

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
- Popular Web Server Programs
 - Apache → <http://www.apache.org/> Free!!!
 - IIS → Internet Information Services
 - Sun Java System Web Server
- You can install and run a web server in your computer
 - <https://www.apachefriends.org/>
- Local address: <http://localhost> or <http://127.0.0.1/>
 - Let's access the local web server and create a user account
- If you use a port different from default (80) you must specify it (e.g., <http://127.0.0.1:8080/>)
- Web server statistics
 - <http://news.netcraft.com/archives/category/web-server-survey/>

Fundamentals: URLs

- URL – Uniform Resource Locator
- Represents web resource
 - 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>

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)**

Web Hosting

- As a student of the university you have a directory (folder) where you can place your html documents so they can be accessed on the web
- **Location of your folder**
 - Machine: `terpconnect.umd.edu`
 - Login by using your directoryID/Password combination
 - Folder location: `/pub/YOURDIRECTORYID`
- **To activate:**
 - Visit <http://www.it.umd.edu/new/>
- **Web Page Address:** `http://www.terpconnect.umd.edu/~YOURDIRECTORYID`
 - Notice there is a ~ before your directory id
- **Software/Instructions to Transfer Data**
 - <https://dav.terpconnect.umd.edu>

Creating Web Pages

- HTML - HyperText Markup Language
- HTML Standard
 - Developed by the World Wide Web Consortium (W3C)
 - <http://www.w3.org>
- 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
- HTML/CSS tutorial site
 - <http://www.w3schools.com/>

HTML Editors

- Text Editor
 - Any text editor (e.g., wordpad, notepad, pico, etc.)
- Authoring tools
 - Dreamweaver → Fairly complex but powerful
- Recommended:
 - Komodo Edit → http://www.activestate.com/komodo_edit/

HTML

- We will use HTML5
- HTML Validation
 - <http://validator.w3.org/>

HTML Fundamentals

- **Example:** BasicHTMLSkeleton.html
- Html documents rely on tags
 - Specifies a command or directive
 - It surrounds content and apply meaning to that content
 - `<title>This is the document title</title>`
 - General format `<elementName attributes>`
 - Most HTML elements have two tags (start tag and end tag)
 - Example: `<h1> text </h1>`
- An html document has two main parts
 - **Header** → provides information about the document
 - It does not generate displayed contents
 - **Body** → contents of the page
- Let's validate our document
- Let's introduce an error and validate

Title Tag

- `<title> </title>`
 - Part of the header
 - It is required
 - Search engines depend on it
 - Provide a meaningful name as it is bookmarked

Attributes

- An attribute extends or modifies 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
 - ``

Nested Tags and Spaces

- Nested tags are possible but don't overlap sets of them
- Incorrect → `<em><strong>Message</em></strong>`
- Correct → `<em><strong>Message</strong></em>`
- Browser Processing
 - Multiple spaces are converted to one space.
 - John Mary Peter
 - John Mary Peter
- Line returns are ignored

Comments

- Comments
 - Represented by `<!-- -->` Note: (two sets of double -)
 - We can use comments to disable HTML

Frequently Used Tags

- Emphasis
 - `<em> text here </em>` **Text usually rendered in italics**
 - `<strong> text here </strong>` **Text usually rendered in bold**
- Super/Sub script
 - `<sub> text here </sub>`
 - `<sup> text here </sup>`
- Quotations
 - `<q> quote here </q>`
- Line Breaks
 - `<br />`
- Verbatim (text displayed exactly as it appears)
 - `<pre> text here </pre>`
 - You can have tags inside them
- **Example:** CommonTags.html

HTML Lists

- Unordered lists
 - `<ul> </ul>` identify the list
 - `<li> </li>` each list item
 - **Example:** Lists.html
- Ordered lists
 - `<ol></ol>` identify the list
 - `<li> </li>` each list item
 - **Example:** Lists.html
- Lists can be nested
 - Notice where the text inside of main list appears
 - **Example:** Lists.html

HTML Image Inclusion

- `<img>` tag used for image inclusion
- Attribute
 - Modify/extends a tag
 - Only appear in the start tag
 - Order is immaterial
 - General Format
 - `<ELEM ATTR="attrValue">`
- `<img>` attributes
 - `src`
 - `width`
 - `height`
 - `alt`
- **Example:** Image.html

HTML Links

- Link → Connection between web resources
- Links are created using the `<a>` tag
 - `<a href="http://www.cnn.com">CNN Page</a>`
 - Need to specify <http://>
 - **Example:** Links.html
- You can also link a page with another as follows:
 - `<a href="page.html">`
- We can replace the text with an image
 - **Example:** Links.html

HTML Table

- To define a table us the `<table>` tag
 - By default borders are not visible
- Tags
 - `<tr> </tr>` → defines a row
 - `<td></td>` → defines a data element
 - `<th></th>` → defines a header data element
 - `<caption> </caption>`
 - Must be inserted immediate after the `<table>` tag
- **Example:** Table.html