DCL (Data Control Language) :

-> by using this control lang. commands we can control data in between users

-> there are two types of DCL commands

i. grant

ii. revoke

i. grant :

-> this command is used to grant the permission or previliges on DB object to users

syn:-

grant <permission>/<priviliges> ON <db_object> TO <user1> [, <user2>,...];

ii. revoke :

-> this command used to getback the given permissions

syn:-

revoke <permission>/<priviliges> ON <DB_OBJECT> from <user1> [, <user2>,...];

** priviliges / permissions two types

i. Object Priviliges

ii. System Priviliges

i. Object Priviliges :

-> to give the permissions on db objects is called as Object Priviliges

ex: SELECT, INSERT, UPDATE, DELETE, etc.,

ii. System Priviliges :

-> These priviliges are provided by Oracle

ex: connect, resource, dba, etc.,

Example :

-- to execute these commands we must contain two users

** create a new user

connect to dba user :

Create user my_user identified by lion;

grant connect, resource to my_user;

my_user: select * from emp;

error: table or view doesn't exist

ora8pm: grant select on emp to my_user;

my_user: select * from ora8pm.emp;

my_user: update ora8pm.emp set sal = sal + 100;

error: in-sufficient priviliges

ora8pm: grant update on emp to my_user;

my_user: update ora8pm.emp set sal = sal + 100;

now above query executed.

ora8pm: grant all on emp to my_user;

** All permissions are granted to my_user;

REVOKE :

---

ora8pm: revoke select on emp from my_user;

my_user: select * from ora8pm.emp;

error: in-sufficient priviliges

** to see the granted permissions

select * from user_tab_privs_made; -- we can execute on ORA8PM user

** to see the received permissions

select * from user_tab_privs_recd; -- we can execute in MY_USER user

V. TCL commands :

-> TCL commands are used to control DML transactions

-> there are 3 types of TCL commands

i. commit

ii. savepoint

iii. rollback

i. commit :

-> this command is used to save DML transactions into DB permanently

-> there are two types commits

a. Explicit commit

-> it is performed by USER explicitely

ex: DML commands

b. Implicit commit

-> it is performed by oracle automatically

ex: DDL commands

ii. Savepoint :

-> used to create a book mark

syn:-

savepoint <savepoint_name>;

iii. ROLLBACK :

-> used to undo DML transactions

-> After commit whatever DML transactions are completed all are undo.

Example :

```
sql> select * from emp;

-- 14 rows selected

sql> savepoint s1;

sql> delete from emp where empno=7788;

sql> savepoint s2;

sql> insert into emp values( 1001, 'aaa', 'clerk', 7839, sysdate, 6000, 100, 10 );

sql> savepoint s3;

sql> update emp set sal = sal + 100;

sql> select * from emp;

-- 14 rows seleted

sql> rollback to s2;

-- upto savepoint s2(s3 & s2 ) all transactions are undo.

sql> select * from emp;

-- 13 rows selected
```

sql> commit;

note: once commit is executed whatever savepoints are there in LIVE all are destroyed and
inside the savepoint transactions are saved into db permanently

ex:-

sql> insert
update
commit
insert
delete
rollback;

** in above example DELETE & INSERT transactions are undo

sql> insert
create
update
insert
commit
insert
create
update
rollback;

** in above example only UPDATE command undo