Introduction to the Course

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CS 348
Introduction to Database Management
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Course Objectives

• To study databases from four viewpoints, in particular, those of the database user, the database designer, and the database manager. It teaches the use of a database management system (DBMS) by treating it as a black box, focusing only on its functionality and its interfaces.

• Sub-objectives:
  1. To understand the principles of relational database management systems and their languages – in particular SQL.
  2. To learn the methodology for building applications on top of database management systems – the so called data modeling process.
  3. To learn issues related to the management of large-scale DBMSs, such as performance monitoring and tuning, security, and privacy.
Course Documents

Textbook


Others

- See web site for additional resources regarding DB2 and SQL.

Notes

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Course Logistics

Web Site

• www.cs.uwaterloo.ca/~tozsu/CS348

Discussion

• We will not use a newsgroup for discussion, but a tool called Piazza. Check the web site for a link to Piazza. You will be included in the course discussion group and you are expected to post questions and responses there. The TAs and I will monitor the discussion.

Evaluation

• Assignments (40%)
  • Four assignments; see the web site for details
  • Drop boxes on third floor MC

• Midterm exam (20%)

• Final exam (40%)

• To pass the course you must pass: the weighted average of the assignments and the weighted average of the exams.
Course Content

Why do we use databases?
- Functionality provided by a Database Management System
- Database Models: Relational, Network, OO

How do we use a DBMS?
- Relational model, foundational query languages
- SQL
- Application programming
- Transactions and concurrency

How do we design a database?
- Entity-Relationship (ER) modeling
- Dependencies and constraints
- Redundancy and normal forms

How do we administer a DBMS?
- Security and authorization
- Physical design/tuning