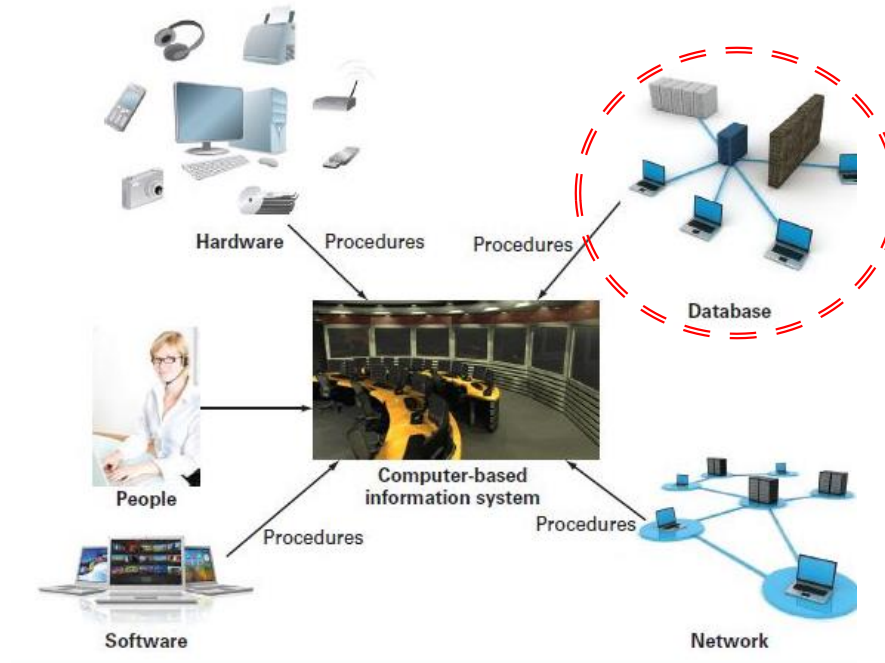
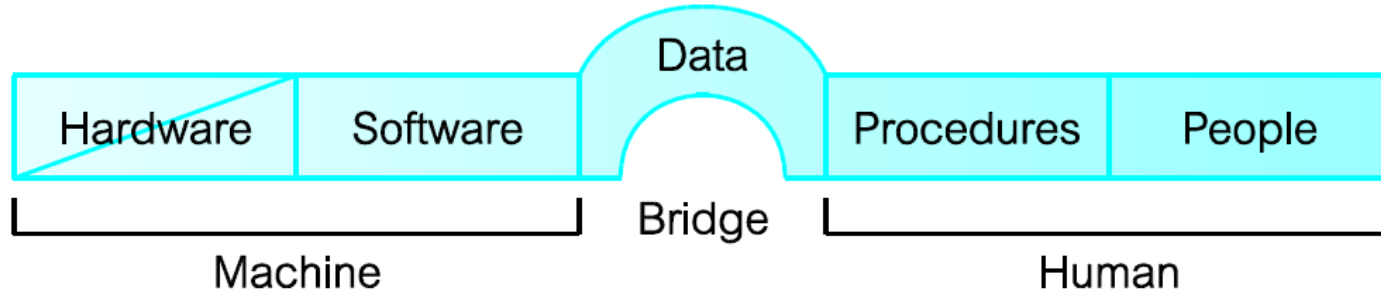


DBMS environment

Information System Components



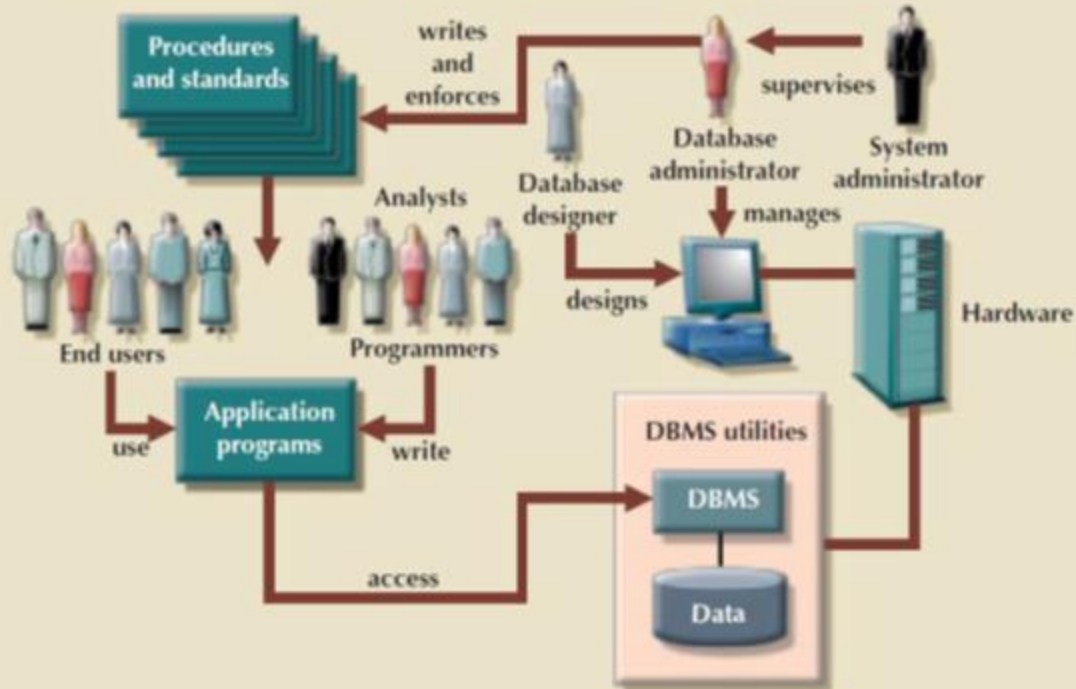
Database system environment



- Hardware: can range from a PC to a network of computers.
- Software: DBMS, operating system, network software (if necessary) and also the application programs.
- Data: used by the organization and a description of this data.

Database system environment

FIGURE 1.11 THE DATABASE SYSTEM ENVIRONMENT



- Database Designer
 - consults users about their needs,
 - select what information will be stored
 - chooses logical / physical data structures for best performance
 - chooses integrity constraints to maintain automatically
- Database Administrator (DBA)
 - monitors performance
 - changes data structures as needed
 - arranges backup and recovery
 - determines access rights

- **Application programmers** (or software engineers):
 - implement/ test / debug application programs
 - configure software systems
- **End users:**
 - Naïve users (no database knowledge, use DB through application programs only)
 - Sophisticated users (directly use database)

TABLE 1.3

DATABASE CAREER OPPORTUNITIES

JOB TITLE	DESCRIPTION	SAMPLE SKILLS REQUIRED
Database Developer	Create and maintain database-based applications	Programming, database fundamentals, SQL
Database Designer	Design and maintain databases	Systems design, database design, SQL
Database Administrator	Manage and maintain DBMS and databases	Database fundamentals, SQL, vendor courses
Database Analyst	Develop databases for decision support reporting	SQL, query optimization, data warehouses
Database Architect	Design and implementation of database environments (conceptual, logical, and physical)	DBMS fundamentals, data modeling, SQL, hardware knowledge, etc.
Database Consultant	Help companies leverage database technologies to improve business processes and achieve specific goals	Database fundamentals, data modeling, database design, SQL, DBMS, hardware, vendor-specific technologies, etc.
Database Security Officer	Implement security policies for data administration	DBMS fundamentals, database administration, SQL, data security technologies, etc.
Cloud Computing Data Architect	Design and implement the infrastructure for next-generation cloud database systems	Internet technologies, cloud storage technologies, data security, performance tuning, large databases, etc.

Learning outcomes and what is next?

- What have you learned today?
 1. Data & information
 2. Data hierarchy
 3. Importance of data management
 4. Advantage of database approach over spreadsheet
 5. Database
 6. DBMS
 7. Functions & components of DBMS

- Next lecture:
 - Relational database model
 - Entity Relationship Diagram

Thank you