

CS 138: Student Missive

January 26, 2006

1 Introduction

This course will convey knowledge of the fundamental principles and practice underlying networked information systems, which are of unprecedented practical interest and importance. It will investigate the issues that arise in the design and implementation of today's networked systems through abstract models, protocols, and detailed case studies of widely used networked applications and services. The course will first review fundamental distributed computing mechanisms, such as networked communication, naming, synchronization, replication, and security, which form the basic run-time infrastructure of distributed systems. It will then cover middleware technologies, which are becoming increasingly indispensable for distributed systems development. Finally, the course will address how these mechanisms and technologies fit together to realize existing and newly emerging networked information systems by discussing distributed databases and file systems, web-based information systems, and mobile information management.

There are two important objectives of this course. First, it will provide students with an in-depth understanding of the mechanisms and technologies underlying networked information systems. Second, the course will provide students with necessary hands-on experience required to design and construct working distributed services and applications. There will be written examinations and periodic quizzes of materials covered in class. Furthermore, the course will involve a semester long implementation project in Java.

CS32 is the only stated prerequisite for this course - we will teach you what you need to know about networking and threading during the beginning of the course. What we want you to have is a background in writing large modular pieces of software. Knowledge of Java is an unstated prerequisite, but this should be a given since 32 requires it.

2 Staff

This course will be taught by Professor Ugur Cetintemel (ugur). The course has one head TA, Lincoln Quirk (lquirk), one undergraduate TA, Daniel Winograd-Cort (dwino-gra), and one graduate TA, Alptekin Kupcu (kupcu). For administrative questions, mail cs138tas@cs.brown.edu.

3 Structure

The work for the course will be divided into quizzes and assignments. There will be two quizzes during the semester; they should take no more than an hour each and are intended to verify your understanding of the material. The five assignments are all part of a semester long project where each assignment represents a different phase of the project, and each phase builds on the previous one. Thus, it is critical that you design extensibly and debug as you go along so you don't face monstrous problems that could have been solved much more easily by debugging earlier. Don't procrastinate – falling behind can be disastrous, and plenty of time is given to each assignment. In return, at the end of the semester, you will have built your own miniature but functional database backend for a working online game, and you will understand the issues involved with functionality that we do not have time to implement in the course.

4 Textbook

The textbook for this course is:

Distributed Systems, Principles and Paradigms, Andrew S. Tanenbaum, Maarten van Steen, Prentice Hall, 2002.

The textbook is required, and lectures will follow along closely with the textbook.

5 Lectures

Class will meet Tuesdays and Thursdays from 1:00 to 2:20. The class will meet in CIT 368. Lecture slides will be available for viewing and/or printing on-line from the CS138 web page.

6 Help Sessions

The TA staff will be holding help sessions as the need arises. The help sessions will be primarily question-driven; we may bring our own material to present, but do not rely on this! Come prepared with questions, and, if nothing else, be sure to read the assignment before coming to the help session!

7 Programming

Java (specifically Java 5) is being used because its facilities in networking and threading will allow you to focus on the more interesting, high-level aspects of the course. You will be interacting with some external software packages, most notably Berkeley DB, but the TAs will provide both setup and wrappers to assist you in this endeavor.

Students are given the choice to work either with Eclipse, a Java development environment, or a plain text editor. Since the assignments before Game are not graphical, working at home doesn't even require an X server. There are some issues with leaving the servers you will be building running on machines, but we will provide scripts to assist you in making sure you don't leave processes lying around when the time comes. A last note - since the course is in Java and is an advanced course, your primary resource for programming assistance should be the Java documentation at <http://java.sun.com/j2se/1.5.0/docs/api/> - we will provide help on some more obscure points, but as a whole we expect that you are able to learn on your own by reading this documentation, perhaps with supplemental material from the staff. Repeatedly asking questions on TA hours that are easily solved by a quick consultation of the javadocs will not be looked upon favorably.

8 Grading

The grades for the course will be determined by a combination of the assignments and quizzes as well as participation. The breakdown is as follows:

1. Quizzes - 30%
2. Comm - 10%
3. SDDB - 15%
4. Quorum - 15%

5. Fault - 10%
6. Game - 15%
7. Participation - 5%

9 Late Policy and Extensions

Assignments should be handed in on time. You will lose 20 points on the assignment's score for each day late.

Extensions will be granted on a case-by-case basis by the administrative head TA for medical or other reasons. It's best not to fall behind, but if you need a minor extension, contact cs138headtas@cs.brown.edu and explain your reasons.

10 Incompletes

Incompletes are unlikely to be granted for anything less than extenuating circumstances. Too heavy an overall workload is not a sufficient reason. If you do decide to seek an incomplete, speak to Ugur as soon as possible after your decision.

11 Web/News

The course webpage is <http://www.cs.brown.edu/courses/cs138>. It is an invaluable source of information, and you are responsible for the contents of the MOTD, as well as anything posted to the course newsgroup, brown.cs.cs138. The newsgroup will be linked off the webpage. Mozilla, the default browser on the lab machines, is a capable newsreader, as are the command-line readers `pine` and `slrn`. If you have any questions about these, please see the lab consultant on duty, who will be able to assist you with their use.

12 TA support

There are two primary ways in which to seek help from the TAs. First, the TA staff will hold office hours in either CIT 244 (the fishbowl) or CIT 227 (the moonlab) if there is overcrowding. They will be there to answer questions about the work for the course, as well as any related material. The schedule, once decided, will be posted to the webpage. Do

not expect the TAs to bring your code up on screen - they may do this, but only at their discretion, and will not respond to a direct request to do so.

The newsgroup will also be monitored regularly by the staff for any questions you may have. This is a great forum in which students and TAs will both regularly read and reply to questions. However, please remember the collaboration policy - do not post code to the newsgroup, and be careful how much you share! If you think your question is too specific, mail the TAs instead at `cs138tas@cs.brown.edu`. Also mail that alias if you have administrative questions.