

Experiment No 8

Aim: Implement DCL and TCL queries

Class: SE Comp

Year: 2020-21

Performed by: Danyl Fernandes, 72

Data Control Language:

- Data Control Language (DCL) is used to control privileges in Database. To perform any operation in
- the database, such as for creating tables, sequences or views, a user needs privilege.

Privileges are of two types:

- **System:** This includes permissions for creating session, table, etc and all types of other system privileges.
- **Object:** This includes permissions for any command or query to perform any operation on the database tables.

In DCL we have two commands,

- **Grant:** Used to provide any user access privileges or other privileges for the database.
- **Revoke:** Used to take back permissions from any user.
 - Allow a User to create a session.
 - When we create a user in SQL, it is not even allowed to login and create a session until and unless
 - Proper permissions/privileges are granted to the user.
 - Following command can be used to grant the session creating privileges:
 - GRANT CREATE SESSION TO username;
 - Allow a User to create table
 - To allow a user to create tables in the database, we can use the below command:
 - GRANT CREATE TABLE TO username;
 - Provide user with space on tablespace to store table
 - Allowing a user to create a table is not enough to start storing data in that table.
 - We also must provide the user with privileges to use the available tablespace for their table and data.
 - This command will alter the user details and will provide it access to unlimited tablespace on system:
 - ALTER USER username QUOTA UNLIMITED ON SYSTEM;
 - And, if you want to take back the privileges from any user, use the REVOKE command:

- REVOKE CREATE TABLE FROM username

Transaction Control Language:

- **Commit:**

- COMMIT command is used to permanently save any transaction into the database.
- When we use any DML command like INSERT, UPDATE or DELETE, the changes made by these commands are not permanent, until the current session is closed, the changes made by these commands can be rolled back.
- To avoid that, we use the COMMIT command to mark the changes as permanent.
- Following is commit command's syntax:
 - COMMIT;

- **Rollback:**

- This command restores the database to the last committed state. It is also used with the SAVEPOINT command to jump to a savepoint in an ongoing transaction.
- If we have used the UPDATE command to make some changes into the database, and realize that those changes were not required, then we can use the ROLLBACK command to rollback those changes, if they were not committed using the COMMIT command.
- Following is rollback command's syntax:
 - ROLLBACK TO savepoint_name;

- **Savepoint:**

- SAVEPOINT command is used to temporarily save a transaction so that you can rollback to that point whenever required.
- Following is savepoint command's syntax:
 - SAVEPOINT savepoint_name;
- In short, using this command we can name the different states of our data in any table and then rollback to that state using the ROLLBACK command whenever required.

Query:

```
select host,user from mysql.user;
```

✓ Showing rows 0 - 3 (4 total, Query took 0.0027 seconds.)

```
select host,user from mysql.user
```

☐ Show all

Number of rows:

25



Filter rows:

Search this table

+ Options

| Host | User |
|-----------|------|
| 127.0.0.1 | root |
| ::1 | root |
| localhost | pma |
| localhost | root |

Query:

```
create user dan@localhost
```

✓ Showing rows 0 - 4 (5 total, Query took 0.0023 seconds.)

```
select host,user from mysql.user
```

☐ Show all

Number of rows:

25



Filter rows:

Search this table

+ Options

| Host | User |
|-----------|------|
| 127.0.0.1 | root |
| ::1 | root |
| localhost | dan |
| localhost | pma |
| localhost | root |

Changing a user's password :

Edit privileges: User account 'dan'@'localhost'

Change password

☐ No Password

☒ Password:

Enter: Strength: Weak

Re-type:

Password Hashing:

Native MySQL authentication

Generate password

Generate

✓ The password for 'dan'@'localhost' was changed successfully.

Global

Database

Change password

Login Information

Giving access to the new user:

```
grant select on working.* to dan@localhost
```

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0038 seconds.)

```
GRANT SELECT ON working.* to dan@localhost
```

Logging in as new user:



Welcome to phpMyAdmin

Language

English

Log in


Username: dan

Password:

Go

Applying Select query on the “working” database:

```
select * from 'work'
```

 Showing rows 0 - 9 (10 total, Query took 0.0007 seconds.)

```
SELECT * FROM `works`
```

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

☐ Show all | Number of rows: Filter rows:

+ Options


| employee_name | company_name | salary |
|---------------|------------------------|----------|
| Jack | First Bank Corporation | 10000000 |
| Mary | ABC Company | 80000 |
| Suzan | Small Bank Corporation | 90000 |
| Jones | First Bank Corporation | 2000 |
| Katherine | ABC Company | 10000000 |
| Selena | First Bank Corporation | 90000 |
| Lincy | ABC Company | 80000 |
| Jonas | Small Bank Corporation | 90000 |
| Martha | First Bank Corporation | 2000 |
| Taylor | ABC Company | 90000 |

Trying Insert and delete operation:

Error

SQL query: [Copy](#)

```
insert into works (employee_name, company_name, salary) values ("John", "First Bank", 2000)
```

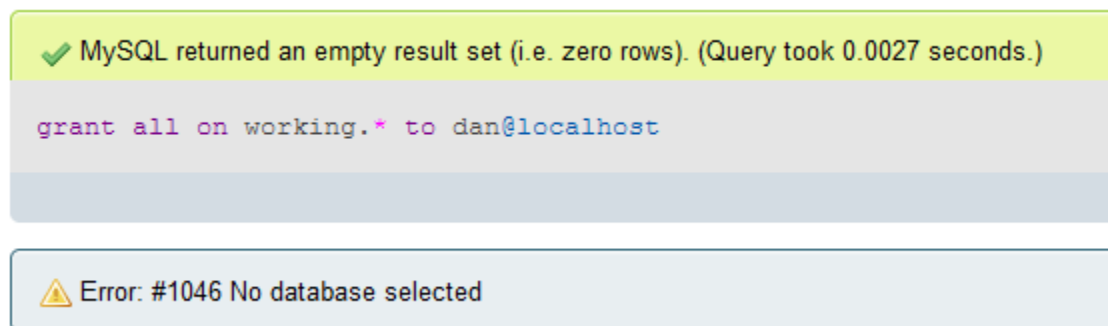
MySQL said: 

Trying to create a new user from dan@localhost:



Granting all permission to dan@localhost:

`grant all on working.* to dan@localhost`



Trying to insert and delete from the 'works' table from dan@localhost:

```
insert into works (  
    employee_name, company_name, salary  
) values (  
    "Jack", "First Bank Corporation", 4500  
)  
delete from works where employee_name="Jack"
```



Revoke insert the permissions from dan@localhost:

revoke insert on working.* from dan@localhost

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0032 seconds.)

```
revoke insert ON working.* from dan@localhost
```

⚠ Error: #1046 No database selected

Trying to insert, select and delete:

Error

SQL query: [Copy](#)

```
insert into works values ("Jonas", "First Bank", 2000)
```

MySQL said: ?

✓ 0 rows affected. (Query took 0.1001 seconds.)

```
DELETE from works WHERE employee_name="Jack"
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ Showing rows 0 - 8 (9 total, Query took 0.0014 seconds.)

```
SELECT * FROM `works`
```

☐ Profiling [\[Edit inline \]](#) [\[Edit \]](#) [\[Explain SQL \]](#) [\[Create PHP code \]](#) [\[Refresh \]](#)

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

+ Options

| employee_name | company_name | salary |
|---------------|------------------------|----------|
| Mary | ABC Company | 80000 |
| Suzan | Small Bank Corporation | 90000 |
| Jones | First Bank Corporation | 2000 |
| Katherine | ABC Company | 10000000 |
| Selena | First Bank Corporation | 90000 |
| Lincy | ABC Company | 80000 |

Console Bookmarks

Press Ctrl+Enter to execute query

```
> SELECT * FROM `works`
```

Revoking all permissions:

```
revoke all ON working.* from dan@localhost
```

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0024 seconds.)

```
revoke all ON working.* from dan@localhost
```

⚠ Error: #1046 No database selected

Error

SQL query: [Copy](#)

```
insert into works values ("Jonas", "First Bank", 2000)
```

MySQL said: [?](#)

TCL Queries:

```
start transaction;
INSERT into company values("First Bank", "Mumbai");
savepoint ss1;
insert into company values("Second Bank Corporation", "Pune");
rollback to savepoint ss1;
insert into company values("Lary Corporation", "Nashik");
commit
```

```
✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0004 seconds.)
start transaction
[ Edit inline ] [ Edit ] [ Create PHP code ]

✓ 1 row inserted. (Query took 0.0050 seconds.)
INSERT into company values("First Bank","Mumbai")
[ Edit inline ] [ Edit ] [ Create PHP code ]

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0003 seconds.)
savepoint ss1
[ Edit inline ] [ Edit ] [ Create PHP code ]

✓ 1 row inserted. (Query took 0.0027 seconds.)
insert into company values( "Second Bank Corporation","Pune")
[ Edit inline ] [ Edit ] [ Create PHP code ]

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0690 seconds.)
rollback to savepoint ss1
[ Edit inline ] [ Edit ] [ Create PHP code ]
```

```
✓ 1 row inserted. (Query took 0.0037 seconds.)
insert into company values("Lary Corporation","Nashik")
[ Edit inline ] [ Edit ] [ Create PHP code ]

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0218 seconds.)
commit
[ Edit inline ] [ Edit ] [ Create PHP code ]
```

```
start transaction;
DELETE from company WHERE company_name="First Bank";
savepoint ss1;
DELETE from company WHERE company_name="Second Bank Corporation";
rollback to savepoint ss1;
SELECT * FROM `company`;
commit
```

✓ 1 row affected. (Query took 0.0065 seconds.)

`DELETE from company WHERE company_name="First Bank"`

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0005 seconds.)

`savepoint ss1`

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ 0 rows affected. (Query took 0.0039 seconds.)

`DELETE from company WHERE company_name="Second Bank Corporation"`

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0008 seconds.)

`rollback to savepoint ss1`

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✓ Showing rows 0 - 3 (4 total). (Query took 0.0018 seconds.)

`SELECT * FROM `company``

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

```
start transaction;
DELETE from company WHERE company_name="First Bank";
savepoint ss1;
DELETE from company WHERE company_name="Second Bank Corporation";
rollback to savepoint ss1;
DELETE from company WHERE company_name="First Bank Corporation";
commit
```

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0005 seconds.)

```
start transaction
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ 0 rows affected. (Query took 0.0051 seconds.)

```
DELETE from company WHERE company_name="First Bank"
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0005 seconds.)

```
savepoint ss1
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ 0 rows affected. (Query took 0.0039 seconds.)

```
DELETE from company WHERE company_name="Second Bank Corportation"
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0007 seconds.)

```
rollback to savepoint ss1
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]

✔ 0 rows affected. (Query took 0.0040 seconds.)

```
DELETE from company WHERE company_name="First Bank Corportation"
```

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0004 seconds.)

```
commit
```

[[Edit inline](#)] [[Edit](#)] [[Create PHP code](#)]