**Day-04**

**14-03-2025**

**===================**

**Types of Database softwares:**

**===================**

-> classified into 2-types:

1) RDBMS (Relational Database Management System) Database softwares

2) NRDBMS (Non-RDBMS) Database softwares

1) RDBMS Database software:

----------------------------------

-> When the data can be organized in the database with structured format that database software are called as "RDBMS database software"

-> Structure is nothing a table

-> table is the combination of rows and columns.

-> row of a table is called as "tuple" or "record"

-> column of a table is called as "field".

-> table is representing the relation.

Ex: Employee Table

EId Ename Age Designation Salary HomeLocation

========================================

101 Ravi 31 Programmer 150000 Vizag

102 Ashok 33 Devops Engineer 200000 Guntur

-> The RDBMS database software are SQL dependent

When the user wants to interact with RDBMS database software, the user must use "SQL (Structured Query Language)".

-> SQL based database software.

-> The different types of SQL based database software are:

1) Oracle database software ==> Oracle corporation

2) Debian database software ==> Sun micro-System

3) SQL Server ==> Microsoft

4) MySQL ==> Oracle Corporation

5) DB2 ==> IBM etc.

2) NRDBMS database software:

-----------------------------------

-> these are no SQL dependent software

because these are also called as "No-SQL database software".

-> these types of database software can maintain the data in:

semi-structured format

no-structure format

-> these are classified into different types:

1) document based database software

-------------------------------------------

-> these database software can maintain the data in the "JSON format/tree structure format".

.JSON format ==> tree based

Ex: Mongo DB

2) Key-value based database software

--------------------------------------------

-> In this case, the data can maintain in key-value pair format.

Ex:

{

id = 101,

name = "ravi",

age = 31,

designation = "programmer",

permanentAddress = "Vizag",

offilceLocation = "Hyderabad"

}

Ex: Cassandra, Amazon Dynamo Database software etc.

3) column based database software

-----------------------------------------

Ex: HBase database software

4) Graph based database software

----------------------------------------

-> When the data has to maintain in the graph format, we can use "Graph based database software".

Ex: Electric vehicle sale can represent in graphs

these kind of the data can store by "graph based database software".

Ex: GraphQL, Neo4j etc.

**SQL Introduction**

**===========**

-> SQL is abbreviated as "Structured Query Language".

-> Query: is a statement

When the user want to interact with Database the user can develop "statements" using SQL those statements only called as" Queries".

-> statement is a line of program.

-> SQL can allow to send only one query at a time.

-> to develop SQL Statements/queries, we need:

keywords

identifiers

variables

datatypes

operators

commands etc.

-> SQL is case-insensitive programming language for keywords.

Ex: where , WHERE, Where ==> same

where as the names (variables) can be case sensitive.

-> PlSQL ==> Procedural Language with SQL

can be used to send more than one query to the database software.

-> ASCII and ANSCI standard

A to Z ==> 65 to 90

a to z ==> 97 to 122

0 to 9 ==> 48 to 56 etc.

ASCII ==> American Standard Code Information Interchange

ANSCII ==> American National Standard Code Information Interchange