
The Three Phases of Database Design

Adapted from Chapter 16 (Connolly & Begg)

Step 1: Conceptual database design

Entity relationship modeling (ER) creates a diagrammatic representation of a conceptual model

Conceptual database design: build a conceptual representation of the data domain.

Process must identify the necessary entities, relationships and attributes

Step 2: Logical database design

Once the conceptual model is created, we need to target a specific data model.

We will be targeting the relational data model.

Logical database design: translate the conceptual model to the logical structure of the database. For the relational model we must design the relations for the schema.

Step 3: Physical database design

Once the logical model is created, we need to choose the targeted database management system and determine the best method for physically implementing the logical model.

Describes the base relations, file organizations, and indexes and any associated integrity constraints and security measures.

Each vendor provides different data storage mechanisms, constraint representation, etc...