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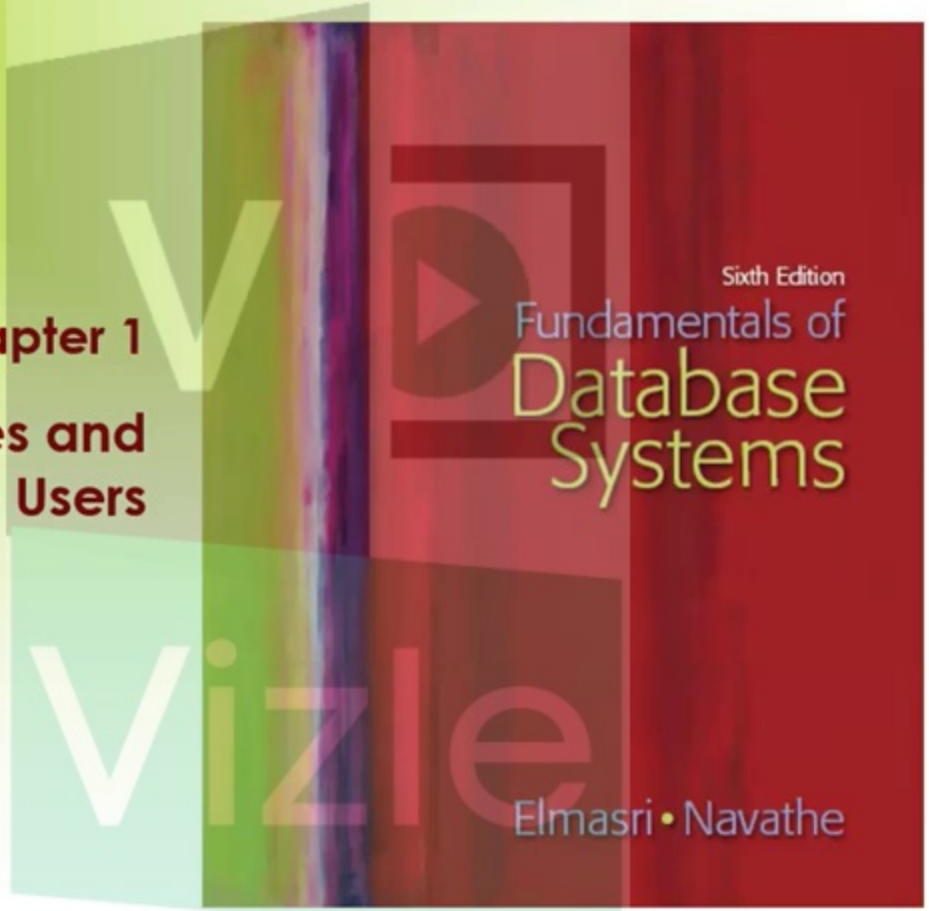
Chapter 1

Databases and Database Users



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Introduction (cont'd.)

- Example of a large commercial database
  - Amazon.com
- **Database management system (DBMS)**
  - Collection of programs
  - Enables users to create and maintain a database
- **Defining** a database
  - Specify the data types, structures, and constraints of the data to be stored

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Introduction (cont'd.)

- **Transaction**
  - May cause some data to be read and some data to be written into the database
- **Protection** includes:
  - System protection
  - Security protection
- **Maintain** the database system
  - Allow the system to evolve as requirements change over time

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An Example (cont'd.)

- Phases for designing a database:
  - **Requirements specification and analysis**
  - **Conceptual design**
  - **Logical design**
  - **Physical design**

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RELATIONS

Relation_name	No_of_columns
STUDENT	4
COURSE	4
SECTION	5
GRADE_REPORT	3
PREREQUISITE	2

COLUMNS

Column_name	Data_type	Belongs_to_relation
Name	Character (30)	STUDENT
Student_number	Character (4)	STUDENT
Class	Integer (1)	STUDENT
Major	Major_type	STUDENT
Course_name	Character (10)	COURSE
Course_number	XXXXNNNN	COURSE
....	....	.....
....	....	.....
....	....	.....
Prerequisite_number	XXXXNNNN	PREREQUISITE

Note: Major_type is defined as an enumerated type with all known majors.
XXXXNNNN is used to define a type with four alpha characters followed by four digits.

Figure 1.3
An example of a database catalog for the database in Figure 1.2.

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