SUMMARY

# DATABASE MANAGENENT SYSTEM

* **DATA** –Facts or information in the form of, text, video, images, etc.
* **DATABASE –** Collection of inter-related data which helps in efficient retrieval, insertion and deletion of data.
* **DATABASE MANAGEMENT SYSTEM** – Technology for creating and managing database. Software tool to organized (create, retrieve, update and manage) data in a database.

# WHY WE NEED DATABASE?

Because,

* It contains information about a particular enterprise
* Collection of interrelated data
* A set of programs which access and manipulate that data
* An environment for convenient as well as efficient use of data

# DATABASE MANAGEMENT TERMINOLOGIES

1. REDUNDANCY OF DATA – Is to redundant if same data is copied at many places.
2. UNCONSISTENCY OF DATA – It’s consistent if multiple copies of same data dose not match with each other.
3. UNATHORIZED ACCESS – File system may lead to unauthorized access to data.
4. CONCURRENT ACCESS – aces of same data by multiple users at the same time.
5. BACKUP AND RECOVERY – is when a data is lost or corrupt.

# DRAWBACKS: FILE SYSTEM TO STORE AND MANAGE DATA

* Redundancy
* Difficulty in accessing the data
* Integrity
* Atomicity
* Concurrency of access
* Security

# AREAS WHERE DATEBASE ARE UDED

* Airlines
* Telecom
* University
* Sales
* Banking

# DBMS ARCHJITECTURE

**1-TIER ARCHITECTURE** – Only entity where the user directly sits on the DBMS and use it

**2-TIER ARCHITECTURE** –presentation layer runs on a client (PC, MOBILES, and TABLETS ETC). Also provides added security to the DBMS as it is not exposed to the end user directly.

**3-TIER ARCHITECHURE** –

* **DATABASE (Data) Tier**- reside along with its query processing languages data is stored on a server
* **Application (Middle) Tier** – application is served and the program that access the database and business logic.
* **USER (Presentation) Tier**- multiple views of the database can be provided by the application.

**CLIENT🡺 SERVER🡺 DATABASE**

# RELATONAL MODEL

Organize data into tables, also known as relations, each of which consists of columns and rows. Each columns listed attributes of the entity such as price, zip code, or date of birth. DATA is stored in the table called RELATIONS

# THREE DIFFERENT DATA STRUCTURE

1. **STRUCTURED DATA** – pre- defined and is therefore straight forward to analyze.
2. **UNSTRUCTURED DATA** – is not organized in a pre-defined manner
3. **SEMI- STRUCTURE DATA**- a structure data that is unorganized.

# SCHEMA AND INSTANCE

* **LODICAL SCHEMA** – it is a way a certain data needs to be organized, it is a plan for organizing data.
* **PHYSICAL SCHEMA** –Which tells actually how the data is physically organized in a database.

# DATABASE MODELS

* Database models defines the logical design and structure of a database
* Collection of tools that describe the data, data constrains, data relationship, data semantics

**ENTITY – RELATIONSHIP AND RELATIONAL MODEL** – is the most widely used database model, there are other models too,

1. Hierarchical models
2. Network models
3. Semi- structured model
4. ER Models is based on –

* Entities and their attributes
* Relationship among entities
* **ENTITIES** – An entity in an ER model is a real – world entity having properties called attributes. Every attributes is defined by it set of values called domain.
* **RELATIONSHIP** – the logical association among entities relationship is mapped with entities in various ways. Mapping cardinalities defined the number of association between two entities.

1. **HIERARCHICAL MODEL** – organized data into tree – like structure.
2. **NETWORK MODEL** – organizes data more likely a graph, and are allowed to have more than one parent node. Many too many relationships between linked records.