Fall 2017 (218-1)

- Web Technology and Standards
  - IS 2560
  - CRN: 19456
  - Monday 3:00-6:00, Room 404
- GSR: Mahdi Hashemi
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Instructor-Research Interests

- Distributed systems
  - Client server system design
  - E-services
- Document systems
  - Collaborative authoring
- Navigation
- Next Generation Web
  - XML
  - Interface design
  - Web Services
  - Agents
Course Expectations

- Prerequisites
  - Basic understanding of HTML
  - Ability to write code in C, C++, C# and/or Java
  - Some awareness of operating systems
- Preparation
  - Reading and thinking
  - Thinking and “doing” – beyond what I have “done”
- Engagement
  - Experimentation
  - Planning

Course Resources

- The textbook – it is to be read and digested prior to class
  - Beginning XML, 5th Edition
  - Scaffolding the Web – provided by the instructor
- The lectures – they will go beyond and around the readings and assignments
- The web and manuals – there is more around than you will ever digest
- Your own experimentation and discussion with other students

Submission of Assignments

- Note that the instructor reserves the right to shift from project based grading to examination based grading
- In submitting class assignments:
  - Be sure the mail is sent to mbsclass@sis.pitt.edu
  - Insure that the subject reads: Term:Course:Assign#:Name
  - Make sure you mail from your Pitt account – spam
  - Make sure assignments submitted contain all the necessary information needed for assessment (Database info, connection info, etc., and a readme.txt as needed
- Plagiarism will not be tolerated.
  - For papers, quote and cite any material copied.
  - For projects, attribute code to the original author and indicate clearly your contribution.
  - If the instructor suspects students are submitting non-original material, a grade of 0 will be submitted for the assignment and a failing grade for the course may be assigned
Required Assignments

1. Standards Compliant Personal Website — optionally responsive (0-10 points)
2. Intelligent document (0-15 points)
   • Make use of JavaScript DOM capabilities
   • Bonus points for using SVG
3. W3C standards review (0-15 points)
4. Proposal for final project (0-5 points)
5. XML Schema using XML Pad (0-15 points)
   • Syllabus
   • Report
   • Dissertation
   • Resume
6. JSP/Servlet module (0-15 points)
7. Final Project (0-25 points)

Final Project Suggestions (25 points)

• Develop a demonstration website and tutorial that makes use of responsive design techniques.
• Develop one or more components of ATOM/AJAX based editing and annotation tool
• Develop a web site management tool to check links and pages and report on potential web site problems
• Develop an analysis of the significant issues in web standardization that must be addressed related to:
  • The National Information Infrastructure.
  • Web accessibility for various disabilities
  • E-Business and Web Services
  • The semantic web
  • Mobile and location based services

Imperatives for 2560

• Develop an understanding of web technologies in the context of networking, the internet, and file formats.
• Develop an understanding of the core and secondary XML standards being developed.
• Develop an appreciation for the web as an evolving information infrastructure
• Develop an appreciation for the role of standards in system development and the current state of standards development in the IT arena
Web Technologies

- The core web technologies are three:
  - html
  - http
  - url
- These technologies depend more generally on internet networking technologies
  - NCP (~1970)
  - DNS (1983)
- Web technologies are moving, generally driven by two technology developments
  - XML
  - CORBA/Web Services

XML

- XML is a complex of core and secondary standards
  - XML proper
  - XML Schema and DataType
  - XML Path, XSLT, XSLFO, etc.
- There are also a set of derivative standards of growing importance
  - WSDL, UDDI
  - RDF, RSS

Next Gen Web

- The “next” generation of the web means many things to many people. These include:
  - Enterprise applications for e-business
  - Pull driven web systems
  - Meta data enhanced webs
  - Service Oriented Architectures
Role of Standards

• Standards are often misunderstood
• There are many different kinds of standards
• Few people know how they actually come about
• IT standards are unique in many ways
• There are good and bad standards
• There are premature and delayed standards
• Standards are used by government and industry in a variety of ways

What's are the Goals

• To understand what the web is and is not
• To understand the evolution of the web and web technologies, including:
  • Responsive design and mobile apps
  • CSS, JavaScript, XML, and DOM
• To understand how standards are set, by whom, and what the landscape looks like
• To understand how to make use of standards in developing reliable distributed software systems