Lecture-1

Database: Collection of Interrelated data.

DBMS(DataBase Management System): It's a software which is used for updating, creating and querying the database. SImply Managing the database.

Why DBMS?
DBMS ensures the

1. Security
2. Integrity
3. Concurrent access control
4. Data independence
5. Role based access

Types of DBMS:

1. **Hierarchical DBMS:** There will be a parent child relationship.(Simply organised like tree structure)
   Eg: IBM Information Management System (IMS).
   - Difficult to modify because of it's rigid structure.
2. **Network DBMS:** It's structure like web connected pages(One page is interconnected with other). Many to Many relationship.
   Eg: Integrated Data Store (IDS).
3. **Relational DBMS(RDBMS):** Organised in form of tables consists of rows and columns.
   Eg: MySQL,Postgresql etc.
4. **Object oriented DBMS:** Data stored as objects, blending DBMS with object-oriented programming.
   Eg: ObjectDB.
5. **No SQL:** Used to store and organise semi structured and Unstructured Data.
   a. Document Based DB: Mongo DB
   b. Key value: Redis DB
   c. Graph based: Nebula Graph
   d. Column oriented: Cassandra

RDBMS(Relational Database Management System)

- Stores data in tables(Rows and columns)
- Rows are called tuples or instances.
- Columns are known as Attributes.
- Integrity Constraints will be there. For example, For a particular attribute age Check age>18 eligible to vote or not.
- Querying in sql

Examples:

a. MySQL
b. PostgreSQL
c. Oracle
d. Microsoft SQL Server
e. SQLite

SQL

- It’s a powerful querying Language in RDBMS.
- It allows users to Create Insert Manipulate modify the date.
- Simply It supports DDL,DML,DCL,TCL