DATABASE MANAGEMENT SYSTEM

PRESENTED

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B.TECH (INFORMATION TECHNOLOGY)

Introduction

- DBMS is stands for **Database management system**
- DBMS is a software System for creating, organizing and managing the database
- It’s provide the environment for the user to Perform operations on the database for creating, updating, insertion, deletion and retrieval of data

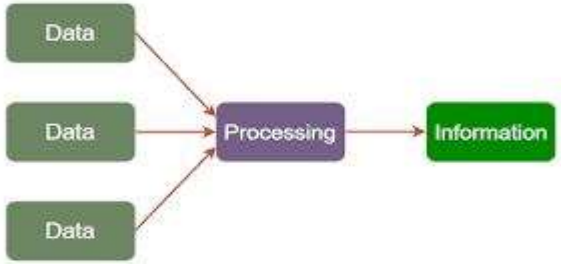
What is data?

- The collection of raw facts and figures
- Raw material that can be processed by any computing machine.
- The collection of facts from which conclusion may be drawn.
- The data can be respected in the form of numbers and word which can be stored in the computer Language

. I.e : ancient B.C 567

What is information?

- Systematic and meaningful form of data.
- Knowledge acquired through study or experience.
- Information helps human being in their decision making.



- Data contains raw figures and facts. Information unlike data provides insights analyzed through the data collected.

Database

- The repository of logically related and similar data.

- An organized collection of related information so that can be easily accessed and updated and managed.
- E.x: Dictionary

  Airline database

  Library

  YouTube (All songs of A.R Rahman)

Data Models, Schema and Instances

- **Data Models:**

  Describes structure of the database.

  Aim is to support the development of information systems by providing the definition and format of data

  If the same data structure are used to store and access data then different application can share data.

Classification:

1. High-level Model
2. Representation Models
3. Low-level Model

What is DBMS?

- DBMS is a set of program that access the inter related data.
- DBMS contains information about a particular enterprise.
- Computerized record keeping system.
- Provides convenient environment to user to perform operation:

. Creation, Insertion, Deletion, Updating & Retrieval of information.

Database Administrator (DBA)

- Individual or a group, having centralized control of the Database.
- Has a good understanding of database and coordinates all activities of the database.
- Functions:

. Defines Scheama.

Defines storage structure and access methods .

Modification of both.

Granting user authority to access the database.

Monitoring performance and responding to changes

Database Languages

- Once data is filled, manipulation is required (insertion, deletion, modification of data)
- For these, a set of languages is provided by DBMS:

1.Data Definition language.

2.Data Manipulation Language.

3.Data control Language.

Content

1.Data Definition Language (DDL):

- Used by DB designers to define schema.

  DDL complier converts DDL statements and generate a set of tables which are stored in.

  E.g: SQL

2.Data Manipulation Language (DML):

For accessing and manipulating the data.

E.g: SQL

3.Data Control Language (DCL):

Similar to a computer programming language used to control access to data stored in a database .

Operation like:

CONNECT, SELECT,INSERT,UPDATE, DELETE,EXECUTE and USAGE.

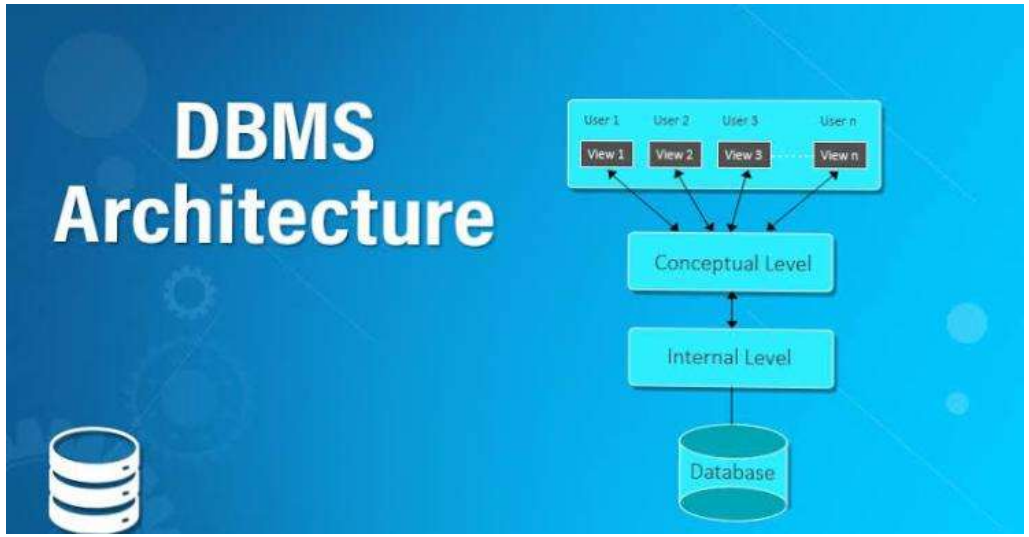
- E.g:SQL

Database System Architectures

- The journey from big mainframe to pc has also evolved the database and it's architecture.

- Classification:

1. Centralized DBMS Architecture
2. Client-Sever Architecture
3. Distributed Databases



Advantage of DBMS

- **Controlling Data Redundancy:**

. Data is recorded in only one place in the database in the database and it's not duplicated.

- **Data Consistency:**

  Data item appears only once, and the update value is immediately available to all users.

- **Control Over Concurrency:**

  In a computer file-based system in updating,one may overwrite the values recorded by the

  other.

- **Backup and Recovery Producers:**

  Automatically create the backup of data and restore data if required.

- **Data independence:**

Separation of data structure of database from application program that uses the data is called data independence.

Disadvantages of DBMS

- **Cost of Hardware and Software:**

  Processor with high speed of data processing and memory of large size is required.

- **Cost of Data Conversion:**

. Very difficult and costly method to convert data of data file into database.

- **Cost of staff Training:**

  A lot of amount for the training of staff to run the DBMS.

- **Appointing Technical staff :**

  Trained technical person such as database administrator, application programmers,data entry

. Operators etc. Are required to handle the DBMS

- **Database Damage:**

  all data is integrated into a single database, if database is damaged due to electric failure or database is corrupted.

. On the storage media, then your valuable data may be lost forever.

Examples of DBMS

- Some of the common used DBMSs are :

  Oracle, IBM'sDB2, Microsoft’s SQL Server, Ms-Access and Informix.

- Some of the desktop based DBMSs are:

  Microsoft Foxpro, Borland dBase and **Microsoft Access.**