

DBMS → VP → 4th AUG/22

OVERVIEW:

2/3 Marks

- Introduction: definition and keywords

(M-1)

Architecture 2 tier vs 3 tier

Views / Level of Abstraction

Schema vs Instance

Data Models

→ Hierarchical

→ Network

→ ER

→ Relational

→ Object Oriented

→ XML

- Types of databases

- Types of users

M2 → Entity Relationship Model (ER Model)

Keys, Attributes and Relationship

↳ cardinality, constraints and its types

Diagrams

Relational Queries: Algebra and Calculus - σ, Σ, Π

→ Structured Query language - SQL (→ LAB)

- PL-SQL
- Stored Procedure
- Triggers

M5 - Imp. (****)

Relational Modeling of Data:

- Functional Dependency (FD)
- Equivalence of FDS
- Canonical cores
- Normalisation (NF) → Normal Forms (1NF, 2NF, 3NF, BCNF, 4NF, 5NF)

M-6 - Transactions (****)

- concurrency and schedule
 - serial vs non-serial schedule
- Recovery in a schedule
 - Rollback → cascading rollback
 - serialisability
 - conflict → precedence graph
 - view
- locking
 - 2PL
 - strict 2PL
 - rigorous 2PL

M-7

Indexing, clustering

- single level
- multi level - BTree, B+ Tree.

Books: 1. Database System Concepts by Henry Korth. - ppt (**)

2. Fundamentals of Database Systems - Navathe
3. DBMS - Dr. Rajiv Chopra
4. Ramakrishnan

► Introduction

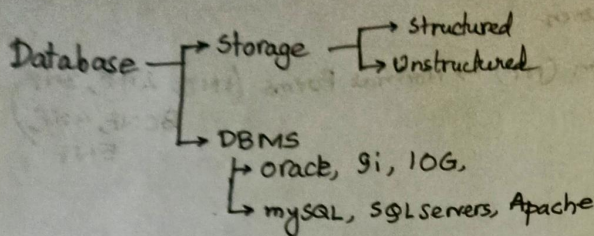
Keywords - Data, Information, Database, DBMS

Data → raw isolated fact (55)

Information → processed data (roll no. 55 or 55 chairs)

Database → collection of related data (enrollment numbers)

DBMS → a set of programs to manage database.



Structured: relation is that is created. A table that stores that relative data. → RDBMS → table management.

Objective of DBMS:

File System Vs. DBMS → (***)

(Why not use Excel?)

Create a row → horizontally
" " column → vertically.

① Data Storage and ease of access: whole file access doesn't needed.

② Redundancy: duplication checking

③ Integrity constraints: → lower data level / constraints

④ Concurrency

⑤ Atomicity:

A	B	±50	A	B
50	100		100	50
Res Donator				
150		=	150	

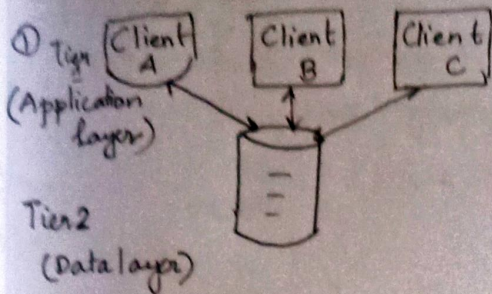
(No data lost)

(If doesn't

A = 50 not A = 50
B = 100 not B = 50

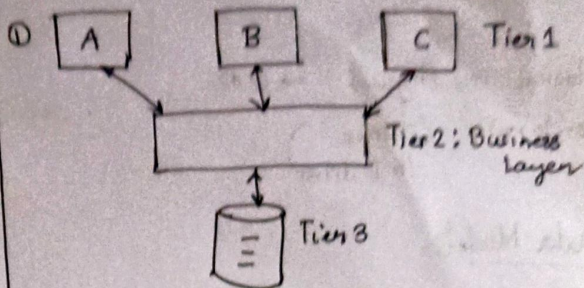
⑥ Security: DBMS has. File System doesn't.

2 Tier Arc.



① Oracle

3 Tier Arc.



① Any Normal Webpages.

Schema

① Structure of a table

② Create <database> DB Schema

use <...>

create table <...> ... Table schema

Insert into <...> values...

Insert...

instances {

EN	Name	Grade
1	SM	E
5	LG	A
9	PC	E

→ physical (storage)

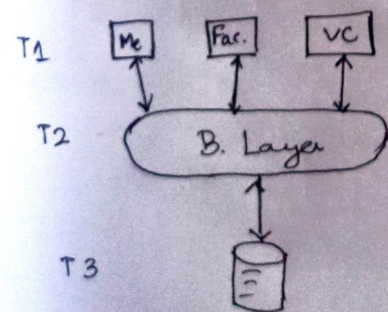
→ logical (mapping of attributes to their cores. datatype)

instance

(**)

⇒ Level of Abstraction:

* [Abstraction: Hiding of Data]



→ view level

n no. of views → n view level

→ logical level (ER/Relation/Attributes)
↳ DB Admin

→ Physical Level [completely storage (bitwise) level]

• Data Independence

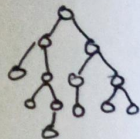
logical (vs) Physical → (**)
(entorn) (C drive
to D drive)

Data Models

① Hierarchical Model

→ Storage: Tree like Data Structure

[one child can only have one parent
one parent can have multiple children]



② Network Model [Graph based Storage]

[many to many mapping is possible]

③ ER Model

- a) easy to implement and use
- b) Diagramatic approach

④ Relational Model (Based on ER)

set of Tables

⑤ Object Oriented Model

(Super and sub)

⑥ XNL

(Extensive Markup Language)

<note>

<to> A </to>

<from> B </>

<Header> textmsg <!-->

<body> (all msg) </>

<note>

~~<note>~~