CS 4400 INTRODUCTION TO DATABASE SYSTEMS
GTL - Summer 2019

INSTRUCTOR:
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COURSE CONTENT:
We introduce the fundamental concepts necessary for the design and use of modern database systems in today's large-scale enterprise applications. We examine the concepts in the order that we typically encounter them in the actual database design process. We start with the problem of conceptually representing data that is to be stored in a database. From there, we see how the data in a conceptual data model can be converted to a database specific model (e.g., the relational data model). We also discuss various forms for relations that possess good properties. We see how to use the relational database language SQL to define the relations and to write SQL statements to insert, delete, retrieve and update the data. We also examine some of the fundamental storage structures that are used in relational database systems. We end the course with a discussion of some advanced topics in the database management area.

PREREQUISITES:
Basic programming skills.

TEXT, NOTES, RESOURCES:
• (Required) Fundamentals of Database Systems, 7th (or 6th) edition, Elmasri & Navathe, Addison-Wesley, 2016. An electronic version of the text is acceptable. There will be required readings from this book so you will need to have a copy.
• Textbook slides will be provided
• Professor McDaniel's daily notes will be posted
• Database Design Methodology Notes will be provided
• Sample Quizzes from previous semesters will be provided

CLASS PROJECT:
A detailed project description will be given out during the second week of the semester. A complete database design and implementation will be developed by each group of 4 to 5 students in three phases during the semester.

GRADING DETAILS:
• Four in-class quizzes worth 10% each (40% total)
• A cumulative final exam worth 15% of your grade (15% total)
• Project Phases I and II and III worth 15% each (45% total)

Standard letter grade cutoffs apply:
• A: 90% and above of the total course points
• B: 80% and above of the total course points
• C: 70% and above of the total course points
• D: 60% and above of the total course points
• F: less than 60% of the total course points
**Regrade Request Deadline:**
Once graded project phases and/or quizzes are returned, there is a one-week deadline during which you can contest your grade. This clock starts not when you personally get your returned paper, but when the papers are returned (e.g. posted on Canvas) in general.

**SLS Affiliation:**
This course is part of Georgia Tech’s Serve-Learn-Sustain (SLS) initiative, which provides students with opportunities to combine their academic and career interests with their desire to make worthwhile contributions to the world and build sustainable communities where people and nature thrive, in Georgia, the United States, and around the globe. More information about SLS can be found at [www.serve-learn-sustain.gatech.edu](http://www.serve-learn-sustain.gatech.edu). Visit the website to sign up for the SLS Email List, view the full list of affiliated courses and projects, and find links to Facebook, Instagram and Twitter.

**Team Project:**
You will design and implement a database application using the MySQL relational database system available by the College of Computing. The Project must be done as a team of 4-5 students. You will choose your teammates during the second week of the semester. It is important to understand that we expect the high quality that can come from a team working together, coordinating, and thoroughly testing their system. Good teamwork requires strong collaboration, and does not equate to simply dividing the work across the team and expecting a good result. We will follow a typical database design methodology for the Project. Notes describing the methodology will be available. The Project will consist of 3 phases (deliverables) as well as a final demonstration. All team members must be physically present and participate in the final demo of this semester-long project. At the start of the Demo, the team must tell the TA if this is to be judged as the Lightweight or Heavyweight version of the Project. Also, if a member of the team does not carry his/her weight on the Project, then the team may drop that person from the team at the end of Phase I or Phase II only. The Course Instructor must be notified of this request.

**Team Peer Evaluation:**
For each phase of the project, each team member will submit a peer evaluation of the other team members using the CATME software system. This evaluation will be taken into account when determining the grade for each team member. Completion of the evaluation survey itself is a course requirement and counts as 5 points per each phase of the Project.

**Project Collaboration:**
Students within a project team obviously will collaborate closely with each other to work as a team for each phase of the project. They will also be allowed to ask questions of the instructor or post questions on Piazza. No collaboration of any other kind whatsoever is allowed outside the team except as noted here. Students are expressly forbidden to collaborate across teams or to collaborate with others outside of the course. Any violation of this policy will be reported to the Dean of Students without exception.

**Professionalism:**
I expect every student to behave in a professional manner befitting Georgia Tech. Your behavior matters, and poor behavior can result in a letter grade drop for the course. I expect you to be aware of and abide by Georgia Tech’s Faculty Expectations and Georgia Tech’s Code of Conduct. Lack of professionalism that crosses over into academic misconduct or violations of the Code of Conduct may be more severe and will likely require that the matter be referred to the Dean of Students Office.