The Database Approach

Learning Objectives

- Formalize the concepts of data, information, data management, and metadata (schema)
- Explain what a database is and why databases are important
- Describe a database management system
- Differentiate between the DBMS and a database
- Describe the different data models and abstraction layers

What Are Databases?

Databases are collections of data, usually describing events, objects, and concepts.

Common database models

- Flat
- **Relational***
- Dimensional
- Object oriented
- Document model

** We will be working exclusively with the relational model in this class.*

Traditional File Processing Systems

Early electronic storage was inefficient

- Indexed Sequential Access Method (ISAM)
- Program-data dependency
- Duplication of data
- Lengthy development times
- Heavy maintenance load

The Database Approach

Simple tabular databases work well for very small data sets.

TO DO LIST

Wednesday, June 1, 2016

Due Today: 1

Overdue: 2

Done	Description	Due Date	Priority	Assigned to
	Mow grass	6/2/2016	High	Mom
✔	~~Clean Room~~	~~5/31/2016~~	~~Medium~~	~~Child 1~~
	Clean Room	5/31/2016	High	Child 2
✔	~~Clean Room~~	~~5/31/2016~~	~~Medium~~	~~Child 3~~
	Clean Room	5/31/2016	Medium	Child 4
	Organize Pantry	6/1/2016	Low	Dad

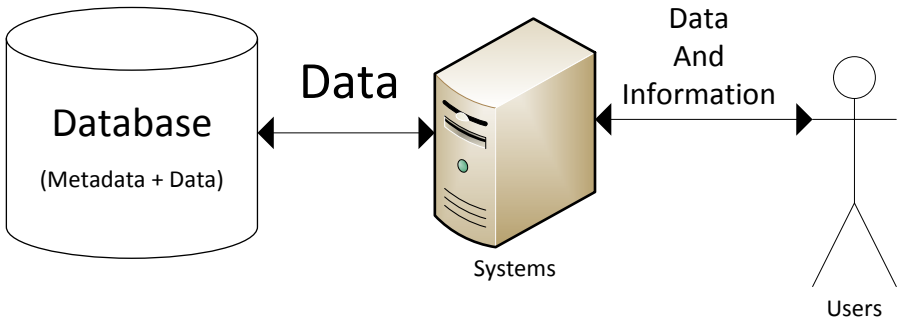
Elements of a DBMS

- Data definition mechanism
  - Provides a means for structuring and describing the stored data
- Storage and retrieval mechanism
  - Provides a means for data entry and recall
- Data administration mechanism
  - Provides the means to limit access to data, backup and restore database elements, manage database performance, and other tasks

Fundamental Axioms of DBMS

- Users communicate with computer applications (websites, etc.)
- Computer applications communicate with DBMS.
- Users do **not** communicate with DBMS directly.
- As a result, DBMS, although they can be used interactively, are **not** used interactively.
- **A DBMS is not a replacement for sound database design principles.**

Systems use DBMS.



Users use Systems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