Lec-2: Introduction to DBMS with real life examples

Collection of related data → **Database System**

Database ← → DBMS

Relational DBMS
← Structured   Unstructured
IRCTC ⎤   ↳ Webpages
University ⎦

DBMS →
→ SQL Server
↳ Oracle 9i, 11, 12 & etc
↳ MySQL
↳ DB2
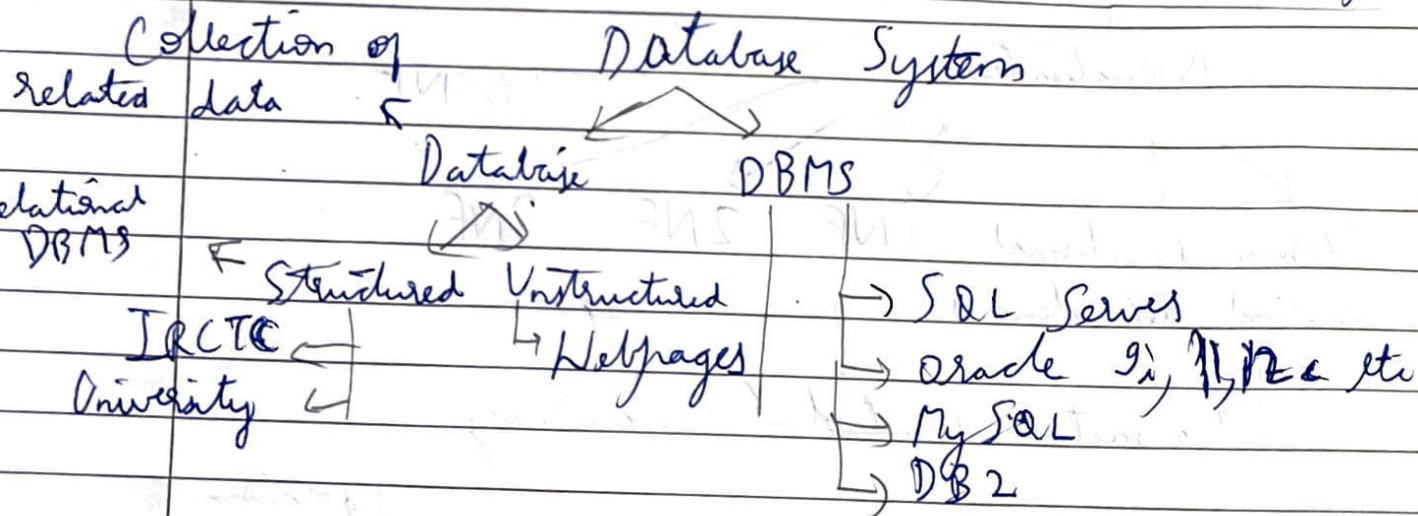
Relation → Table

Lec-3 File System VS DBMS — Disadvantages of file system

1) In traditional file system, if I ask for 1 KB of one train's information, the entire train information of 25 GB will be sent, and will sit in my memory.

In DBMS, that 25 GB will be stored in a server, and only 1 KB of data will be sent.

2) In traditional file system, if I want to access the data, I need the information of the file/metadata.

In DBMS, the user does not know where the file will be stored.

3) Concurrency is not there in file system, so there is inconsistency in the files ← (protocol)

↓

Multiple users accessing the same file

access control

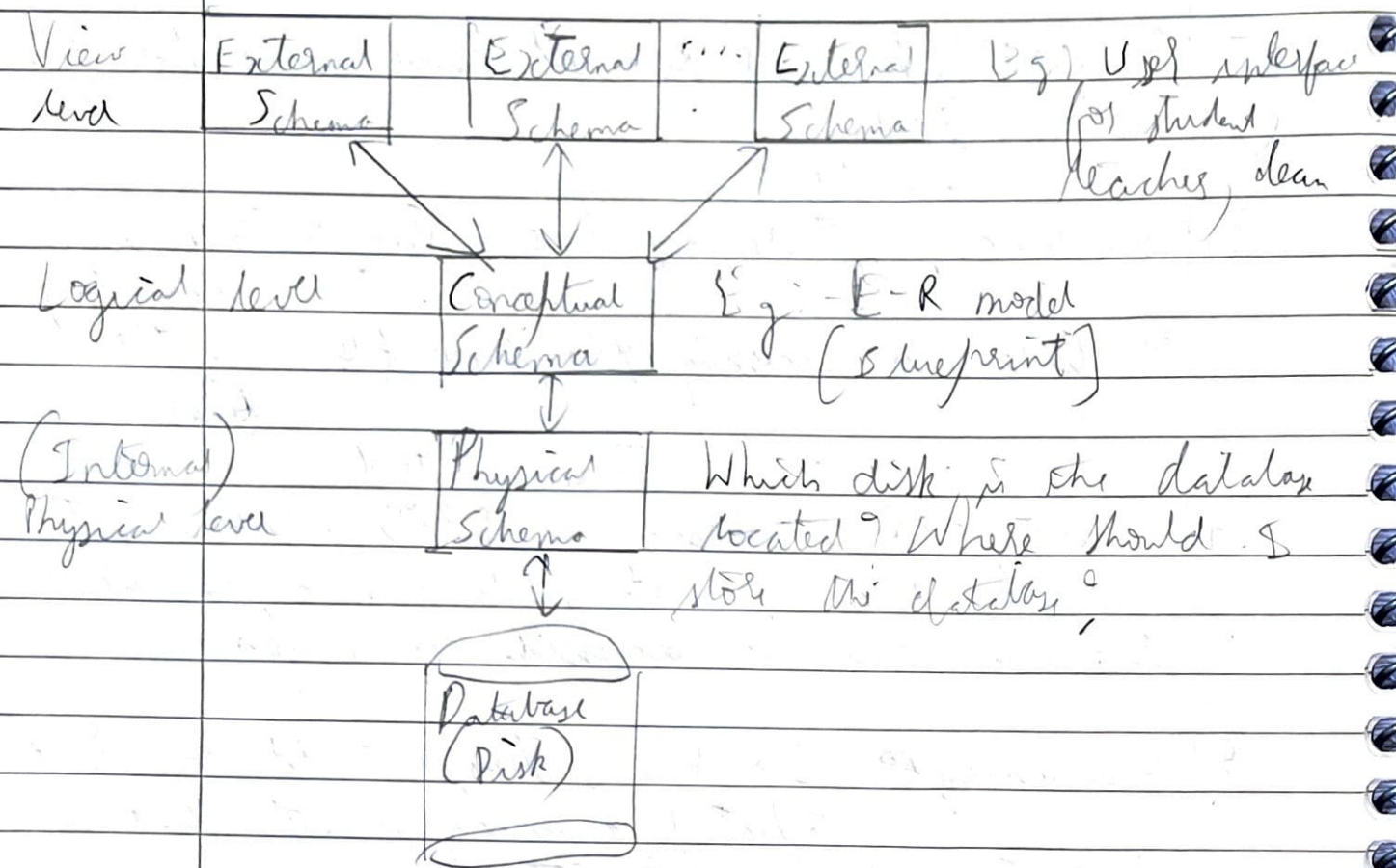4) Security → Role-based in DBMS, which is not there in file system, in which the files can be accessed by anyone.

5) Redundancy :- In file system, a record can be repeated, which is not there in DBMS. This helps in data integrity

Lec 5: What is schema? How to define schema?

Schema is the logical representation of a database

Lec-6: Three Schema Architecture - Three level of abstraction

View level	External Schema	External Schema	....	External Schema	Eg) User interface (of student, teacher, dean)
Logical level		Conceptual Schema			Eg:- E-R model (blueprint)
(Internal) Physical level		Physical Schema			Which disk is the database located? Where should I store the database?

Database (Disk)

Lec-7 What is data independence? Logical VS Physical

Independence

User User .... User

↓ ↓ ↓

View level

Conceptual Schema

} Logical data Independence

Physical Schema

} Physical data Independence

DB

Logical Data Independence - If a user adds a new ~~mobile number~~ column, another user cannot see that new column. Logical data independence is implemented using views.

Physical data independence - If the DB gets shifted from One location to another, the structure of the DB does not change.

If we change
1) Storage structure
2) ~~DS of~~ Data Structure change
3) Index,
The structure of the DB does not change