾 87  >  ✔          Aryansh < 21:35:10 ☺
       λ mysql -u pes1ug20cs084 -ppassword
      Welcome to the MariaDB monitor.  Commands end with ; or \g.
      Your MariaDB connection id is 12
      Server version: 10.4.24-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.

      MariaDB [(none)]> use lab4_pes1ug20cs084
      Database changed
      MariaDB [lab4_pes1ug20cs084]> select * from user_train;
      ERROR 1142 (42000): SELECT command denied to user 'pes1ug20cs084'@'localhost' for table 'use
      r_train'
      MariaDB [lab4_pes1ug20cs084]>
      ```

   4. Now I try accessing what I have been granted access for:
      ```
      MariaDB [lab4_pes1ug20cs084]> select * from train;
      +----------+-----------------+------------+-----------+-------------+--------------+
      | train_no | train_name      | train_type | source    | destination | availability |
      +----------+-----------------+------------+-----------+-------------+--------------+
      |    25260 | Chennai Mail    | Mail       | Mangaluru | Chennai     | Yes          |
      |    25261 | Managaluru Mail | Mail       | Chennai   | Mangaluru   | Yes          |
      |    58450 | MAN-BEN Express | Fast       | Mangaluru | Bengaluru   | yes          |
      |    58451 | BEN-MAN Express | Fast       | Bengaluru | Mangaluru   | yes          |
      |    62620 | CHE-BEN Shatabdi| Superfast  | Chennai   | Bengaluru   | No           |
      |    62621 | BEN-CHE Shatabdi| Superfast  | Bengaluru | Chennai     | yes          |
      +----------+-----------------+------------+-----------+-------------+--------------+
      6 rows in set (0.001 sec)
      ```

2. **Revoke UPDATE & DELETE privileges on any tables and observe the effect if any deletion/updation is performed.**

   1. First I grant access to all commands to user `pes1ug20cs084` on table `train` on database `lab4_pes1ug20cs084`:
      ```
      MariaDB [mysql]> grant all on lab4_pes1ug20cs084.train to pes1ug20cs084@localhost;
      Query OK, 0 rows affected (0.017 sec)
      ```

   2. Then I revoke `update` and `delete` on table train:
      ```
      MariaDB [mysql]> revoke update, delete on lab4_pes1ug20cs084.train from pes1ug20cs084@localhost;
      Query OK, 0 rows affected (0.018 sec)
      ```

   3. Then I try using `update` and `delete` command on table `train` using user `pes1ug20cs084`:

```
MariaDB [lab4_pes1ug20cs084]> delete from train where source="Chennai";
ERROR 1142 (42000): DELETE command denied to user 'pes1ug20cs084'@'localhost' for table 'train'
MariaDB [lab4_pes1ug20cs084]> update train set train_type="Superfast" where source="Chennai";
ERROR 1142 (42000): UPDATE command denied to user 'pes1ug20cs084'@'localhost' for table 'train'
MariaDB [lab4_pes1ug20cs084]>
```

3. **Create different save points and perform some insert/update/delete operations. Observe the effect of commit & rollback operations and release any created savepoints.**

   1. Creating savepoint 1:

   ```
   MariaDB [lab4_pes1ug20cs084]> savepoint sp1;
   Query OK, 0 rows affected (0.000 sec)
   ```

   2. I created another table which wasn't affected by foreign key contstraints to demonstrate this:

   ```
   MariaDB [lab4_pes1ug20cs084]> create table test(
       -> id int,
       -> name varchar(255));
   Query OK, 0 rows affected (0.037 sec)

   MariaDB [lab4_pes1ug20cs084]> insert into test values (1,'Aryansh'), (2,'Aryan'), (3,'Avanish');
   Query OK, 3 rows affected (0.014 sec)
   Records: 3  Duplicates: 0  Warnings: 0

   MariaDB [lab4_pes1ug20cs084]> select * from test;
   +------+---------+
   | id   | name    |
   +------+---------+
   |    1 | Aryansh |
   |    2 | Aryan   |
   |    3 | Avanish |
   +------+---------+
   3 rows in set (0.001 sec)
   ```

   3. Deleting a value and showing table state:

   ```
   MariaDB [lab4_pes1ug20cs084]> delete from test where id=3;
   Query OK, 1 row affected (0.001 sec)

   MariaDB [lab4_pes1ug20cs084]> select * from test;
   +------+---------+
   | id   | name    |
   +------+---------+
   |    1 | Aryansh |
   |    2 | Aryan   |
   +------+---------+
   2 rows in set (0.001 sec)
   ```

   4. Rolling back to previous state and showing values:

   ```
   MariaDB [lab4_pes1ug20cs084]> rollback to sp1;
   Query OK, 0 rows affected (0.001 sec)

   MariaDB [lab4_pes1ug20cs084]> select* from test;
   +------+---------+
   | id   | name    |
   +------+---------+
   |    1 | Aryansh |
   |    2 | Aryan   |
   |    3 | Avanish |
   +------+---------+
   3 rows in set (0.001 sec)
   ```

We notice that previous value has been regained.