

ECS 189

WEB PROGRAMMING

4/5

Hello world from Assn 1 (due Fri)

```

<!doctype HTML>
<html>
<head>
<meta charset="UTF-8" />
<title>ECS 189h hello</title>
</head>

<body>
<p>Hello world! </p>
</body>
</html>

```

Document structure

- Start with <!doctype HTML>; this means HTML5.
- Page elements (text, pictures, etc.) are enclosed in tags, eg. <body>Hello world!</body>.
- <meta charset="utf-8" /> is a "self-closing" tag. It just has a start tag, no end tag. The attribute "charset" defines the alphabet for the Web page. UTF-8 is an encoding of the unicode character set. Attributes are inside the angle brackets, instead of between start and end tags.

Comments

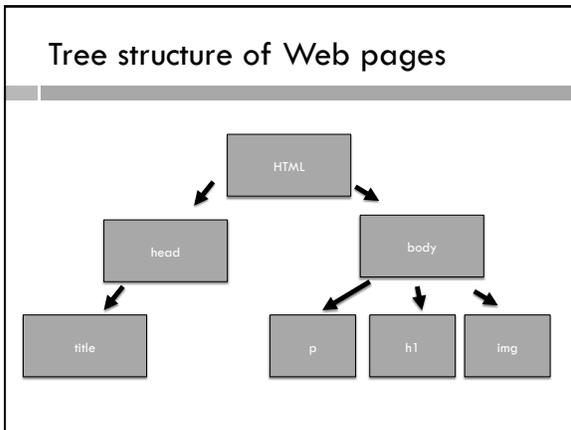
- As in any programming, you should add comments to your Web pages to explain what is going on.
- Here is the HTML comment syntax (OK, it sucks):

```
<!-- This is a comment. -->
```

A few principles

- Whitespace is not meaningful except to separate words.
- Capitalization in tags or attributes never matters: - all the same
- HTML tags should be nested.

GOOD <body> <p></p> </body>	BAD <body> <p> </body></p>
---	---



Broken HTML often works

- Why do browsers display incorrect HTML?

Broken HTML often works

- Why do browsers display incorrect HTML?
 - Because a good browser displays as many Web pages as it can
- This is challenging for programmers! We have to use discipline and good, clear style
- Some principles for our class:
 - Separate HTML and CSS
 - Validate HTML and CSS
 - Comment anything tricky

A few tags

- `<h1> </h1>` - heading (also h2, h3)
- `<p> </p>` - paragraph
- `` - a self-closing tag indicating an image. Its attributes describe the image.

Links

Chapter on HTML in `Interactive Visualization on the Web`

- `<a> ... ` anchor tag
- Anchor tag attribute href contains the URL
- The anchor is the text enclosed in the tag.
- What is the anchor here?

Links

Chapter on HTML in `Interactive Visualization on the Web`

- An absolute link – a URL.

``

- Relative link, into the directory structure where the Web page came from.

More tags

- Un-numbered list:

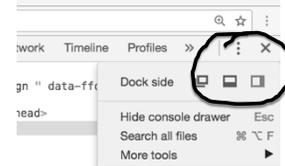
```
<ul>
  <li> ... </li>
  <li> ... </li>
</ul>
```
- Line break - `
`
- `<section>`, `<header>`, `<footer>`, `<nav>`, `<main>`, `<aside>` label some typical parts of a Web page.
- `<div>` used to group things together but has no "semantics".

Observing Browser Code

- Looking at existing Web pages can be helpful, but also confusing and even misleading
 - ▣ Many are generated by Web Content Management Systems such as WordPress and are not intended to be human-readable
 - ▣ Others are just thrown together and/or contain silent bugs that just happen to work

Let's look at a Web page!

- Try Mozilla Developers Network (one of our online sources for info on HTML and CSS!)
- Look at it in Chrome, View->Developer Tools
 - ▣ Nice view...



Observations

- Tags are nested, and we can follow the tree structure, just like a directory
- Divs are widely used to organize content into groups.
- Why does the Web designer care so much about organizing stuff in groups?

Appearance - CSS

- HTML tags assign meaning to items; CSS is used to control their appearance
- <div> tags group parts with similar appearance
 - Artists make entire careers out of CSS
 - CSS Zen Garden – Example Website with hundreds of different CSS files defining different looks for the same Web page. Really amazing how different they are.

Adding a CSS file

- For historical reasons, many style attributes can be specified either in HTML or in CSS. **We will put substance in HTML, style in CSS.**
- CSS can go on top of Web page, inline anywhere with the <style> tag, or in separate file. **We'll always use a separate file.**
- To attach a css file, put into the HTML <head>:
`<link rel="stylesheet" type="text/css" href="demo.css">`
- Can be a relative or absolute link. Which is this?

CSS Selectors

- Method 1 – style all elements of a specific kind

```
h1 {
  color: blue; // text color
  text-align: center; // centered
  border: 4px solid black;
  background-color: white;
}
```
- CSS syntax is similar to what?
- color, text-align, background-color are properties
- How do you find the possible color names?

CSS selectors

- Method 2 – Assign HTML elements to a class, then refer to the class in the CSS.

```
<h1 class="myHeading">Working Title</h1>
```

```
.myHeading {  
  color: blue;  
}
```

- Class names should be all one word, case sensitive.

CSS selectors

- Method 3 – Element ID. Assign an ID to a single element in the HTML, and refer to that name in the CSS

```
<h1 id="mainHeading">Working Title</h1>
```

```
#mainHeading {  
  color: blue;  
}
```

- There's even more methods, but let's move on...

Fonts

- Usually a good idea to select your fonts; the default font depends on your Web browser and is often not so pretty.
- Rule of thumb: sans-serif fonts for Web pages are easier to read; they might be tiny, low-res and far away. Serif fonts are better in print documents.

Serif Sans-Serif

Font stacks

font-family: "Lucida Sans Unicode", "Lucida Grande", sans-serif;

- Every browser has some collection of fonts. But no guarantee that the exact one you want for your Web page is there.
- Specify a stack of acceptable fonts in order of preference; we'll take any sans-serif font if the first two are not there.
- This is a property assigned to an element. If we assign it to the <body>, it is inherited by all contents.

Inheritance and overriding in CSS

- Some CSS properties are inherited by child elements (eg. color, font)
- Some are not (eg. border; also background-color is not inherited but since the default is "transparent" you'd never know!)
- A property specified for a child element overrides the property specified by an ancestor.

Quick example

- See nesting.html, nesting.css
- Say we wanted a bold font. Should bold be HTML or CSS?

Quick example

- See `nesting.html`, `nesting.css`

- Say we wanted a bold font. Should bold be HTML or CSS?
 - Generally HTML, since it has the semantic meaning that bold text is more important and eye-catching, and how exactly we achieve that is a style issue.
 - Although `` is common, `` is encouraged. By default it is bold, but it indicates the semantic aspect.