

Ex-no: 4

Implementation of DCL Commands

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Aim

To Create and manage user groups and their area right by using DCL Commands and do test the data integrity using ondelete cascade

Tool description

My sql worksheet delivers virtual tool for creating, executing and optimizing sql queries. It provides data modeling sql development and comprehensive user, administrative backup and much more.

Working steps

1. Test data Integrity and Consistency

1.1) Create a schema named experiments

1.2) Create a table patients with potential id as primary key

1.3) Create a table Patient-diagnosis with patient-id as foreign key.

1.4) Now, bill table also get deleted automatically.

2. DCL Commands

2.1) Create a user with password

2.2) user1 will get all privileges to database

2.3) user2 will only allow to use select command

2.4) user3 will get all privileges and the select command was revoked from that.

```
Microsoft Windows [Version 10.0.19042.1165]
(c) Microsoft Corporation. All rights reserved.

C:\Users\ELCOT>cd..

C:\Users>mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 20
Server version: 10.4.13-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.
```

Creating database:

```
MariaDB [mysql]> create database userlogin;
Query OK, 1 row affected (0.046 sec)

MariaDB [mysql]> use userlogin;
ERROR 1049 (42000): Unknown database 'usserlogin'
MariaDB [mysql]> use userlogin;
Database changed
MariaDB [userlogin]> create table patient(pat_id int, pname varchar(30), age int);
Query OK, 0 rows affected (0.381 sec)

MariaDB [userlogin]> alter table patient add constraint p1 primary key(pat_id);
Query OK, 0 rows affected, 1 warning (2.694 sec)
Records: 0 Duplicates: 0 Warnings: 1

MariaDB [userlogin]> alter table patient modify age int not null;
Query OK, 0 rows affected (1.763 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [userlogin]> insert into patient(pat_id,pname,age) values(101,'arun',20),(102,'gomz',20
),(103,'nithish',19);
Query OK, 3 rows affected (0.456 sec)
Records: 3 Duplicates: 0 Warnings: 0
```

```

MariaDB [userlogin]> desc patient;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| pat_id | int(11)       | NO   | PRI | NULL    |       |
| pname  | varchar(30)   | YES  |     | NULL    |       |
| age    | int(11)       | NO   |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.511 sec)

MariaDB [userlogin]> select * from patient;
+-----+-----+-----+
| pat_id | pname | age |
+-----+-----+-----+
| 101    | arun  | 20  |
| 102    | gomz  | 20  |
| 103    | nithish | 19  |
+-----+-----+-----+
3 rows in set (0.001 sec)

MariaDB [userlogin]> create table patient_diagnosis(diagno int,disease varchar(40),pat_id int,foreign key(pat_id) references patient(pat_id) on delete cascade);
Query OK, 0 rows affected (7.752 sec)

MariaDB [userlogin]> insert into patient_diagnosis(diagno,disease,pat_id) values (1,'fever',101), (2,'cold',102), (3,'Asthma',103);
Query OK, 3 rows affected (0.358 sec)

```

```

MariaDB [userlogin]> select * from patient_diagnosis;
+-----+-----+-----+
| diagno | disease | pat_id |
+-----+-----+-----+
| 1      | fever   | 101    |
| 2      | cold    | 102    |
| 3      | Asthma  | 103    |
+-----+-----+-----+
3 rows in set (0.001 sec)

MariaDB [userlogin]> delete from patient where pat_id = 101;
Query OK, 1 row affected (0.330 sec)

MariaDB [userlogin]> select * from patient;
+-----+-----+-----+
| pat_id | pname | age |
+-----+-----+-----+
| 102    | gomz  | 20  |
| 103    | nithish | 19  |
+-----+-----+-----+
2 rows in set (0.001 sec)

```

```

MariaDB [userlogin]> select * from patient_diagnosis;
+-----+-----+-----+
| diagno | disease | pat_id |
+-----+-----+-----+
|      2 | cold    |    102 |
|      3 | Asthma  |    103 |
+-----+-----+-----+
2 rows in set (0.001 sec)

MariaDB [userlogin]> create table bill(billno int, amount int, pat_id int, foreign key(pat_id)
references patient(pat_id) on delete set null);
Query OK, 0 rows affected (0.261 sec)

MariaDB [userlogin]> insert into bill(billno,amount,pat_id) values(123,50,102),(124,100,103);
Query OK, 2 rows affected (0.065 sec)
Records: 2  Duplicates: 0  Warnings: 0

MariaDB [userlogin]> delete from patient where pat_id = 102;
Query OK, 1 row affected (0.085 sec)

MariaDB [userlogin]> select * from bill;
+-----+-----+-----+
| billno | amount | pat_id |
+-----+-----+-----+
|     123 |     50 |   NULL |
|     124 |    100 |    103 |
+-----+-----+-----+
2 rows in set (0.001 sec)

```

User1:

```

MariaDB [userlogin]> create user 'user1'@'localhost' identified by 'etlab';
Query OK, 0 rows affected (0.049 sec)

MariaDB [userlogin]> grant all privileges on userlogin.* to 'user1'@'localhost';
Query OK, 0 rows affected (0.057 sec)

MariaDB [userlogin]> show grants for 'user1'@'localhost';
+-----+-----+-----+
| Grants for user1@localhost |
+-----+-----+-----+
| GRANT USAGE ON *.* TO `user1`@`localhost` IDENTIFIED BY PASSWORD '*1EAE8724C65FFFB2949845DEAB25684E7AD32B6D' |
| GRANT ALL PRIVILEGES ON `userlogin`.* TO `user1`@`localhost` |
+-----+-----+-----+
2 rows in set (0.001 sec)

```


User 2:

```
MariaDB [userlogin]> create user 'user2'@'localhost' identified by 'etlab';
Query OK, 0 rows affected (0.054 sec)

MariaDB [userlogin]> grant select on userlogin.* to 'user2'@'localhost';
Query OK, 0 rows affected (0.052 sec)

MariaDB [userlogin]> show grants for 'user2'@'localhost';
+-----+
| Grants for user2@localhost |
+-----+
| GRANT USAGE ON *.* TO `user2`@`localhost` IDENTIFIED BY PASSWORD '*1EAE724C65FFFB2949845DEAB25684E7AD32B6D' |
| GRANT SELECT ON `userlogin`.* TO `user2`@`localhost` |
+-----+
2 rows in set (0.001 sec)
```

User 3:

```
MariaDB [userlogin]> create user 'user3'@'localhost' identified by 'etlab';
Query OK, 0 rows affected (0.079 sec)

MariaDB [userlogin]> grant all privileges on userlogin.* to 'user3'@'localhost';
Query OK, 0 rows affected (0.026 sec)

MariaDB [userlogin]> show grants for 'user3'@'localhost';
+-----+
| Grants for user3@localhost |
+-----+
| GRANT USAGE ON *.* TO `user3`@`localhost` IDENTIFIED BY PASSWORD '*1EAE724C65FFFB2949845DEAB25684E7AD32B6D' |
| GRANT ALL PRIVILEGES ON `userlogin`.* TO `user3`@`localhost` |
+-----+
2 rows in set (0.001 sec)
```

User1 (grant all privileges on userlogin):

```
MariaDB [userlogin]> exit
Bye

C:\Users>mysql -u user1 -p
Enter password: *****
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 38
Server version: 10.4.13-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 userlogin
Database changed
MariaDB [userlogin]> select * from patient;
+-----+-----+-----+
| pat_id | pname  | age |
+-----+-----+-----+
|    103 | nithish | 19 |
+-----+-----+-----+
1 row in set (0.038 sec)
```

User2 (grant select on userlogin, so create command was denied):

```
C:\Users>mysql -u user2 -p
Enter password: *****
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 39
Server version: 10.4.13-MariaDB mariadb.org binary distribution

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

MariaDB [(none)]> use userlogin
Database changed
MariaDB [userlogin]> create table t(id int);
ERROR 1142 (42000): CREATE command denied to user 'user2'@'localhost' for table 't'
MariaDB [userlogin]>
```

User3 (revoke select on userlogin.* from 'user3'@'localhost');

```
C:\Users>mysql -u user3 -p
Enter password: *****
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 44
Server version: 10.4.13-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 userlogin
Database changed
MariaDB [userlogin]> select * from bill;
ERROR 1142 (42000): SELECT command denied to user 'user3'@'localhost' for table 'bill'
MariaDB [userlogin]>
```

Result:

Thus, the DCL commands are performed and get the output and verified.