

DBMS - UNIT I

SURE QUESTION

→ DB Models

→ FDS VS DBMS

- * DBMS are software systems that are used to store, retrieve and run queries on data stored



allows

Data Manipulation



helps provide Data security, Data Integrity, Concurrency and uniform administration procedures

File Management System

- * Also a DBMS but allows access only to One file (or) table at a time
- * Data is Directly stored in Set of files
- * Contains FLAT-FILES → files that have no relation to other files
 - Only one table stored in a single file.

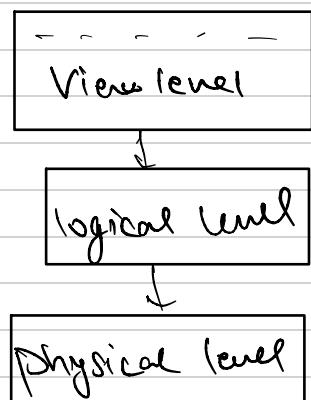
LIMITATIONS -FPS (RIODAS)

- Data Redundancy
- " Inconsistency
- " Isolation
- " Dependency
- Atomicity
- " Security

DATA ABSTRACTION

- * Process of hiding unwanted / irrelevant details from end-user
- * DA has different views and focus to achieve data independence for more security

LEVELS OF ABSTRACTION



- Physical
→ How Data/Record is stored?
- Logical
→ What type of Data is stored?
- View
→ Data viewed by Users

INSTANCES & SCHEMA

↳ Defines the logical structure of DataBase

physical schema

logical schema

DB design @ physical level
and relates with physical
structure

DB design @
logical level and
relates with
logical structure

Actual Content of DB
at a particular point
in time



Physical Data Independence (PDI)

↳ The Ability to change the physical Structure
of DB w/o changing the logical Structure



→ 4th Generation Non-procedural language used for
Data Manipulation.

DDL:

Relates w/ base structure of
table & not w/ data
stored

- CREATE
- ALTER ADD
MODIFY
- DROP
- TRUNCATE

DML:

Relates w/ the information on
base table.

- INSERT
- UPDATE
- DELETE
- SELECT

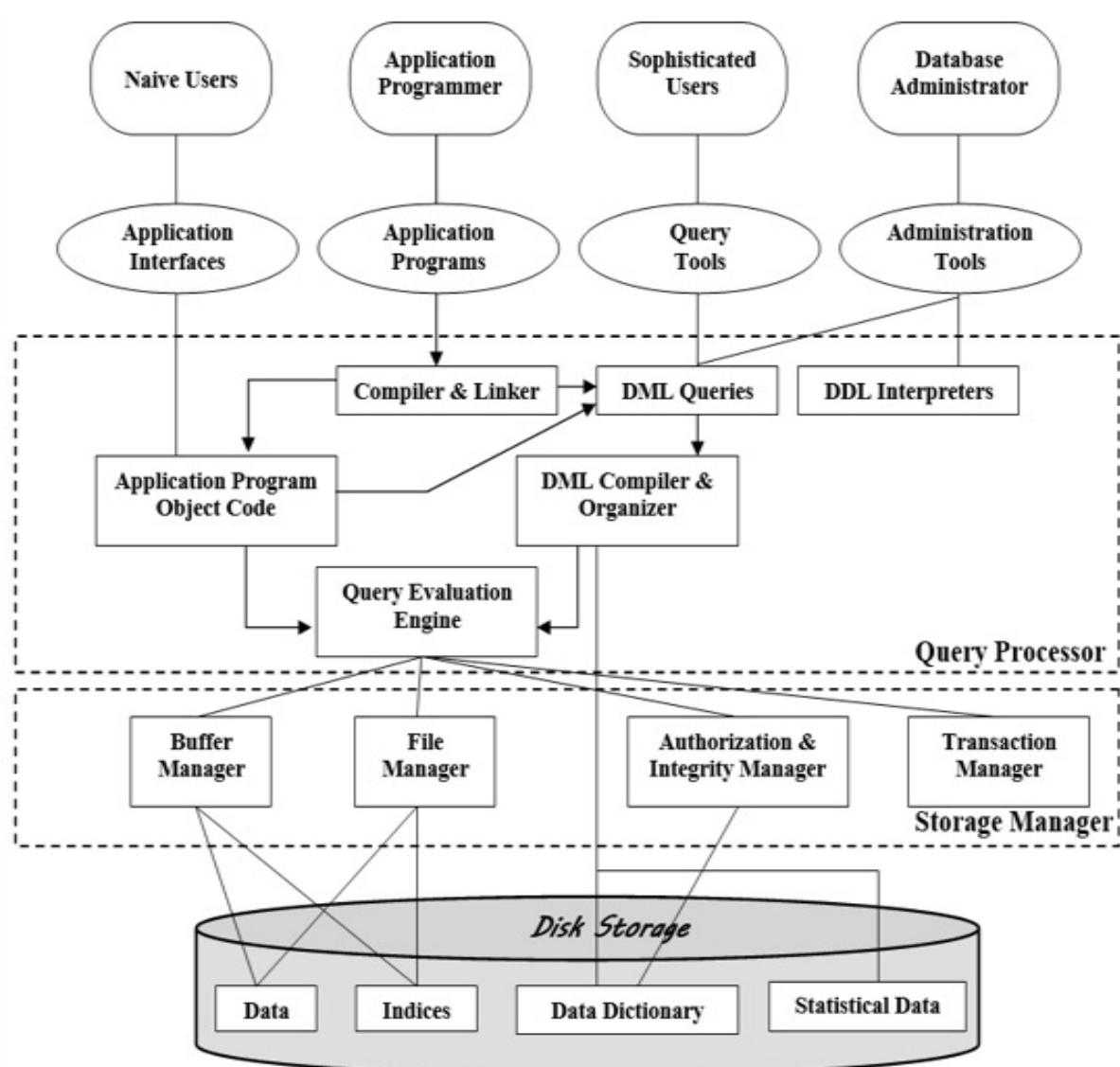
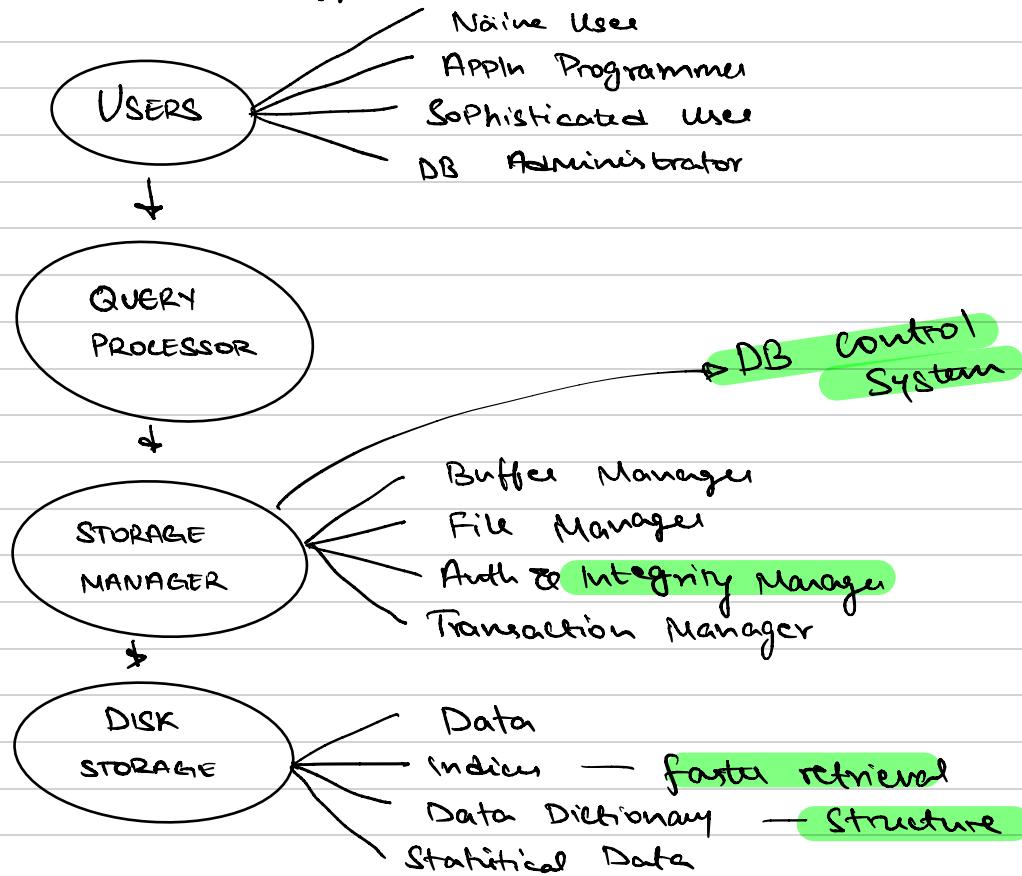
DCL:

- GRANT
- REVOKE

TCL:

- COMMIT
- ROLLBACK
- SAVEPOINT

DB SYSTEM ARCHITECTURE



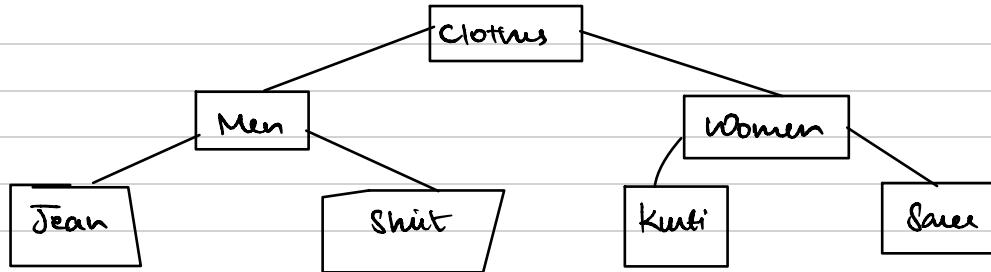
DATA MODELS

→ To Overcome the limitations posed by FPs,
various Data Models were developed:

- 1) Hierarchy
- 2) Network
- 3) E-R
- 4) Relational
- 5) Object-Oriented

HIERARCHICAL MODEL

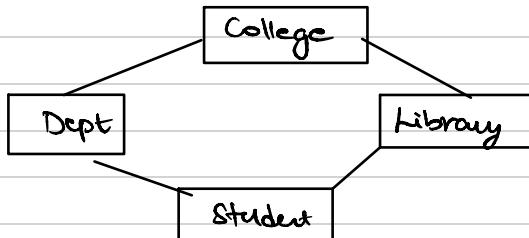
- * First & Foremost model of DBMS
- * Organises Data in hierarchy tree structure



- Feature:
- * One-Many Relationships
 - * Parent-Child
 - * Deletion problem
 - * Easy travelling
- * Uses points for Access

NETWORK MODEL:

- * Extension of hierarchical model
- * Better than Relational
- * Entity can have more than one parent

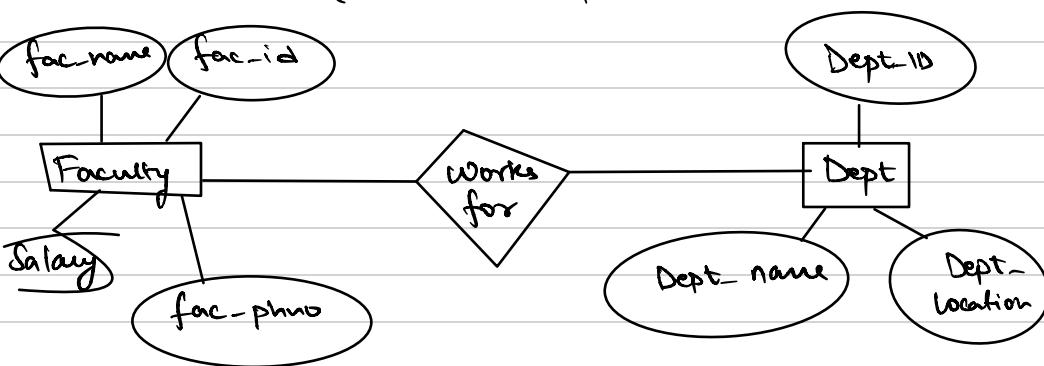


- Features:
- * Circular Linked List
 - * Faster Data Access
 - * Parent-Child Relationship

ENTITY-RELATIONSHIP MODEL:

- * High-level Data Model
- * Pictorial representation of data
- * Easy to understand

- * Contains 3 Components:
 - Entities
 - Attributes
 - Relationships



RELATIONAL MODEL:

- * Widely-used Model
- * Data is represented as a 2D Array with Rows & Columns



OBJECT ORIENTED MODEL:

- * Real-time problems are easily represented by use of an 'Object'.

- * Data and Relationship present in a single structure

- * Complex Data can be stored
- * Objects connected through Common attribute.

