Links: <a>

* links, or "anchors", to other pages (inline)

<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
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
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>`
Computer code `<code>`

*a short section of computer code (usually shown in a fixed-width font)*

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

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

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)
HTML Character Entities

a way of representing any Unicode character within a web page

<table>
<thead>
<tr>
<th>character(s)</th>
<th>entity</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; &gt;</td>
<td>&lt; &gt;</td>
</tr>
<tr>
<td>é è ñ</td>
<td>é è ñ</td>
</tr>
<tr>
<td>™ ©</td>
<td>™ ©</td>
</tr>
<tr>
<td>π δ Δ</td>
<td>π δ Δ</td>
</tr>
<tr>
<td>Ι</td>
<td>&amp;1048;</td>
</tr>
<tr>
<td>&quot; &amp;</td>
<td>&quot; &amp;</td>
</tr>
</tbody>
</table>

• Complete list of HTML entities
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.
Safe divers always remember to check their SCUBA gear.

- The title will appear when the abbreviated word is hovered over
- In some browsers the abbreviated word will have a dashed underline
Phrase elements: `<em>`, `<strong>`

*em*: emphasized text (usually rendered in italic)

*strong*: strongly emphasized text (usually rendered in bold)

```
<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
Nesting tags

<p>
HTML is <em>really,</em> <strong>REALLY</strong> lots of fun!
</p>

• tags must be correctly nested
  • (a closing tag must match the most recently opened tag)
• the browser may render it correctly anyway, but it is invalid HTML
  • (how would we get the above effect in a valid way?)
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
Web Standards

It is important to write proper HTML code and follow proper syntax.

Why use valid HTML and web standards?
- more rigid and structured language
- more interoperable across different web browsers
- more likely that our pages will display correctly in the future
- can be interchanged with other XML data: SVG (graphics), MathML, MusicML, etc.
W3C HTML Validator

- [validator.w3.org](http://validator.w3.org)
- checks your HTML code to make sure it follows the official HTML syntax
- more picky than the browser, which may render bad HTML correctly
The bad way to produce styles

<p>
<font face="Arial">Welcome to Greasy Joe's.</font>
You will <b>never</b>, <i>ever</i>, <u>EVER</u> beat <font size="+4" color="red">OUR</font> prices!
</p>

Welcome to Greasy Joe's. You will <strong>never</strong>, <em>ever</em>, <u>EVER</u> beat <strong>OUR</strong> prices!
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

```css
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

```css
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

```html
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

```css
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

```html
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

```css
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)