DBMS Architecture

- The DBMS design depends upon its architecture

Three-Level Architecture

→ It is also called 3-tier Architecture. Three schema architecture and ANSI/SPARC architecture.

→ This framework is used to describe the structure of a specific database system.

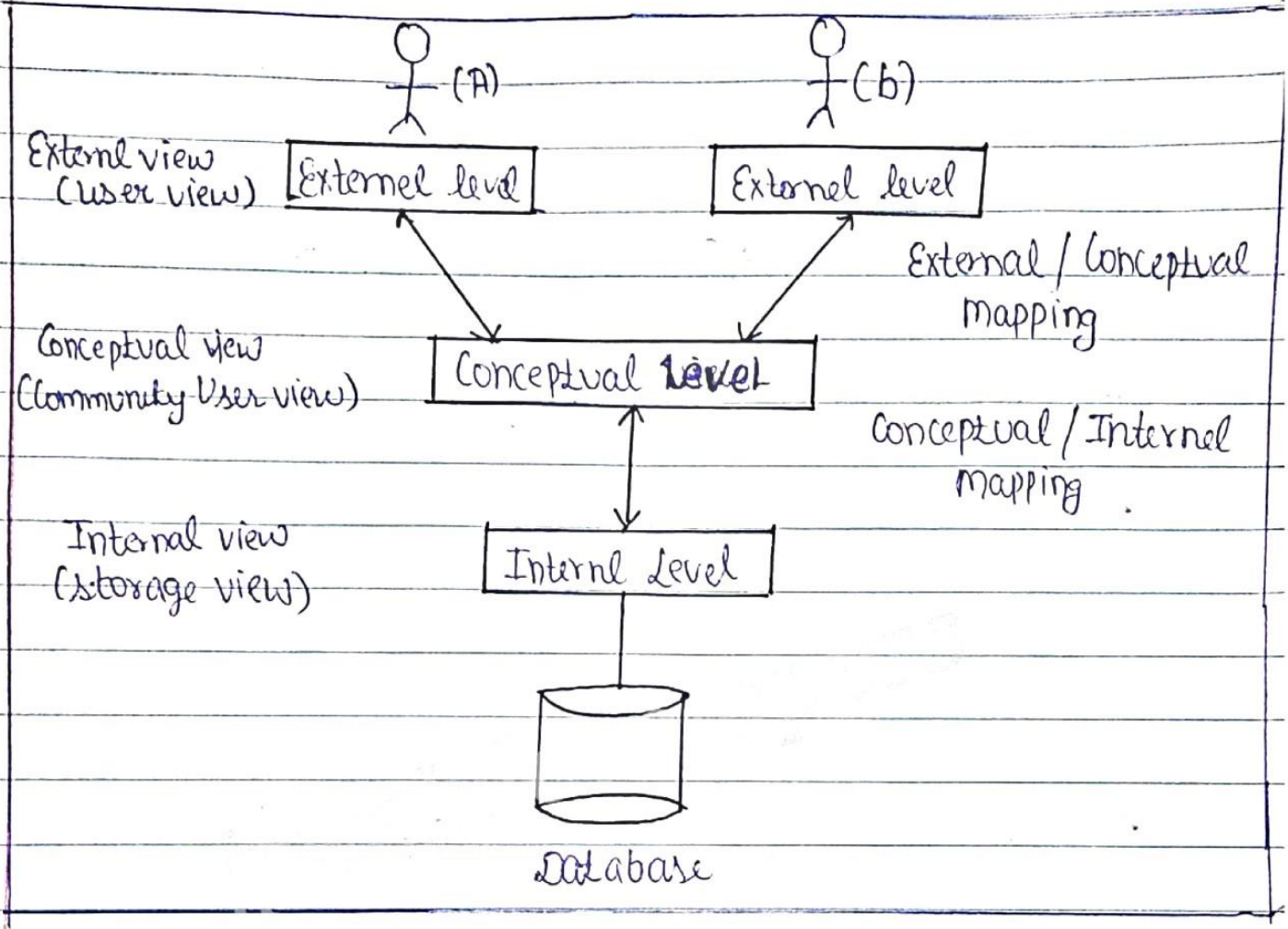
→ The three levels present in this architecture are :-

physical level (Internal Schema)

Conceptual level (Conceptual Schema)

External level (External Schema)

The details of these levels are as follows :-



→ It shows the 3-tier DBMS architecture

→ **Mapping** is used to transform the request and response between various database level of architecture.

→ In **External / Conceptual mapping**, It is necessary to transform the request from external level to conceptual level.

→ In **Conceptual / Internal mapping**, DBMS transform

the request from the conceptual to Internal level.

* We now briefly discuss the three views (level):-

1. External Level / User view :-

- The external or user view is the highest level of database architecture, where only the restricted portion of database is available to end users.
- External level is the "top level" of the Three level DBMS Architecture.
- It is also called view level or view schema.
- Each view schema describe the database part that a particular user group is interested and hides the remaining database from that user.
- For example:- A department head may only be interested in the department finances but not libarary information.

2 Conceptual Level / View :-

- The conceptual schema describes the design of a database at the conceptual level.
- It is represented by the middle level in three level architecture.
- It is also known as Logical level.
- The conceptual view represents all the databa entities, their relationships, information on data security and integrity information etc.
- At conceptual level, data is represented in the form of various database table.
- For example :- The conceptual view as shown in the three level architecture diagram is only concerned with table, attributes and their relationships.

Attributes →

#ENAME	#ID	#DEPT
PALVI	19	25
KAJAL	23	40
JASHAN	21	42

EMPLOYEE TABLE

3 Internal Level :-

This level is also known as Physical level.

This is the lowest level in the three level architecture.

The Physical level describes how data is actually stored in the database.

It describes the Physical Storage structure of the database.

It uses Physical data model.

In simple terms, physical level of a database describes how the data is being stored in secondary storage devices, like disks and tapes.