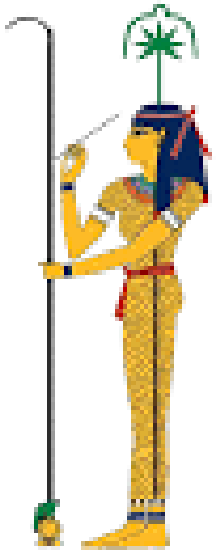
رواد مصر الرقمية

وزارة الاتصالات
وتكنولوجيا المعلومات



Database Fundamentals Course

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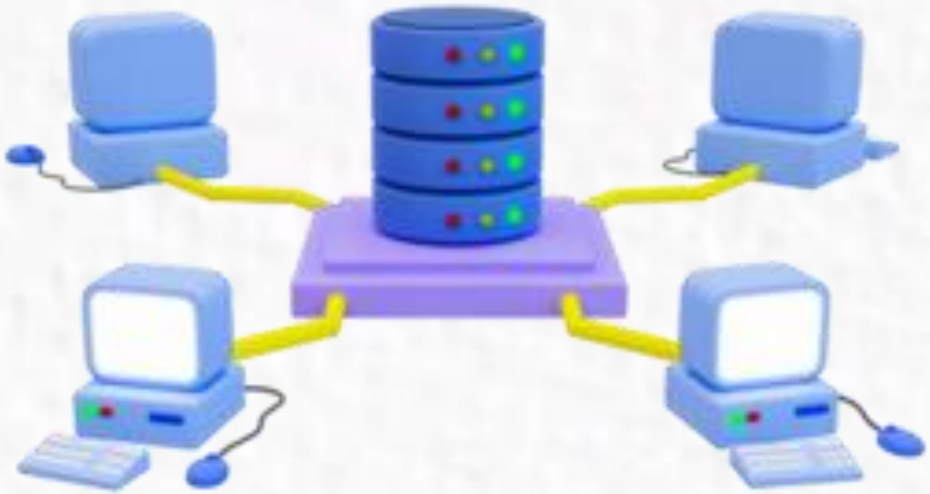
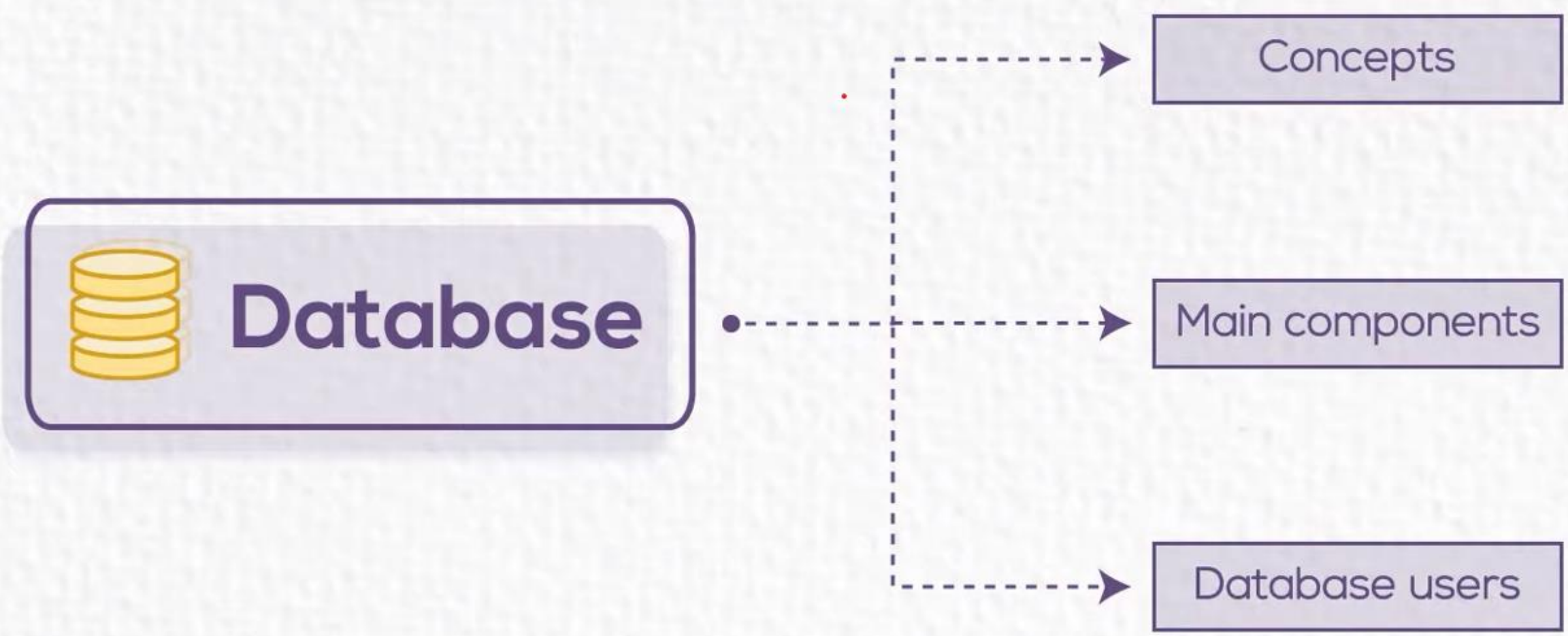


Introduction



Database Concepts


E- commerce


Super Market


E-Mail

File Based System

Finance dept.

HR dept.

Excel Sheet

Word file

Concepts

File Based System

Finance dept.

HR dept.

Excel Sheet

Isolation Of data

Incompatible file formats

Duplicate data

Word file

Concepts

Limitations Of **File Based System**

- Separation & Isolation Of data.
- Duplication of data
- Program Data Dependence
- Incompatible file formats

Concepts

File Based System

Database

- A collection of related data.

Concepts

File Based System

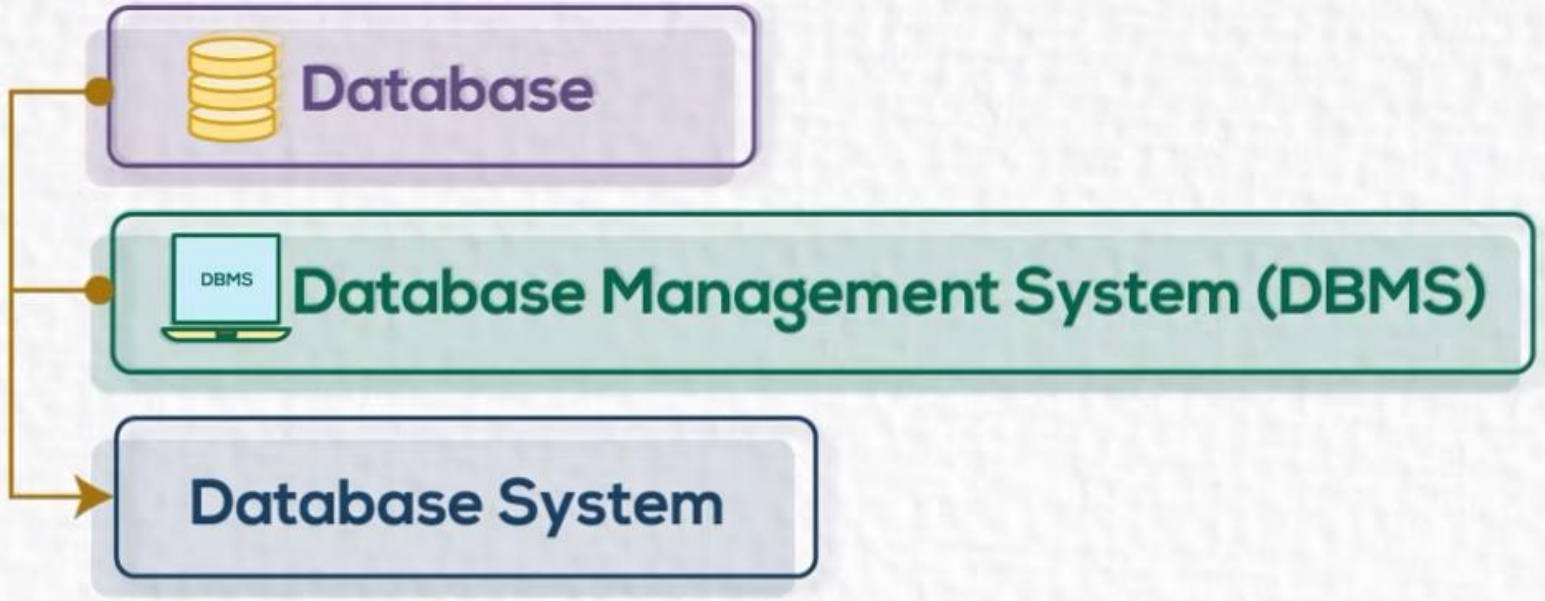
Database

Database Management System (DBMS)

- A software package/ system to facilitate the creation and maintenance of a computerized database.

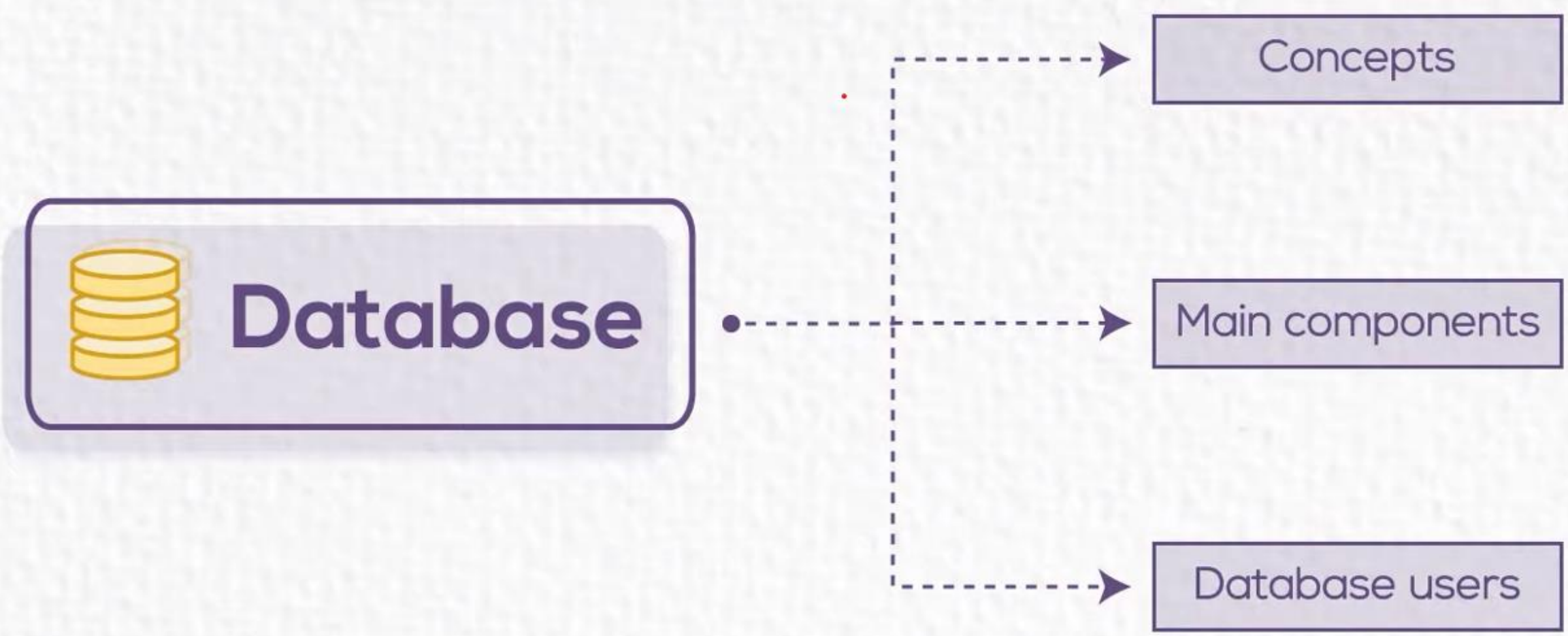
Concepts

File Based System

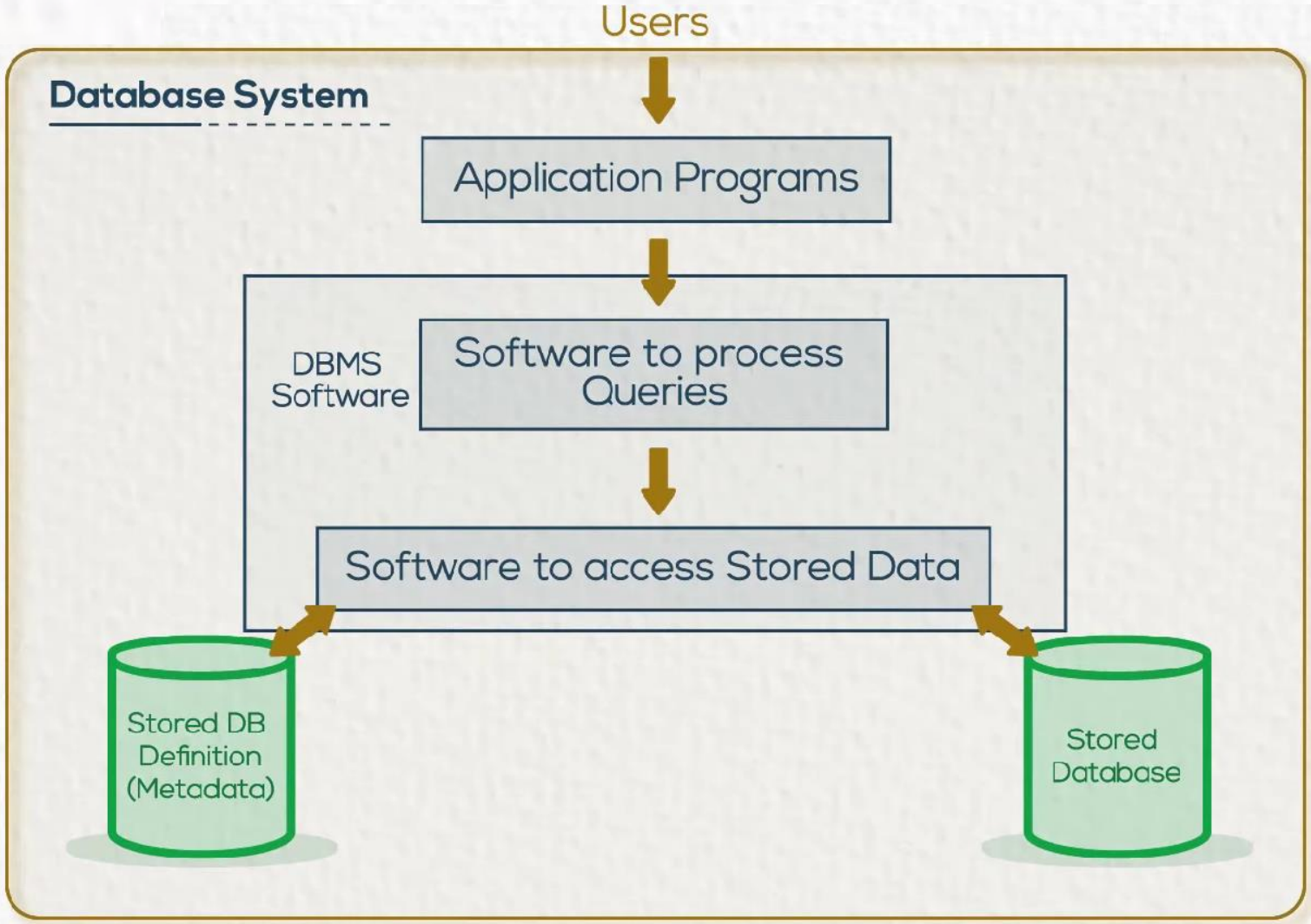


- The DBMS software together with the data itself. Sometimes, the applications are also included. **(Software + Database)**

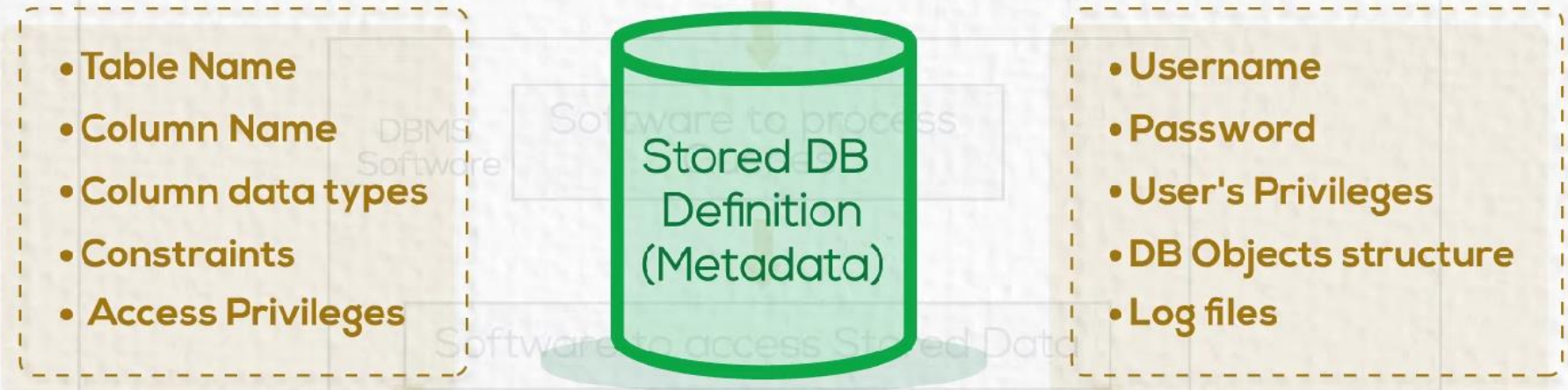
Introduction



Database Main Components

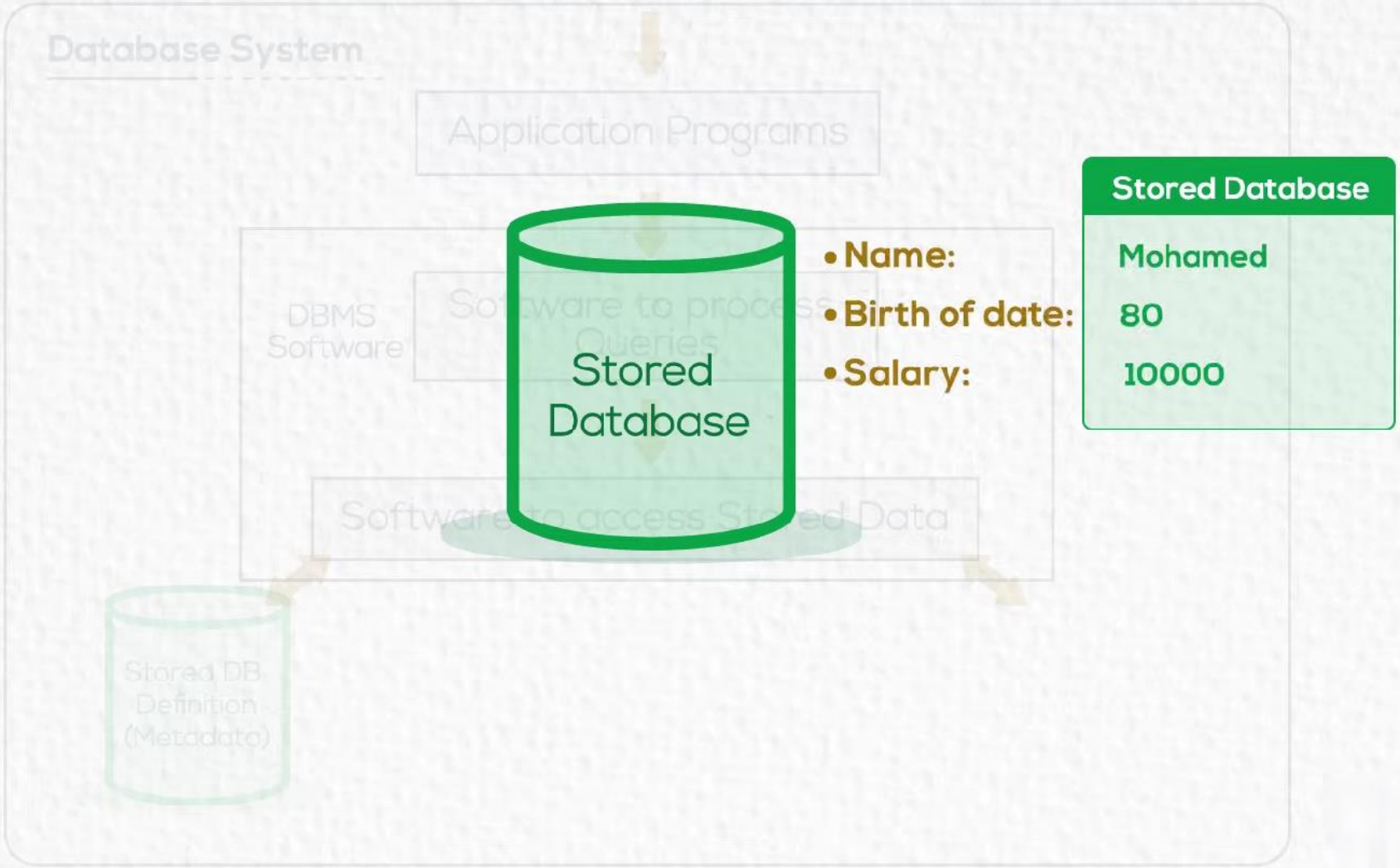


Database Main Components



Metadata is Database Definition Stored all information

Database Main Components



Database Main Components

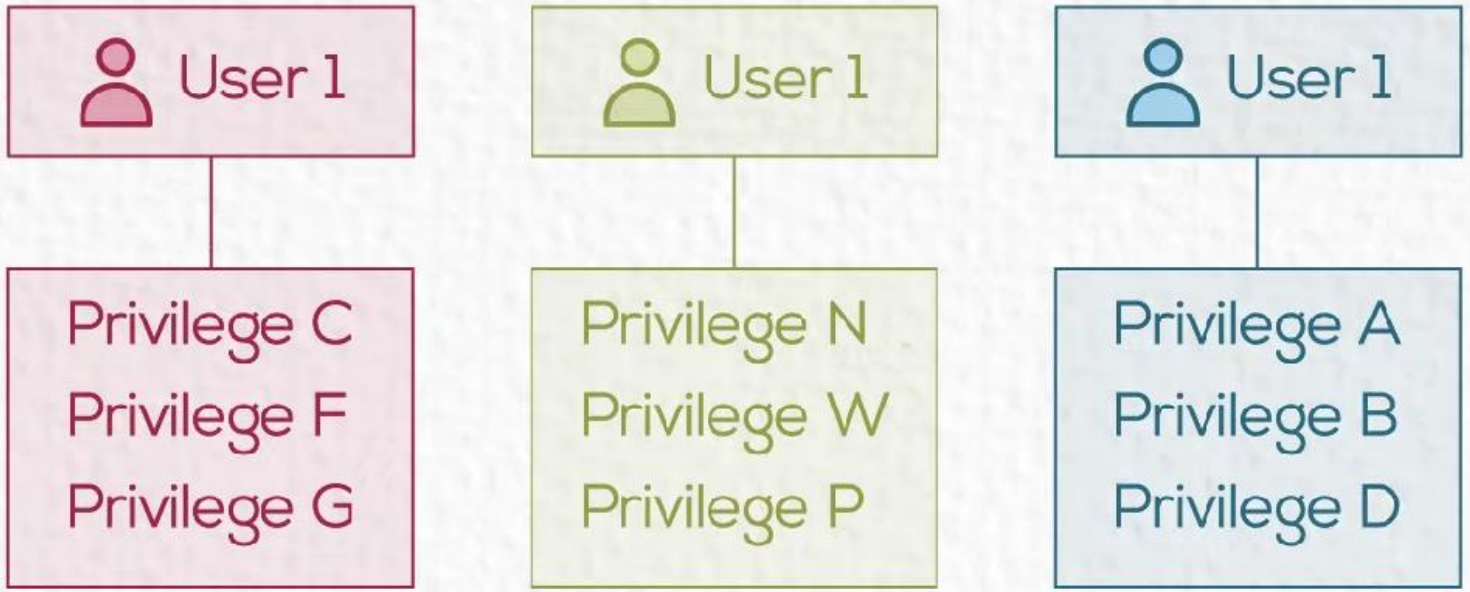
Database systems **advantages**

- Controlling Redundancy.

Database Main Components

Database systems **advantages**

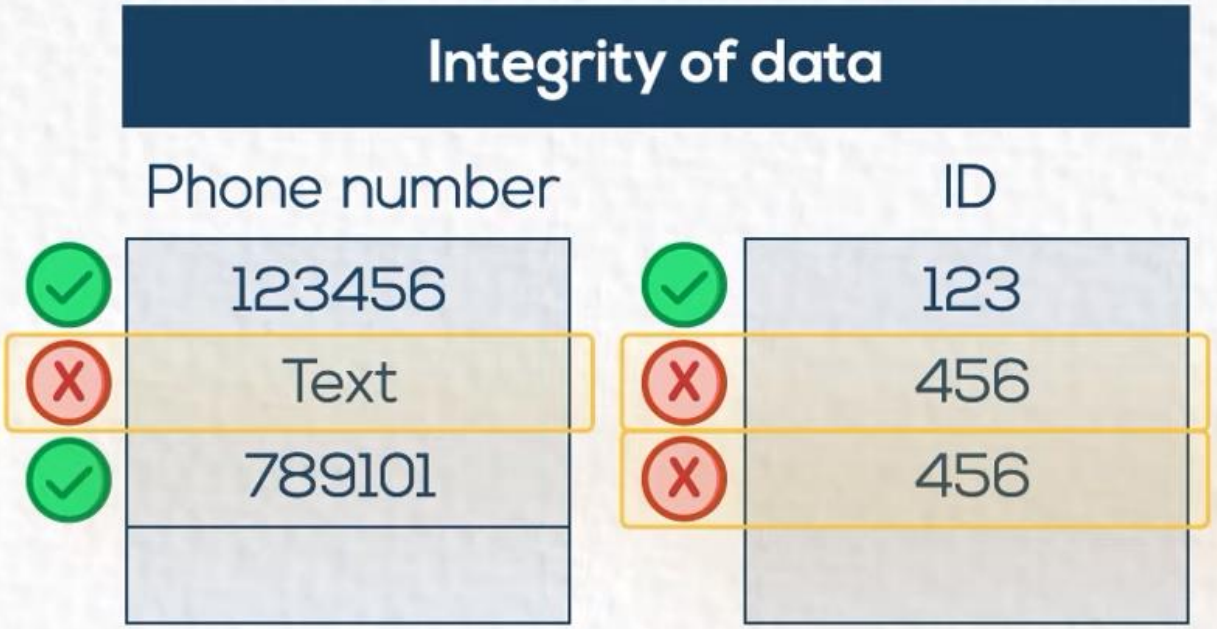
- Controlling Redundancy.
- Restricting Unauthorized Access.



Database Main Components

Database systems **advantages**

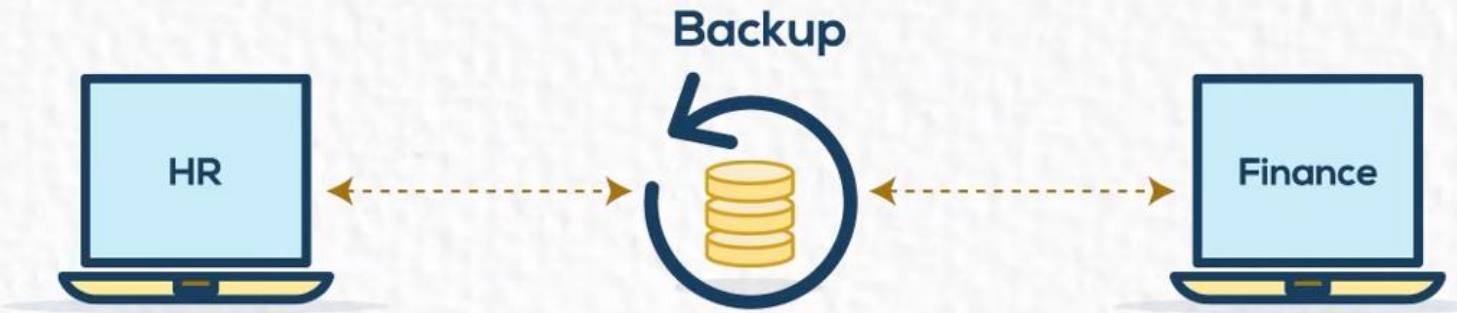
- Controlling Redundancy.
- Restricting Unauthorized Access.
- Sharing data.
- Enforcing Integrity Constraints.



Database Main Components

Database systems **advantages**

- Controlling Redundancy.
- Restricting Unauthorized Access.
- Sharing data.
- Enforcing Integrity Constraints.
- Inconsistency can be avoided.
- Providing Backup and Recovery.



Database Main Components

Database systems **disadvantages**

- Needs expertise to use.

Database Main Components

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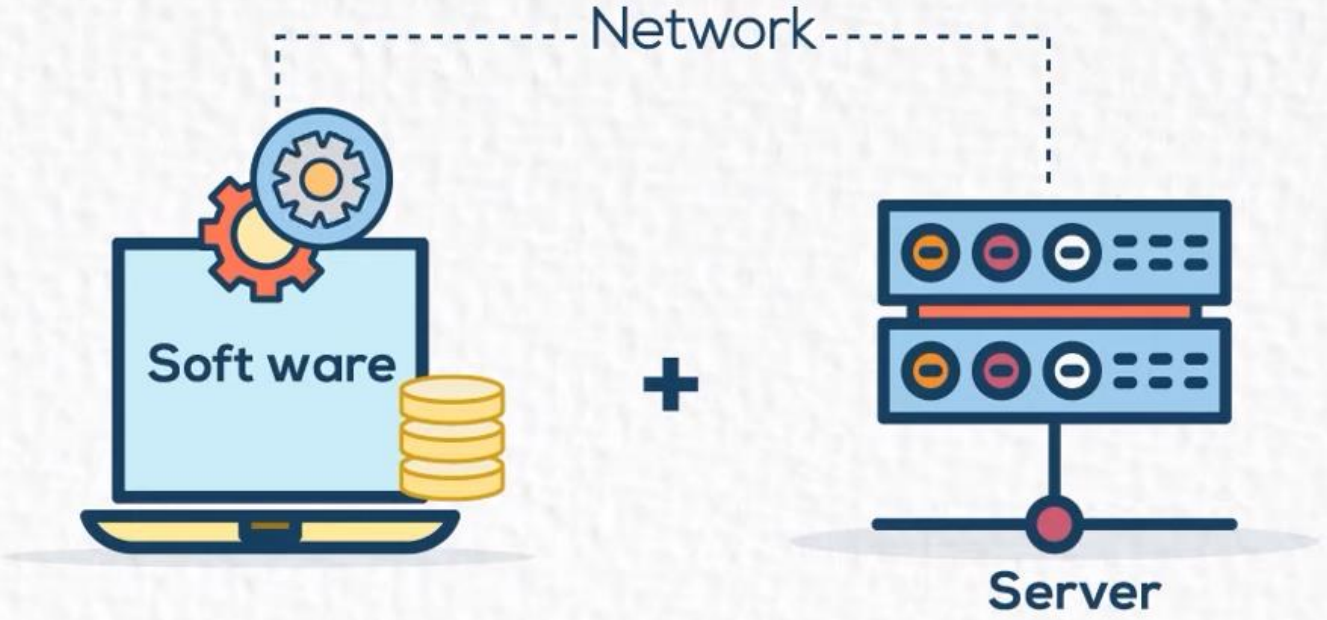
Database systems **disadvantages**

- Needs expertise to use.
- DBMS is expensive.

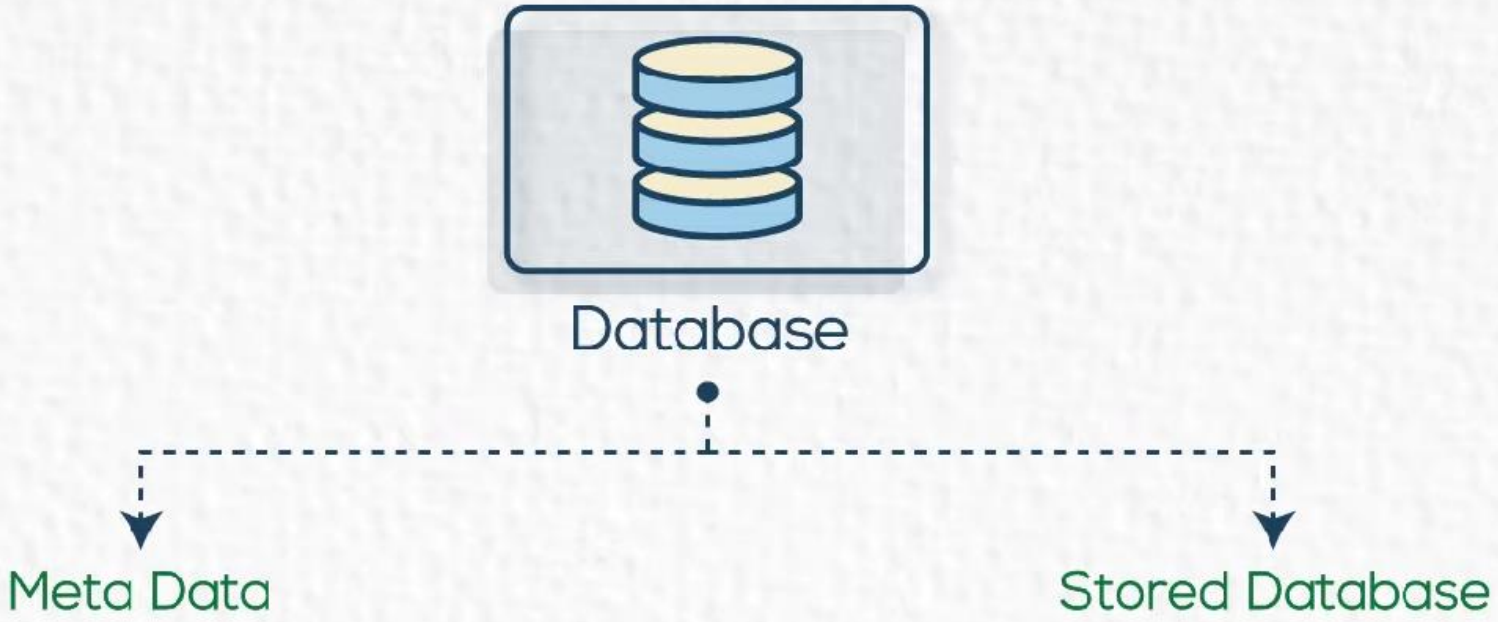
	Support DBMS
	Database
	User



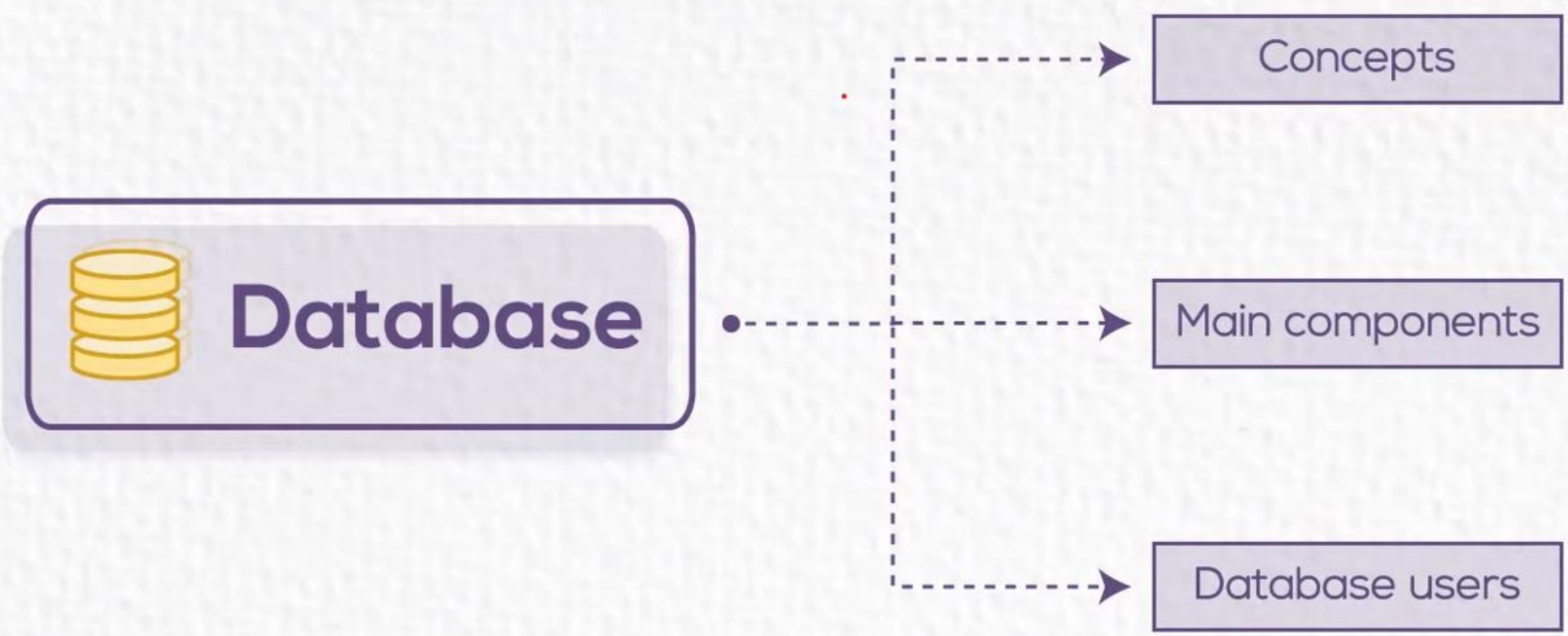
Database Main Components

Database systems **disadvantages**

- Needs expertise to use.
- DBMS is expensive.
- May be incompatible with any other available DBMS.



Introduction



Database Users

Step1
Analysis and requirement gathering

Step2
Database Design

Step3
Implementation

Step4
Application development

- Business analysis and requirements gathering.
- Create database design(Conceptual Schema).
- Install DBMS.
- Create DB schema and populate data.
- Create Users and authorize access to db.
- Maintain DB performance.
- Develop, test & debug the application.

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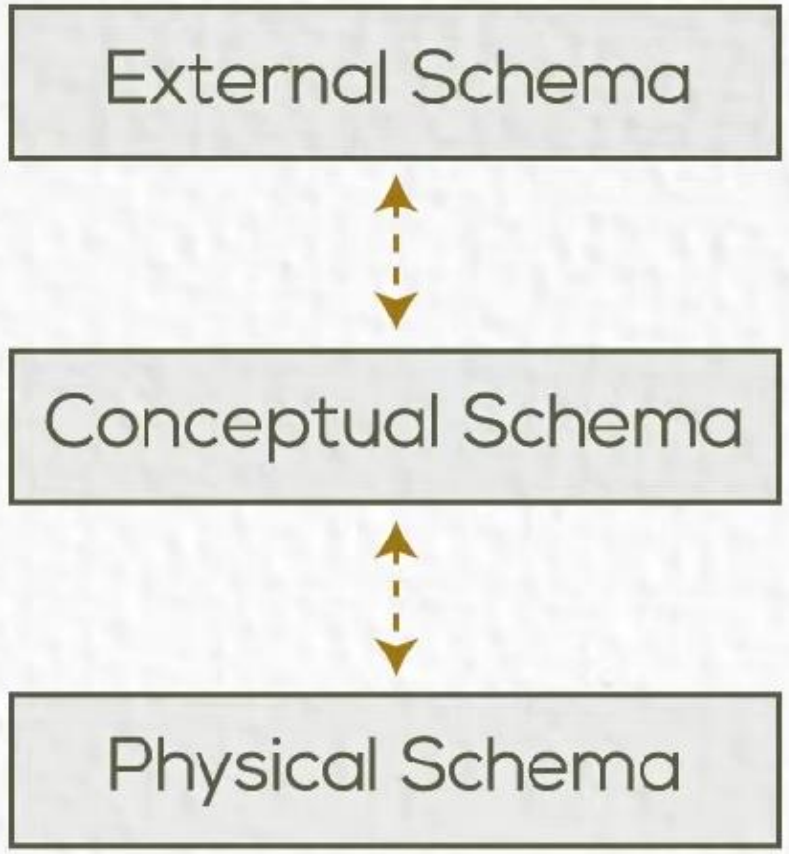
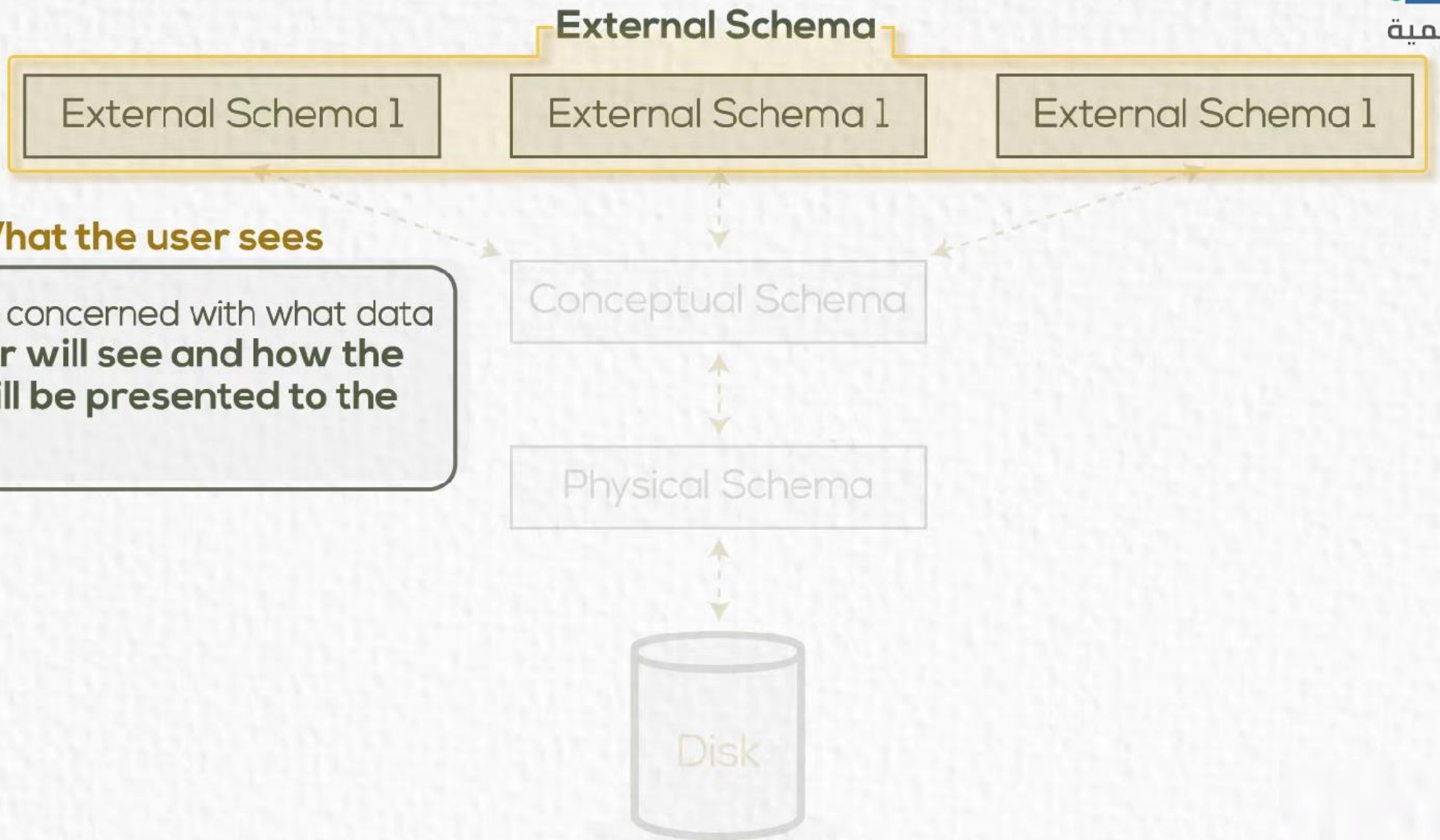
DBMS Architecture
(Three Schema Architecture)

DBMS Architecture (Three Schema Architecture)



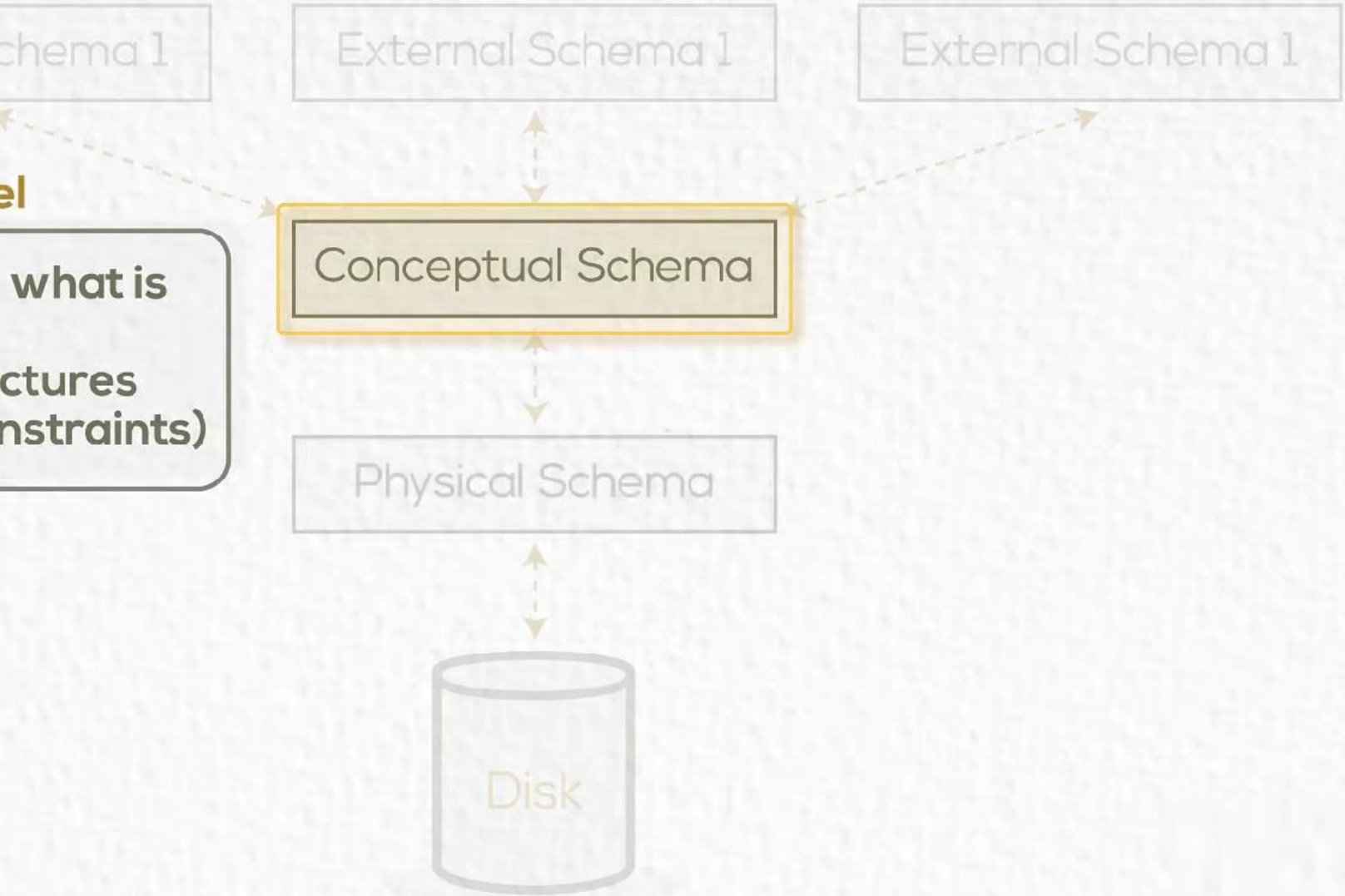
DBMS Architecture (Three Schema Architecture)



What the user sees

They are concerned with what data **the user will see and how the data will be presented to the user**.

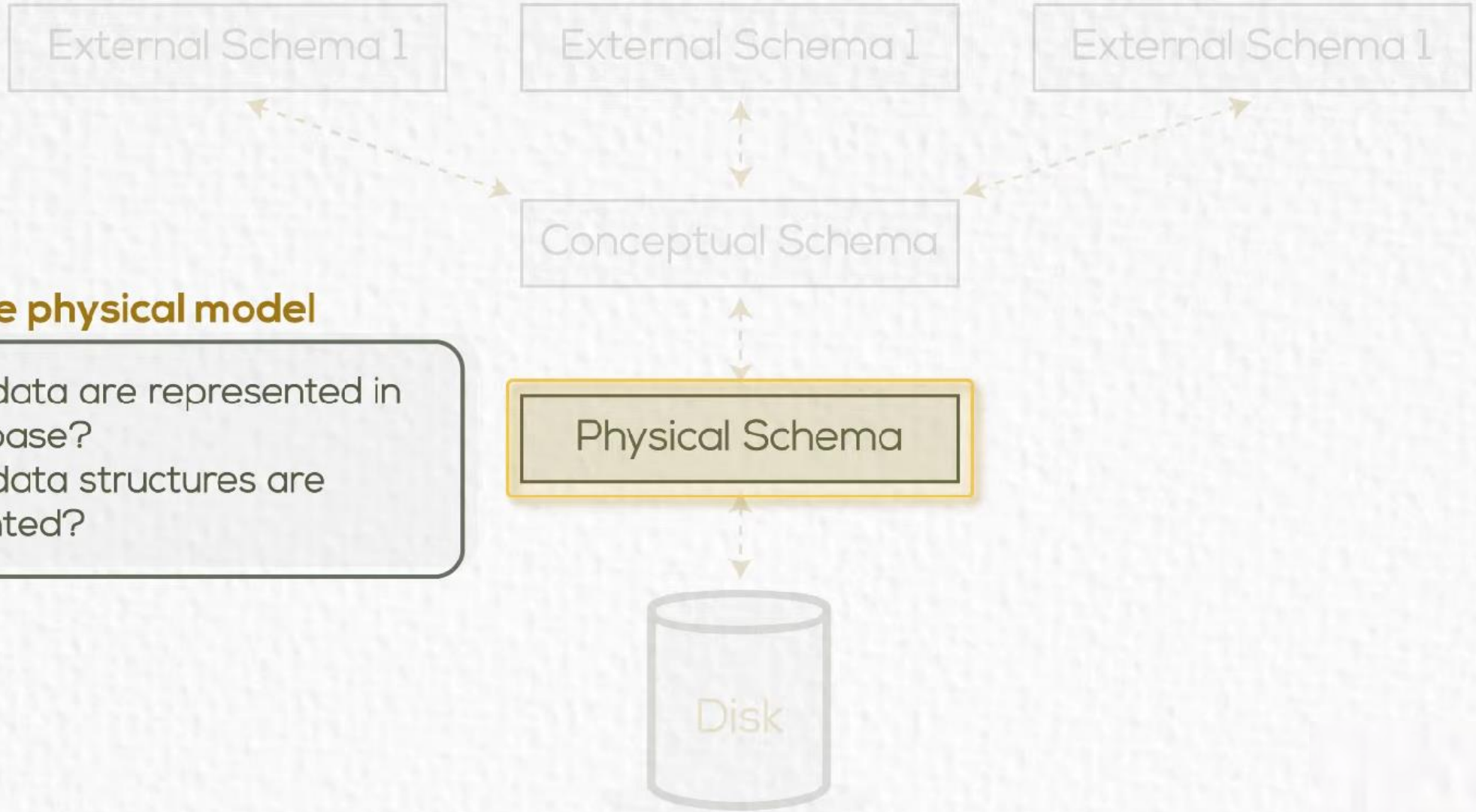
DBMS Architecture (Three Schema Architecture)



The logical model

They are concerned with **what is represented**.
(define database structures such as tables and constraints)

DBMS Architecture (Three Schema Architecture)

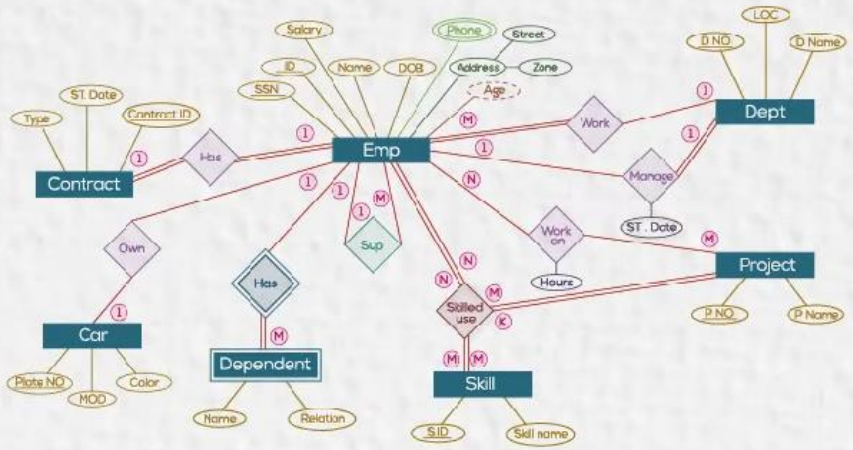


The physical model

How the data are represented in the database?
How the data structures are implemented?

Data Models

The logical model /conceptual model

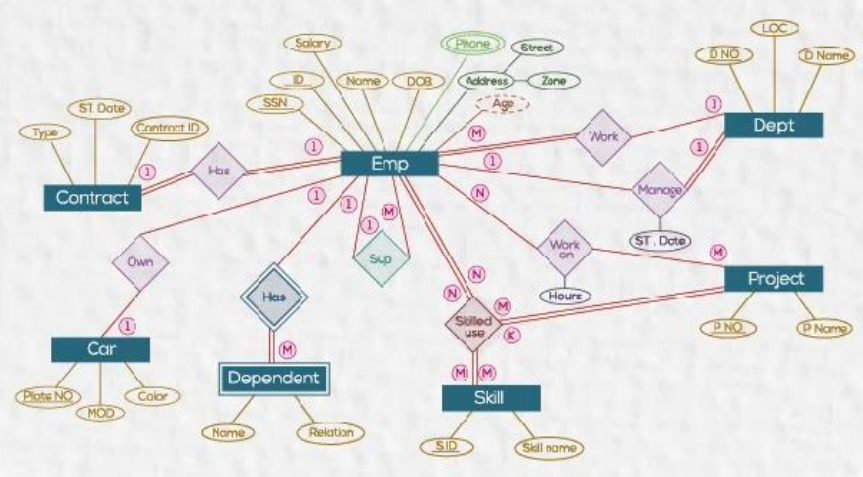


provide concepts that are close to the way many users perceive data, entities, attributes and relationships. (Ex. ERD)

The physical model

Data Models

The logical model /conceptual model



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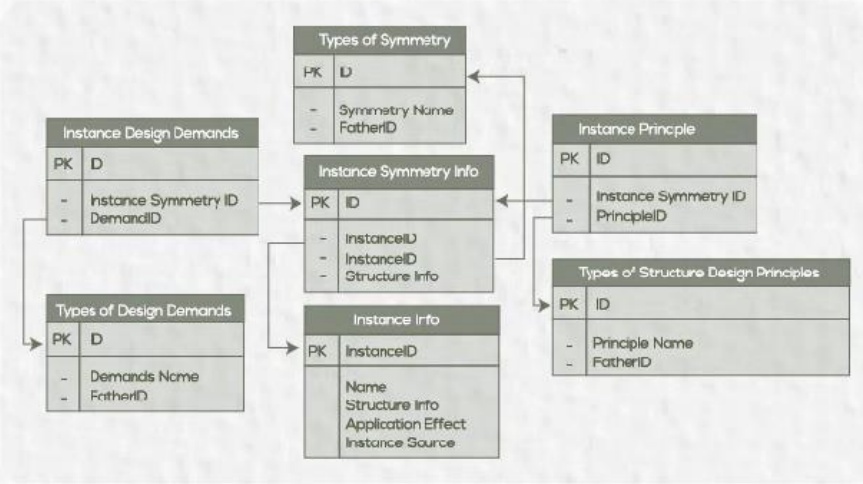
The physical model



describes how data is stored in the computer and the access path needed to access and search for data.