



G51WPS Web Programming and Scripting

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Introduction

- Module goals, structure and contents
- Practical matters
- Initial introduction to some key ideas and issues, historical context



Course Goals

- A general understanding of the fundamentals of the Internet and WWW
- Knowledge and experience with the major web technologies
- Introduction to terms and acronyms
- Insight into what constitutes a well designed, usable web application



Course Contents

- Infrastructure
 - Networking basics: media, LANs and long distance comms
 - TCP/IP protocols
 - Client server paradigm, HTTP protocol, URLs, MIME types
- Web Programming
 - **HTML/XHTML**
 - **CSS**
 - **JavaScript**
 - **PHP**
 - **XML**
- Web Design



Lectures

- Two lectures per week
 - Tuesday 11:00-12:00 in LT2 Exchange Building
 - Thursday 11:00-12:00 in C33 Exchange Building



Assessment

- Coursework - 25%
 - Web application programming + report
 - Set: 17 February
 - Due: 30 March
 - Mark + feedback: 4 May
- Exam - 75%
 - Two hour written examination
 - Previous papers (+ sample exam paper) useful for revision

Labs

- 5 labs
 - Monday 10:00-12:00 in A32 Computer Science Building
 - Not every week!
- 4 informal exercises to gain experience with web technologies and 1 session for assistance with coursework

Lab Schedule

- **Lab 1:** 14 February – HTML
- **Lab 2:** 21 February – HTML and CSS
- **Lab 3:** 28 February – JavaScript
- **Lab 4:** 14 March – PHP exercise
- **Lab 5:** 21 March – assistance with formal coursework

Text books and notes

- Slides available from:
<http://www.crg.cs.nott.ac.uk/~bnk/Teaching/WPS/>
- Recommended Text
 - Programming the World Wide Web, 4th edition, Robert W. Sebesta, 2008, Pearson Addison Wesley
 - Latest 6th international edition, 2010
 - updated ASP.NET, updated Java web programming, new chapter on Flash

Enabling Infrastructure

- Networks and Communications
- The Internet
- The World Wide Web

Computer Communications

- Early computers (1950s and early 1960s) were isolated
- Remote access and peripherals
 - Connected to a central computer via dedicated lines or telephone system
 - Share resources
- From the late 1960's onwards computers were connected to other computers
 - Via dedicated lines or telephone system
 - Share information

The Internet Origins

- ARPA Networking Project (ARPANET) - late 1960s and early 1970s
 - Wide area network to share computing facilities
 - "Internetworking"
 - Network reliability
 - For ARPA-funded research organizations
- National Science Foundation internet (NSFnet) - 1986
 - Initially connected five supercomputer centres
 - By early 1990s it was the network for all
 - Became the Internet backbone
- In 1990's ban on commercial use of the Internet was lifted leading to an explosive growth of "e-commerce"

The Internet and the WWW

- The WWW is one service running over the Internet - it is not synonymous!
- Before the WWW
 - The Internet was used by scientists, researchers, large (usually governmental) organisations, and amateur enthusiasts
 - Commerce on the Internet was almost unknown
- The WWW is now the major conduit to the Internet and the major vehicle for e-commerce, but this is not what it was designed for!

The WWW

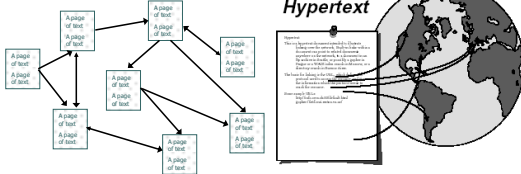
- Allows a user anywhere on the Internet to search for and retrieve documents
- 1989 WWW proposal by group led by Tim Berners-Lee at CERN
- Late 1990 prototype implemented on NeXT
- 1991 WWW released to the rest of the world
- Documents in the form of hypertext

Hypertext

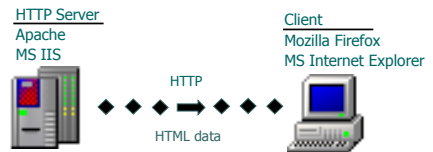
“Non-linear reading and writing”

Ted Nelson

Distributed Hypertext



World Wide Web



Web Programmer's Toolbox

- HTML/XHTML
- CSS
- XML
- JavaScript
- PHP
- Web application frameworks - Ruby on Rails, TurboGears, CakePHP, ASP.NET

HTML

- Describes the general form and layout of documents
- An HTML document is a mix of content and controls
 - Controls are tags and their attributes
 - Tags often delimit content and specify something about how the content should be arranged in the document
 - Attributes provide additional information about the content of a tag

CSS

- A language for defining stylesheets that was developed for HTML
- Provide the means to control and change presentation of HTML documents
- Style sheets allow you to impose a standard style on a whole document, or even a whole collection of documents

XML

- A meta-markup language
- Used to create a new markup language for a particular purpose or area
- Because the tags are designed for a specific area, they can be meaningful
- No presentation details
- A simple and universal way of representing data of any textual kind

JavaScript

- A client-side HTML-embedded scripting language
- Only related to Java through syntax
- Dynamically typed and not object-oriented
- Provides a way to access elements of HTML documents and dynamically change them

PHP

- A widely used server-side scripting language
- Similar to JavaScript
- Great for form processing and database access through the Web
- Free software released under the PHP License

Summary

- Course Content
- Practical matters
- Introduction to infrastructure
 - Computer communications
 - Internet
 - WWW
- Introduction to the web programmer's toolbox
 - HTML
 - CSS
 - XML
 - JavaScript
 - PHP