Summary – Day 9

DML Commands:

- DML is an abbreviation of Data Manipulation Language.
- The DML commands in Structured Query Language change the data present in the SQL database. We can easily access, store, modify, update and delete the existing records from the database using DML commands.

Types:

- INSERT
- UPDATE
- DELETE

INSERT:

- INSERT is another most important data manipulation command in Structured Query Language, which allows users to insert data in database tables.

```
INSERT INTO TABLE_NAME ( column_Name1 , column_Name2 , column_Name3 , .... column_NameN )  VALUES (value_1, value_2, value_3, .... value_N ) ;
```

UPDATE:

- UPDATE is another most important data manipulation command in Structured Query Language, which allows users to update or modify the existing data in database tables.

```
UPDATE Table_name SET [column_name1= value_1, ....., column_nameN = value_N] WHERE CONDITION;
```

- Here, 'UPDATE', 'SET', and 'WHERE' are the SQL keywords, and 'Table_name' is the name of the table whose values you want to update.
- We can do updates on multiple columns and multiple rows in a table.

DELETE:

- DELETE is a DML command which allows SQL users to remove single or multiple existing records from the database tables.
- This command of Data Manipulation Language does not delete the stored data permanently from the database. We use the WHERE clause with the DELETE command to select specific rows from the table.

```
DELETE FROM Table_Name WHERE condition;
```

TCL Commands:

- TCL stands for Transaction control language.
- A single unit of work in a database is formed after the consecutive execution of commands is known as a transaction.
- There are certain commands present in SQL known as TCL commands that help the user manage the transactions that take place in a database.
- COMMIT. ROLLBACK and SAVEPOINT are the most commonly used TCL commands in MySQL.
- BEGIN / START TRANSACTION command is used to start the transaction.

COMMIT:

- COMMIT command in SQL is used to save all the transaction-related changes permanently to the disk. Whenever DDL commands such as INSERT, UPDATE and DELETE are used, the changes made by these commands are permanent only after closing the current session.
- So before closing the session, one can easily roll back the changes made by the DDL commands. Hence, if we want the changes to be saved permanently to the disk without closing the session, we will use the commit command.

```
COMMIT;
```

ROLLBACK:

- While carrying a transaction, we must create savepoints to save different parts of the transaction. According to the user's changing requirements, he/she can roll back the transaction to different savepoints.
- Consider a scenario: We have initiated a transaction followed by the table creation and record insertion into the table. After inserting records, we have created a savepoint INS. Then we executed a delete query, but later we thought that mistakenly we had removed the useful record. Therefore in such situations, we have an option of rolling back our transaction.
- In this case, we have to roll back our transaction using the ROLLBACK command to the savepoint INS, which we have created before executing the DELETE query.

```
ROLLBACK
```

SAVEPOINT:

- We can divide the database operations into parts. For example, we can consider all the insert related queries that we will execute consecutively as one part of the transaction and the delete command as the other part of the transaction.
- Using the SAVEPOINT command in SQL, we can save these different parts of the same transaction using different names. For example, we can save all the insert related queries with the savepoint named INS. To save all the insert related queries in one savepoint, we have to execute the SAVEPOINT query followed by the savepoint name after finishing the insert command execution.

```
ROLLBACK TO savepoint_name;
```