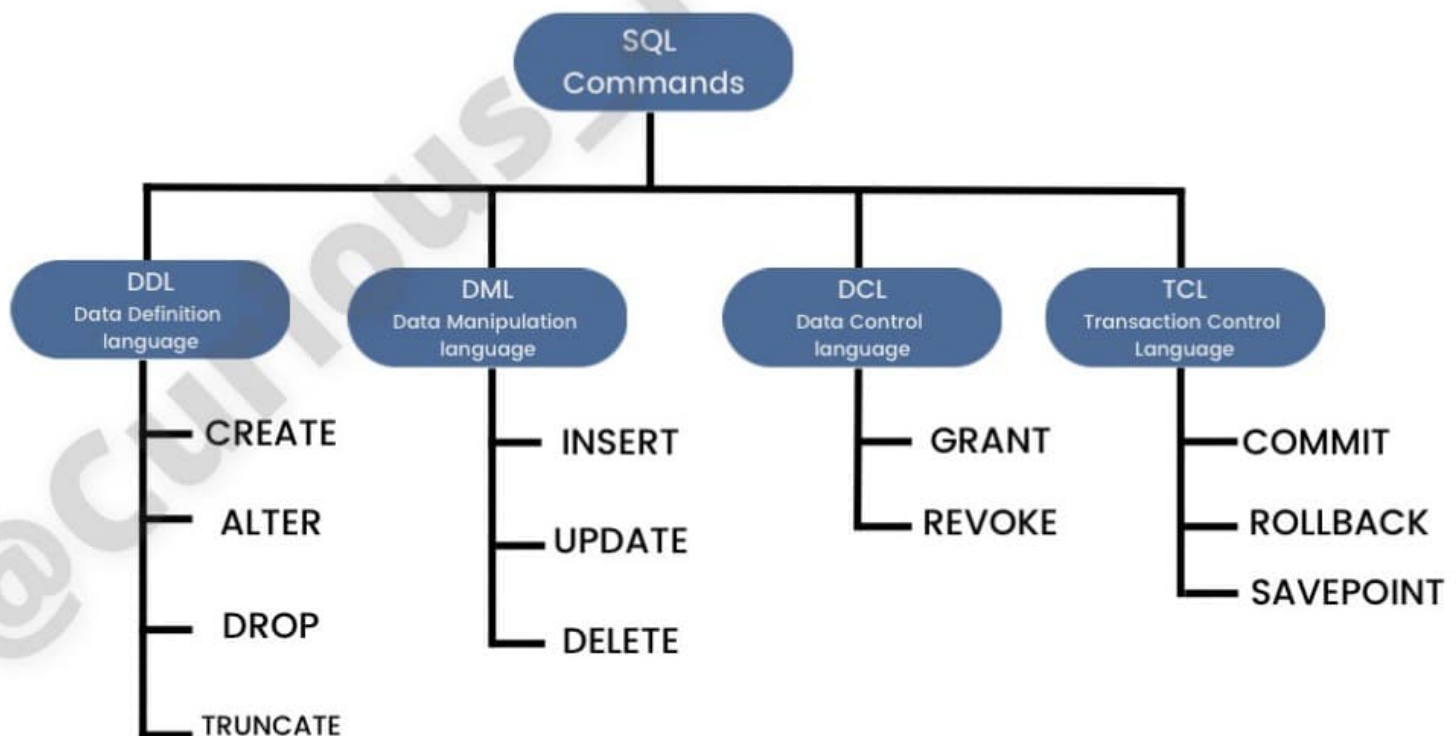# SQL
# Short Notes !



DATABASE

## By @Curious_.programmer

# 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;

# SQL
# Short Notes !
## Part 2



**DATABASE**

*By @Curious_.programmer*

# SQL OPERATOR

The SQL reserved words and characters are called operators, which are used with a WHERE clause in a SQL query.

## DEMO TABLE

| Roll No | Name | Class | DIVISION | City |
|---------|----------|-------|----------|--------|
| 101 | Yadnyesh | 10th | A | Pune |
| 102 | Om | 10th | C | Mumbai |
| 103 | Sahil | 10th | D | Pune |
| 104 | Rohan | 10th | B | Pune |
| 105 | Sahil | 10th | A | Delhi |
| 106 | Yadnyesh | 10th | C | Mumbai |

STUDENT INFORMATION TABLE

@curious_.programmer

# LOGICAL OPERATOR

## 1. AND OPERATOR

The SQL AND operator is used with the where clause in the SQL Query. AND operator in SQL returns only those records which satisfy both the conditions in the SQL query.

**QUERY>**

SELECT *FROM Student WHERE NAME="Yadnyesh" **AND** City="Mumbai";

**Output>**

| Roll_No | Name | Class | DIVISION | City |
|---------|------|-------|----------|------|
| 106 | Yadnyesh | 10th | C | Mumbai |

In above example the sql statement returns only one value cause in Given table and their is only one student who has name "yadnyesh" & he belongs to Mumbai.

Note : TRUE if all the conditions separated by AND is TRUE

# 2. OR OPERATOR

- The BETWEEN operator in SQL shows the record within the range mentioned in the SQL query. This operator operates on the numbers, characters, and date/time operands.
- If there is no value in the given range, then this operator shows NULL value.

**QUARY>**
SELECT *FROM Student WHERE DIVISION="C" OR City="Delhi";

**Output>**

| Roll_No | Name | Class | DIVISION | City |
|---------|------|-------|----------|------|
| 102 | Om | 10th | C | Mumbai |
| 105 | Sahil | 10th | A | Delhi |
| 106 | Yadnyesh | 10th | C | Mumbai |

In the above example the sql statement returns three values. cause Given table have two Students who belongs to C Division & one is from delhi.

Note: TRUE if any of the conditions separated by OR is TRUE

# 3. BETWEEN OPERATOR

The BETWEEN operator in SQL shows the record within the range mentioned in the SQL query. This operator operates on the numbers, characters, and date/time operands.

**QUERY>**

SELECT * FROM Student WHERE Roll_No BETWEEN 102 AND 104;

**Output>**

| Roll_No | Name | Class | DIVISION | City |
|---------|-------|-------|----------|--------|
| 102 | Om | 10th | C | Mumbai |
| 103 | Sahil | 10th | D | Pune |
| 104 | Rohan | 10th | B | Pune |

In the above example the sql statement returns three values. cause in Roll_NO column there is only 3 Values Lies From 102 to 104.

Note: BETWEEN returns all the values from given start record to end records

# 4. LIKE OPERATOR

It filters the records from the columns based on the pattern specified in the SQL query. LIKE is used in the WHERE clause with the following three statements:

1. SELECT Statement
2. UPDATE Statement
3. DELETE Statement

There are two wildcards often used in conjunction with the LIKE operator:

- The percent sign (%) represents zero, one, or multiple characters
- The underscore sign (_) represents one, single character

QUERY:

SELECT * FROM Student WHERE NAME LIKE 'Y%';

output:

| Roll_No | Name | Class | DIVISION | City |
|---------|----------|-------|----------|------|
| 101 | Yadnyesh | 10th | A | Pune |
| 101 | Yadnyesh | 10th | A | Pune |

**QUERY:**

SELECT * FROM Student WHERE CITY LIKE '_u%';

output:

| Roll_No | Name | Class | DIVISION | City |
|---------|------|-------|----------|------|
| 101 | Yadnyesh | 10th | A | Pune |
| 102 | Om | 10th | C | Mumbai |
| 103 | Sahil | 10th | D | Pune |
| 104 | Rohan | 10th | B | Pune |
| 106 | Yadnyesh | 10th | C | Mumbai |

In first Query returns all Name of students starting from Y. In second Example returns all the records who have second Latter is U then any combination of latter.

# 5. NOT OPERATOR

NOT operator in SQL shows those records from the table where the criteria is not met. NOT operator is used with where clause in a SELECT query.

**Query:**

SELECT * FROM Students WHERE NOT City = "Mumbai";

**Output:**

| Roll_No | Name | Class | DIVISION | City |
|---------|----------|-------|----------|-------|
| 101 | Yadnyesh | 10th | A | Pune |
| 103 | Sahil | 10th | D | Pune |
| 104 | Rohan | 10th | B | Pune |
| 105 | Sahil | 10th | A | Delhi |

in the above example returns those student records those who are not from mumbai. this query shows records of students having City other than mumbai.

## 5. IN OPERATOR

When we want to check for one or more than one value in a single SQL query, we use IN operator with the WHERE clause in a SELECT query.

**Query:**
SELECT * FROM Students WHERE City IN("Delhi","Pune");

**Output:**

| Roll_No | Name | Class | DIVISION | City |
|---------|----------|-------|----------|-------|
| 101 | Yadnyesh | 10th | A | Pune |
| 103 | Sahil | 10th | D | Pune |
| 104 | Rohan | 10th | B | Pune |
| 105 | Sahil | 10th | A | Delhi |

in the above example returns those student records those who are from Delhi and Pune. other student will not displayed.

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