CPSC 340A Database Systems, Fall 2009

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Office Hours: MW: 1:30pm--3:00pm; TTh: 12:30pm--2:00pm; and by appointment
Course website: http://cs.roanoke.edu/CPSC340A/

Syllabus

Text

An Introduction to Database Systems, 8th edition by C. J. Date

Objectives

This course provides an introduction to the theory behind relational database systems. Topics include the architecture of a database system, the formalisms of relational algebra and relational calculus that form the theoretical framework for database systems, the query language SQL, normal forms of relations, and issues of data concurrency, security and integrity in the context of multi-user database systems.

Intended Learning Outcomes

By the end of the course, successful students will have the following abilities:

1. Students will understand the relational calculus underlying relational database design, and be able to formulate relational calculus statements to represent appropriate subsets of a given data set.
2. Students will be able design normalized relational databases for a given data set.
3. Students will be able to use the Structured Query Language (SQL) to create relational databases and formulate queries to extract appropriate data from a given relational database.

Prerequisites: CPSC 170
Academic Integrity

Students are expected to adhere to the Academic Integrity policies of Roanoke College. All work submitted for a grade is to be strictly the work of the student unless otherwise specified by the instructor. The policies as outlined in the Academic Integrity handbook will be enforced in the course.

Graded programs are subject to the Roanoke College Academic Integrity policies. Copying a program or a portion of a program (even a single line) or reading another person's program to obtain ideas for solving a problem is plagiarism. Other examples of integrity violation include writing code for someone else, using code written by someone else, telling someone else how to solve a problem or having someone tell you how to solve a problem (and using their method). These cases apply to any work that is handed in for a grade under the instructor's assumption that the work is your own. Unless specified otherwise by the instructor, discussion among students should be limited to general discussion of concepts and language details, not specific aspects of a solution to the assigned problem.

Class Attendance

Regular attendance is highly recommended. Regardless of attendance, students are responsible for all material covered or assigned in class.

Mechanics

There will be two one-hour tests (Sept. 24, and Oct. 29) in class. The third part of the project (see below), due on November 23, 2009, along with the presentation of the project will count as component of the final exam. Make-up tests will be available by pre-arrangement only in case of scheduling conflicts. After the test, make-ups will be available only in case of documented medical emergency.

Besides the exams, there will be regular homework assignments, projects and quizzes in class, and a co-curricular requirement.

Programming projects: During the semester we will work with the data base management system MySQL. In the second half of the semester there will be a three part project. Each of parts 2 and 3 will build on the previous parts. Part 3 of the project will count as one component of the final exam. Projects will be graded on correctness, style and documentation. Parts 1 and 2 of the project are due by 5:00pm on their respective due date. Part 3 of the project is due by 11:59pm on Monday, Nov. 23, 2009. During class on Nov. 24, Dec. 1 and Dec. 3, all students will give a presentation demonstrating their projects. Each project will be graded out of 100 points. Late projects will be penalized 10 points per day, and will not be accepted more than three days late.
Home works: Home works will be assigned on a regular basis and posted at the course website. All home works are due at the beginning of class on the posted due date. **Late home works will not be accepted.**

Quizzes: There will be short quizzes in class. These will be announced at least one class period in advance. There will be no make-ups for missed quizzes.

Co-curricular Requirement: The Mathematics, Computer Science and Physics department will offer a series of discussions that appeal to a broad range of interests related to these fields of study. These co-curricular sessions will engage the community to think about ongoing research, novel applications and other issues that face these disciplines. A list of the talks is available at the conversation series website. Each student is required to attend at least **three** of these sessions, and turn in a short paper describing the contents of the session, and his/her critical reflections about the topic and content. **These papers are due in class within a week of the session.**

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**Grading**

The final grade will be computed based on the grades in the tests, the final exam, home works, quizzes, projects and the co-curricular component according to the following weights.

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<th>Component</th>
<th>Weight</th>
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<tr>
<td>Home works</td>
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<td>Quizzes</td>
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<td>Projects (Parts 1 and 2)</td>
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<td>One-Hour Tests (2)</td>
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<td>Project Part 3</td>
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<td>Co-curricular</td>
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Project Part 3 is broken down as follows:

- 15% correctness, documentation
- 5% presentation

The grading scale is as follows:

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