

Data Management

Lecture 1

Introductions



Robert Soulé

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Research on networks, languages, distributed systems, and databases

Brown

1995–1999 BA CS, Art-Semiotics



NYU

2004–2006 MS CS

2006–2012 PhD CS



IBM

2008–2011

Data Intensive Systems group



Cornell

2012–2014

Postdoc

Lugano

2014-present

Assistant

Professor



What is a Database?

- A collection of information that exists over a long period of time
- Models some real-world enterprise (organization) and the totality of the information it contains
- *A database management system (DBMS)* is a software system to enter, modify, and query data

Why Study Databases?

- An increasing shift from computation to information
- Databases are a crucial component of most real-world applications and businesses
- DBMSs include most aspects of computer science:
 - OS, PL, AI, algorithms, theory, distributed systems, ...

Course Goals

- Become familiar with fundamental DBMS concepts and tools
- Study alternatives to “traditional” approaches
- Understand enough to learn more

Topics Covered

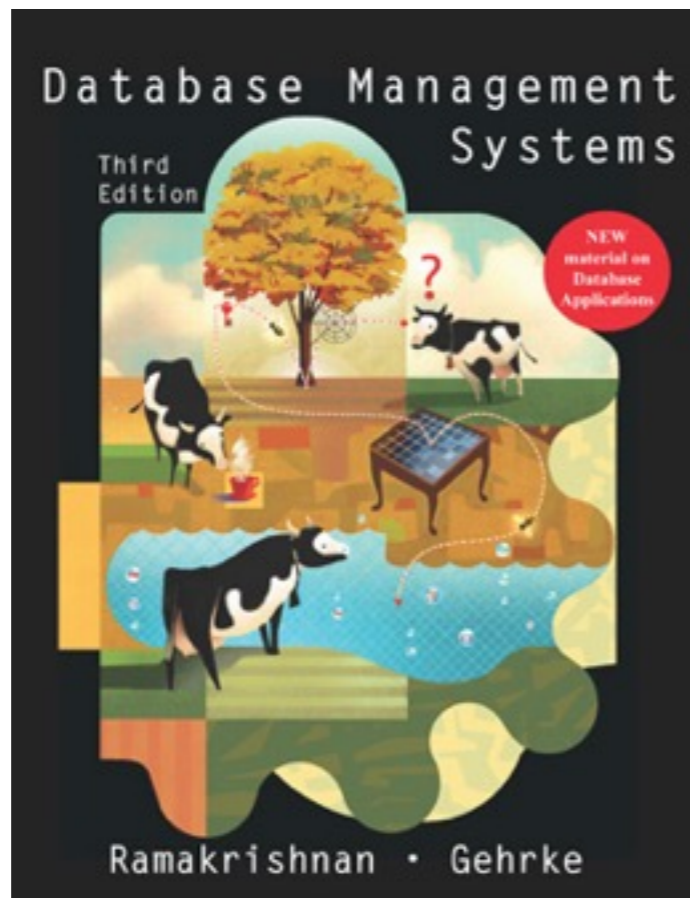
- Conceptual design
- Relational model
- Relational algebra
- SQL
- Logical design and normalization
- Query execution
- Transaction processing
- Data storage
- Indexing
- Query optimizations
- Alternatives to relational model (e.g., NoSQL)

This Course

- The syllabus/schedule is likely to change as we go along
- We will try to make the course as smooth as possible, but expect some bumps



Books



Seven Databases in Seven Weeks

A Guide to Modern Databases and the NoSQL Movement

Eric Redmond
and Jim R. Wilson

Series editor: Bruce A. Tate
Development editor: Jacquelyn Carter



Grading

- *Roughly:* 35% for homework and projects, 25% for the mid-term, 40% for the final exam

Late Policy

- If you submit less than one hour late, there is a 10% deduction.
- If you submit less than 3 hours, but more than 1 hour late, it is a 50% deduction.
- Anything more than 3 hours late is not accepted.

Academic Integrity

- You may discuss assignments and solutions with others. You must say who you worked with, and cite outside sources.
- You must write and turn in your own solutions
- Any incidents of cheating will be reported to the department, and the assignment will be given a 0.