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>
</html>
```

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
Line break: `<br>`

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

```html
<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: &ge; 2 in a row is bad)
**HTML Character Entities**

*a way of representing any [Unicode](https://en.wikipedia.org/wiki/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 ŋ</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>И</td>
<td>И</td>
</tr>
<tr>
<td>&quot; &amp;</td>
<td>&quot; &amp;</td>
</tr>
</tbody>
</table>

• [Complete list of HTML entities](https://www.w3schools.com/html/reference_entities.asp)
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)

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

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

Safe divers always remember to check their SCUBA gear.

HTML

output
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</strong> 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)*

```
<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

Welcome to Greasy Joe's. You will never, ever, EVER beat OUR 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

```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](#)
font-size

```html
p {
    font-size: 14pt;
}
```

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

```html
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)