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Database Design

2-1
Conceptual and Physical Models
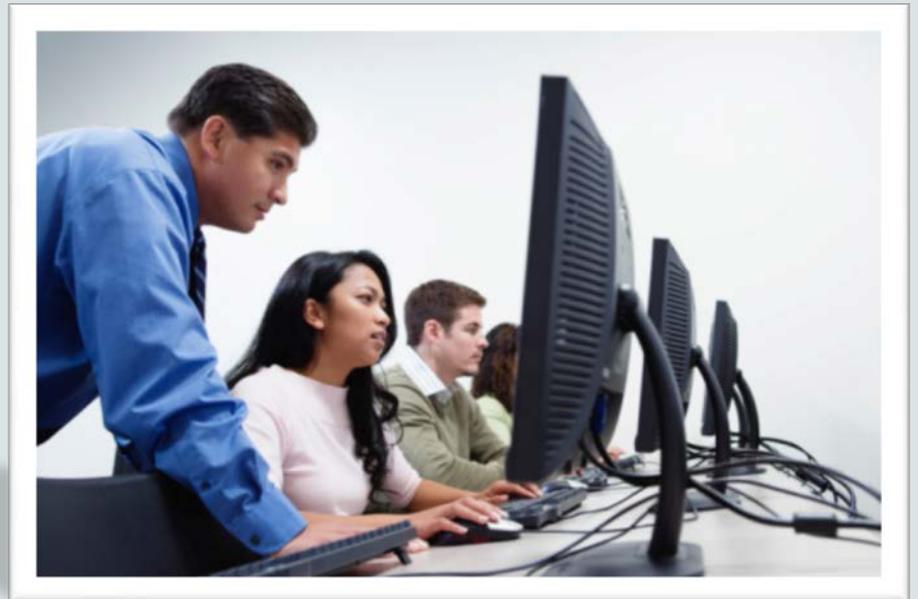
Objectives

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.

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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