Database Management System

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Unit I

- Data
- Information
- Knowledge
- increasing use of data as a corporate resource
- DBMS
- data processing vs data managment
- file oriented approach vs databse oriented approach
- data independence
- DBMS Structure
- Database Administrator
- Data Model

Data & Information

5+2=7

Knowledge

The information which contains wisdom is known as knowledge.

Knowledge can be classified as

- Fact-based
- Heuristic knowledge

Increasing use of data as a corporate resource

DBMS

- A database managment system is a collection of interrelated data and a set of program to access those data.
- The primary goal of a DBMS is to provide a way to store and retrive database information that is both convenient and efficient.

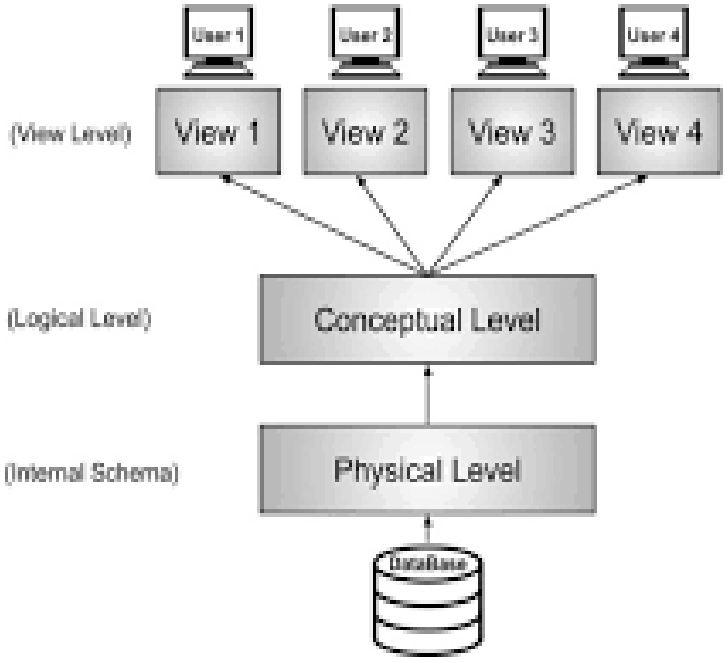
Data processing vs Data managment

- Data processing occurs when data is collected and translated into usable information.
- A database managment system is a collection of interrelated data and a set of program to access those data.
- The collection of data is reffered as database.

File oriented approach vs databse oriented approach

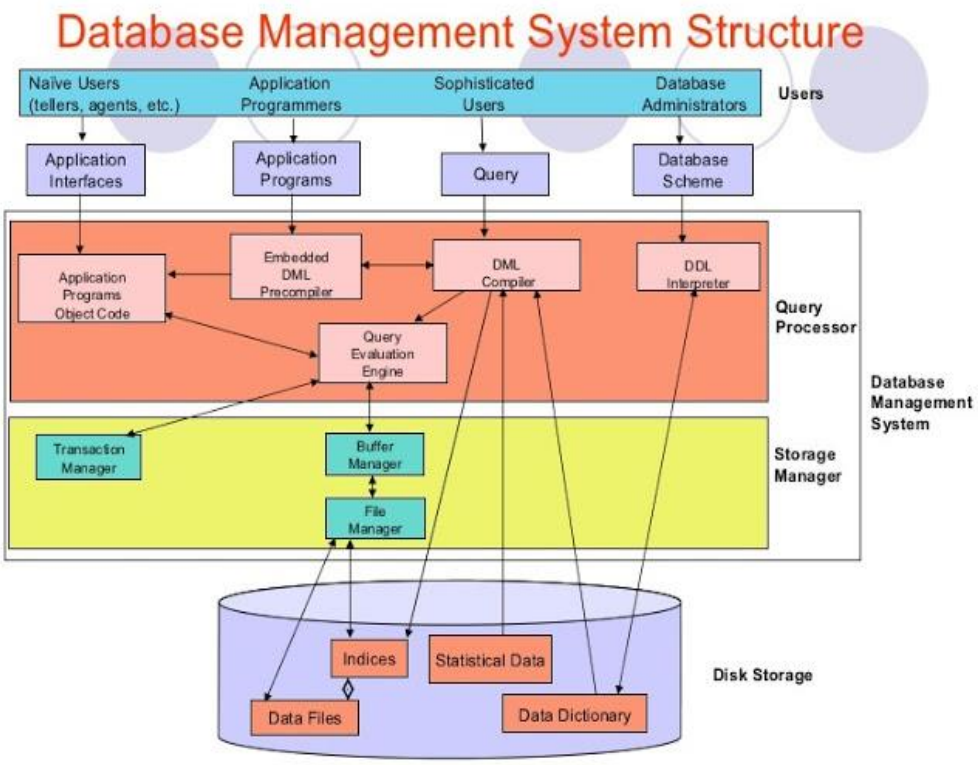
- Data redundancy and inconsistency
- Difficult in accessing data
- Data isolation
- Integrity problem
- Atomicity problem
- Concurrent-access anomilies

Data independence



Levels of Data Abstraction

DBMS Structure



Different kinds of DBMS user

- Database administrator
- Sofisticated user (system analyst)
- Application programmer
- Naive user

Database Administrator

Role of DBA is -

- Schema definition
- Storage structure and access-method definition
- Schema and physical-organization modification
- Granting of authorization for data access
- Routine maintenance

✓Importance of data dictionary

- A data dictionary contains metadata i.e data about the database.
- The data dictionary is very important as it contains information such as what is in the database, who is allowed to access it, where is the database physically stored etc.

✓Contents of Data dictionary

- Names of all the database tables and their schemas.
- Details about all the tables in the database, such as their owners, their security constraints, when they were created etc.
- Physical information about the tables such as where they are stored and how.
- Table constraints such as primary key attributes, foreign key information etc.
- Information about the database views that are visible.

Types of database languages

- **DDL (Data Definition Language)**
- **DML(Dala Manipulation Language)**
- **DCL (Data Control Language)**

Data Model

Data model (DM) is a collection of conceptual tools for describing data, data relationship, data semantics and consistancy constraints.

There are three types of data model-

1. Object-based DM
2. Record-based DM
3. Physical DM

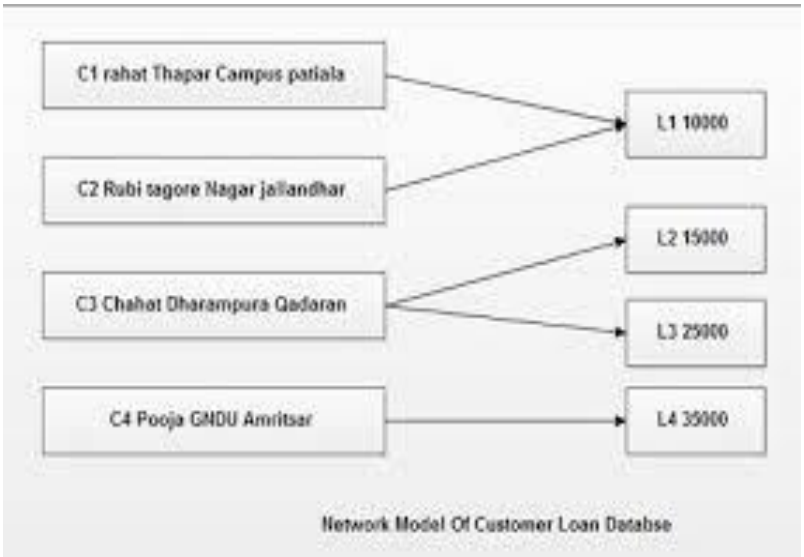
1. Object-based Data Model

- ER-Model DM
- Object-oriented DM
- Semantic DM
- Functional DM

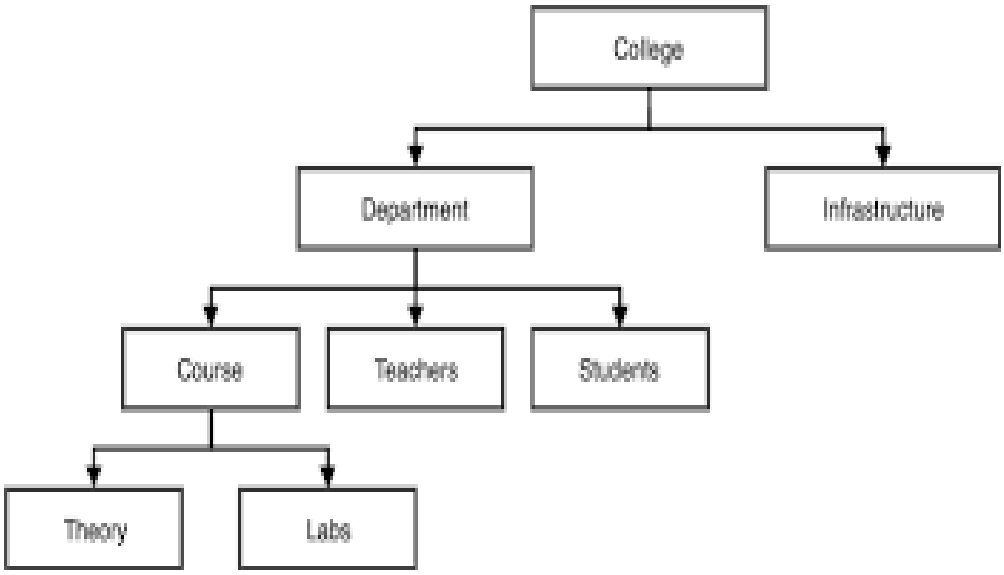
2. Record-based Data Model

- Network Model
- Hierarchical Model
- Relatonal Model

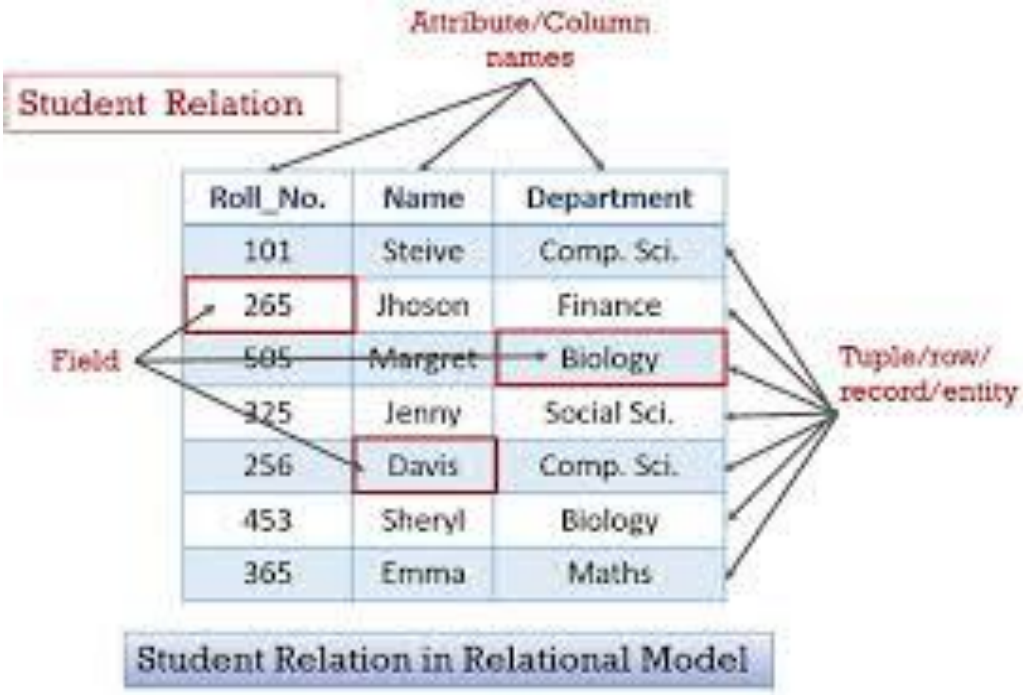
Network Model



Hierarchical Model



Relatonal Model



3. Physical Data Model

- Unifying Data Model
- Frame Data Model