

DATA-Types

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1 Data Models

2 Categories of Data Models

- Highlevel or conceptual data models
- Low-level or physical data models
- Representational (or implementation) data models

Data Models

- 1 is collection of concepts that can be used to describe the structure of a database
- 2 structure of a database we mean the **data types, relationships, and constraints** that should hold on the data.
- 3 Most data models also include a **set of basic operations** for specifying retrievals and updates on the database.

Categories of Data Models

- 1 **High-level or conceptual data models**
- 2 **Low-level or physical data models**
- 3 **Representational (or implementation) data models**

Highlevel or conceptual data models

- 1 provide concepts that are close to the way many users perceive data
- 2 use concepts such as **entities, attributes, and relationships**
- 3 An entity represents a real-world object or concept
- 4 An attribute represents some property of interest that further describes an entity,
- 5 A relationship among two or more entities represents an interaction among the entities

Low-level or physical data models

- 1 Provide concepts that describe the details of how data is stored in the computer.
- 2 Concepts provided by low-level data models are generally meant for computer specialists, not for typical end users.
- 3 Describe how data is stored in the computer by representing information such as record formats, record orderings, and access paths.
- 4 An **access path** is a structure that makes the search for particular database records efficient.

Representational (or implementation) data models

- 1 Which provide concepts that may be understood by end users but that are not too far removed from the way data is organized within the computer.
- 2 It hides some details of data storage but can be implemented on a computer system in a direct way.
- 3 used most frequently in traditional commercial DBMSs, and they include the widely-used **relational data model**
- 4 network and hierarchical models are sometimes called **record-based data models**

