

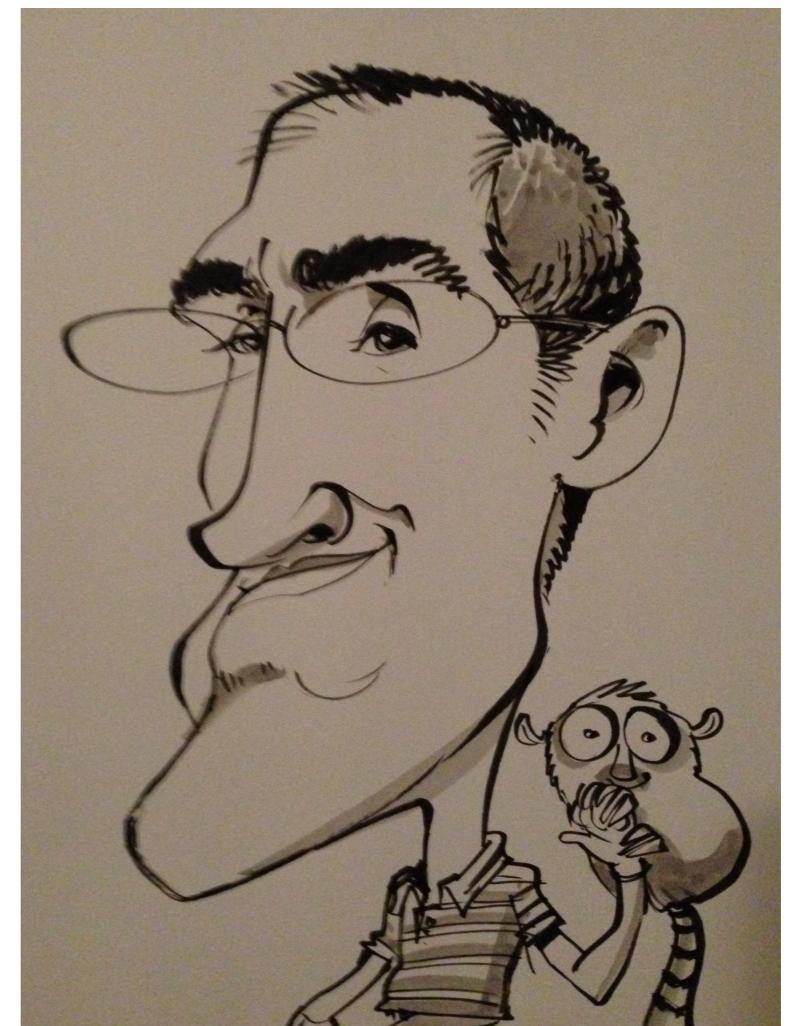
Data Management

Spring 2025

Lecture 1 — Intro

Instructor

- Patrick Eugster (eugstp@usi.ch)
- PhD EPFL 2001
- Purdue University 2005-2016,
TU Darmstadt 2014-2017
- USI 2017-
 - [SWYSTEMS @ SYS](#)



Teaching Assistants

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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 Data Management?

- Shift from computation to information
- Crucial component of most real-world applications and businesses
- DBMSs touch upon most aspects of computer science
 - OS, PL, AI, algorithms, theory, distributed systems, ...

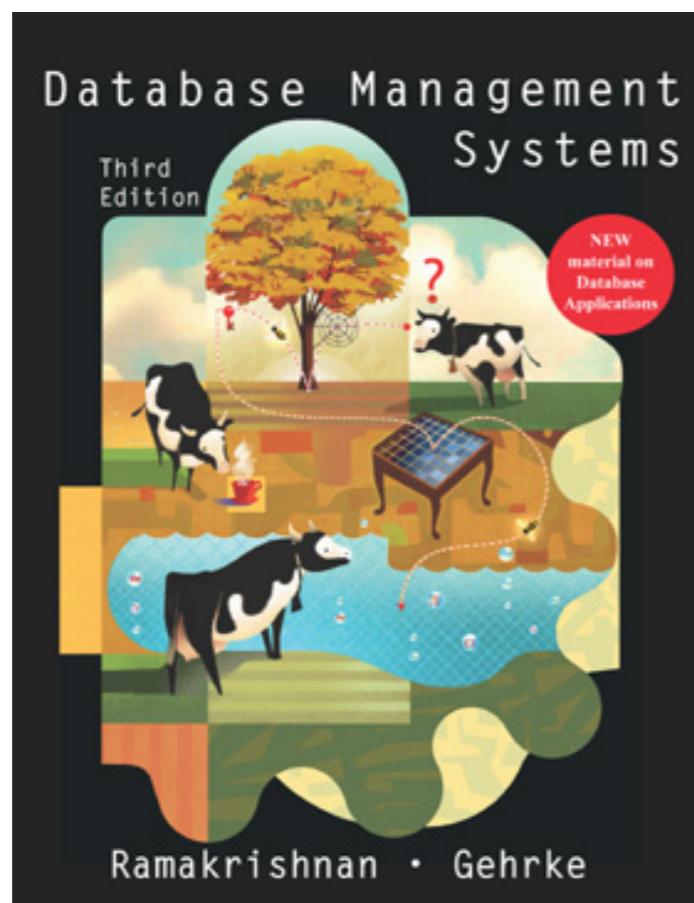
Course Goals

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

Topics Covered — Estimate

- Conceptual design
- Entity-relationship model
- Relational modeling and algebra
- SQL
- Logical design and normalization
- Query execution
- Transaction processing
- Data indexing and storage
- Query optimizations
- Big data and data analytics

Books



The
Pragmatic
Programmers

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

- Tentative
 - 20% for homework
 - 30% for midterm exam
 - 50% 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.
- The use of ChatGPT and other similar electronic assistants is strictly prohibited.
- Any incidents of cheating will be reported to the department, and the assignment will be given a 0.

Organization

- Tentative schedule, slides, etc. iCorsi
- (Access to) recordings
 - Immediate: only for documented absences
 - Eventual: before exams