SQL TCL commands like Rollback, Commit, Savepoint

TRANSATIONAL CONTROL LANGUAGE (T.C.L): A transaction is a logical unit of work. All changes made to the database can be referred to as a transaction. Transaction changes can be mode permanent to the database only if they are committed a transaction begins with an executable SQL statement & ends explicitly with either role back or commit statement.

COMMIT

The basic syntax for using a COMMIT command in SQL is as follows :

```
BEGIN;
      {a set of SQL statements};
COMMIT;
```

A more simplified version of syntax for other relational databases like MYSQL is as follows :

```
      {a set of SQL statements};
COMMIT;
```

SAVE POINT & ROLL BACK:

Save points are like marks to divide a very lengthy transaction to smaller once. They are used to identify a point in a transaction to which we can latter role back. Thus, save point is used in conjunction with role back.

Syntax: SQL>SAVE POINT ID;
Example: SQL>SAVE POINT xyz;

ROLL BACK:
A role back command is used to undo the current transactions. We can role back the entire transaction so that all changes made by SQL statements are undo (or) role back a transaction to a save point so that the SQL statements after the save point are role back.

Syntax:
ROLE BACK(current transaction can be role back)
ROLE BACK to save point ID;

Experiment 1. Commit

SET autocommit=0;

create table Emp(EMP_no int primary key, Emp_name varchar(10), Job varchar(10), Hiredata date, Salary float, Comm Float, Depno int references Dept(department_id));

INSERT INTO Emp VALUES(1,'Steven', 'Marketing', STR_TO_DATE('06-jan-1995', '%d-%M-%Y'),24000, NULL,2);
INSERT INTO Emp VALUES(2,'Neena', 'FI_ACCOUNT', STR_TO_DATE('06-feb-1987', '%d-%M-%Y'),34000, NULL,1);
INSERT INTO Emp VALUES(3,'Lex', 'FI_MGR', STR_TO_DATE('06-jan-1980', '%d-%M-%Y'),240000, NULL,1);
INSERT INTO Emp VALUES(4,'Alexander', 'Sa_Rep', STR_TO_DATE('06-jun-1987', '%d-%M-%Y'),20000, NULL,4);
INSERT INTO Emp VALUES(5,'Bruce', 'IT_PROG',STR_TO_DATE('06-jul-1990', '%d-%M-%Y'),24000, NULL,4);

start transaction ;
INSERT INTO Emp VALUES(6,'Jack','Clerk', STR_TO_DATE('06-aug-1980', '%d-%M-%Y'),240000, NULL,5);
UPDATE Emp SET Job = 'FI_MGR' where EMP_no = 6;
commit;

*select * from Emp;*

Experiment 2. Savepont & Rollback

SET autocommit=0;

start transaction;
update Emp set Salary = Salary + 1000 where EMP_no = 6;

 # create savepoint
SAVEPOINT emp_save_point1;

INSERT INTO Emp VALUES(7,'Girish','Clerk', STR_TO_DATE('06-aug-1980', '%d-%M-%Y'),240000, NULL,5);

 # verify Girish is added ;
*select * from Emp;*

 # rollback
ROLLBACK TO SAVEPOINT emp_save_point1;

#commit transaction
commit;

 # verify Girish is removed on rollback;
*select * from Emp;*