CSE 336

Internet Programming

Why You Need CSE336

"Concepts like bits and bytes, domain names, ISPs, IPAs, RPCs, P2P protocols, infinite loops, and cloud computing are strictly the province of geeks or nerds who bother to pay attention to such things, and who are, ominously, increasingly essential in some obscure and vaguely disturbing way to the smooth functioning of civilization."[1]

1. Bowden, Mark (2011-09-27). Worm: The First Digital World War (p. 8). Perseus Books Group.

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General Class Issues

- Dr. R. Kelly (contact info on class Web site)
- No textbook contains all the class material
- Hands-on class
- Text
  - www readings - provided in the class notes for each lecture
  - On-line text - Java EE 7 Tutorial

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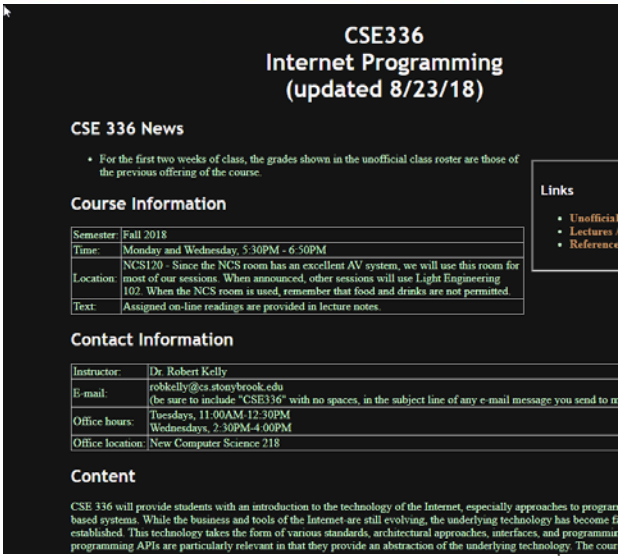
Class Web Site

- www.cs.stonybrook.edu/~cse336
- Check it regularly for
  - Syllabus
  - Office hours / location / e-mail addresses
  - Assignments and lecture code
  - Class notes (pdf) - Print notes before each class
  - References
  - Lots more

We do not use Blackboard for this class



CSE336
Internet Programming
(updated 8/23/18)

CSE 336 News

- For the first two weeks of class, the grades shown in the unofficial class roster are those of the previous offering of the course.

Links

- Unofficial
- Lectures
- Reference

Course Information

Semester:	Fall 2018
Time:	Monday and Wednesday, 5:30PM - 6:50PM
Location:	NCS120 - Since the NCS room has an excellent AV system, we will use this room for most of our sessions. When announced, other sessions will use Light Engineering 102. When the NCS room is used, remember that food and drinks are not permitted.
Text:	Assigned on-line readings are provided in lecture notes.

Contact Information

Instructor:	Dr. Robert Kelly
E-mail:	robkelly@cs.stonybrook.edu (be sure to include "CSE336" with no spaces, in the subject line of any e-mail message you send to m
Office hours:	Tuesdays, 11:00AM-12:30PM Wednesdays, 2:30PM-4:00PM
Office location:	New Computer Science 218

Content

CSE 336 will provide students with an introduction to the technology of the Internet, especially approaches to program based systems. While the business and tools of the Internet are still evolving, the underlying technology has become f established. This technology takes the form of various standards, architectural approaches, interfaces, and programmi programming APIs are particularly relevant in that they provide an abstraction of the underlying technology. The cour

Purpose

- Understand Web technologies (so that at the end of the course you will be able to learn specific vendor solutions in great detail)
- Learn the abstractions for those technologies (the essential concepts, not all the classes, interfaces, properties, or methods)
- Learn to design complex (multi-language) solutions
- Emphasis on thinking (not memorization)
- Emphasis on enterprise style systems

You should become a full-stack Web developer at the end of the course

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Revised Course Objectives

- Investigate issues in software architecture design for Internet Commerce applications.
- Implement Internet applications using industry technologies such as server side scripting (e.g., Thymeleaf), client-side scripting (e.g., React, jQuery), and frameworks (e.g., Spring)
- Understand the Web standards upon which industry development approaches are constructed

Course objectives being changed to reduce emphasis on XML

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Academic Integrity

- Representing another person's work as your own is always wrong
  - Assignments
  - Exams
- Gaining an unfair advantage in grading harms other students
- Suspected instances of academic dishonesty will be reported to the Academic Judiciary
- For details, refer to the Academic Judiciary Web site (link on class home page)

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Grading

- A, B, C ... grades
- Grade basis
  - Exams (and quizzes)
  - Assignments (regular and extra credit)
  - Class questions
- Many exam questions will be "easy" if you have carefully completed the assignments
- In-progress grades will be available on the class Web site, make sure that you check it regularly
- Grade distribution resembles College overall grade distribution

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Grading Formula

- All final grades are determined by a formula - applied equally to all students
- Sample:

CSE336	Assignments													Tot.	Mid-Term Exam # 1			Final Exam			Exams	Final	Final
ID	1	2			3	4	5	6			7	8	9	10	11	12	HW	Score	+	Grade		Score	+	Adj.	Wgt. Avg.	Avg. (+HW)	Grade
		a	b	c				a	b	c																	
1	S	S	S	1	L		S	S	S	S	S	S	S	S	S		3	59		59	B	78		78	71	74	B+
2	S	S	S	3	S		S	S	S	S	S	S	S	S	S		5	52		52	C	78	1	79	69	74	B+
5	S	S	S		S												-7	56		56	B-	44		44	45	38	F
6	S	S	U		S		L	L	L	S	S				S		-2	55		55	C+	58		58	57	55	C
7	S	S	S	2	S		S	S	S	S	S	S	S	S	S		4	82	2	84	A	95	1	96	94	98	A
8		S			S			S	S	S		S				3	-2	73		73	A	85		85	82	80	A

You will get your CSE336 ID in an e-mail

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Grading

- Final grades are calculated based on a formula (no subjective grading)
- Formula weights all the components of the class
  - Exams
    - mid-term (40%), final (30%), assignments (15%), and quizzes (15%)
  - In-class exercises - points will be added to your next exam score if your team is the first to complete the exercise correctly
  - Class questions - points will be added to your exam scores for a correct answer to a class question
  - Assignments
    - Each assignment is graded 1-10 points. Late submissions have a 3 point penalty.
- Final grade is based on your ranking in class. The higher the total score, the higher the ranking (and grade)

Helpful to bring a laptop to class

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Assignments

- Submit programming assignments to your assigned TA
- You may develop the solution to assignments by working in groups (max of 4), and submitting once for the group
- You must register the group so that you have the same assignment TA (register the group with an e-mail to me)
- Make sure that all names are listed in HW submission
- Assignments are graded, and
  - You will get feedback from TAs (time permitting)
  - Components of the assignment problems will be used in exams

Assignment Groups

- You may work in a group of up to 4 students (for the entire semester)
- Make sure that all 4 students in your group are assigned to the same TA by:
  - Sending me an e-mail with the names and IDs of all the students in the group before you submit your first assignment
  - Verifying (on the unofficial class roster) that you are all assigned to the same TA

Assignments

- There is one major project in the course, but
  - you will develop the solutions in multiple parts over the semester
  - You will redo the project using different development approaches (e.g., Spring)
- The project covers most of the important concepts covered in the course
  - Form-processing project

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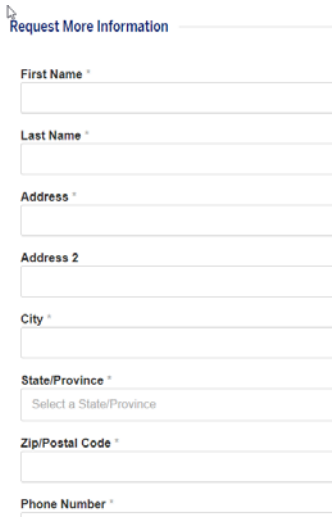
Form Processing Project

- Reverse engineer a form Web site (given during the second week of class)
- Pass form data to the server
- Validate form data (various approaches)
- Repopulate a form with the previously provided data
- Share data among server code modules
- Re-Implement using various approaches



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Required Computer Support

- Software for the course should be available to you for your own computer
- Or - if you need to use a University computer for assignments, studies, etc.
  - Your CS Lab Id and password will be automatically generated

CS Lab will run related software systems
(IntelliJ, Amaya, etc.)

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Approach to Java

- We will use Java for most of the assignments, exams, lectures, etc.
- Java 8 assumed for assignments and exams
- We will also cover some essential Java concepts not thoroughly covered in 214/219
  (e.g., Java Collections)

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Java Development Environment

- You can use any Java development environment (e.g., IntelliJ, NetBeans, and Eclipse) you are comfortable with, but your IDE
  - Should be compatible with Java 8
  - Should support servlet and JSP 2.1 execution

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How to Get Help

- Don't get stuck on a Java / IDE problem - ask for help
- TAs
  - TAs will be able to help you use the IDE and answer some programming questions (by appointment or at assigned times in the Trans Lab)
  - For questions, you can contact any TA
  - Your TA for assignment submission can be found on the unofficial class roster (next to your ID number)
- Send me general e-mail if you are having trouble
- See me during office hours (or by appointment or just stop by)

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Piazza

- The TAs will be coordinating hints and instructions concerning the HW assignment through Piazza
- Piazza is a Q&A platform designed to get you answers from classmates and instructors
- It serves as a forum to allow you to collaborate and solve common challenges
- You can post any doubts you have or errors you may encounter, and we will post our answers on Piazza directly
- You are also encouraged to answer any questions posted by your classmates. This way when an issue is resolved, everyone gets to benefit and learn from the answer.

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How to Learn the Material

- Don't plan on memorizing material - plan on learning to think about the material
- Code, code, code (plan on at least 2-5 hours per week in developing software
  - Run class/text examples
  - Complete assignments
- Work on the assignments in a small group (1-3 students)
  - Be sure to constantly refer to the Java API documentation
- Attend class / review the on-line class notes
- Attend TA sessions in CS teaching lab
- Read the reading assignments

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Lectures

- Lecture slides will be available at the class Web site before each lecture
- Print a copy of the slide handout before class and use it to make notes
- Be sure to review the slides before each exam

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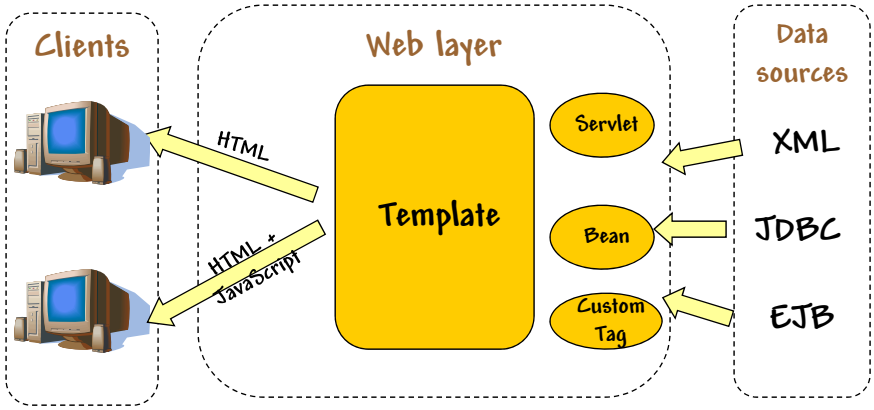
Extended Web Architecture



Ajax architecture also considered

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Topics

- URL, Network, DNS
- MIME types
- Web servers, browsers
- HTML
- Style sheets
- JavaScript
- JavaScript Libraries
- Servlets
- HTTP, cookies, sessions
- Server scripting
- Tag libraries
- JavaBeans
- JSON
- DOM
- Ajax
- jQuery
- React
- Example Framework or client layer

Depending on time, one or two of the topics may not be covered

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Limited Emphasis on

- Applets
- Web page design
- Frames
- Animation
- Windows interface
- Non-Java server-side approaches

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Assignment # 1

- Part 1
  - Send me an e-mail (Hi!, name id#, "I can't (or can) read the class notes", etc.)
  - Put "CSE336 - HW#1" in the subject line of the e-mail message
- Part 2 (no submission necessary for this part)
  - If you have your own computer, install the Java IDE
  - Download reference material (Java EE, language reference, etc.) mentioned in Web site
  - Details of assignments are in the class Web site

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