

Experiment 9

Views, DCL and TCL

Aim: Implementation of views, practise DCL commands and practice TCL commands.

Part 1: Views

- 1 Create a view so that the manager at branch B003 can see only the details for staff who work in his or her branch office.

Create view view1 as (select * from Staff39 where branchNo="B003");

Output:

```
mysql> create view view1 as (select * from Staff39 where branchNo="B003");
Query OK, 0 rows affected (0.13 sec)

mysql> select * from view1;
+-----+-----+-----+-----+-----+-----+-----+-----+
| staffNo | fName | lName | position | sex | DOB       | salary | branchNo |
+-----+-----+-----+-----+-----+-----+-----+-----+
| SG14    | David | Ford  | Manager  | M   | 1958-03-24 | 18000  | B003     |
| SG37    | Ann   | Beech | Assistant | F   | 1960-11-10 | 12360  | B003     |
| SG5     | Susan | Brand | Manager  | F   | 1940-06-03 | 25956  | B003     |
+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

- 2 Create a view of the staff details at branch B003 that excludes salary information, so that only managers can access the salary details for staff who work at their branch.

create view view2 as (select staffNo,fName,lName,position,sex,DOB,branchNo from Staff39 where branchNo="B003");

Output:

```
mysql> create view view2 as (select staffNo,fName,lName,position,sex,DOB,branchNo from Staff39 where branchNo="B003");
Query OK, 0 rows affected (0.22 sec)

mysql> select * from view2;
+-----+-----+-----+-----+-----+-----+-----+
| staffNo | fName | lName | position | sex | DOB       | branchNo |
+-----+-----+-----+-----+-----+-----+-----+
| SG14    | David | Ford  | Manager  | M   | 1958-03-24 | B003     |
| SG37    | Ann  | Beech | Assistant | F   | 1960-11-10 | B003     |
| SG5     | Susan | Brand | Manager  | F   | 1940-06-03 | B003     |
+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.01 sec)
```

- 3 Create a view of staff who manages properties for rent, which includes the branch number they work at, their staff number, and the number of properties they manage.

```
create view view3 as (select branchNo,staffNo,count(propertyNo) from
PropertyForRent39 group by staffNo,branchNo);
```

Output:

```
mysql> create view view3 as (select branchNo,staffNo,count(propertyNo) from
PropertyForRent39 group by staffNo,branchNo);
Query OK, 0 rows affected (0.16 sec)

mysql> select * from view3;
+-----+-----+-----+
| branchNo | staffNo | count(propertyNo) |
+-----+-----+-----+
| B007     | SA9     | 1                  |
| B003     | SG14    | 1                  |
| B003     | SG37    | 2                  |
| B003     | NULL    | 1                  |
| B005     | SL41    | 1                  |
+-----+-----+-----+
5 rows in set (0.05 sec)
```

Part 2: DCL (Data Control Language)

Commands to grant and revoke privileges.

- 1 Create a new MySQL user with a username and password using 'CREATE USER' command.

```
create user nvr1@localhost identified by 'nvr1';
```

Output:

```
mysql> create user nvr1@localhost identified by 'nvr1';  
Query OK, 0 rows affected (0.74 sec)
```

2 Grant the new user all privileges on 'Branch' table of 'DreamHome' schema.
grant all on dreamhome39.Branch39 to nvr1@localhost;

Output:

```
mysql> grant all on dreamhome39.Branch39 to nvr1@localhost;  
Query OK, 0 rows affected (0.14 sec)
```

3 Grant the new user read-only privileges on 'PropertyForRent' table of
'DreamHome' schema.
grant select on dreamhome39.PropertyForRent39 to [nvr1@localhost](#);

Output:

```
mysql> grant select on dreamhome39.PropertyForRent39 to nvr1@localhost;  
Query OK, 0 rows affected (0.11 sec)
```

4 Validate the privilege assignments with proper queries as the new user.
(Write all queries and outputs used for validation)
logging into newly created user..

```
student@administrator-System-Product-Name:~$ mysql -u nvr1 -p  
Enter password:  
Welcome to the MySQL monitor.  Commands end with ; or \g.  
Your MySQL connection id is 11  
Server version: 8.0.31-0ubuntu0.20.04.1 (Ubuntu)  
  
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owners.  
  
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

enter into database and perform operations:

```
select * from Branch39;
```

```
update Branch39 set city="Alberdeen" where postcode="AB23SU";
```

Output:

```
mysql> use dreamhome39;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> select * from Branch39;
+-----+-----+-----+-----+
| branchNo | street      | city      | postcode |
+-----+-----+-----+-----+
| B002     | 56 Clover Dr | London    | NW106EU  |
| B003     | 163 Main St  | Glasgow   | G119QX   |
| B004     | 32 Manse Rd  | Bristol   | BS991NZ  |
| B005     | 22 Deer Rd   | London    | SW14EH   |
| B007     | 16 Argyll St | Aberdeen  | AB23SU   |
+-----+-----+-----+-----+
5 rows in set (0.00 sec)

mysql> update Branch39 set city="Alberdeen" where postcode="AB23SU";
Query OK, 1 row affected (0.08 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

5 Revoke all privileges given to the new user and validate the same.

Revoking permissions

```

student@administrator-System-Product-Name:~$ mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 12
Server version: 8.0.31-0ubuntu0.20.04.1 (Ubuntu)

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owners.

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

mysql> revoke all on dreamhome39.Branch39 from nvr1@localhost;
Query OK, 0 rows affected (0.09 sec)

mysql> revoke select on dreamhome39.PropertyForRent39 from nvr1@localhost;
Query OK, 0 rows affected (0.09 sec)

```

trying to access the database through the new user

```

student@administrator-System-Product-Name:~$ mysql -u nvr1 -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 13
Server version: 8.0.31-0ubuntu0.20.04.1 (Ubuntu)

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owners.

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

mysql> use dreamhome39;
ERROR 1044 (42000): Access denied for user 'nvr1'@'localhost' to database '
dreamhome39'

```

Part 3: TCL (Transaction Control Language)

Commit, Rollback and Savepoint.

- 1 Create a table named 'TEMP' with attributes A1(int), A2(varchar), and A3(int).

Create table TEMP(A1 int, A2 varchar(30),A3 int);

Ouput:

```
mysql> create table TEMP(A1 int,A2 varchar(30),A3 int);
Query OK, 0 rows affected (0.68 sec)
```

- 2 Insert 10 rows into TEMP. While inserting, keep three savepoints (A, B and C) after 2nd, 5th, and 8th row insertion respectively.

```
mysql> start transaction;
Query OK, 0 rows affected (0.00 sec)

mysql> insert into TEMP values(1,"Aline",100);
Query OK, 1 row affected (0.00 sec)

mysql> insert into TEMP values(2,"Mary",200);
Query OK, 1 row affected (0.00 sec)

mysql> savepoint A;
Query OK, 0 rows affected (0.00 sec)

mysql> insert into TEMP values(3,"Mike",300);
Query OK, 1 row affected (0.00 sec)

mysql> insert into TEMP values(4,"John",200);
Query OK, 1 row affected (0.01 sec)

mysql> insert into TEMP values(5,"Tina",100);
Query OK, 1 row affected (0.00 sec)

mysql> savepoint B;
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> insert into TEMP values(6,"Joe",100);
Query OK, 1 row affected (0.00 sec)

mysql> insert into TEMP values(7,"Carol",300);
Query OK, 1 row affected (0.00 sec)

mysql> insert into TEMP values(8,"Tony",200);
Query OK, 1 row affected (0.00 sec)

mysql> savepoint C;
Query OK, 0 rows affected (0.00 sec)

mysql> insert into TEMP values(9,"Jacob",200);
Query OK, 1 row affected (0.00 sec)

mysql> insert into TEMP values(10,"Jenny",100);
Query OK, 1 row affected (0.00 sec)
```

- 3 Rollback to C, B and then A

printing the table contents all the time.

```
mysql> select * from TEMP;
+-----+-----+-----+
| A1    | A2    | A3    |
+-----+-----+-----+
| 1     | Aline | 100   |
| 2     | Mary  | 200   |
| 3     | Mike  | 300   |
| 4     | John  | 200   |
| 5     | Tina  | 100   |
| 6     | Joe   | 100   |
| 7     | Carol | 300   |
| 8     | Tony  | 200   |
| 9     | Jacob | 200   |
| 10    | Jenny | 100   |
+-----+-----+-----+
10 rows in set (0.00 sec)

mysql> rollback to C;
Query OK, 0 rows affected (0.00 sec)

mysql> select * from TEMP;
+-----+-----+-----+
| A1    | A2    | A3    |
+-----+-----+-----+
| 1     | Aline | 100   |
mysql> rollback to B;
Query OK, 0 rows affected (0.00 sec)

mysql> select * from TEMP;
+-----+-----+-----+
| A1    | A2    | A3    |
+-----+-----+-----+
| 1     | Aline | 100   |
| 2     | Mary  | 200   |
| 3     | Mike  | 300   |
| 4     | John  | 200   |
| 5     | Tina  | 100   |
+-----+-----+-----+
5 rows in set (0.00 sec)

mysql> rollback to A;
Query OK, 0 rows affected (0.01 sec)

mysql> select * from TEMP;
+-----+-----+-----+
| A1    | A2    | A3    |
+-----+-----+-----+
| 1     | Aline | 100   |
| 2     | Mary  | 200   |
+-----+-----+-----+
2 rows in set (0.00 sec)
```

- 4 Commit the current state of TEMP. (Validate the commit operation)

```
mysql> commit;
Query OK, 0 rows affected (0.00 sec)

mysql> savepoint D;
Query OK, 0 rows affected (0.00 sec)

mysql> insert into TEMP values(5,"Tina",100);
Query OK, 1 row affected (0.10 sec)

mysql> commit;
Query OK, 0 rows affected (0.00 sec)

mysql> rollback to D;
ERROR 1305 (42000): SAVEPOINT D does not exist
```

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