Database Design

2-1
Conceptual and Physical Models
Objectives

This lesson covers the following objectives:

• Explain the importance of clearly communicating and accurately capturing information requirements

• Distinguish between a conceptual model and its physical implementation

• List five reasons for building a conceptual data model

• Give examples of conceptual models and physical models
Purpose

• When you are able to recognize and analyze information, you can better understand how things work and potentially make them better. For example:
  – How to make the line at the food counter go faster
  – How to successfully exchange an item at the store
  – How to organize and keep track of your growing CD collection

• Also, recognizing and analyzing information helps prevent mistakes and misunderstanding. For a business, this is important because it saves time and money.
What is a Conceptual Model?

A conceptual model:

• Captures the functional and informational needs of a business

• Is based on current needs but it may reflect future needs

• Addresses the needs of a business (what is conceptually ideal), but does not address its implementation (what is physically possible)
What is a Conceptual Model?

A conceptual model:
• Is called an “Entity Relationship Model”
• Is illustrated using an “Entity Relationship Diagram” (ERD)
• Is the result of completing the Data Modeling process
• Businesses use data to increase sales and/or reduce costs.
• In order to accurately collect this data, a business must create a conceptual model of the data it considers important.
What is a Conceptual Model?

A conceptual model is important to a business because it:
• Describes exactly the information needs of the business
• Facilitates discussion
• Prevents mistakes and misunderstandings
• Forms important “ideal system” documentation
• Forms a sound basis for physical database design
What is a Conceptual Model?

A conceptual model is important to a business because it:

• Documents the processes (also known as the “business rules”) of the business

• Takes into account regulations and laws governing this industry
Conceptual and Physical Models

• It is the art of planning, developing, and communicating that allows a group of people to work together to achieve a desired outcome.

• Data modeling is the process of capturing the important concepts and rules that shape a business and depicting them visually on a diagram.

• This diagram becomes the blueprint for designing the physical thing.

• The client’s dream (conceptual model) will become a physical reality (physical model).
Terminology

Key terms used in this lesson included:

- Conceptual model
- Data
- Data modeling
- Physical model
Summary

In this lesson, you should have learned how to:

• Explain the importance of clearly communicating and accurately capturing information requirements

• Distinguish between a conceptual model and its physical implementation

• List five reasons for building a conceptual data model

• Give examples of conceptual models and physical models