

Objectives

- Course conclusions

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Review

- What are SQL injection attacks?
- What is cross-site scripting?
 - How do we prevent cross-site scripting attacks?
- What are insecure direct object references?

- 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
- Software engineering
 - Large development project
 - 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
 - Ajax
- Server-Side:



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Software Engineering Skills

- Writing requirements documents
 - Anticipate needs, potential problems
- Design skills
 - Interface first
 - Rapid prototyping, static HTML mockup
 - Iteration - improves final product
 - Find problems early
- Detective/Debugging Skills
- Collaborating with team members
 - Version control software, wiki
- Handling deadlines
 - Prioritizing functionality, modifying requirements

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Tools

- Eclipse Web Tools Platform
 - Including debugger
- Browser Plugins
 - WebDeveloper, Firebug, Selenium
- Version Control
 - Subversion, Subclipse
- Wiki

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Web 2.0 Technology

- Different user experience than before
 - Emphasis on **user collaboration**, creativity, information sharing
 - Rather than static web sites
- Ajax: enables some of new experience
- Wikis, Blogs, Social networking sites

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Frameworks

- Know the Java-based Web fundamentals
 - Servlets - foundation; JSPs, JSTL
- Frameworks
 - **JavaServer Faces (JSF)**
 - Simplify UI development using components
 - Still write JSPs and use JSTL
 - **Apache Struts**
 - MVC framework, custom tag libraries
 - **Spring**
 - Newer, lighter-weight MVC framework
 - Works with languages other than Java too
 - **Apache Wicket**
 - Newest; more models
 - HTML + Java

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Alternative Programming Languages

- **ASP: Active Server Pages**
 - Microsoft, VB Script
- **CGI: Common Gateway Interface**
 - Typically implemented in C or Perl
- **Django: MVC Python-based Web Framework**
 - Altered form in Google App Engine
- **PHP: PHP: Hypertext Preprocessor**
 - Easy, runs on Apache, but security holes
 - Our Wiki uses PHP
- **Ruby on Rails: Ruby-based MVC Web Framework**

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Web Services

- Machine to machine communication
 - Rather than human to machine
- **WSDL: Web Services Description Language**
 - Well-defined interface
- **SOAP: XML messages**
 - Acronym inaccurate now



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Spring Term Festival

- Tomorrow Show poster
 - Library First Floor: 12 p.m. – 2 p.m.
 - Supplies: laptop, poster, easel
 - Anything else?
- Servo – post the applications
 - Servo.cs.wlu.edu/Graffiti
 - Servo.cs.wlu.edu/Logic
- Practice demo
 - What do people want to see?
 - What do people care about?

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TODO

- Project
 - Final implementation deadline: Fri
 - Test each other's code – problems will come up
 - Make consistent in look, feel
 - Clean up code
 - Demo
 - 12-2 p.m. in library
 - Bring laptops or other way to present
 - Bug analysis: Friday
 - Documentation, analysis: Saturday, 5 p.m.

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TODO

- Course evaluations
 - On Sakai – email about them
 - By Saturday night
 - 5% points possible extra credit on labs for 100% submissions