Database Management System

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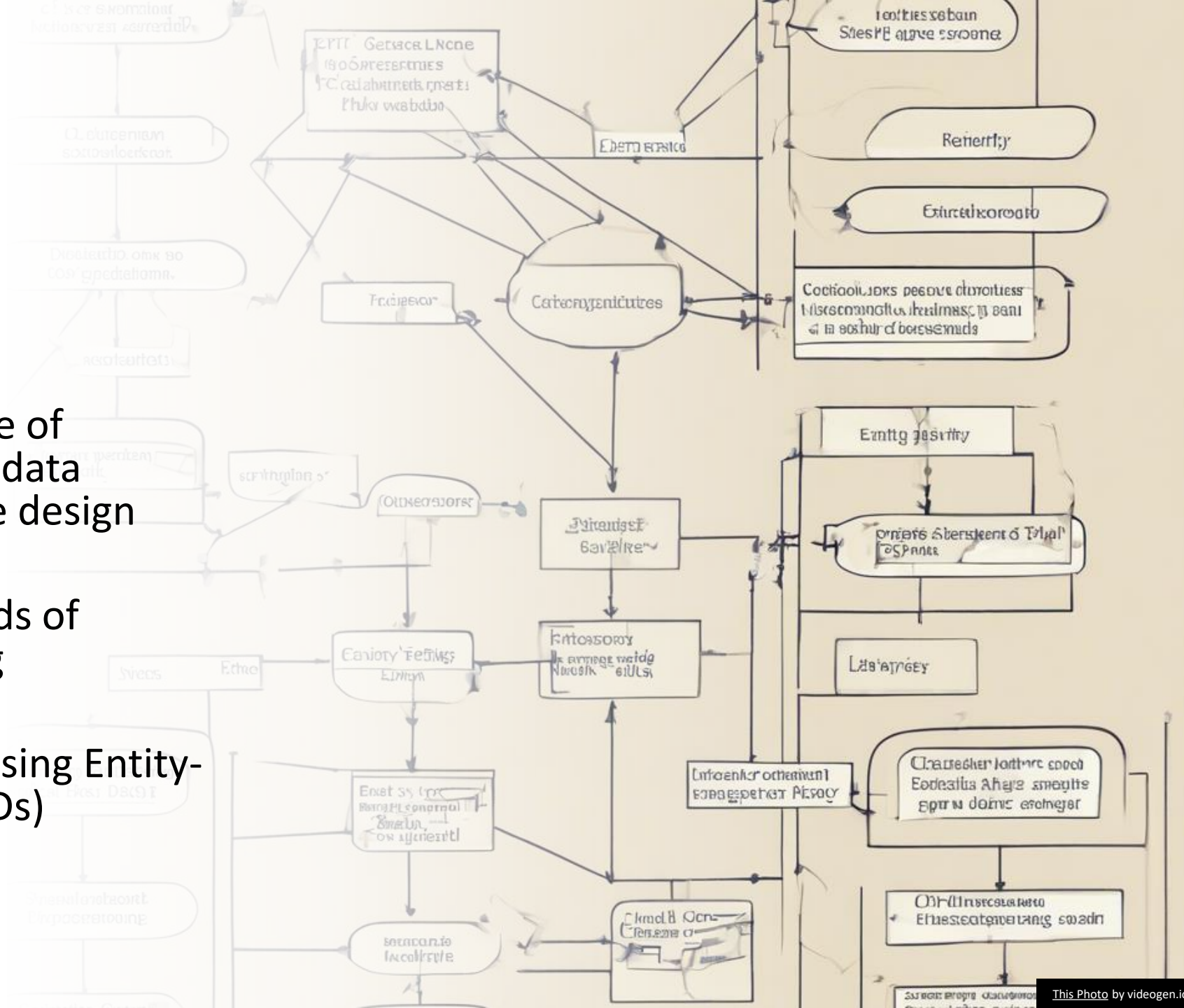
Learning Objectives

- Understand the importance of information capture in the data management and database design process
- Explore the various methods of capturing and representing information
- Learn how to model data using Entity-Relationship Diagrams (ERDs)



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Introduction to Database Management System

What is Database?

- Data
- Record
- Table or Relation
- Database

What is Database Management System?

A database-management system (DBMS) is a collection of interrelated data and a set of programs to access those data. This is a collection of related data with an implicit meaning and hence is a database. The collection of data, usually referred to as the database, contains information relevant to an enterprise. The primary goal of a DBMS is to provide a way to store and retrieve database information that is both convenient and efficient. By data, we mean known facts that can be recorded and that have implicit meaning.

A Database management system is a computerized record-keeping system. It is a repository or a container for collection of computerized data files. The overall purpose of DBMS is to allow he users to define, store, retrieve and update the information contained in the database on demand.

Discussion: DBMS and its application

Advantages of DBMS

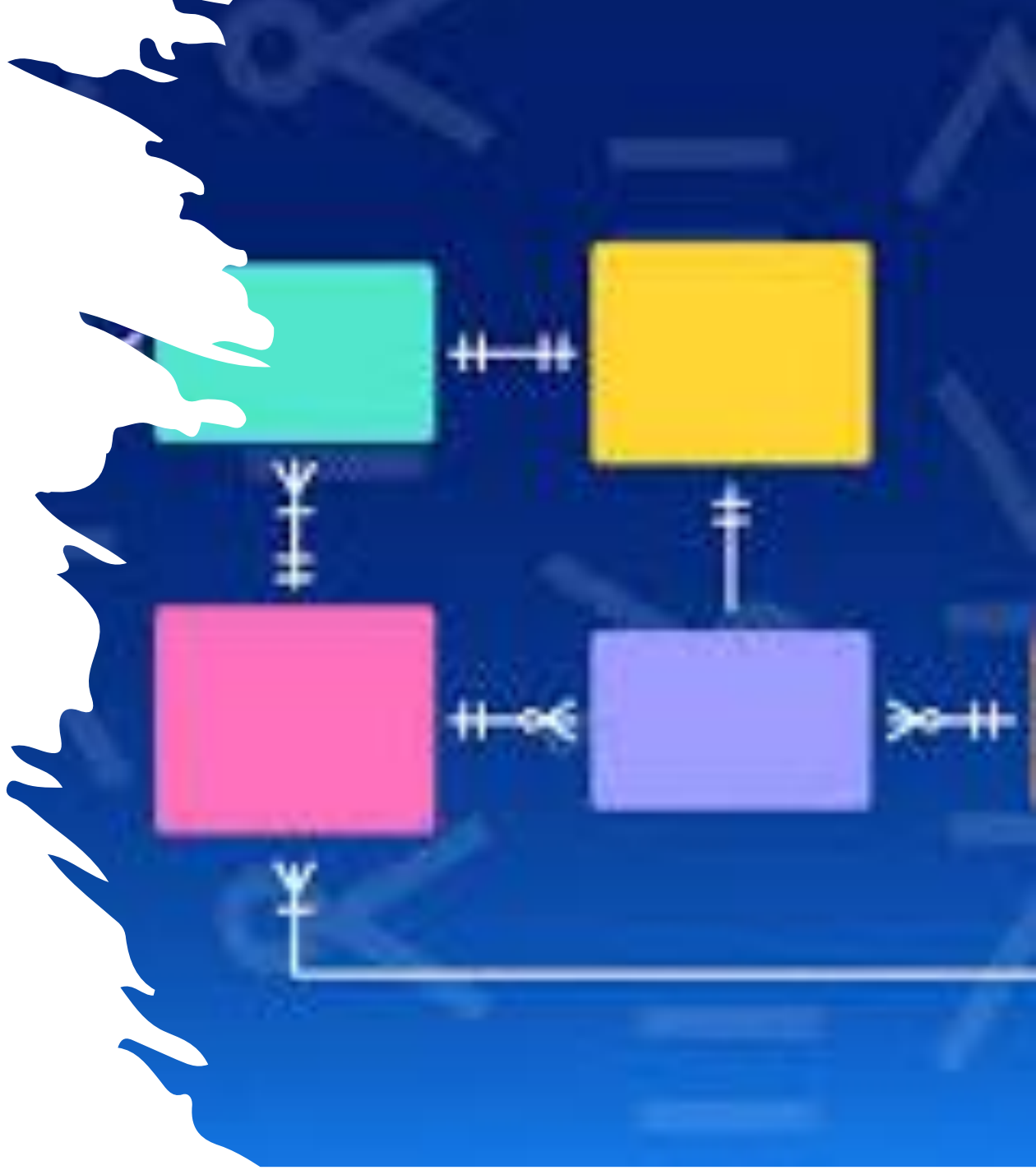
- Improved Data Sharing
- Data Integrity
- Security
- Data Consistency
- Efficient Data Access
- Enforcements of Standards
- Data Independence
- Reduced Application Development and Maintenance Time

Disadvantages of DBMS

- It is bit complex.
- It also needs large memory to run efficiently.
- Some of the application will run slow.

Database System, Concepts and Architecture

- Data Models
- Schemas
- Instances
- DBMS Architecture
- Data Independence
- Database Languages



Instances and Schemas

Databases change over time as information is inserted and deleted. The collection of information stored in the database at a particular moment is called an **instance** of the database.

The overall design of the database is called the database **schema**.

The **physical schema** describes the database design at the physical level, while the **logical schema** describes the database design at the logical level. A database may also have several schemas at the view level, sometimes called **subschemas.**

Application programs are said to exhibit **physical data independence** if they do not depend on the physical schema, and thus need not be rewritten if the physical schema changes.

Data Models

Categories

- High Level or Conceptual Data Models
- Low Level or Physical Data Models
- Representational data Models