



Introduction to Database Systems

CIS 4301

Lecture Notes

1/10/2006



What is a Database?

- Collection of related data items that are being stored for record-keeping & analysis
 - Could be stored on cards in Rolodex, file cabinet, *computer*, ...
- Computerized databases are managed by a Database Management System (DBMS)
 - Persistent storage: Efficient, safe storage of large amounts of data
 - Programming interface: High-level language for specifying operations user wishes to perform on data
 - Transaction management: Concurrent access to data, provides recovery in light of failure



Importance of DBMS

- Amount of electronically available data is exploding
 - Cost of storage is continuously dropping
 - Moore's law: every 18 months, speed of processor| capacity of disk doubles or price goes down by half
- Value of data as an organizational asset is widely accepted
 - High demand in industry for powerful, flexible data management systems to store data efficiently and get the most out of their large, complex data sets
 - e.g., data warehousing, data mining
- Largest databases
 - Federal Express, Wal-Mart, Kight-Ridder (Dialog), ...
 - Tables with 1 billion or more rows
 - Approaching 10's of TB of data
- Think of the consequences of storing this much data... ?