**TCL COMMAND IN SQL**

**Overview:**

TCL stands for Transaction Control Language in SQL. Transaction Control Language (TCL)is a set of special commands that deal with the transactions within the database. Basically, they are used to manage transactions within the database. TCL commands are also used for maintaining the consistency of the database.

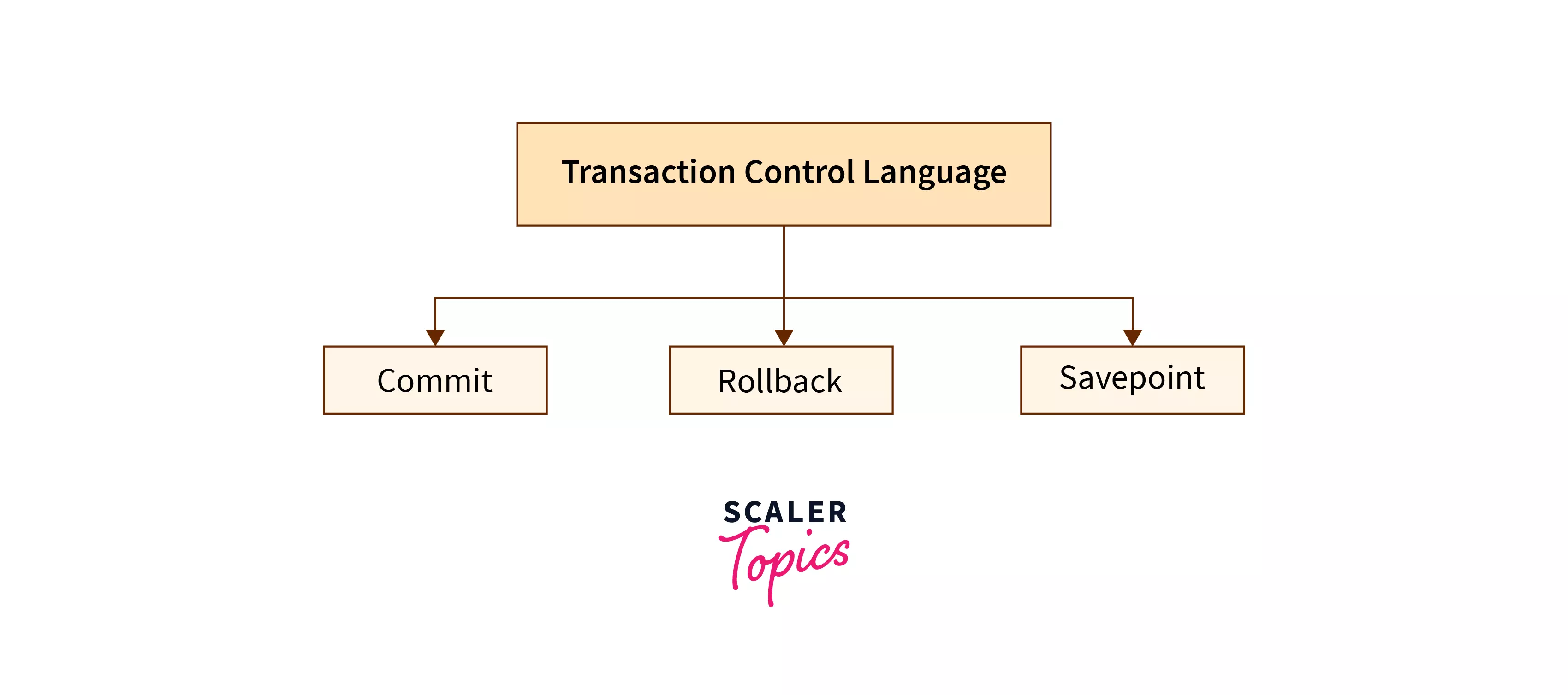
**Introduction:**

A **transaction** is a unit of work that is **performed against a database in SQL**. In other words, a transaction is a single, indivisible database action. If the transaction contains multiple statements, it is called a multi-statement transaction (MST). By default, all transactions are multi-statement transactions.

**For example**, suppose we are creating a new record or updating or deleting any record from a table (in general, performing any changes on the table). In that case, we are performing a transaction on the table.

In SQL, each transaction begins with a particular set of task and ends only when all the tasks in the set is completed successfully. However, if any (or a single) task fails, the transaction is said to fail.

**Types of TCL Commands with Examples:**



Transactional control commands (TCL commands) are used mostly in the DML Commands in SQL, such as INSERT, UPDATE, and DELETE.

In general, the **TCL commands** consist of the below commands:

**1.** Commit

**2.** RollBack

**3.** SavePoint

**COMMIT Command in TCL:**

The COMMIT command in SQL is used to **permanently save any transaction into the database**. Generally, whenever we use any DML command such as INSERT, UPDATE, or DELETE, the changes made by these commands are **, not permanent**. Hence, before closing the current session, we may roll back any changes made through these commands.

Due to the above reason, it is mandatory to use the **COMMIT command** to mark any changes made as permanent.

**Syntax:**

Below given is the syntax of the COMMIT TCL command in SQL.

COMMIT;

**Major Highlights:**

COMMIT save all the modifications done (all the transactions) by the DML commands in the database.

We must write the COMMIT command before and after every DDL command to save the change permanently in the database.

Once COMMIT is performed, it cannot be undone unless it is rolled back.

**ROLLBACK Command in TCL:**

The rollback command in TCL is used for **restoring the database to the last committed state**. In other words, the rollback command restores the database to its original state since the last command that was committed.

**For example**, suppose we have used the UPDATE command at any point to make certain changes to our database and later realize that those changes need to be reverted(or undone), in that case, we can use the ROLLBACK command. The rollback command will basically revert or roll back any changes that were not committed during our transaction using the COMMIT command.

**Syntax:**

Below given is the **syntax of the ROLLBACK TCL** command in SQL.

ROLLBACK;

After writing our query, we can write "ROLLBACK;" to roll back or undo a group of transactions since the last COMMIT.

Interestingly, the rollback command can also be used with the **SAVEPOINT** command to jump to a savepoint in any ongoing transaction. The savepoints are like checkpoints, they temporarily save a transaction up to where the transaction can be rolled back. We will learn more about the savepoints later in the article.

**SAVEPOINT:**

The SAVEPOINT command in TCL is basically used to temporarily save a transaction so that we can roll back to that point (saved point) whenever required.

**Syntax:**

Below given is the syntax of the SAVEPOINT TCL command in SQL.

SAVEPOINT savepoint\_name;

After writing our query, we can write "SAVEPOINT ;" followed by the savepoint\_name savepoint name, to create a save point and save the transaction to that point.

Also, we can release a savepoint, meaning, remove any particular savepoint. The syntax to release a savepoint is given below :

RELEASE SAVEPOINT savepoint\_name;

**Major Highlights:**

SAVEPOINT is used to create a point within the groups of transactions to save or roll back later.

SAVEPOINT is highly beneficial when we are willing to roll the transactions back to a certain point without rolling back the whole group of transactions.

**Conclusion:**

Transaction Control Language (TCL) commands are used to manage transactions in the database. These are used to manage the changes made by DML statements.

A transaction is a single unit of work performed against a database. If it is successful, the data are committed and becomes permanent. But if the transaction fails, then all the data modifications are erased.

There are basically 3 TCL commands: Commit, Rollback, and Savepoint.

The COMMIT command is used to permanently save any transaction into the database.

The ROLLBACK command basically restores the database to the last committed state. It is also used along with the savepoint command to jump to a save point in a transaction.

The SAVEPOINT command is used to temporarily save a transaction so that we can roll back to the saved point whenever necessary.