

Objectives

- Course content conclusions
 - But yes, there is still one more day plus the finals period

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Workday Usability Anecdote

- I wanted to look at the department's budget, so I typed in "Budget" without any luck
- But, if you type "W&L Budget", then you get results

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Review

- What did you learn this semester?

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1st Day: What This Course is About

- Web applications
 - Distributed computing
 - Web application technologies (server and client)
 - How to develop high-quality Web applications → full-stack development
 - Software tools
- Software engineering
 - Large development project
 - More software, collaboration tools
 - Emulate real-world experience with actual client
- Life-skills
 - Reading, writing, discussion, presentation

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What We've Done

- Client-Side
 - HTML5
 - CSS
 - JavaScript
 - Bootstrap
- Server-Side:
 - Java Servlets
 - JavaServer Pages (JSPs)
 - A bit of JSTL/Thymeleaf, scaling applications
 - Relational databases, JDBC

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Software Engineering Skills

- Understanding/learning new code bases
 - Need to build on fundamentals
- Design skills, agile development
 - Interface first
 - Rapid prototyping, HTML mockup
 - Iteration - improves final product
 - Find problems early
 - Prioritizing functionality
 - Modifying requirements
- Detective/Debugging Skills
 - Lots of possible sources of errors
- Collaborating with team members
 - Version control, issue tracking
- Design patterns
 - MVC

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Tools

- Eclipse Web Tools Platform
- Browser Tools
 - WebDeveloper – HTML, CSS, JavaScript
- Checkers: HTML, CSS, Accessibility
- Version Control
 - Git
- Maven – build automation
 - Dependency management
 - Packaging a war

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Content We Didn't Cover

- Testing
- Security (more)
- Ajax
 - Other JavaScript frameworks (React, Angular, Ember, ...)
- Using REST APIs
- Web application infrastructure/deployment
 - System configuration
- More on software development processes (Scrum, Kanban)
- Alumni experiences

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Frameworks

- Your status: know the Java-based Web fundamentals
 - Servlets – foundation, JSPs
 - Understand MVC breakdown
- Java Frameworks, typically MVC-based
 - JavaServer Faces (JSF)
 - Apache Struts
 - Grails
 - Blade
 - Google Web Toolkit
 - Java → JavaScript
 - Apache Wicket

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Other Web Frameworks/Languages

- **ASP:** *Active Server Pages*
 - Microsoft, VB Script, built on .NET
- **Node.js:** JavaScript outside of the browser
- **PHP:** *PHP: Hypertext Preprocessor*
 - Easy, runs on Apache web server, but security concerns
- **Ruby on Rails:** Ruby-based MVC Web Framework
- **Django:** MVC Python-based Web Framework
 - Altered form in Google App Engine
- **CGI:** Common Gateway Interface
 - Typically implemented in C or Perl

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Web Services, Service-Oriented Architecture

- Machine to machine communication
 - Rather than human to machine
- Services are loosely coupled
- WSDL: Web Services Description Language
 - Well-defined interface
- Using REST APIs



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TODO: Course Evaluations

- On Canvas – will receive email about them later today
- Complete by Sunday at 11:59 p.m.
- 1% extra credit on labs for 60% submission rate
 - Additional 1% extra credit for each additional 10% submitted

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TODO: Project

- Documentation, Analysis: Saturday, 5 p.m.
- Final implementation deadline: Saturday, 5 p.m.
 - Test each other's code – problems will come up
 - Make consistent in look, feel, URL naming
 - Clean up code
 - Remove debugging statements
 - Good names

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Project: Black-Box Testing

- Xander Anecdote

	Expected Answer	Given Answer	My conclusion
Did you read books today?	Yes	Yes	He understands!
Did you take a long nap today?	Yes	Yes	He understands!
Did you catch a squirrel today?	No	Yes	He doesn't understand.

Is this enough evidence that he understands?

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Today's Plan

- Scrum/Stand-up meetings
- Testing! Test on the deployed site
 - Test each other's functionality
 - Test integration
 - Try on different browsers, on mobile devices
- Do some accessibility checks using WAVE
 - Browser plugin available for sites that require authentication
- Request feedback from the client
 - Point out some things to test

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Scrum Meetings

- 10:00: AGP
- 10:45: ChemTutor
- 11:30: Logic

- Content
 - Discuss progress – what has been done? What is left?
 - What needs feedback from client?
 - Help sessions

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