

Cascading Style Sheets (CSS)

CSE 190 M (Web Programming), Spring 2007
University of Washington

Reading: Sebasta Ch. 3 sections 3.1 - 3.6.6, 3.8 - 3.9, 3.12



The bad way to produce styles

```
<p><font face="Arial">Welcome to Greasy Joe's. You will  
<b>never, <i>ever, <u>EVER</u></i></b> beat <font  
size="+1" color="red">OUR</font> prices!</font></p>
```

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

- the above tags such as `b`, `i`, `u`, and `font` are legal in older HTML but are deprecated in strict XHTML
 - you should not use the above tags on your homework assignments!
- why are we discouraged from expressing stylistic information this way?

Cascading Style Sheets (CSS)

- describe the appearance, layout, and presentation of information on a web page (as opposed to HTML, which describes the content of the page)
- describe *how* information is to be displayed, not *what* is being displayed
- can be embedded in HTML document or placed into separate `.css` file
 - advantage of `.css` file: one style sheet can be shared across many HTML documents

Basic CSS rule syntax

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

```
p {  
  font-family: sans-serif;  
  color: red;  
}
```

-
- a CSS file consists of one or more rules
 - each rule starts with a selector that specifies an HTML element and then applies style properties to it

Attaching a CSS file: <link>

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

```
<link rel="stylesheet" type="text/css" href="style.css" />
```

```
<link rel="stylesheet" type="text/css"  
href="http://www.google.com/uds/css/gsearch.css" />
```

-
- the link tag appears in the head of an HTML page
 - can link to multiple style sheet files
 - in case of a conflict (two sheets define a style for the same HTML element), the latter sheet's properties will be used

CSS properties for colors

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

This paragraph uses the style above.

-
- color: color of the element's text
 - background-color: color that will appear behind the element

Specifying colors

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

This paragraph uses the first style above.

This heading uses the second style above.

This heading 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

- 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

```
p { font-family: "Georgia"; }
h2 { font-family: "Arial Narrow"; }
```

This paragraph uses the first style above.

This heading uses the second style above.

- enclose multi-word font names in quotes

More about `font-family`

```
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*
- 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

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

This paragraph uses the style above.

More about `font-size`

```
p { font-size: x-large; }
```

This paragraph uses the above style.

- vague font sizes: `xx-small`, `x-small`, `small`, `medium`, `large`, `x-large`, `xx-large`
- relative font sizes: `smaller`, `larger`
- percentage font sizes, e.g.: `90%`, `120%`
- units: pixels (`px`) vs. point (`pt`) vs. m-size (`em`)
 `16px`, `16pt`, `1.16em`
- `px` specifies a number of pixels on the screen (absolute)
- `pt` specifies number of *point*, where a point is 1/72 of an inch onscreen
- `em` specifies number of *m-widths*, where 1 `em` is equal to the font's current size

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)
-

Body styles

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

- 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
-

Practice problem: Kittens



KITTENS!



Edit this HTML and add the following styles to it:

- entire page should have a pink background and use 16 point font
- main heading should use Comic Sans MS font
- lists should appear in a Lucida Console font
- list numbers should have yellow background; list items should have green background
- link text should be purple
- quote text should be italicized

Why I love them:

1. They are *little*.
2. They make **adorable** sounds:
 - "Meow!"
 - "Purr!"
3. JUST LOOK AT THEM!

Show HTML

Show Expected Appearance

Why ``, `` and not ``, `<i>`?

```
strong { font-weight: normal; color: red; }
em { font-style: normal; background-color: #DDDDDD; }
```

Now if I want to **strongly emphasize** something or just **emphasize** it, it doesn't necessarily have to be bold or italic.

- `strong` and `em` describe attributes of the content (it is something important in the document that you want to emphasize)
 - `b` and `i` describe formatting and presentation ("I want this to be bold.")
-

CSS properties for text

- `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; }
```

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.

- `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

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

This paragraph uses the style above.

- can also be overline, ~~line-through~~, blink
- effects can be combined:

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

CSS properties for dimensions

```
p { width: 400px; background-color: yellow; }
h2 { width: 50%; background-color: aqua; }
```

This paragraph uses the first style above.

This heading uses the second style above.

- width, height: how wide or tall to make this element
 - max-width, max-height, min-width, min-height: the maximum or minimum size of this element in the given dimension
 - all of these apply only to block elements; ignored for inline elements
-

CSS comments: /* ... */

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

- 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

Grouping styles

```
p,h1,h2 { color: blue; }  
h2 { background-color: yellow; }
```

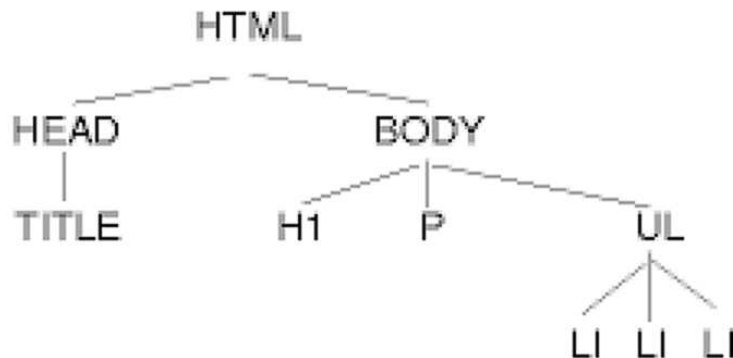
This paragraph uses the above style.

This heading uses the above style.

- a style can select multiple elements separated by commas
 - the given properties will be applied to all of the elements
 - the individual elements can also have their own styles (like h2 above)
-

Document tree

```
<html><head><title>My home page</title></head>  
<body><h1>My home page</h1>  
<p>Let me tell you about my favorite composers:</p>  
<ul><li>Elvis Costello</li>  
<li>Johannes Brahms</li>  
<li>Georges Brassens</li>  
</ul></body></html>
```



Inheriting styles (explanation)

```
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; }
```

This is a heading.

A styled paragraph. [Previous slides](#) are available on the web site.

- a bullet list

- 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

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

This paragraph uses the first style above.

This heading uses both styles above.

- when two styles set conflicting values for the same property, the latter style takes precedence

W3C CSS Validator

```
<p><a href="http://jigsaw.w3.org/css-validator/check/referer">
</a></p>
```



- 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

Practice problem: More kittens



KITTENS!



Edit the previously-styled Kitten HTML and add the following styles:

- all headings should be centered, bolded, and underlined
- the images should be enlarged to occupy one-third of the screen each
- the list of items should be narrowed to occupy only half the page width
- the text should be spaced so that the lines are further apart
- emphasized and strongly emphasized text should appear slightly larger than the other text on the page

Why I love them:

1. They are *little*.
2. They make **adorable** sounds:
 - "Meow!"
 - "Purr!"
3. JUST LOOK AT THEM!

Show HTML

Show Expected Appearance

----- CSS Classes -----

CSS Classes

Reading: Sebesta Ch. 3 sections 3.2 - 3.3, 3.4.2 - 3.4.4, 3.12

CSS class selectors

```
p.special {
  background-color: yellow;
  font-weight: bold;
}
```

- selectively applies a CSS rule to only the paragraphs that are part of the class named `special` (next slide)
- gives a style to some occurrences of an element but not others
("I don't want ALL paragraphs to be yellow, just these three...")

The HTML `class` attribute

```
<p>Spatula City! Spatula City!</p>
<p class="special">See our spectacular spatula specials!</p>
<p class="special">Today only: satisfaction guaranteed.</p>
<p>We'll beat any advertised price!</p>
```

Spatula City! Spatula City!

See our spectacular spatula specials!

Today only: satisfaction guaranteed.

We'll beat any advertised price!

Class selectors without element

```
.standout {
  color: red;
  font-family: cursive;
}
```

- selectively applies a CSS rule to *any element* that is part of the class named `standout`

HTML `class` attribute revisited

```
<h2 class="standout">Spatula City! Spatula City!</h2>
<p class="special">See our spectacular spatula specials!</p>
<p class="special standout">Satisfaction guaranteed.</p>
<p class="standout">We'll beat any advertised price!</p>
```

Spatula City! Spatula City!

See our spectacular spatula specials!

Satisfaction guaranteed.

We'll beat any advertised price!

- an element can be a member of multiple classes (separated by spaces)

CSS ID selectors

```
p#missionstatement {
  font-style: italic;
  font-family: "Garamond", "Century Gothic", serif;
}
```

-
- selectively applies a CSS rule to only the paragraphs that has the particular ID named `missionstatement` (next slide)
 - differs from class selector in that an ID can only be used once in the HTML document (won't validate otherwise)
 - element (`p` above) can be omitted if desired; rule will apply to any element with ID `missionstatement`

The HTML `id` attribute

```
<p>Spatula City!  Spatula City!</p>
<p id="missionstatement">Our mission is to provide the most
spectacular spatulas and splurge on our specials until our
customers <q>explode</q> with splendor!</p>
```

Spatula City! Spatula City!

Our mission is to provide the most spectacular spatulas and splurge on our specials until our customers "explode" with splendor!

Linking to sections of a web page

```
<p>Visit <a href=
"http://www.textpad.com/download/index.html#downloads">
textpad.com</a> to get the TextPad editor.</p>
<p><a href="#mac">Directions for Mac OS X</a></p>
```

Visit [textpad.com](http://www.textpad.com) to get the TextPad editor.

[Directions for Mac OS X](#)

-
- a link target can include an ID at the end, preceded by a #
 - browser will load that page and scroll to element with given ID
 - can link to an ID within the current page

Logical divisions in HTML: <div>

a section or division of your HTML page (block-level)

```
<div class="standout">
<h2>Spatula City! Spatula City!</h2>
<p class="special">See our spectacular spatula specials!</p>
<p>We'll beat any advertised price!</p>
</div>
```

Spatula City! Spatula City!

See our spectacular spatula specials!

We'll beat any advertised price!

- has no onscreen appearance, but you can apply a style or ID to it, which will be inherited by all elements inside the `div`

Inline styling sections:

an inline element used purely as a range for applying styles

```
<h2>Spatula City! Spatula City!</h2>
<p>See our <span class="special">spectacular</span>
spatula specials!</p>
<p>We'll beat <span class="standout">any advertised
price</span>!</p>
```

Spatula City! Spatula City!

See our **spectacular** spatula specials!

We'll beat **any advertised price!**

- has no onscreen appearance, but you can apply a style or ID to it, which will be applied to the text inside the `span`

Embedding style sheets: <style>

```
<head>
<style type="text/css">
p { font-family: sans-serif; color: red; }
h2 { background-color: yellow; }
</style>
</head>
```

- should be placed within the head of the HTML page
- linking to an external style sheet file is preferred, especially when you have many styles

Inline styles: the `style` attribute

```
<p style="font-family: sans-serif; color: red;">
This is a paragraph</p>
```

This is a paragraph

- higher precedence than embedded or linked styles
 - useful for one-time overrides
-

Cascading style sheets


- it's called Cascading Style Sheets because the attributes 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)
-

Practice problem: Digg

Add styling to the web page stored as [digg.html](#) to make it look like this:



Google's New TISP Service (April Fool)


 marianosf submitted, made popular **22 hours 28 min ago** (www.google.com)

Get a head start and order your free TISP kit today ONLY

163 comments | [Blog It](#) | [Email It](#) | Topic: Gadgets

- ◆ 3541 diggs
- ◆ digg it

DON'T buy an HDTV without reading this first

 estvir submitted, made popular **13 hours 8 min ago** (blogs.zdnet.com)

Forking out a few thousand dollars or even just a few hundred is a serious investment and the last thing you

----- Background properties -----

CSS properties for backgrounds

CSS properties for backgrounds

- 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

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

This is the first paragraph

This is the second paragraph...

It occupies 2 lines

- background image/color fills the content area and the padding

background-repeat

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

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

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

This is the first paragraph

This is the second paragraph...

It occupies 2 lines

DRAFT

- 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

Showing a partial image

```
.partialimage1, .partialimage2 {
  background-image: url("sex_and_the_city.jpg");
  background-repeat: no-repeat;
  width: 70px; height: 200px;
}
.partialimage1 { background-position: 0px 0px; }
.partialimage2 { background-position: -115px 0px; }
```



----- Advanced CSS -----

Advanced CSS

Context selectors

```
selector1 selector2 {  
  properties  
}
```

- applies the given properties to selector2 only if it is inside a selector1 on the page

```
selector1 > selector2 {  
  properties  
}
```

- applies the given properties to selector2 only if it is *directly* inside a selector1 on the page (selector1 tag is immediately inside selector2 with no tags in between)

Context selector example

```
li strong { text-decoration: underline; }
```

```
<p>Shop at <strong>Hardwick's Hardware</strong>...</p>  
<ul>  
<li>The <strong>best</strong> prices in town!</li>  
<li>Act while supplies last!</li>  
</ul>
```

Shop at **Hardwick's Hardware...**

- The **best** prices in town!
- Act **while supplies last!**

More complex example

```
div#ad li.important strong { text-decoration: underline; }
```

```
<div id="ad">  
<p>Shop at <strong>Hardwick's Hardware</strong>...</p>  
<ul>  
<li class="important">The <strong>best</strong>  
prices in town!</li>  
<li>Act <strong>while supplies last!</strong></li>  
</ul>  
</div>
```

Shop at **Hardwick's Hardware...**

- The **best** prices in town!
- Act **while supplies last!**

Pseudo-classes

```
a:link {color: #FF0000}      /* unvisited link */
a:visited {color: #00FF00}  /* visited link */
a:hover {color: #FF00FF}   /* mouse over link */
a:active {color: #0000FF}  /* selected link */
```

- `:active` : an activated or selected element
- `:focus` : an element that has the keyboard focus
- `:hover` : an element that has the mouse over it
- `:link` : a link that has not been visited
- `:visited` : a link that has already been visited
- `:first-child` : an element that is the first child of another

Pseudo-class example

```
a:link {color: red}
a:visited {color: green}
a:hover {color: purple; background-color: yellow;}
a:active {color: blue}
```

```
<a href="http://www.google.com">Goooooogle</a>
```

[Goooooogle](http://www.google.com)

- How would we make unvisited links blue, only they are in a paragraph inside of the `div` with `id` header or `id` footer?
- answer:

```
div#header p a:link, div#footer p a:link {
    color: blue;
}
```

The list-style-type property

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

- 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

The display property

```
h2 { display: inline; background-color: yellow; }
```

This is a heading This is another heading

- sets the type of CSS box model an element is displayed with
- can be none, inline, block, run-in, compact, ...
- use sparingly, because it can radically alter the page layout

The visibility property

```
p.secret {  
  visibility: hidden;  
}
```

- sets whether an element should be shown onscreen
 - the element will still take up space onscreen, but will not be shown
 - to make it not take up any space, set `display` to `none` instead
- can be `visible` (default) or `hidden`
- can be used to show/hide dynamic HTML content on the page in response to events

Practice problem: ESPN.com

Modify the provided ESPN sports page ([HTML](#), [CSS](#), [JS](#)) to include a drop-down menu of links that appears when clicked.

- links: black text (red on mouse over)
- text under NBA image: bold, color 666666
- all elements inside header have middle vertical alignment
- 10px L/R padding on main list items, with relative positions, 11pt bold font
- menu is positioned 1.5em from top/left of the list item clicked
- links inside menu don't underline and have bg color of #E4E2B4 on mouse over



The screenshot shows the ESPN.com NBA page. At the top is the ESPN logo. Below it is a navigation bar with links for NFL, NBA, MLB, and Women's BB. A dropdown menu is open over the NBA link, showing options: NBA Front Page, Scoreboard, Daily Dime, and 2007 NBA Playoffs. Below the menu is a row of four images: Mark Cuban, LeBron James, John Hollinger, and Shaquille O'Neal. Below the images is a headline: "Mark Cuban (far left) and Shaq (far right) won't be facing off this June." followed by a paragraph of text and a list of links.

ESPN

NFL NBA MLB Women's BB

NBA Front Page

Scoreboard

Daily Dime

2007 NBA Playoffs

Shaq

Mark Cuban (far left) and Shaq (far right) won't be facing off this June.

The defending champions? Swept in the first round. This season's best team? Teetering in a 3-1 hole. Think you know the NBA? Before answering that one, let our expert sort things out. [John Hollinger](#)

- [Daily Dish: Surprise!](#) | [TrueHoop insight](#) | [Hollinger chat wrap](#)
- [Playing tonight: Wizards-Cavaliers](#) | [Rockets-Jazz](#) | [Nuggets-Spurs](#)