

Database

CSCI 2020

* Terms & Definitions

- database - a collection of related data
- has a purpose, scope, & time frame
- intention - format, extension - data itself
- intention is a schema or structure
- instantaneous - currently valid data
- historical - all data over time that is valid
- temporal - when valid starts & valid ends
- Types
 - transactional - live, production, OLTP
 - run a day to day business
 - data changes frequently
 - many active users
 - analytical - historical, OLAP
 - data warehouse
 - doesn't change, may be added to
 - few users doing complex operations
- Redundancy
 - controlled - may be good
 - uncontrolled is always bad
- What To Do
 - setup - design, populate
 - use - update, question, evolve
 - retire - archive, export
- Gain
 - replication is reduced
 - abstract definition of enterprise
- DBMS
 - setup database, update db, question, evolve
 - a DBMS implies a database, but not reverse

- Who Uses?
 - designers - design, implement, evolve
 - app designers - CRUD
 - end users
 - DBA - maintain & monitor
- Common Features
 - self describing - contains complete structure, descriptions, & constraints
 - self policing - enforcing constraints, like data types, valid values, restricts unwanted access, controls redundancy
 - multi user support - concurrency control
 - multi DB support
 - multi views - users get different views
 - multi interfaces - GUI, command line, web
 - client - server
- Client Server
 - two tier vs. three tier
- Part of DBMS
 - interfaces - program, GUI, command
 - interface process - query, data definition language (DDL), data manipulation language (DML)
 - core - concurrency, security, recovery, integrity, data indexes
- Gains
 - everything with a DB
 - multiple views