CS 387 Fall 2002 - Database Design

Instructor

- Dr. Christelle Scharff
- PhD from France - 1999

  Research: Automated deduction and theorem proving, Verification of hardware and software, Formal Methods, Data mining, New technologies in education
- French accent.
- Teaching in France, in Cambodia, in USA (State University of New York at Stony Brook and Pace University).
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Prerequisites

- What do you know (background, operating systems, software, DBMS ...)?

  Oracle, SQL, JDBC, XML, PostgreSQL...

  Surveys
- High-level language programming
  - JAVA
- Data structures and algorithms
  - Trees, pointers, searching, sorting
- Discrete mathematical structures
  - Sets, relations, graphs
- Formal logic
  - Propositional logic, truth table, predicates

What is cs 387?

- CS 387 prepares you to face the real world of databases applications and developments.
- It presents the fundamental concepts of database design. It provides a study of data models, data normalization; data description languages and their design and form, query facilities including relational algebra, and query functions. It is a design class and not a programming class.
- It will focus on the SQL query language **but** it is NOT a course on SQL.

Description

- http://www.csis.pace.edu/~scharff/cs387f2002
- Blackboard
- WeBWork
- Everything is/will be on the web.
- Class time
- Office Hours - When? Where?
- Textbooks
- Assignments
  - Homeworks - will be posted on the web, solutions will be posted in Blackboard
  - Project
  - Learning Experiences (Midtemrs)
  - Final
  - Participation (Discussion lists, piratical exercises, surveys, attendance...)
- Grades, Regrades
- Academic integrity
- Guidelines for assignments

Topics

- 0 - Presentation of the course
- 1 - Introduction, Chapter 1
- 2 - Foundations (sets, relations...)
- 3 - A closer look, Chapter 2
- 4 - Entity relationship model, Chapter 5
- 5 - Relational data model, Chapter 4
- 6 - Relational algebra and SQL, Chapter 6
- 7 - Relational normalization theory (light version), Chapter 8
- 8 - Physical Data Organization and Indexing, Chapter 11
- 9 - XML and Web Data (light version), Chapter 17
- 10 - Security and Internet Commerce, Chapter 27

Tools

- Database Management Systems: Oracle (on matrix), SQL Server, Access, Sybase
- SQL: **PL/SQL**
- JDBC
- JAVA
- Servlets
- XML