Objectives

Database Systems

Objectives

- Define the difference between data and information.
- Describe a database, the various types of databases, and why they are valuable assets for decision-making.
- Understand the flaws in file systems data management.
- Describe the main functions of a database management system.
- Explain the purpose and components of the data dictionary and system catalog.
- List and describe Dr. Codd's 12 Relational Database Rules

Reading

- Chapter 1 Section 1-2 all sections
- Chapter 1 Section 1-3 all sections
- Chapter 1 Section 1-6 all sections
- Chapter 1 Section 1-7 all sections
- Chapter 3 Section 3-5 all sections
- Chapter 3 Section 3-9 all sections

Data Models

Objectives

- Discuss data modeling and why data models are important
- Describe the basic data-modeling building blocks
- Define what business rules are and how they influence database design
- Understand how the major data models evolved
- Explain how data models can be classified by their level of abstraction

Reading

- Chapter 2 Section 2-1 all sections
- Chapter 2 Section 2-3 all sections
- Chapter 2 Section 2-4 all sections
- Chapter 2 Section 2-5 sections a, b, c
- Chapter 2 Section 2-6 all sections

Relational Database Model

Objectives

- Describe the relational database model's logical structure
- Identify the relational model's basic components and explain the structure, contents, and characteristics of a relational table
- Explain the purpose and components of the data dictionary and system catalog
- Identify appropriate entities and then the relationships among the entities in the relational database model

- Describe the characteristics of good primary keys and how to select them

Reading

- Chapter 3 Section 3-1 all sections
- Chapter 3 Section 3-2 all sections
- Chapter 3 Section 3-3 all sections
- Chapter 3 Section 3-5 all sections
- Chapter 3 Section 3-6 all sections
- Chapter 3 Section 3-7 all sections
- Chapter 5 Section 5-3 all sections

ERM and Advanced Data Modeling

Objectives

- Identify the main characteristics of entity relationship components
- Describe how relationships between entities are defined, refined, and incorporated into the database design process
- See how ERD components affect database design and implementation
- Describe the main extended entity relationship (EER) model constructs and how they are represented in ERDs and EERDs
- Describe a data model using relational schema notation
- Use entity clusters to represent multiple entities and relationships in an entity relationship diagram (ERD)
- Describe the characteristics of good primary keys and how to select them

Reading

- Chapter 4 Section 4.1 all sections
- Chapter 4 Section 4.2 all sections
- Chapter 4 Section 4.3 all sections
- Chapter 5 Section 5.1 all sections
- Chapter 5 Section 5.2 all sections
- Chapter 5 Section 5.3 all sections