Week 2 - Module 2a - Web-based Mapping Clients. HTML, CSS & Javascript

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Overview

- Web Development
- Parts of a web page
- Web Site Components
 - Structure (X/HTML)
 - Presentation (CSS)
 - Behavior (Javascript)
- Simple Web Pages
- More Complete Web Page Example

Web Development

- Requirements
 - Web Server
 - File location that the web server accesses for requested content
 - Files must be readable by all users
- General Process
 - Create basic content in HTML or XHTML (structure)
 - Change appearance of content through the definitions of styles using CSS (presentation)
 - Add dynamic capabilities to content through Javascript (behavior)
 - REPEAT over and over and over again

Parts of a Web Page

```
<h1>Headers</h1>
12
          <div>Generic blocks of content</div>
13
          Paragraphs
          Tables
15
          <img ...>Images</img>
          <form ...>Forms</form>
17
          Unordered Lists
          Ordered Lists
19
          List Items
21
          <!-- Javascript can go here as well -->
      </body>
23
   </html>
```

Link to example

Web Site Components - Structure

Content is defined in terms of the structural elements available in HTML/XHTML

- Sample HTML/XHTML Tags
 - Paragraphs (i.e. blocks of text) are contained within ...
 - Headings (i.e. section headings, sub-headings) are contained within numerically defined header tags: <h1>...</h1>, <h2>...</h3>, etc.
 - Tabular data are within ... tags
 - List are specified within ... or ... tags, depending upon whether the list is ordered (numbered) or unordered (e.g. bulleted)
 - User input elements are put within <form>...</form> tags
 - Blocks of content (i.e. sections or divisions) are defined within <div>...</div> tags
- Structure is translated into the Document Object Model (DOM) for later use by CSS and Javascript

Web Site Components - Presentation

Modifications to default rendering of HTML/XHTML elements are made through styles defined in CSS

- Styles may be
 - defined in an external file that is referenced within the <head> block (the preferred method when doing "real" web development)
 - directly defined within the <head> block of a web page
 - directly embedded in the elements to which they apply (generally not a "Good Thing")
- When not embedded within an element, a style definition consists of
 - A selector
 - The style definition, enclosed in "curly-brackets", separated by "semi-colons"
 - For example: h1 {color:red; font-size:18px;}

CSS Selectors

Selectors may be based on several criteria

- Element name: h1, p, table, ul, etc.
 - Element: <h1>A top level heading</h1>
 - Selector: h1 {color:red; font-size:18px}
- Element ID: a unique name assigned to HTML/XHTML elements within the structure of the document
 - Element: Some text goes here
 - Selector: #para01 {color:blue; font-size:12px}
- Class ID: a name assigned to multiple elements which may be modified through reference to their class
 - Element: class="instructions">Here are some instructions
 - Another Element: Here are some more instructions
 - Selector: .instructions {color:red; font-size:12px; text-decoration:blink}
- Selectors may be combined in a variety of ways

Web Site Components - Behavior

The most interoperable language for adding dynamic behavior to web sites is Javascript - supported by most browsers on most operating systems

- A full-fledged programming language
 - A non-trivial undertaking to become proficient in
 - Experience in other programming languages can contribute to learning Javascript
- Defines actions that may be taken on/by DOM elements
- Allows for modification of existing DOM elements, creation of new DOM elements after the page has finished loading from the server, retrieval of new content after page loads
 - An interactive web page that may behave like a local desktop application

Reference Links

- w3schools.com
 - HTML 5.0 Introduction
 - HTML 4.0 / XHTML 1.0 Tag Reference
 - Cascading Style Sheet (CSS) selectors and elements
 - Javascript reference
- World Wide Web Consortium (W3C)
 - HTML and CSS Background
 - HTML and CSS Tutorial Links Page
 - Validators Page
- Webmonkey.com
 - HTML Cheat Sheet
 - CSS Guide

Simple Web Page

```
<html>
       <head>
2
           <meta http-equiv="Content-Type" content="text/html;charset=utf-8" />
           <title>This is a simple web page</title>
       </head>
       <body>
           <h1>They don't get any simpler than this!</h1>
           OK, not much simpler than this.
           Hello World?
       </body>
10
   </html>
11
   link to example
   Simple Web Page with CSS
   <html>
       <head>
2
           <meta http-equiv="Content-Type" content="text/html;charset=utf-8" />
3
           <title>This is a simple web page - with styling</title>
           <style type="text/css">
               h1 {color:blue; font-size:large}
               p.para {color:#777777; font-size:small}
               #annoying {color:red; text-decoration:line-through}
           </style>
       </head>
10
       <body>
11
           <h1>They don't get any simpler than this!</h1>
           OK, not much simpler than this.
13
           Hello World?
       </body>
15
   </html>
   link to example
   Simple Web Page with Javascript
   <html>
2
           <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
           <title>This is a simple web page with Javascript</title>
           <script type="text/javascript">
               function genericAlert() {
6
                   alert("You just did something ...")
                   document.getElementById("clickMe").style.color = "red"
               }
           </script>
10
       </head>
11
       <body>
12
```

<h1>They don't get any simpler than this!</h1>

13

link to example

More Complete Web Page Example

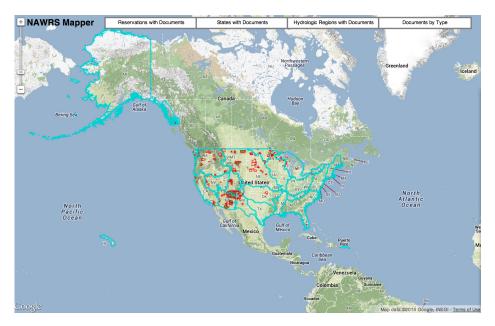


Figure 1: NAWRS Mapper. HTML: 39 Lines; CSS: 136 Lines; core.js: 515 Lines + Google Maps API and JQuery Framework

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