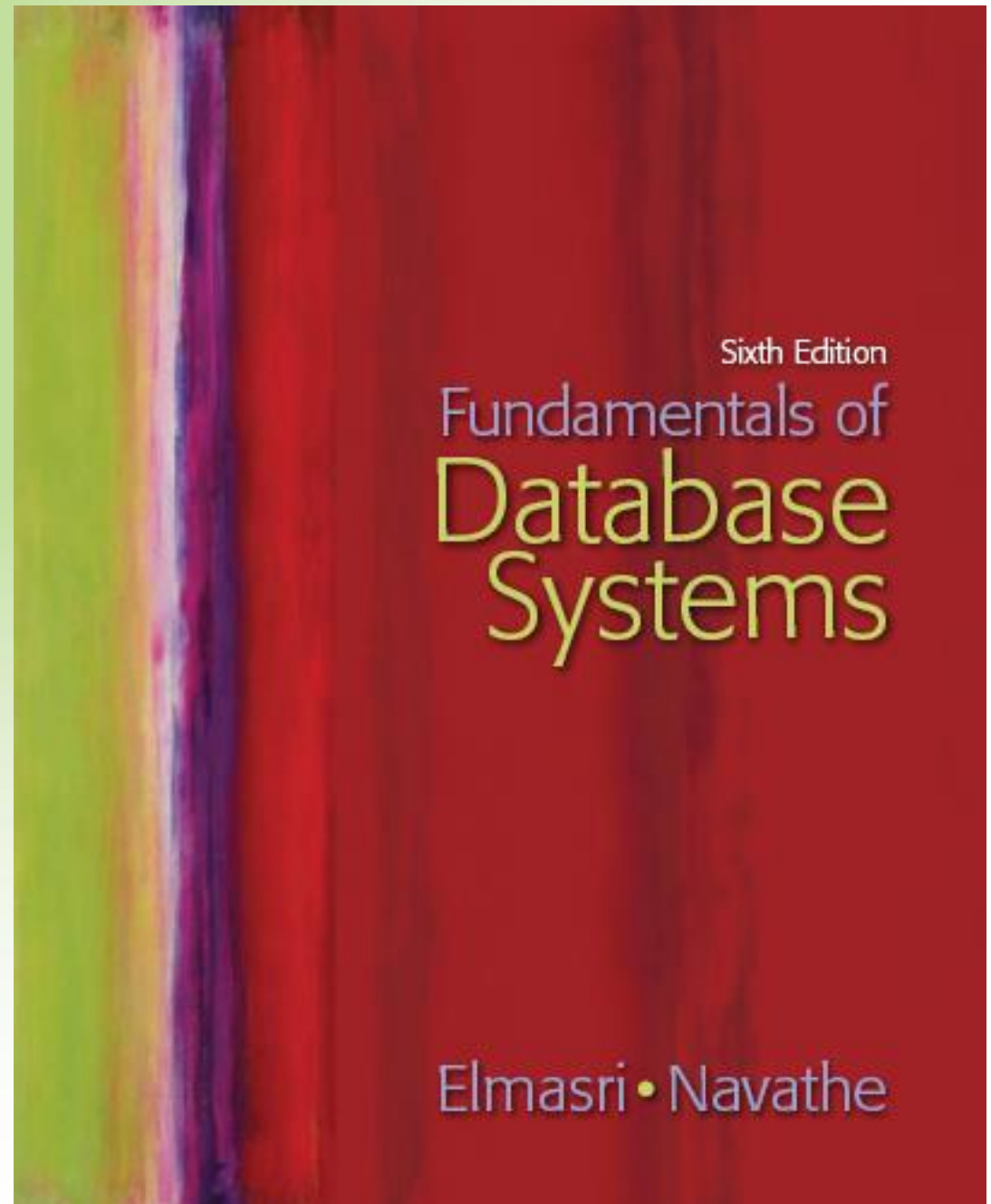


Chapter 26

Enhanced Data Models for Advanced Applications



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Multimedia Databases

Multimedia Database Concepts

- In the years ahead multimedia information systems are expected to dominate our daily lives.
 - Our houses will be wired for bandwidth to handle interactive multimedia applications.
 - Our high-definition TV/computer workstations will have access to a large number of databases, including digital libraries, image and video databases that will distribute vast amounts of multisource multimedia content.

Multimedia Databases

- Types of multimedia data are available in current systems
 - **Text:** May be formatted or unformatted. For ease of parsing structured documents, standards like SGML and variations such as HTML are being used.
 - **Graphics:** Examples include drawings and illustrations that are encoded using some descriptive standards (e.g. CGM, PICT, postscript).

Multimedia Databases

- Types of multimedia data are available in current systems (cont.)
 - **Images:** Includes drawings, photographs, and so forth, encoded in standard formats such as bitmap, JPEG, and MPEG. Compression is built into JPEG and MPEG.
 - These images are not subdivided into components. Hence querying them by content (e.g., find all images containing circles) is nontrivial.
 - **Animations:** Temporal sequences of image or graphic data.

Multimedia Databases

- Types of multimedia data are available in current systems (cont.)
 - **Video:** A set of temporally sequenced photographic data for presentation at specified rates— for example, 30 frames per second.
 - **Structured audio:** A sequence of audio components comprising note, tone, duration, and so forth.

Multimedia Databases

- Types of multimedia data are available in current systems (cont.)
 - **Audio:** Sample data generated from aural recordings in a string of bits in digitized form. Analog recordings are typically converted into digital form before storage.

Multimedia Databases

- Types of multimedia data are available in current systems (cont.)
 - **Composite** or mixed multimedia data: A combination of multimedia data types such as audio and video which may be physically mixed to yield a new storage format or logically mixed while retaining original types and formats. Composite data also contains additional control information describing how the information should be rendered.

Multimedia Databases

- Nature of Multimedia Applications:
 - Multimedia data may be stored, delivered, and utilized in many different ways.
 - Applications may be categorized based on their data management characteristics.