SQL
Short Notes !

DATABASE
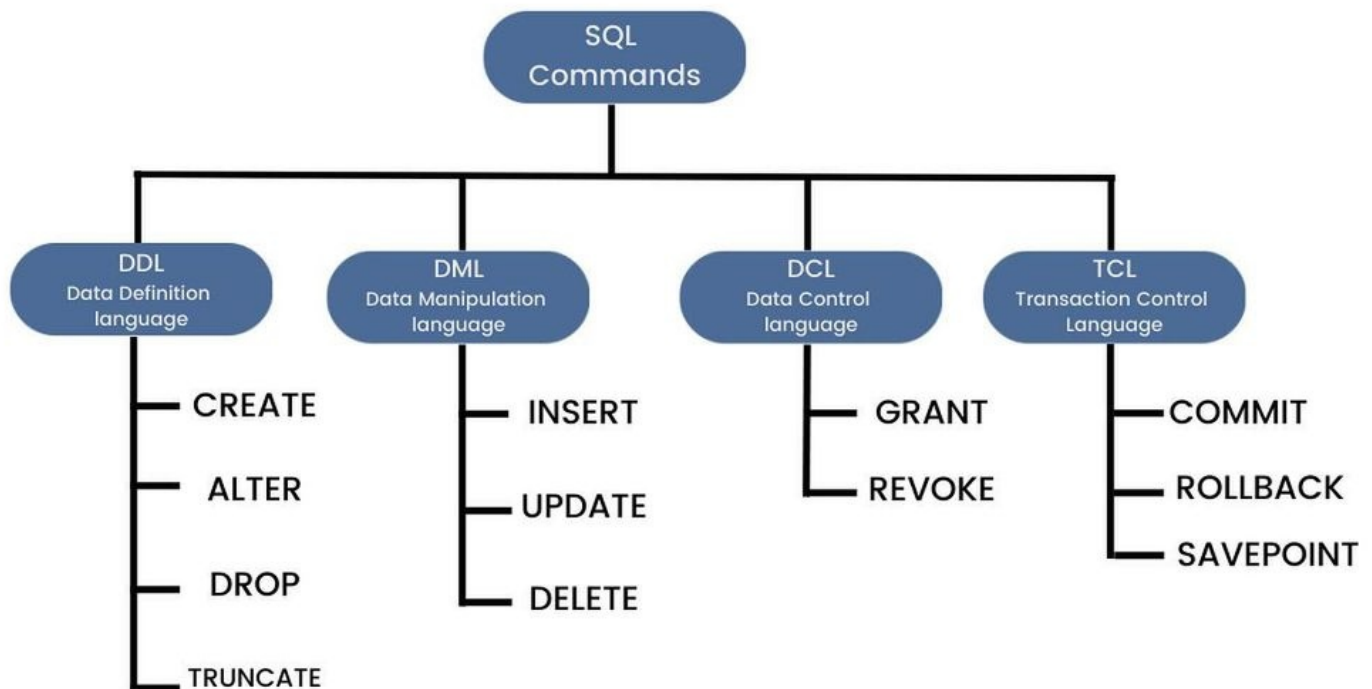
What is SQL?

- sql is stand for structured query language.

- This database language is mainly designed for maintaining the data in relational database management systems.

- sql is standard language for accessing and manipulating database.

Types of SQL Commands:

```
                          SQL
                        Commands
            ┌──────────────┼──────────────┐
    DDL              DML            DCL            TCL
Data Definition  Data Manipulation Data Control  Transaction Control
  language          language        language       Language

  ─ CREATE         ─ INSERT        ─ GRANT        ─ COMMIT

  ─ ALTER          ─ UPDATE        ─ REVOKE       ─ ROLLBACK

  ─ DROP           ─ DELETE                       ─ SAVEPOINT

  ─ TRUNCATE
```

DDL COMMANDS:

- DDL (Data Definition Language) used to change the structure of the table Like creating the table, altering the table & Deleting the table.

- All the commands in the DDL are auto Committed that means it permanently saves all the changes in the database.

1. CREATE:

this command is used to create a new database or table.

Syntax:
```
CREATE TABLE table_name (
   column1 datatype,
   column2 datatype,
   column3 datatype,

   ....
);
```

Example:
```
CREATE TABLE Employee
(
    EmployeeID int,
    FirstName varchar(255),
    LastName varchar(255),
    AddressLine varchar(255),
    City varchar(255)
);
```

2. Alter

The ALTER TABLE statement in Structured Query Language allows you to add, modify, and delete columns of an existing table.

Syntax:
ALTER TABLE table_name
ADD column_name datatype;

Example:
ALTER TABLE Employee
ADD Email varchar(255);

3. Drop

The DROP TABLE statement is used to drop an existing table in a database. this command deletes both the structure & Records Stored in table.

Syntax:
DROP TABLE table_name;

Example:
Drop TABLE Employee

4. TRUNCATE

A truncate SQL statement is used to remove all rows (complete data) from a table. It is similar to the DELETE statement with no WHERE clause.

Syntax:
TRUNCATE TABLE table_name;

Example:
TRUNCATE TABLE Employee;

DML COMMANDS:

1. INSERT

SQL INSERT statement is a SQL query. It is used to insert a single or a multiple records in a table.

Syntax:
INSERT INTO table_name
VALUES (value1, value2, value3....);

Example:
INSERT INTO STUDENTS (ROLL_NO, NAME, AGE, CITY)
VALUES (1, Yadnyesh , 19, PUNE);

2. UPDATE

The UPDATE statement is used to modify the existing records in a table.

Syntax:
UPDATE table_name
SET column1 = value1, column2 = value2, ...
WHERE condition;

Example:
UPDATE Customers
SET ContactName = 'Yadu', City= 'pune'
WHERE CustomerID = 101;

3. DELETE

The DELETE statement is used to delete existing records in a table.

Syntax:
DELETE FROM table_name [WHERE condition];

Example:
DELETE FROM Customers WHERE CustomerName='Yadu";

DCL COMMANDS:

1. GRANT

It is used to give user access privileges to a database.

Syntax:
GRANT SELECT, UPDATE ON MY_TABLE TO SOME_USER, ANOTHER_USER;

2. REVOKE

GRANT SELECT, UPDATE ON MY_TABLE TO SOME_USER, ANOTHER_USER;

Syntax:
REVOKE SELECT, UPDATE ON MY_TABLE FROM USER1, USER2;

TCL COMMANDS:

1. COMMIT

Commits a Transaction. The COMMIT command saves all the transactions to the database since the last COMMIT or ROLLBACK command.

Syntax:
COMMIT;

Example:
DELETE FROM Student WHERE AGE = 20;
COMMIT;

2. ROLLBACK

If any error occurs with any of the SQL grouped statements, all changes need to be aborted. The process of reversing changes is called rollback

Syntax:
ROLLBACK;

Example:
DELETE FROM Student WHERE AGE = 20;
ROLLBACK;