

Announcements

- Class Web Site:
 - <http://www.cs.umd.edu/projects/passport/Classes/Spring2008/>
 - You can find this link at the end of the main passport site
 - <http://www.cs.umd.edu/projects/passport/webPage/>
- E-mail Account
 - Get your own e-mail account if you don't have one
- Announcements' section in web site
- Rules regarding Forum Use
- Academic Integrity
- Reminder to your parents
- Be on time
- Slides

Fundamentals: Client/Server

- Client and server are two terms frequently used
- Client/Server Model
- Client/Server model when talking about software
- Client/Server model when talking about hardware

Fundamentals: IP Addresses

- **IP Address** - Unique address for machine on internet
 - Get from ISP when connecting to internet
 - Allows network to find your machine
- **Format**
 - 32-bit unsigned integer → 128.8.128.8
- **Domain Name**
 - Text name corresponding to the numeric IP address
 - Example: wikipedia.org
- **Name and address for local machine**
 - localhost
 - 127.0.0.1
- **Running out of 32-bit IP addresses**

Fundamentals: Web Server

- Web Server –
 - computer program that delivers (serves up) web pages.
 - It is like a person that is in charge of a warehouse
- Four popular Web Server Programs
 - Apache - <http://www.apache.org/>
 - IIS – Internet Information Services
 - Sun Java System Web Server
- Web server statistics
 - <http://survey.netcraft.com/Reports/0612/>
- Some web server statistics (by domain)
 - <http://survey.netcraft.com/Reports/0612/bydomain/com/>
 - <http://survey.netcraft.com/Reports/0612/bydomain/mil/>

Fundamentals: DNS

- DNS – Domain Name Systems
- Protocol for translating domain names to IP addresses
 - Example: cs.umd.edu → 128.8.128.44
- Multiple DNS servers on internet
- DNS server may need to query other DNS servers
 - edu DNS server queries umd.edu server to find cs.umd.edu

Fundamentals: URLs

- URL – Uniform Resource Locators
- Represent web resources
 - Arbitrary files
 - Web pages
- Examples
 - <http://www.cs.umd.edu/index.html>
 - <ftp://www.cs.umd.edu/pub/doc/policies.pdf>
 - <https://login.yahoo.com/>
 - <file:///dir/my.txt>

Fundamentals: URL Structure

- URL consists of
 - Protocol
 - http
 - ftp
 - https (secure http)
 - file
 - ...
 - IP address (or domain name)
 - Port (optional most of the time)
 - `http://www.cs.umd.edu:80/`
 - path

Firefox

- Browser we will use
 - <http://www.mozilla.com/en-US/firefox/?from=getfirefox>
- Extensions we would like to have
 - Error Console

HTML

- Language used to define web pages
- What the server sends to the browser
- Browser reads HTML and renders the page
 - May require downloading data from server (e.g., images)

HTTP

- Hypertext Transfer Protocol (HTTP) – protocol that defines how user agents (e.g., browser) and web server can communicate
- HTTP is a request/response protocol between clients and servers
- Some methods (operations) defined as part of the protocol
 - GET – Use to download a resource (e.g., image, web page). Most common method used.
 - HEAD – Returns only the header
 - POST – Submits data (e.g., form data) to the server
- Do not confuse with HTML
- Demo

Creating Web Pages

- HTML - Hypertext Markup Language
- HTML Standard
 - Developed by the World Wide Web Consortium (W3C)
 - <http://www.w3.org>
 - Latest version HTML 4.01
- Document is described through a series of commands and directives present in a text file.
- HTML goal is to describe structure only. Presentation should be left to cascading style sheets.
- When interpreted by an HTML **viewer**, those commands determine the appearance of the page
- HTML documents are entirely ASCII text
- Commands are explicitly inserted
- Great HTML/CSS tutorial site:
 - <http://www.htmldog.com/>

HTML

- Three versions of HTML
 - HTML 4.01 Strict (excludes deprecated tags and attributes)
 - HTML 4.01 Transitional (less restrictive including appearance elements)
 - HTML 4.01 Frameset (identical to transitional but allows <body> to be replaced with <frameset>)
- Web Standards Project (www.webstandards.org)
 - Industry watchdog convincing web browsers developers to adhere to web standards.
- HTML 4.01 is the last version for HTML. Next version is XHTML 1.0
- XHTML
 - Uses same tags as HTML 4.01
 - Enforces rules like closing tags, tags in lowercase, and others.
- **We will use XHTML in this class**

Validation

- You can use W3C Markup Validation Service (<http://validator.w3.org/>) to validate your html.
- Also through firefox you can use ***tidy*** for html validation. Tidy also provides suggestions for code that cannot be validated.

HTML Tags

- ❖ Tag – specifies a command or directive. It surrounds content and apply meaning to that content

- ❖ General format:

<elementName attributes>

- ❖ Most HTML elements have two tags:

- ❖ start tag and end tag

- ❖ Example: `<h1> text </h1>`

- ❖ Tags and attributes will be in lowercase (XHTML requirement)

- ❖ Some tags are self-closed (ending them in `</>`)

`<hr />` `
` `<meta />` ``

Attributes

- ❖ An attribute extends or modify a tag
- ❖ Attributes
 - ❖ Only appear in the start tag
 - ❖ You can have several attributes in one tag each separated by spaces
 - ❖ Order is immaterial
 - ❖ Some take values which are specified after an =
- ❖ General format
 - ❖ `<ELEM ATTR="attrValue">Displayed Text</ELEM>`
- ❖ Example
 - ``
- ❖ All attribute values will be enclosed in “ “ for XHTML compliance.

NestedTags / Spaces / Comments

- Nested tags are possible but don't overlap sets of them. Avoid the following:

`<i>Message</i>`

- Browser Processing

- Multiple spaces are converted to one space

John

Mary

Peter

John Mary Peter

- Line returns are ignored
- Unrecognized tags are ignored
- Comments

- Represented by `<!-- -->` Note: (two sets of double -)

- Examples

- `<!--The html code example starts at this point-->`

- Comments can not be nested

HTML Basic Skeleton

- ❖ An html document has two main parts.
 - ❖ **Header** – provides information about the document
 - ❖ **Body** – contents of the page
- ❖ **Example 1 (htmlDoc1.html)**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en">
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=ISO-
      8859-1" />
    <title>Template</title>
  </head>

  <body>
    <!--HTML CODE HERE-->
  </body>
</html>
```

- ❖ Let's validate the above document

How to Develop HTML Documents

- Text Editor
 - Any text editor (e.g., wordpad, notepad, pico, etc.)
- HTML Editors
 - Utilities designed to write HTML
 - Examples: CoffeeCup HTML Editor, HTMLjive
- Authoring tools
 - Frontpage – Good for beginners
 - Dreamweaver – Fairly complex but powerful
 - NVU – Free and available for (Windows, Linux, Mac)
- List of editors can be found at:
http://dir.yahoo.com/Computers_and_Internet/Software/Internet/World_Wide_Web/HTML_Editors/
- Recommended:
 - **Komodo Edit** - <http://www.activestate.com/store/productdetail.aspx?prdGuid=20f4ed15-6684-4118-a78b-d37ff4058c5f>
 - PHP Designer - <http://www.mpsoftware.dk/phpdesigner.php>

Frequently Used Tags

- `<head> </head>`
 - It does not generate displayed contents
 - Contains other tags (e.g., `<title> </title>`)
- `<title> </title>`
 - Part of the header
 - It is required
 - Search engines depend on it, so use meaningful titles

Frequently Used Tags

- Heading tags
 - `<h1> text </h1>`
`<h2> text </h2>` ... and so on until
`<h6> text </h6>`
 - Higher numbers imply smaller headers
- Paragraph tag
 - `<p> paragraph </p>`
- Code – Use to define computer code
 - `<code> </code>`
- Horizontal Line - `<hr />`

Frequently Used Tags

- Emphasis
 - ` text here ` Text usually rendered in italics
 - ` text here ` Text usually rendered in bold
- Super/Sub script
 - `_{text here}`
 - `^{text here}`
- Quotations
 - `<q> quote here </q>`
- Line Breaks
 - `
`
- Verbatim (text displayed exactly as it appears)
 - `<pre> text here </pre>`
- **Example: HtmlDoc.html**

Lists

■ Unordered lists

- `` `` tags to represent beginning and end
- `` `` to represent elements in the list
- **Example: Lists.html**

■ Ordered lists

- `` `` tags to mark beginning and end
- `` `` to represent elements in the list

■ Definition lists

- Consist of terms and definitions like in a glossary
- Tags - `<dl>` `</dl>`
- Terms specified using `<dt>` `</dt>` and definitions with `<dd>` `</dd>`
- **Example: DefNestedLists.html**

■ Nested lists (See previous example)

Image Inclusion

- We can include an image using the img tag
``
- **Example: Image.html**
- Although the width and height attributes are not required they are highly recommended. (They can also be set through CSS).

Links

- Link – connection between web resources
- Hypertext links are created using the <a> (anchor) tag
- The link can be text :
 - `CNN Web Page`
 - Notice that you **need to** specify the protocol (http://)
 - **Example: Link.html**
 - The URL can be absolute or relative
- The link can be an image:
``