- day one

Database

An organized collection of structured information or data stored electronically in a computer system.

DBMS (Database Management System)

Collection of programs enabling users to create and maintain databases. It serves as an interface between the database and users, allowing data retrieval, update, and management.

Popular DBMS Examples

Oracle Database, MySQL, Microsoft SQL Server, Postgre SQL, MongoDB, IBM, DB2.

Advantages of DBMS

Redundancy control

Restricted unauthorized access

Multiple user interfaces (CLI, GUI, web, Mobile)

Backup and recovery

Disadvantages of file processing system

Data redundancy and inconsistency

Difficult in accessing data

Data Isolation

Data integrity challenges

Lack of concurrent access

Security problems

Two Types of DBMS.

R - DBMS (Relational Database)

NR - DBMS (Non-Relational Database)

Structured query Language (SQL)

A Programming language used for querying, manipulating, and defining data in relational databases.

Client Server Architecture in DBMS

Involves a client (user interface) and a server (data storage and processing) communicating over a network

CRUD Operations in DBMS

Create, Read, Update and Delete - fundamental operations for manipulating data in a database.

MySQL Data Types.

* Numeric Data Types

INT : Used to store whole numbers within a specified range.

FLOAT : Used to store single-precision Floating Point whnumbers.

DOUBLE : Used to store double precision Floating Point numbers.

DECIMAL : Used to store exact numeric values with a specified Precision and scale

* String Data Types

VARCHAR : Used to store variable-length strings with a maximum length

CHAR : Used to store fixed length strings with a specified length

TEXT : Used to store large strings of text.

* Date and Time Data Types

DATE : used to store a date (year, month, and day)

TIME : used to store a time (hour, minute, and second)

DATETIME : used to store a date and time combination

TIMESTAMP: used to store a timestamp representing a specific
point in time

* Boolean Data Type

BOOLEAN or BOOL: used to store boolean values (true or false)

* Binary Data Types

BINARY : used to store fixed-length binary data

VARBINARY : used to store variable-length binary data

BLOB : used to store large binary objects.

* Enumerated Data Type

ENUM : used to store one value from a predefined set of values.

* JSON Data Type

JSON : used to store and manipulate JSON (Javascript object
Notation) data.

* Basic MySQL Commands

* SHOW DATABASES

* CREATE DATABASES < database name>; or CREATE DATABASE IF EXISTS <
database names;

* USE < database name>;

* DROP DATABASE < database name >; or DROP DATABASE IF EXISTS <database
name >;

* CREATE TABLE < table name> (
< Field name1 > < DATA TYPE >,
< field name2 > < DATA TYPE >,
< Field name3 > < DATA TYPE >,
< Field name4 > < DATA TYPE >,

):

DESCRIBE < table name >; or DESC < table name >:

INSERT INTO < table name > VALUES (<data 1>, <data2>, <data3>, <data4>);

or

INSERT INTO <table name > (<field name1>, < field name2>, < field name3>)

VALUES (< data1 >, < data 2 >, < data 3 >);

SELECT * FROM < table name >;

SHOW TABLES;

DROP TABLE < table name >;