18CSC303J/ DBMS

Submitted By:- ANANNYA P. NEOG (RA1911003010367)

Exp-3: SQL DCL & TCL COMMANDS

Aim:- To write SQL queries to execute different DCL and TCL commands.

Commands:

DCL

- GRANT
- REVOKE

TCL

- COMMIT
- ROLLBACK
- SAVEPOINT

Procedure:-

Data Control Language (DCL) Commands:

DCL includes commands such as GRANT and REVOKE which mainly deal with the rights, permissions, and other controls of the database system.

List of DCL commands:

GRANT: This command gives users access privileges to the database.

Syntax,

GRANT privileges_names ON object TO user;

Example:

Create user first identified by passwd;

Grant select on customers to first;

 <u>REVOKE</u>: This command withdraws the user's access privileges given by using the GRANT command.

Syntax

REVOKE privileges ON object FROM user;

Example:

Revoke select on customers from first;

Transaction Control Language (TCL) Commands:

COMMIT: Commits a Transaction.

Syntax:

COMMIT;

Example:

INSERT INTO customers

VALUES ('1006', '2020-03-04', 3200, 'DL', '1008');

Commit;

Select * from customers;

ROLLBACK: Rollbacks a transaction in case of any error occurs.

Syntax:

Rollback;

Example:

DELETE FROM customers

WHERE store_state = 'MH'

AND customer_id = '1002';

Select * from customers;

Rollback;

Select * from customers;

SAVEPOINT: Sets a savepoint within a transaction.

Syntax:

SAVEPOINT SAVEPOINT_NAME;

This command is used only in the creation of SAVEPOINT among all the transactions.

In general ROLLBACK is used to undo a group of transactions.

Syntax for rolling back to Savepoint command:

```
ROLLBACK TO SAVEPOINT_NAME;
```

```
Example:
```

SAVEPOINT SP1;

DELETE FROM customers

WHERE store_state = 'MH'

AND customer_id = '1002';

SAVEPOINT SP2;

ROLLBACK TO SP1;

Select * from customers;

Execution:-

SQL*Plus: Release 11.2.0.4.0 Production on Wed Feb 16 16:41:35 2022

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Enter user-name: RA1911003010367/RA1911003010367@f1-drjebakumar.co86hfjmfjkx.us-west-2.rds.amazonaws.com:1521/F1

Connected to:

Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production

SQL> spool exp4.lst;

SQL> create table customer (customer_id number,sale_date date, sale_amt number, salesperson varchar(50), store_state varchar(20),

- 2 2 order_id number);
- 2 order_id number)

*

ERROR at line 2:

ORA-00904: : invalid identifier

SQL> create table customer (customer_id number,sale_date date, sale_amt number, salesperson varchar(50), store_state varchar(20),

- 2 2 order_id number);
- 2 order_id number)

*

ERROR at line 2:

ORA-00904: : invalid identifier

SQL> create table customer (customer_id number,sale_date date, sale_amt number, salesperson varchar(50), store_state varchar(20),

2 order_id number);

Table created.

SQL> insert into customer values(1001, '01-Jun-2021', 1200, 'Mukesh', 'UP', 1001);

1 row created.

SQL> insert into customer values(1003, '05-Aug-2021', 1500, 'Ravi', 'MP', 1002);

1 row created.

SQL> insert into customer values(1005, '10-Sep-2021', 2000, 'Rakesh', 'Haryana', 1003);

1 row created.

SQL> insert into customer values(1007, '11-Dec-2021', 500, 'Patil', 'Gujarat', 1004);

1 row created.

SQL> select * from customer;

CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON STORE_STATE
ORDER_ID
1001 01-JUN-21 1200 Mukesh UP 1001
1003 05-AUG-21 1500 Ravi MP 1002
CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON STORE_STATE
ORDER_ID
1005 10-SEP-21 2000 Rakesh Haryana 1003 1007 11-DEC-21 500 Patil Gujarat
CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON STORE_STATE
ORDER_ID
1004
1004
SQL> grant select on customer to public;
SQL> grant select on customer to public;
SQL> grant select on customer to public; Grant succeeded.
SQL> grant select on customer to public; Grant succeeded. SQL> revoke select on customer from public;
SQL> grant select on customer to public; Grant succeeded. SQL> revoke select on customer from public; Revoke succeeded.
SQL> grant select on customer to public; Grant succeeded. SQL> revoke select on customer from public; Revoke succeeded. SQL> insert into customer values(1007, '04-Jan-2020', 5000, 'ChampakLal', 'Gujara')

Commit complete.

```
SQL> select * from customer;
CUSTOMER_ID SALE_DATE SALE_AMT
-----
SALESPERSON
                          STORE_STATE
-----
ORDER ID
  1001 01-JUN-21 1200
Mukesh
                        UP
  1001
  1003 05-AUG-21 1500
Ravi
                      MP
  1002
CUSTOMER_ID SALE_DATE SALE_AMT
-----
SALESPERSON
                          STORE_STATE
ORDER_ID
-----
  1005 10-SEP-21 2000
Rakesh
                       Haryana
  1003
  1007 11-DEC-21 500
Patil
                      Gujarat
CUSTOMER_ID SALE_DATE SALE_AMT
_____
                          STORE_STATE
SALESPERSON
ORDER_ID
  1004
  1007 04-JAN-20 5000
ChampakLal
                         Gujarat
  1010
SQL> delete from customer where store_state='UP' and customer_id='1001';
1 row deleted.
SQL>
SQL> 1 row deleted.
SQL>
```

SQL> select * from customer;		
CUSTOMER_ID SALE_DATE SALE_AMT		
SALESPERSON	STORE_STATE	
ORDER_ID		
1003 05-AUG-21 1500 Ravi 1002	0 MP	
1005 10-SEP-21 2000 Rakesh 1003	Haryana	
CUSTOMER_ID SALE_DATE SALE_AMT		
SALESPERSON	STORE_STATE	
ORDER_ID		
1007 11-DEC-21 500 Patil 1004	Gujarat	
1007 04-JAN-20 5000 ChampakLal) Gujarat	
CUSTOMER_ID SALE_DATE SALE_AMT		
SALESPERSON	STORE_STATE	
ORDER_ID		
1010		
SQL> rollback;		
Rollback complete.		
SQL> select * from customer;		
CUSTOMER_ID SALE_DATE SALE_AMT		
SALESPERSON	STORE_STATE	
ORDER_ID		
1001 01 1111 21 1200	.	

1001 01-JUN-21

1200

```
UP
Mukesh
   1001
   1003 05-AUG-21 1500
Ravi
                          MP
   1002
CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON
                               STORE_STATE
 ORDER ID
   1005 10-SEP-21
                    2000
Rakesh
                            Haryana
   1003
   1007 11-DEC-21 500
Patil
                          Gujarat
CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON
                               STORE_STATE
 ORDER_ID
   1004
   1007 04-JAN-20
                    5000
ChampakLal
                              Gujarat
   1010
SQL> savepoint sp;
Savepoint created.
SQL> delete from customer where store_state='MP' and customer_id='1003';
1 row deleted.
SQL> savepoint sp1;
Savepoint created.
SQL> rollback to sp;
Rollback complete.
SQL> select * from customer;
```

CUSTOMER_ID SALE_DATE SALE_AMT

SALESPERSON STORE_STATE ORDER_ID 1001 01-JUN-21 1200 UP Mukesh 1001 1003 05-AUG-21 1500 Ravi MP 1002 CUSTOMER_ID SALE_DATE SALE_AMT -----SALESPERSON STORE_STATE ORDER_ID 1005 10-SEP-21 2000 Rakesh Haryana 1003 1007 11-DEC-21 500 Patil Gujarat CUSTOMER_ID SALE_DATE SALE_AMT SALESPERSON STORE_STATE ORDER_ID 1004 1007 04-JAN-20 5000 ChampakLal Gujarat 1010 SQL> spool off; SQL> spool edit exp3.lst SP2-0768: Illegal SPOOL command Usage: SPOOL { <file> | OFF | OUT } where <file> is file_name[.ext] [CRE[ATE]|REP[LACE]|APP[END]] SQL> edit exp3.lst

SQL> edit exp3.lst

SQL> spool edit exp4.lst

SP2-0768: Illegal SPOOL command

Usage: SPOOL { <file> | OFF | OUT } where <file> is file_name[.ext] [CRE[ATE] | REP[LACE] | APP[END]] SQL> edit exp4.lst

SQL>

```
I ■ L:\SRM Sem-all\Sem-6\Database Management\Lab\ORACLE CLIENT 11.2\instantclient 11 2\sglplus.exe
                                                                                                                                  \Box
                                                                                                                                         X
SQL*Plus: Release 11.2.0.4.0 Production on Wed Feb 16 16:41:35 2022
Copyright (c) 1982, 2013, Oracle. All rights reserved.
Enter user-name: RA1911003010367/RA1911003010367@f1-drjebakumar.co86hfjmfjkx.us-west-2.rds.amazonaws.com:1521/F1
Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
SQL> spool exp4.1st;
SQL> create table customer (customer_id number,sale_date date, sale_amt number, salesperson varchar(50), store_state varchar(20),
      2 order_id number);
ERROR at line 2:
DRA-00904: : invalid identifier
SQL> create table customer (customer_id number,sale_date date, sale_amt number, salesperson varchar(50), store_state varchar(20),
 2 2 order_id num
2 order_id number)
     2 order_id number);
ERROR at line 2:
ORA-00904: : invalid identifier
SQL> create table customer (customer_id number,sale_date date, sale_amt number, salesperson varchar(50), store_state varchar(20),
 2 order_id number);
Table created.
SQL> insert into customer values(1001, '01-Jun-2021', 1200, 'Mukesh', 'UP', 1001);
I row created.
SQL> insert into customer values(1003, '05-Aug-2021', 1500, 'Ravi', 'MP', 1002);
l row created.
SQL> insert into customer values(1005, '10-Sep-2021', 2000, 'Rakesh', 'Haryana', 1003);
SQL> insert into customer values(1007, '11-Dec-2021', 500, 'Patil', 'Gujarat', 1004);
 row created.
```

```
■ E:\SRM Sem-all\Sem-6\Database Management\Lab\ORACLE CLIENT 11.2\instantclient_11_2\sqlplus.exe
SQL> select * from customer;
SUSTOMER_ID SALE_DATE SALE_AMT
                                                  STORE_STATE
 ORDER_ID
     1001 01-JUN-21
                          1200
lukesh
                                                  UP
     1001
      1003 05-AUG-21
Ravi
                                                  MP
     1002
CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON
                                                  STORE_STATE
 ORDER_ID
      1005 10-SEP-21
                          2000
                                                  Haryana
     1003
atil
                                                  Gujarat
CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON
                                                  STORE_STATE
 ORDER_ID
     1004
SQL> grant select on customer to public;
Grant succeeded.
SQL> revoke select on customer from public;
 ■ E:\SRM Sem-all\Sem-6\Database Management\Lab\ORACLE CLIENT 11.2\instantclient_11_2\sqlplus.exe
                                                                                                                            SQL> insert into customer values(1007, '04-Jan-2020', 5000, 'ChampakLal', 'Gujarat', 1010);
 row created.
 SQL> commit;
 Commit complete.
SQL> select * from customer;
 CUSTOMER_ID SALE_DATE SALE_AMT
 SALESPERSON
                                                  STORE_STATE
 ORDER_ID
      1001 01-JUN-21
                         1200
                                                  UP
 lukesh
      1003 05-AUG-21
     1002
CUSTOMER_ID SALE_DATE SALE_AMT
 SALESPERSON
                                                  STORE_STATE
 ORDER_ID
      1005 10-SEP-21
                           2000
 Rakesh
                                                  Haryana
     1003
      1007 11-DEC-21
 Patil
                                                   Gujarat
 CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON
                                                  STORE_STATE
 ORDER_ID
      1007 04-JAN-20
                           5000
                                                  Gujarat
 hampakLal
```

E:\SRM Sem-all\Sem-6\Database Management\Lab\ORACLE CLIENT 11.2\instantclient_11_2\sqlplus.exe

```
■ E:\SRM Sem-all\Sem-6\Database Management\Lab\ORACLE CLIENT 11.2\instantclient_11_2\sqlplus.exe
                                                                                                                                                          SQL> savepoint sp;
 Savepoint created.
 SQL> delete from customer where store_state='MP' and customer_id='1003';
  row deleted.
 SQL> savepoint sp1;
 Savepoint created.
 SQL> rollback to sp;
 Rollback complete.
 SQL> select * from customer;
 CUSTOMER_ID SALE_DATE SALE_AMT
 SALESPERSON
                                                              STORE_STATE
  ORDER_ID
        1001 01-JUN-21
                                  1200
 1ukesh
                                                              UP
       1001
        1003 05-AUG-21
                                                              MP
 Ravi
       1002
 CUSTOMER_ID SALE_DATE SALE_AMT
 SALESPERSON
                                                              STORE_STATE
  ORDER ID
        1005 10-SEP-21
 Rakesh
                                                              Haryana
       1003
         1007 11-DEC-21
                                   500
 Patil
                                                              Gujarat
 L:\SKM Sem-all\Sem-6\Database Management\Lab\OKACLE CLIENT 11.2\instantclient_11_2\sqiplus.exe
                                                                                                                                                          USTOMER_ID SALE_DATE SALE_AMT
 ALESPERSON
                                                              STORE_STATE
  ORDER_ID
       1004
        1007 04-JAN-20
                                  5000
ChampakLal
                                                              Gujarat
       1010
SQL> spool off;
SQL> spool edit exp3.lst
SP2-0768: Illegal SPOOL command
Jsage: SPOOL <file> | OFF | OUT }
where <file> is file_name[.ext] [CRE[ATE]|REP[LACE]|APP[END]]
SQL> edit exp3.lst
SQL> edit exp3.lst
SQL> spool edit exp4.lst
SP2-0768: Illegal SPOOL command
Jsage: SPOOL { <file> | OFF | OUT }
where <file> is file_name[.ext] [CRE[ATE]|REP[LACE]|APP[END]]
SQL> edit exp4.lst
SQL>
```

```
exp4.lst - Notepad
                                                                                                               \times
                                                                                                                    (6)
File
    Edit View
SQL> create table customer (customer_id number, sale_date date, sale_amt number, salesperson varchar(50), store_state
 2 2 order_id number);
  2 order_id number)
ERROR at line 2:
ORA-00904: : invalid identifier
SQL> create table customer (customer_id number, sale_date date, sale_amt number, salesperson varchar(50), store_state
varchar(20),
  2 2 order_id number);
  2 order_id number)
ERROR at line 2:
ORA-00904: : invalid identifier
SQL> create table customer (customer_id number,sale_date date, sale_amt number, salesperson varchar(50), store_state
varchar(20),
  2 order_id number);
Table created.
SQL> insert into customer values(1001, '01-Jun-2021', 1200, 'Mukesh', 'UP', 1001);
1 row created.
SQL> insert into customer values(1003, '05-Aug-2021', 1500, 'Ravi', 'MP', 1002);
SQL> insert into customer values(1005, '10-Sep-2021', 2000, 'Rakesh', 'Haryana', 1003);
1 row created.
                                                                                                              X
exp4.lst - Notepad
                                                                                                                    (3)
    Edit View
File
SQL> insert into customer values(1007, '11-Dec-2021', 500, 'Patil', 'Gujarat', 1004);
1 row created.
SQL> select * from customer;
CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON
                                                   STORE_STATE
 ORDER_ID
      1001 01-JUN-21
                          1200
Mukesh
                                                   UP
      1001
       1003 05-AUG-21
                           1500
Ravi
                                                   MP
      1002
CUSTOMER ID SALE DATE SALE AMT
SALESPERSON
                                                  STORE_STATE
 ORDER_ID
      1005 10-SEP-21
                         2000
Rakesh
                                                   Haryana
      1003
       1007 11-DEC-21
                           500
Patil
                                                   Gujarat
CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON
                                                   STORE_STATE
```

```
ORDER_ID
     1004
SQL> grant select on customer to public;
Grant succeeded.
 SQL> revoke select on customer from public;
 Revoke succeeded.
 SQL> insert into customer values(1007, '04-Jan-2020', 5000, 'ChampakLal', 'Gujarat', 1010);
 1 row created.
 SQL> commit;
 Commit complete.
 SQL> select * from customer;
 CUSTOMER_ID SALE_DATE SALE_AMT
 SALESPERSON
                                                 STORE_STATE
  ORDER_ID
      1001 01-JUN-21 1200
Mukesh
                                                  UP
     1001
      1003 05-AUG-21
                      1500
 Ravi
      1002
                                                                                                           exp4.lst - Notepad
                                                                                                                 \times
                                                                                                                 (3)
   Edit View
CUSTOMER_ID SALE_DATE SALE_AMT
                                                 STORE_STATE
SALESPERSON
 ORDER_ID
      1005 10-SEP-21
                      2000
Rakesh
                                                 Haryana
     1003
      1007 11-DEC-21
                      500
Patil
                                                 Gujarat
CUSTOMER_ID SALE_DATE SALE_AMT
                                                 STORE_STATE
SALESPERSON
 ORDER_ID
     1007 04-JAN-20
                           5000
ChampakLal
                                                 Gujarat
     1010
SQL> delete from customer where store_state='UP' and customer_id='1001';
1 row deleted.
SQL>
SQL> 1 row deleted.
```

(3)

exp4.lst - Notepad

File Edit View

SQL>

```
exp4.lst - Notepad
                                                                                            (3)
File Edit View
SQL> select * from customer;
CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON
                                          STORE STATE
ORDER_ID
    1003 05-AUG-21 1500
Ravi
                                           MP
    1002
     1005 10-SEP-21 2000
Rakesh
                                           Haryana
    1003
CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON
                                           STORE_STATE
 ORDER ID
     1007 11-DEC-21 500
Patil
                                           Gujarat
     1004
     1007 04-JAN-20 5000
ChampakLal
                                           Gujarat
CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON
                                          STORE_STATE
 ORDER_ID
    1010
exp4.lst - Notepad
                                                                                              (g)
File Edit View
SQL> rollback;
Rollback complete.
SQL> select * from customer;
CUSTOMER_ID SALE_DATE SALE_AMT
                                          STORE_STATE
SALESPERSON
______
 ORDER_ID
   1001 01-JUN-21 1200
                                           UP
    1001
     1003 05-AUG-21 1500
                                           MP
Ravi
     1002
CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON
                                           STORE_STATE
 ORDER_ID
     1005 10-SEP-21 2000
Rakesh
                                           Haryana
    1003
1007 11-DEC-21 500 Patil
                                           Gujarat
CUSTOMER_ID SALE_DATE SALE_AMT
```

STORE_STATE

SALESPERSON

```
exp4.lst - Notepad
                                                                                                             (3)
File Edit View
 ORDER_ID
    1004
      1007 04-JAN-20 5000
                                                Gujarat
ChampakLal
     1010
SQL> savepoint sp;
Savepoint created.
SQL> delete from customer where store_state='MP' and customer_id='1003';
1 row deleted.
SQL> savepoint sp1;
Savepoint created.
SQL> rollback to sp;
Rollback complete.
SQL> select * from customer;
CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON
                                               STORE_STATE
 ORDER_ID
  1001 01-JUN-21 1200
Mukesh
                                                UP
     1001
exp4.lst - Notepad
                                                                                                       (3)
File Edit View
     1003 05-AUG-21
                        1500
                                                MP
      1002
CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON
                                                STORE_STATE
 ORDER ID
      1005 10-SEP-21
Rakesh
                                                Haryana
    1003
      1007 11-DEC-21
                         500
                                                Gujarat
CUSTOMER_ID SALE_DATE SALE_AMT
SALESPERSON
                                                STORE_STATE
 ORDER_ID
     1004
      1007 04-JAN-20
                        5000
                                                Gujarat
ChampakLal
     1010
SQL> spool off;
```

Result:

Thus the DCL and TCL commands are used to modify or manipulate data records present in the customer database tables.