Web Programming Step by Step

Lecture 3
More Basic HTML/CSS
Reading: 2.2; 3.1 - 3.2; 3.4

2.2: More HTML Elements

- 2.1: Basic HTML
- **2.2: More HTML Elements**
- 2.3: Web Standards

Web page metadata: `<meta>` (2.3.3)

information about your page (for a browser, search engine, etc.)

```html
<meta http-equiv="Content-Type"
 content="text/html; charset=iso-8859-1" />
<meta name="description"
 content="Authors' web site for Building Java Programs." />
<meta name="keywords" content="java, textbook" />
```
HTML

- placed in the head of your XHTML page
- meta tags often have both the name and content attributes
  - some meta tags use the http-equiv attribute instead of name
- using a meta tag for Content-Type gets rid of validator "tentatively valid" warnings

Definition list: `<dl>`, `<dt>`, `<dd>`

dl represents a list of definitions of terms (block)
dt represents each term, and dd its definition

```html
<dl>
  <dt>newbie</dt> <dd>one who does not have mad skills</dd>
  <dt>own</dt> <dd>to soundly defeat
     (e.g. I owned that newbie!)</dd>
  <dt>frag</dt> <dd>a kill in a shooting game</dd>
</dl>
```
HTML

newbie
    one who does not have mad skills
own
    to soundly defeat (e.g. I owned that newbie!)
frag
    a kill in a shooting game

output

Quotations: `<blockquote>` (2.2.3)

a lengthy quotation (block)

```
<p>As Lincoln said in his famous Gettysburg Address:</p>
<blockquote>
  <p>Fourscore and seven years ago, our fathers brought forth
    on this continent a new nation, conceived in liberty, and
    dedicated to the proposition that all men are created equal.</p>
</blockquote>
```
HTML

As Lincoln said in his famous Gettysburg Address:

> Fourscore and seven years ago, our fathers brought forth on this continent a new nation, conceived in liberty, and dedicated to the proposition that all men are created equal.

output

Inline quotations: `<q>`

a short quotation (inline)

```
<p>Quoth the Raven, <q>Nevermore.</q></p>
```
HTML

Quoth the Raven, "Nevermore."

output

- Why not just write the following?
  `<p>Quoth the Raven, "Nevermore."</p>`

We don't use " marks for two reasons:

1. XHTML shouldn't contain literal quotation mark characters; they should be written as `"`
2. using `<q>` allows us to apply CSS styles to quotations (seen later)

HTML Character Entities (2.2.4)

a way of representing any Unicode character within a web page

character(s)	entity
< >	< >
é è ñ	é è ñ
™ ©	™ ©
π δ Δ	π δ Δ
И	И
" &	" &

- Complete list of HTML entities
- How would you display the text & on a web page?

HTML-encoding text

```
&lt;p&gt;
  &lt;a href=&quot;http://google.com/search?q=marty&amp;ie=utf-8&amp;aq=t&quot;&gt;
    Search Google for Marty
  &lt;/a&gt;
&lt;/p&gt;
```
<p> Search Google for Marty </p>

- To display the link text in a web page, its special characters must be encoded as shown above

Computer code: `<code>`

`code`: a short section of computer code (usually rendered in a fixed-width font)

```
<p>
   The <code>ul</code> and <code>ol</code>
   tags make lists.
</p>
```
HTML

The `ul` and `ol` tags make lists.

output

Preformatted text: `<pre>`

a large section of pre-formatted text (block)

```
<pre>
         Steve Jobs speaks loudly
            reality distortion
          Apple fans bow down
</pre>
```
HTML

```
         Steve Jobs speaks loudly
            reality distortion
          Apple fans bow down
```
output

- displayed with exactly the whitespace / line breaks given in the text
- shown in a fixed-width font by default
- how would it look if we had instead enclosed it in `code` tags?

3.1: Basic CSS

Grouping styles

```css
p, h1, h2 {
   color: green;
}
h2 {
   background-color: yellow;
}
```
CSS

This paragraph uses the above style.

This h2 uses the above styles.

output

- a style can select multiple elements separated by commas
- the individual elements can also have their own styles (like h2 above)

CSS comments: /* ... */ (3.1.4)

```css
/* This is a comment.
   It can span many lines in the CSS file. */
p {
   color: red;
   background-color: aqua;
}
```
CSS

- CSS (like HTML) is usually not commented as rigorously as programming languages such as Java
- the // single-line comment style is NOT supported in CSS
- the <!-- ... --> HTML comment style is also NOT supported in CSS

CSS properties for fonts (3.1.5)

property	description
font-family	which font will be used
font-size	how large the letters will be drawn
font-style	used to enable/disable italic style
font-weight	used to enable/disable bold style
Complete list of font properties	

font-family

```css
p {
  font-family: Georgia;
}
h2 {
  font-family: "Courier New";
}
```
CSS

This paragraph uses the first style above.

This h2 uses the second style above.

output

- enclose multi-word font names in quotes

More about font-family

```css
p {
  font-family: Garamond, "Times New Roman", serif;
}
```
CSS

This paragraph uses the above style.

output

- can specify multiple fonts from highest to lowest priority
- **generic font names**:

  serif, sans-serif, cursive, fantasy, monospace

- if the first font is not found on the user's computer, the next is tried
- generally should specify similar fonts
- placing a generic font name at the end of your font-family value ensures that every computer will use a valid font

font-size

```css
p {
   font-size: 14pt;
}
```
CSS

This paragraph uses the style above.

output

- units: pixels (px) vs. point (pt) vs. m-size (em)
  16px, 16pt, 1.16em
- vague font sizes: xx-small, x-small, small, medium, large, x-large, xx-large, smaller, larger
- percentage font sizes, e.g.: 90%, 120%

- pt specifies number of *point*, where a point is 1/72 of an inch onscreen
- px specifies a number of pixels on the screen
- em specifies number of *m-widths*, where 1 em is equal to the font's current size

font-weight, font-style

```css
p {
   font-weight: bold;
   font-style: italic;
}
```
CSS

This paragraph uses the style above.

output

- either of the above can be set to normal to turn them off (e.g. headings)

CSS properties for text (3.1.6)

property	description
text-align	alignment of text within its element
text-decoration	decorations such as underlining
line-height, word-spacing, letter-spacing	gaps between the various portions of the text
text-indent	indents the first letter of each paragraph
Complete list of text properties	

text-align

```
blockquote { text-align: justify; }
h2 { text-align: center; }
```
CSS

The Emperor's Quote

[TO LUKE SKYWALKER] The alliance... will die. As will your friends. Good, I can feel your anger. I am unarmed. Take your weapon. Strike me down with all of your hatred and your journey towards the dark side will be complete.

output

- text-align can be left, right, center, or justify (which widens all full lines of the element so that they occupy its entire width)

text-decoration

```css
p {
   text-decoration: underline;
}                                              CSS
```

This paragraph uses the style above.

                                       output

- can also be overline, ~~line-through~~, blink, or none
- effects can be combined:

  ```
  text-decoration: overline underline;
  ```

The list-style-type property (3.2.4)

```css
ol {  list-style-type: lower-roman;  }            CSS
```

- Possible values:
    i. none : No marker
    ii. disc (default), circle, square
    iii. decimal : 1, 2, 3, etc.
    iv. decimal-leading-zero : 01, 02, 03, etc.
    v. lower-roman : i, ii, iii, iv, v, etc.
    vi. upper-roman : I, II, III, IV, V, etc.
    vii. lower-alpha : a, b, c, d, e, etc.
    viii. upper-alpha : A, B, C, D, E, etc.
    ix. lower-greek : alpha, beta, gamma, etc.
    x. others: hebrew, armenian, georgian, cjk-ideographic, hiragana, katakana, hiragana-iroha, katakana-iroha

3.2: More CSS

- 3.1: Basic CSS
- **3.2: More CSS**

Body styles

```css
body {
  font-size: 16px;
}
```
CSS

- to apply a style to the entire body of your page, write a selector for the `body` element
- saves you from manually applying a style to each element

Cascading style sheets

- it's called Cascading Style Sheets because the properties of an element *cascade* together in this order:
  - browser's default styles
  - external style sheet files (in a `<link>` tag)
  - internal style sheets (inside a `<style>` tag in the page's header)
  - inline style (the `style` attribute of the HTML element)

Inheriting styles (explanation) (3.2.1)

```css
body { font-family: sans-serif; background-color: yellow; }
p { color: red; background-color: aqua; }
a { text-decoration: overline underline; }
h2 { font-weight: bold; text-align: center; }
```
CSS

This is a heading.

A styled paragraph. Previous slides are available on the web site.

- a bulleted list

output

- when multiple styles apply to an element, they are **inherited**
- a more tightly matching rule can override a more general inherited rule
- not all properties are inherited (notice link's color above)

Styles that conflict

```css
p, h1, h2 { color: blue; font-style: italic; }
h2 { color: red; background-color: yellow; }
```
CSS

This paragraph uses the first style above.

This heading uses both styles above.

output

- when two styles set conflicting values for the same property, the latter style takes precedence
- (later we will learn about more specific styles that can override more general styles)

W3C CSS Validator (3.2.6)

```html
<p>
  <a href="http://jigsaw.w3.org/css-validator/check/referer">
    <img src="http://jigsaw.w3.org/css-validator/images/vcss"
      alt="Valid CSS!" /></a>
</p>
```
CSS

output

- jigsaw.w3.org/css-validator/
- checks your CSS to make sure it meets the official CSS specifications
- more picky than the web browser, which may render malformed CSS correctly

CSS properties for backgrounds

property	description
background-color	color to fill background
background-image	image to place in background
background-position	placement of bg image within element
background-repeat	whether/how bg image should be repeated
background-attachment	whether bg image scrolls with page
background	shorthand to set all background properties

background-image

```css
body {
  background-image: url("images/draft.jpg");
}                                                               CSS
```

This is the first paragraph

This is the second paragraph...
It occupies 2 lines

- background image/color fills the element's content area

background-repeat

```css
body {
  background-image: url("images/draft.jpg");
  background-repeat: repeat-x;
}                                              CSS
```

This is the first paragraph

This is the second paragraph...
It occupies 2 lines

- can be `repeat` (default), `repeat-x`, `repeat-y`, or `no-repeat`

background-position

```css
body {
  background-image: url("images/draft.jpg");
  background-repeat: no-repeat;
  background-position: 370px 20px;
}                                              CSS
```

This is the first paragraph

This is the second paragraph...
It occupies 2 lines

- value consists of two tokens, each of which can be `top`, `left`, `right`, `bottom`, `center`, a percentage, or a length value in `px`, `pt`, etc.
- value can be negative to shift left/up by a given amount

Favorites icon ("favicon")

```html
<link href="filename" type="MIME type" rel="shortcut icon" />
```

```html
<link href="yahoo.gif" type="image/gif" rel="shortcut icon" />
```


- the `link` tag, placed in the HTML page's `head` section, can specify an icon for a web page
  - this icon will be placed in the browser title bar and bookmark/favorite
- IE6: this doesn't work; must place a file in `.ico` format named `favicon.ico` in the root directory of the web server (instructions)