

Class Notes - CS482 - Chapter 1

1 What is ...?

What is database? A *collection of data items* related to some enterprise stored on some storage media. (our interest: stored on computer); Database can either be centralized or distributed.

Database Management System (DBMS) A *system* (program) that supports the creating and maintenance of databases.

What is a transaction? A *program* that changes the state of the database; reflects/records an event happening in the real-world that changes the state of the enterprise.

What is a transaction processing (TP) system? A *TP monitor* is a system that manages transactions and control their access to a DBMS. A *TP system* consists of a TP monitor, one or more DBMS's, and a set of programs containing transactions.

2 Features of Modern Database and TP Systems

- **Characteristics:** relational data model, large multimedia objects, online, concurrent access, distributed computation, distributed data, heterogeneous
- **Requirements:** high availability, high reliability, high throughput, low response time, long lifetime, security

3 People

System Analyst. Specification developer

Database Designer. Create database structure from specification.

Application Programmer. Implementation of GUIs, transaction programs

Project Manager. Manage the project

User. Access database through GUI (application programs), record transactions; different classes of users;

Database Admin. Supporting the DB

System Admin. Support users, hardware, software, DBMS installation, etc.

4 Decision Support Systems vs. Transaction Processing Systems

Different goals: DSS's primary goal is to guide management decisions using the information in a DB while TPS's goal is to maintain the correspondence between DB and real-world situations.