

Introduction to Database Systems

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Why do you need
a database system?

To store data,
why not just use a file system?

Advantages of a Database System

- It answers *queries* fast
 - Q1: among a set of blog pages, find those pages written by Steven Sinofsky after 2011
 - Q2: among a set of employers, increase the salary by 20% for those who have worked longer than 4 years
- Queries (from multiple users) can execute *concurrently* without affecting each other
- It *recovers* from crash
 - No corrupt data after restart

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Goals

- To use a DB system (in only 3 weeks)
- To understand how to *write* a DB system
 - Architecture
 - Trade-offs

Prerequisites

- Data structure
- Good programming skill
 - OOP (in Java)
 - Multi-threaded programming
 - Project management tools like Git

Syllabus

- [Here](#)
 - Subject to change
- Thu: physical + **video** lecture
- Mon: labs (TA time)
 - Explain your new assignment
 - Review your pass assignment
- Homework every 2 weeks
 - Not only code
 - But reports summarizing ***your observations***

Grading

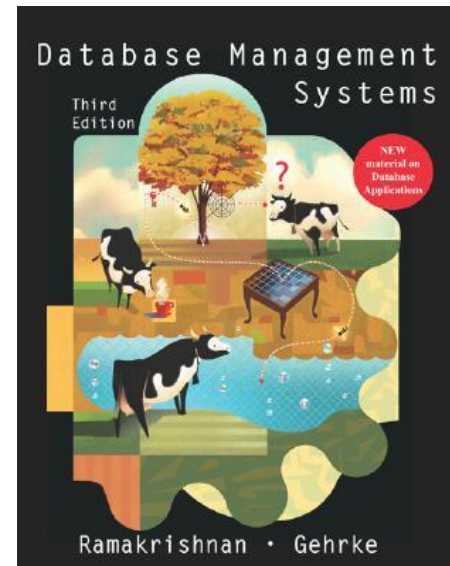
- Homework (x5): 50%
- SQL & Java quiz: 15%
 - *On next Thu (3/12)*
- Midterm exam: 15%
- Final project: 20%
- Q/A Bonus: up to 5%

Resources

- Text Book
 - Lecture notes
 - Reference links
- Course page
 - <http://www.cs.nthu.edu.tw/~shwu>
- TODO
 - Register your team

About the Quiz...

- Coverage:
 - Java concurrency
 - How to use a DBMS (SQL language)
- On **3/12**
- Assigned readings:
 - [Java Concurrency Tutorial](#)
 - Chaps 2 and 3 on ER & relational models



Questions?

FAQ (1/2)

- Do I need to write programs in this course?
 - A lot!
 - ***We will give extensive coding assignments***
- Do I need to write code with others?
 - Yes, 1~3 students a team

FAQ (2/2)

- Do we need to come to the class?
 - No, as long as you can pass
- Is this a light-loading class or heavy-loading class?
 - Should be *heavy* to most students
 - *Reserve time, otherwise you will have high chance to fall*