# Data Models

Data model in DBMS is a concept that describes how data is stored, connected, accessed and updated in a database management system. It defines the logical design and structure of the database.

The importance of Data model is -

1. It provides a better understanding of the data and can be used by database developers to create a physical database.
2. Data Model helps to define the relational tables, primary and foreign keys and stored procedures.
3. A data model helps design the database at the conceptual, physical and logical levels.

Data Models are classified into three types –

- Conceptual Data Model
- Representational Data Model
- Physical Data Model

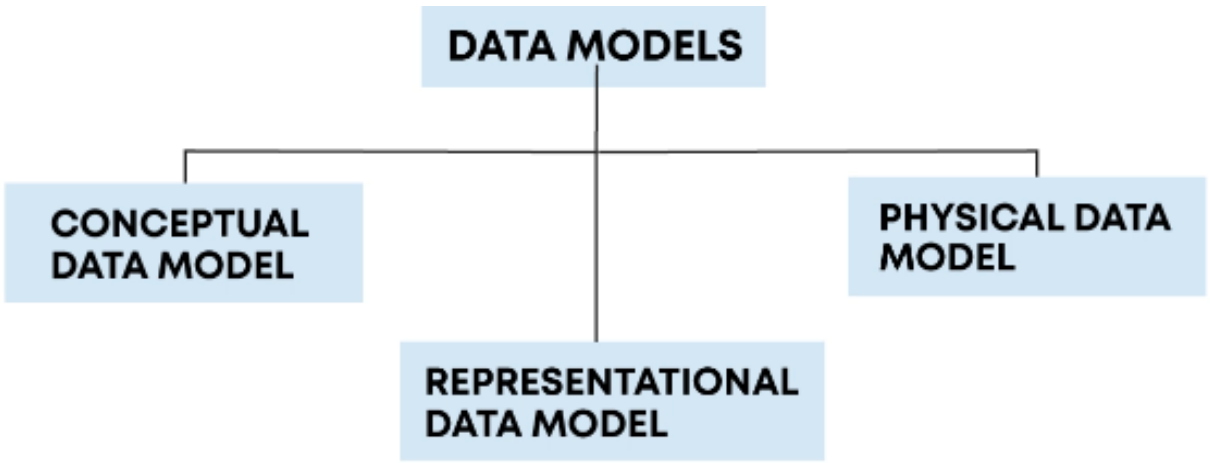


Figure: Classification of Data Models

## Conceptual Data Model

Conceptual data model describes the database at a very high level

- It is used in the requirement gathering process and for representational purposes.
- By conceptual data model we get to know what we want to build and how our data will look like.
- It also helps to know what kind of database we should use.

One of the examples of conceptual data models is Entity Relationship Diagram.

Conceptual data models known as Domain models as they create a common structure for all stakeholders by establishing basic concepts and scope.

## Representational Data Model

The Representation data model is used to represent only the logical part of the database. It helps us to design the database, before starting to build it.

- It focuses on the design part (or logic) of the database.
- It shows only the part of the information that you want to show at a specific level as it removes or hides the data for a specific kind of user.
- It represents how data is stored in a relational database.

A popular representational model is a Relational model.

## Physical Data Model

Physical Data Model contains relationships between tables that address the cardinality and nullability of the relationships. It deals with how the data is actually going to be stored physically.

- It concerns the type of database to be used and describes a database-specific implementation of the data model.
- The physical data model talks about the Abstraction (schema view) in the case of storing the data. It concerns all table structures, including column name, column data type, column constraints, etc.
- It also concerts with the different relationships these elements will have with each other. For example - primary key, foreign key, etc.
- Basically, it deals with physically how the data is stored in the device - like disk, drive, or tapes.