CSE 154

LECTURE 2: MORE HTML AND CSS
**Block and inline elements**

*Block* elements contain an entire large region of content
- examples: paragraphs, lists, table cells
- the browser places a margin of whitespace between block elements for separation

*Inline* elements affect a small amount of content
- examples: bold text, code fragments, images
- the browser allows many inline elements to appear on the same line
- must be nested inside a block element
Line break: `<br>`

forces a line break in the middle of a block element (inline)

```
<p>
The woods are lovely, dark and deep, <br/> But I have promises to keep, <br/> And miles to go before I sleep, <br/> And miles to go before I sleep.
</p>
```

The woods are lovely, dark and deep,
But I have promises to keep,
And miles to go before I sleep,
And miles to go before I sleep.

• Warning: Don't over-use br (guideline: >= 2 in a row is bad)
Links: `<a>`

Links, or "anchors", to other pages (inline)

```html
<p>
  Search
  <a href="http://www.google.com/">Google</a> or our
  <a href="lectures.html">Lecture Notes</a>.
</p>
```

Search Google or our Lecture Notes.

- uses the `href` attribute to specify the destination URL
- can be absolute (to another web site) or relative (to another page on this site)
- anchors are inline elements; must be placed in a block element such as `p` or `h1`
Phrase elements: `<em>`, `<strong>`

`em`: emphasized text (usually rendered in italic)
`strong`: strongly emphasized text (usually rendered in bold)

```html
<p>
  HTML is `<em>really</em>`,
  `<strong>REALLY</strong>` fun!
</p>
```

HTML is `really, REALLY` fun!

- as usual, the tags must be properly nested for a valid page
Images: `<img>`

*inserts a graphical image into the page (inline)*

```html
<img src="images/koalafications.jpg" alt="Koalified koala"/>
```

- the src attribute specifies the image URL
- HTML5 also requires an alt attribute describing the image
Comments: <!-- ... -->

Comments to document your HTML file or "comment out" text

<!-- My web page, by Suzy Student
    CSE 190 D, Spring 2048 -->
<p>CSE courses are <!-- NOT --> a lot of fun!</p>

CSE courses are a lot of fun!

- many web pages are not thoroughly commented (or at all)
- still useful at top of page and for disabling code
- comments cannot be nested and cannot contain a --
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.*
Inline quotations `<q>`

*a short quotation (inline)*

<table>
<thead>
<tr>
<th>HTML</th>
<th>output</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;p&gt;Quoth the Raven, &lt;q&gt;Nevermore.&lt;/q&gt;&lt;/p&gt;</code></td>
<td>Quoth the Raven, “Nevermore.”</td>
</tr>
</tbody>
</table>

• Why not just write the following?
  `<p>Quoth the Raven, "Nevermore."</p>`
The `<code>ul</code>` and `<code>ol</code>` tags make lists.

<table>
<thead>
<tr>
<th>HTML</th>
<th>output</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;p&gt;</code></td>
<td></td>
</tr>
<tr>
<td>The <code>&lt;code&gt;ul&lt;/code&gt;</code> and <code>&lt;code&gt;ol&lt;/code&gt;</code> tags make lists.</td>
<td></td>
</tr>
</tbody>
</table>
Preformatted text `<pre>`

*a large section of pre-formatted text (block)*

```html
<pre>
  Bill Gates speaks
    You will be assimilated
    Microsoft fans delirious
</pre>
```

- Displayed with exactly the whitespace / line breaks given in the text
- Shown in a fixed-width font by default
Deletions and insertions: `<del>`, `<ins>`

content that should be considered deleted or added to the document (inline)

```html
<p>
  <del>Final Exam</del> <ins>Midterm</ins> is on
  <del>Aug 29</del> <ins>Apr 17</ins>.
</p>
```

**Final Exam-Midterm is on Aug 29-Apr 17.**
Abbreviations: `<abbr>`

*an abbreviation, acronym, or slang term (inline)*

```html
<p>
Safe divers always remember to check their <abbr title="Self-Contained Underwater Breathing Apparatus">SCUBA</abbr> gear.
</p>
```

- The title will appear when the abbreviated word is hovered over
- In some browsers the abbreviated word will have a dashed underline
The Internet

- a connection of computer networks using the Internet Protocol (IP)
- layers of communication protocols: IP → TCP/UDP → HTTP/FTP/POP/SMTP/SSH...
Web servers and browsers

• **web server**: software that listens for web page requests
  • Apache
  • Microsoft Internet Information Server (IIS) (part of Windows)

• **web browser**: fetches/displays documents from web servers
  • Mozilla Firefox
  • Microsoft Internet Explorer (IE)
  • Apple Safari
  • Google Chrome
  • Opera
Layers of protocol

**Protocol:**
a set of rules governing the format of data sent

**IP address:**

```
   10010001  00001010  00100010  00000011
145       10        34        3

145.10.34.3
```
How do web addresses work?

DNS:
- a set of servers that map written names to IP addresses
  - Example: www.cs.washington.edu → 128.208.3.88
- many systems maintain a local cache called a hosts file

URL:
- a basic URL: http://www.aw-bc.com/info/regesstepp/index.html
  
  protocol host path

http://www.aw-bc.com/info/regesstepp/index.html
Who "runs" the internet?

- Internet Engineering Task Force (IETF): internet protocol standards
- Internet Corporation for Assigned Names and Numbers (ICANN): decides top-level domain names
- World Wide Web Consortium (W3C): web standards
Brief History

- began as a US Department of Defense network called ARPANET (1960s-70s)
- initial services: electronic mail, file transfer
- opened to commercial interests in late 80s
- WWW created in 1989-91 by Tim Berners-Lee
- Amazon.com opens in 1995; Google January 1996
- Hamster Dance web page created in 1999
Content vs. presentation

• HTML is for **content**; what is on the page (heading; list; code; etc.)
• CSS is for **presentation**; how to display the page (bold; centered; 20px margin; etc.)
• Keeping content separate from presentation is a very important web design principle
• If the HTML contains no styles, its entire appearance can be changed by swapping .css files
• See also: [CSS Zen Garden](http://csszengarden.com)
Cascading Style Sheets (CSS): `<link>`

```html
<head>
  ...
  <link href="filename" type="text/css" rel="stylesheet" />
  ...
</head>
```

- CSS describes the appearance and layout of information on a web page (as opposed to HTML, which describes the content of the page)
- can be embedded in HTML or placed into separate `.css` file (preferred)
Basic CSS rule syntax

```
selector {
  property: value;
  property: value;
  ...
  property: value;
}
```

- a CSS file consists of one or more rules
- a rule's selector specifies HTML element(s) and applies style properties
- a selector of * selects all elements

```
p {
  font-family: sans-serif;
  color: red;
}
```
CSS properties for colors

```css
p {
  color: red;
  background-color: yellow;
}
```

This paragraph uses the style above.

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>color</td>
<td>color of an element’s text</td>
</tr>
<tr>
<td>background-color</td>
<td>color that will appear behind the element</td>
</tr>
</tbody>
</table>
Specifying colors

```css
p { color: red; }
h2 { color: rgb(128, 0, 196); }
h4 { color: #FF8800; }
```

This paragraph uses the first style above.

This h2 uses the second style above.
This h4 uses the third style above.

- color names: aqua, black, blue, fuchsia, gray, green, lime, maroon, navy, olive, purple, red, silver, teal, (white), yellow
- RGB codes: red, green, and blue values from 0 (none) to 255 (full)
- hex codes: RGB values in base-16 from 00 (0, none) to FF (255, full)
CSS properties for **fonts**

<table>
<thead>
<tr>
<th>property</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>font-family</td>
<td>which font will be used</td>
</tr>
<tr>
<td>font-size</td>
<td>how large the letters will be drawn</td>
</tr>
<tr>
<td>font-style</td>
<td>used to enable/disable italic style</td>
</tr>
<tr>
<td>font-weight</td>
<td>used to enable/disable bold style</td>
</tr>
</tbody>
</table>

[Complete list of font properties](#)
This paragraph uses the style above.

- 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%
font-family

p {
    font-family: Georgia;
}

h2 {
    font-family: "Courier New";
}

This paragraph uses the first style above.
This h2 uses the second style above.

- enclose multi-word font names in quotes
More about font-family

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

This paragraph uses the above style.

- can specify multiple fonts from highest to lowest priority
- generic font names:
  - serif, sans-serif, cursive, fantasy, monospace
font-weight, font-style

p {
  font-weight: bold;
  font-style: italic;
}

This paragraph uses the style above.

• either of the above can be set to normal to turn them off (e.g. headings)
CSS properties for text

<table>
<thead>
<tr>
<th>property</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>text-align</td>
<td>alignment of text within its element</td>
</tr>
<tr>
<td>text-decoration</td>
<td>decorations such as underlining</td>
</tr>
<tr>
<td>line-height,</td>
<td>gaps between the various portions of the text</td>
</tr>
<tr>
<td>word-spacing,</td>
<td></td>
</tr>
<tr>
<td>letter-spacing</td>
<td></td>
</tr>
<tr>
<td>text-indent</td>
<td>indents the first letter of each paragraph</td>
</tr>
</tbody>
</table>

[Complete list of text properties](http://www.w3schools.com/css/css_reference.asp#text)
<table>
<thead>
<tr>
<th>blockquote { text-align: justify; }</th>
</tr>
</thead>
<tbody>
<tr>
<td>h2 { text-align: center; }</td>
</tr>
<tr>
<td>CSS</td>
</tr>
</tbody>
</table>

**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.

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

This paragraph uses the style above.

<table>
<thead>
<tr>
<th>p { text-decoration: underline; }</th>
<th>CSS</th>
</tr>
</thead>
</table>

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

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

```css
p {
    font-weight: bold;
    text-shadow: 2px 2px gray;
}
```

This paragraph uses the style above.

- shadow is specified as an X-offset, a Y-offset, and an optional color
# CSS properties for backgrounds

<table>
<thead>
<tr>
<th>property</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>background-color</td>
<td>color to fill background</td>
</tr>
<tr>
<td>background-image</td>
<td>image to place in background</td>
</tr>
<tr>
<td>background-position</td>
<td>placement of bg image within element</td>
</tr>
<tr>
<td>background-repeat</td>
<td>whether/how bg image should be repeated</td>
</tr>
<tr>
<td>background-attachment</td>
<td>whether bg image scrolls with page</td>
</tr>
<tr>
<td>background</td>
<td>shorthand to set all background properties</td>
</tr>
</tbody>
</table>
background-image

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;
}
```

- 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;
}
```

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