

LAB 6, 7 FAMILIARIZATION WITH TCL COMMANDS AND DQL COMMANDS.

OBJECTIVE:

To know and understand the implementation of TCL commands and DQL commands in SQL and use these command for different operations.

THEORY:

TCL Commands:

These TCL commands are typically used within a database management system (DBMS) that supports transaction processing. They provide control over the logical units of work within a database. TCL can refer to Transaction Control Language. TCL is a subset of SQL (Structured Query Language) that includes commands used to manage transactions within a database.

The common TCL commands in the database context are:

- **SAVEPOINT:** Creates a named point in a transaction, allowing you to roll back to that specific point if needed.

Syntax:

savepoint A;

- **COMMIT:** Saves all changes made within a transaction to the database. The COMMIT command makes the changes permanent.

Syntax:

commit;

- **ROLLBACK:** Undo's all changes made within a transaction, reverting the database to its state before the transaction began.

Syntax:

rollback;

DQL:

DQL statements are used for performing queries on the data within schema objects.

The purpose of the DQL Command is to get some schema relation based on the query passed to it. We can define DQL as follows it is a component of SQL statement that allows getting data from the database and imposing order upon it. It includes the SELECT statement.

- **SELECT:** We can fetch either the entire table or according to some specified rules.

Syntax:

SELECT column1,column2 FROM table_name

Question:

1. Create a table hospital having attributes d_id, d_name, p_id, d_address, p_address, medicine_charge, d_salary, p_age, d_age.

```
68 • create table hospital
69 (
70   DID int auto_increment,
71   PID int,
72   DName varchar(255),
73   PName varchar(255),
74   DAddress varchar(255),
75   PAddress varchar(255),
76   Medicine_charge int,
77   Dsalary int,
78   Dage int,
79   PAge int
80 );
```

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PAge
▶	1	1	Simanta	Simanta	Lagankhel	Sitapaila	2000	1000000	30	29
	2	2	MD	Tiwari	Dhobighat	Patan	2000	1000000	45	25
	3	3	Shashi	hari	kalanki	imadol	3000	2000000	30	30
	4	4	salina	salin	sanepa	teku	4000	1500000	33	21
	5	5	ram	sita	lagankhel	jawlakhel	6000	5000000	45	19
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

2. Select the info having name ram and sita as doctor and patient name.

select * from hospital where DName='ram' and PName='sita';

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PAge
▶	5	5	ram	sita	lagankhel	jawlakhel	6000	5000000	45	19
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

3. Select info of patient who does not belong to 'ktm'

select PID,PName,PAddress,PAge from hospital where PAddress !='ktm';

	PID	PName	PAddress	PAge
▶	1	Simanta	Sitapaila	29
	2	Tiwari	Patan	25
	3	hari	imadol	30
	4	salin	teku	21
	5	sita	jawlakhel	19

4. SELECT dr. salary where id<=3

select Dsalary from hospital where DID<=3;

	Dsalary
▶	1000000
	1000000
	2000000

5. Select patient name who is Salin from tekku and age is 21

select PName from hospital where Paddress='teku' and PAge=21;

	PName
▶	salin

6. Select info of doctor and patient where address is ktm of both.

select * from hospital where PAddress=DAddress;

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PAGE
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

7. Select info where medicine charge is 2000 or 3000.

Select * from hospital where Medicine_charge=2000 or Medicine_charge=3000;

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PAGE
▶	1	1	Simanta	Simanta	Lagankhel	Sitapaila	2000	1000000	30	29
	2	2	MD	Tiwari	Dhobighat	Patan	2000	1000000	45	25
	3	3	Shashi	hari	kalanki	imadol	3000	2000000	30	30
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

8. Select info of patient whose address is ktm or patan.

Select PID,PName,PAddress,PAGE from hospital where PAddress='ktm' or

PAddress='patan';

	PID	PName	PAddress	PAGE
▶	2	Tiwari	Patan	25

9. Select info of dr. whose age is not 30.

select DID,DName,DAddress,Dsalary,Dage from hospital where Dage!=30;

	DID	DName	DAddress	Dsalary	Dage
▶	2	MD	Dhobighat	1000000	45
	4	salina	sanepa	1500000	33
	5	ram	lagankhel	5000000	45
*	NULL	NULL	NULL	NULL	NULL

10. Select info of doctor and patient having same address.

Select DID,DName,DAddress,Dsalary,Dage from hospital where DAddress=PAddress;

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PAGE
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

11. Select info where patient address is not equal to doctor address.

Select * from hospital where PAddress != DAddress;

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PAGE
▶	1	1	Simanta	Simanta	Lagankhel	Sitapaila	2000	1000000	30	29
	2	2	MD	Tiwari	Dhobighat	Patan	2000	1000000	45	25
	3	3	Shashi	hari	kalanki	imadol	3000	2000000	30	30
	4	4	salina	salin	sanepa	teku	4000	1500000	33	21
	5	5	ram	sita	lagankhel	jawalakhel	6000	5000000	45	19
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

12. Select info where patient and doctor have same name.

Select * from hospital where PName=DName;

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PAGE
▶	1	1	Simanta	Simanta	Lagankhel	Sitapaila	2000	1000000	30	29
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

13. Select info of doctor and patient having different name.

Select DID,DName,DAddress,Dsalary,Dage from hospital where PName != DName;

	DID	DName	DAddress	Dsalary	Dage
▶	2	MD	Dhobighat	1000000	45
	3	Shashi	kalanki	2000000	30
	4	salina	sanepa	1500000	33
	5	ram	lagankhel	5000000	45
*	NULL	NULL	NULL	NULL	NULL

14. Select info where doctor age is greater than patient age.

Select * from hospital where Dage > Page;

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PAge
▶	1	1	Simanta	Simanta	Lagankhel	Sitapaila	2000	1000000	30	29
	2	2	MD	Tiwari	Dhobighat	Patan	2000	1000000	45	25
	4	4	salina	salin	sanepa	teku	4000	1500000	33	21
	5	5	ram	sita	lagankhel	jawlakhel	6000	5000000	45	19
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

15. After reading 5 info use commit command to save it. Delete the record of patient whose id is 3 and roll back.

start transaction;

set autocommit=0;

select * from hospital;

commit;

delete from hospital where PID=3;

rollback;

Before Rollback:

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PAge
▶	1	1	Simanta	Simanta	Lagankhel	Sitapaila	2000	1000000	30	29
	2	2	MD	Tiwari	Dhobighat	Patan	2000	1000000	45	25
	4	4	salina	salin	sanepa	teku	4000	1500000	33	21
	5	5	ram	sita	lagankhel	jawlakhel	6000	5000000	45	19
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

After Rollback:

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PAge
▶	1	1	Simanta	Simanta	Lagankhel	Sitapaila	2000	1000000	30	29
	2	2	MD	Tiwari	Dhobighat	Patan	2000	1000000	45	25
	3	3	Shashi	hari	kalanki	imadol	3000	2000000	30	30
	4	4	salina	salin	sanepa	teku	4000	1500000	33	21
	5	5	ram	sita	lagankhel	jawlakhel	6000	5000000	45	19
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

16. Update the patient name to "simanta" who is from Sitapaila and commit, update doctor name to hari whose id is 4 and rollback.

update hospital set PName = "simanta" where PAddress = "sitapaila";

commit;

update hospital set DName = "hari" where DID = 4;

rollback;

Before Rollback:

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PAge
▶	1	1	Simanta	simanta	Lagankhel	Sitapaila	2000	1000000	30	29
	2	2	MD	Tiwari	Dhobighat	Patan	2000	1000000	45	25
	3	3	Shashi	hari	kalanki	imadol	3000	2000000	30	30
	4	4	hari	salin	sanepa	teku	4000	1500000	33	21
	5	5	ram	sita	lagankhel	jawlakhel	6000	5000000	45	19
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

After rollback:

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PAGE
▶	1	1	Simanta	Simanta	Lagankhel	Sitapaila	2000	1000000	30	29
	2	2	MD	Tiwari	Dhobighat	Patan	2000	1000000	45	25
	3	3	Shashi	hari	kalanki	imadol	3000	2000000	30	30
	4	4	salina	salin	sanepa	teku	4000	1500000	33	21
	5	5	ram	sita	lagankhel	jawlakhel	6000	5000000	45	19
•	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

17. Do insert, update, delete whatever you want and commit and roll back last transaction.

start transaction;

set autocommit=0;

INSERT INTO `hospital`(`PID`, `DName`, `PName`, `DAddress`, `PAddress`, `Medicine_charge`, `DSalary`, `Dage`, `PAGE`) VALUES

(6,'ram','nisa','pkr','ktm',2000,50000,42,32);

update hospital set PName = "laxman" where DName = "ram";

delete from hospital where DID = 6;

commit;

rollback;

Before Rollback:

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PAGE
▶	1	1	Simanta	simanta	Lagankhel	Sitapaila	2000	1000000	30	29
	2	2	MD	Tiwari	Dhobighat	Patan	2000	1000000	45	25
	3	3	Shashi	hari	kalanki	imadol	3000	2000000	30	30
	4	4	hari	salin	sanepa	teku	4000	1500000	33	21
	5	5	ram	sita	lagankhel	jawlakhel	6000	5000000	45	19

After Rollback:

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PAGE
▶	1	1	Simanta	simanta	Lagankhel	Sitapaila	2000	1000000	30	29
	2	2	MD	Tiwari	Dhobighat	Patan	2000	1000000	45	25
	3	3	Shashi	hari	kalanki	imadol	3000	2000000	30	30
	4	4	hari	salin	sanepa	teku	4000	1500000	33	21
	5	5	ram	laxman	lagankhel	jawlakhel	6000	5000000	45	19
•	9	6	ram	laxman	pkr	ktm	2000	50000	42	32
•	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

18. Update p_age to 45 whose id=2 and make it save point A, update d_age=90 whose id=4 make it save point B and finally insert new record and roll back to B and see the result.

update hospital set PAGE = 45 where PID = 2;

savepoint a;

update hospital set PAGE = 90 where PID = 4;

savepoint b;

INSERT INTO `hospital`(`PID`, `DName`, `PName`, `DAddress`, `PAddress`, `Medicine_charge`, `DSalary`, `Dage`, `PAGE`) VALUES

(7,'pps','he','lagankhel','ktm',2000,50000,42,32);

rollback to b;

Before rollback:

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PPage
▶	1	1	Simanta	simanta	Lagankhel	Sitapaila	2000	1000000	30	29
	2	2	MD	Tiwari	Dhobighat	Patan	2000	1000000	45	45
	3	3	Shashi	hari	kalanki	imadol	3000	2000000	30	30
	4	4	hari	salin	sanepa	teku	4000	1500000	33	90
	5	5	ram	laxman	lagankhel	jawlakhel	6000	5000000	45	19
	9	6	ram	laxman	pk	ktm	2000	50000	42	32
	10	7	pps	he	lagankhel	ktm	2000	50000	42	32
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

After rollback:

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PPage
▶	1	1	Simanta	simanta	Lagankhel	Sitapaila	2000	1000000	30	29
	2	2	MD	Tiwari	Dhobighat	Patan	2000	1000000	45	45
	3	3	Shashi	hari	kalanki	imadol	3000	2000000	30	30
	4	4	hari	salin	sanepa	teku	4000	1500000	33	90
	5	5	ram	laxman	lagankhel	jawlakhel	6000	5000000	45	19
	9	6	ram	laxman	pk	ktm	2000	50000	42	32
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

19. Create 3 save points A, B, C. insert new record and use save point A. again insert new record and use save point B and lastly insert 1 new record and use save point C. now try to roll back at point you can't access C.

insert into hospital values(6,6,'sita','ramita','patan','ktm',5000,2000000,44,41);

savepoint A;

insert into hospital values(7,7,'sita','ramita','patan','ktm',5000,2000000,44,41);

savepoint B;

insert into hospital values(8,8,'sita','ramita','patan','ktm',5000,2000000,44,41);

savepoint C;

rollback to B;

Before rollback:

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PPage
▶	1	1	Simanta	simanta	Lagankhel	Sitapaila	2000	1000000	30	29
	2	2	MD	Tiwari	Dhobighat	Patan	2000	1000000	45	45
	3	3	Shashi	hari	kalanki	imadol	3000	2000000	30	30
	4	4	hari	salin	sanepa	teku	4000	1500000	33	90
	5	5	ram	laxman	lagankhel	jawlakhel	6000	5000000	45	19
	6	6	sita	ramita	patan	ktm	5000	2000000	44	41
	7	7	sita	ramita	patan	ktm	5000	2000000	44	41
	8	8	sita	ramita	patan	ktm	5000	2000000	44	41
	9	6	ram	laxman	pk	ktm	2000	50000	42	32
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

After rollback:

	DID	PID	DName	PName	DAddress	PAddress	Medicine_charge	Dsalary	Dage	PPage
▶	1	1	Simanta	simanta	Lagankhel	Sitapaila	2000	1000000	30	29
	2	2	MD	Tiwari	Dhobighat	Patan	2000	1000000	45	45
	3	3	Shashi	hari	kalanki	imadol	3000	2000000	30	30
	4	4	hari	salin	sanepa	teku	4000	1500000	33	90
	5	5	ram	laxman	lagankhel	jawlakhel	6000	5000000	45	19
	6	6	sita	ramita	patan	ktm	5000	2000000	44	41
	7	7	sita	ramita	patan	ktm	5000	2000000	44	41
	9	6	ram	laxman	pk	ktm	2000	50000	42	32
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

20. Create new table for student with id, name, gender, marks and age.

create table student(

id int primary key,

name varchar(255),

gender varchar(255),

marks int,

age int);

Table: **student**

Columns:

id int(11) PK
name varchar(255)
gender varchar(255)
marks int(11)
age int(11)

21. Insert any 5 records and commit.

start transaction;

set autocommit=0;

insert into student values

(1,'Md','Male',80,23),

(2,'Anish','Male',90,22),

(3,'Sajjat','Male',100,20),

(4,'Yubraj','Male',99,21),

(5,'Tiwari','Female',98,24);

commit;

	id	name	gender	marks	age
▶	1	Md	Male	80	23
	2	Anish	Male	90	22
	3	Sajjat	Male	100	20
	4	Yubraj	Male	99	21
	5	Tiwari	Female	98	24
★	NULL	NULL	NULL	NULL	NULL

22. Update the name of student who is male and roll back it
update student set name="Hari" where gender='Male';

rollback;

Before rollback:

	id	name	gender	marks	age
▶	1	Hari	Male	80	23
	2	Hari	Male	90	22
	3	Hari	Male	100	20
	4	Hari	Male	99	21
	5	Tiwari	Female	98	24
★	NULL	NULL	NULL	NULL	NULL

After rollback:

	id	name	gender	marks	age
	1	Md	Male	80	23
	2	Anish	Male	90	22
	3	Sajjat	Male	100	20
	4	Yubraj	Male	99	21
	5	Tiwari	Female	98	24
★	NULL	NULL	NULL	NULL	NULL

23. Delete info of student who is male and roll back it
delete from student where gender='male';

rollback;

Before rollback:

	id	name	gender	marks	age
▶	5	Tiwari	Female	98	24
★	NULL	NULL	NULL	NULL	NULL

After rollback:

	id	name	gender	marks	age
▶	1	Mid	Male	80	23
	2	Anish	Male	90	22
	3	Sajjat	Male	100	20
	4	Yubraj	Male	99	21
	5	Tiwari	Female	98	24
•	NULL	NULL	NULL	NULL	NULL

24. Delete info who is >21years old and make it save point P , update info of student who is 19 years old to 21 and make it save point Q again delete information of student who is male now rollback to P see the output. Q and R will roll back.

delete from student where age>21;

savepoint P;

update student set age=19 where age=21;

savepoint Q;

delete from student where gender='male';

rollback to P;

CONCLUSION:

Hence From this lab, We know and understand the implementation of TCL Command and DQL Commands using the MySQL workbench and Xampp Server and used the commands to do the different operations and outputs are shown above.