DAY-24

# MYSQL

## SQL

* It is a programming language, and we can store and process information in a relational database.
* It is used for handling structured data.

## MYSQL:

* It is a relational database system based on SQL.
* SQL => Structured Programming Language.
* It is supported by oracle company.

## API:

Across an application and the webserver, API acts as an intermediate layer to manage data transits between systems.

## DATABASE:

It is an application that stores an organized collection of records.

## MYSQL

MySQL follows client-server architecture.

Features:

* Easy to use
* Secure
* Client-server architecture
* Free to download
* Scalable
* Speed
* Always roll back
* High performance

## DATA TYPES:

1. Numeric
2. Date and Time
3. String
4. Binary Large Object Data Types (BLAB)
5. Special Data Types
6. JSON Data Types

## VARIABLES:

* User-defined variable
* Local variable
* System variable
* mysql –u root –p => to connect to the mysql server.
* Show databases; => to show the databases in the current server

## MYSQL COMMANDS:

1. DDL
2. DQL
3. DML
4. DCL
5. TCL

### 1.DDL (DATA DEFINITION LANGUAGE):

* CREATE
* ALTER
* DROP
* TRUNCATE

### 2.DML (DATA MANIPULATION LANGUAGE):

* INSERT
* UPDATE
* DELETE
* CALL
* EXPLAINCALL
* LOCK

### 3.TCL (TRANSACTION CONTROL LANGUAGE):

* COMMIT
* SAVEPOINT
* ROLLBACK
* SET TRANSACTIONS
* SET CONSTRAINT

### 4.DQL (DATA QUERY LANGUAGE):

* SELECT

### 5.DCL (DATA CONTROL LANGUAGE):

* GRANT
* REVOKE

### AGGREGATE FUNCTIONS:

1. COUNT ()
2. SUMN ()
3. AVG ()
4. MIN () AND MAX ()

### DATA CONSTRAINTS:

1. NOTNULL
2. UNIQUE
3. PRIMARYKEY
4. FOREIGNKEY
5. COMPOSITEKEY
6. UNIQUE
7. ALTERNATIVEKEY
8. CANDIDATEKEY
9. CHECK
10. DEFAULT

### JOINS:

Joins are fundamental tools for combining data from multiple tables in relational databases. It allows for efficient data retrieval.

1. INNER JOIN
2. LEFT JOIN
3. RIGHT JOIN
4. FULL JOIN
5. NATURAL JOIN

### VIEW:

A view is a virtual table based on the result of a SQL query. It doesn’t store data itself but provides a way to simplify complex queries, enhance security, and improve code readability.

CREATE VIEW employee AS SELECT name, id from employees WHERE status=’active’;

### TRIGGERS:

A trigger is a set of SQL statements that run automatically when a specified event occurs on the table.

It has 6 types:

1. INSERT BEFORE
2. INSERT AFTER
3. UPDATE BEFORE
4. UPDATE AFTER
5. DELETE BEFORE
6. DELETE AFTER

### CONTROL FLOW FUNCTIONS:

These are used to implement conditional logics directly with SQL statements. These functions are used to make decisions based on values.

The control flow functions are:

1. IF ()
2. IFNULL ()
3. NULLIF ()
4. CASE ()

### STRING FUNCTIONS:

These functions are used to manipulate and analyze text data. And these are used for formatting, searching, and transforming strings in queries.

Some of the string functions are:

* CONCAT ()
* LENGTH ()
* TRIM ()
* REPLACE ()
* UPPER ()
* LOWER ()
* SUBSTR ()
* INSERT ()
* FORMAT ()

## RELATIONAL DATABASE:

* It is a type of database that stores and provides access to data points that are related to one another. And it organizes data into tables.
* It has Structured and organized data.
* ACID compliance (Atomicity, consistency, Isolation, Durability).