

Chapter 4

How to use CSS to format the elements of a web page

Objectives

Applied

1. Given an HTML document, create a CSS style sheet for formatting the web page using any of the types of selectors or rules that are presented in this chapter.
2. Given a selector in the CSS for an HTML document, describe what the selector applies to.

Knowledge

1. Describe three ways to include CSS in a web page.
2. Explain why it's usually best to use an external style sheet for formatting a page.
3. Describe the changes you need to make to the HTML and CSS files if you want to use CSS to format the HTML5 semantic elements in older browsers.

Objectives (cont.)

4. Distinguish between absolute and relative units of measurement.
5. Describe three ways to specify color in CSS, and describe how CSS3 expands upon that.
6. Describe these types of selectors: universal, type, id, class, descendant, child, sibling, pseudo-class, and pseudo-element.
7. Describe one accessibility guideline for using pseudo-class selectors.
8. Explain how user style sheets, !important rules, and specificity are used in the cascade order for applying rule sets.
9. Describe these properties for styling fonts: font-family, font-style, font-weight, font-size, and line-height.
10. Describe these properties for formatting text: text-indent, text-align, text-decoration, and text-shadow.

Example Web Page

- Create a new folder folder c4_html
 - Create two sub-folders: images and styles
 - Copy the logo.jpg file into this site's images folder
- Create a new html5 web page with semantics
 - Save it as c4_lecture_examples.html
 - Add three <h1> headings to the <header> (121-1)
 - “Chapter 4 Lecture”
 - Course: CNMT 210
 - CSS Lecture

Three ways to provide styles

Use an external style sheet

```
<link rel="stylesheet" href="styles/main.css">
```

Embed the styles in the head section

```
<style>
  body {
    font-family: Arial, Helvetica, sans-serif;
    font-size: 87.5%; }
  h1 { font-size: 250%; }
</style>
```

Use the style attribute to apply styles to a single element

```
<h1 style="font-size: 500%; color: red;">
  CSS Lecture</h1>
```

Applies the same styles to multiple web pages.

Review the descriptions on page 121

Add the highlighted bits, including `<style>` `</style>` and the code in between.

Change the H1 accordingly.

The sequence in which styles are applied

- Styles from an external style sheet
- Embedded styles
- Inline styles

How to specify the medium for a style sheet

```
<link rel="stylesheet" href="../styles/print.css"  
      media="print">
```

We will look into this concept in great detail when; we cover chapter 12. (121-2)

The JavaScript shiv for using the HTML5 tags

```
<head>  
  <script  
    src="http://html5shiv.googlecode.com/svn/trunk/html5.js">  
  </script>  
</head>
```

Allows HTML5 semantic tag syntax compatibility with older browsers.

Note: You can also use modernizr and others.

Let's review page 122

The js makes the html5 elements part of the Document Object Model (DOM) for older browsers.

~Let's add this shiv code. 123-1

Note: Use the D2L .txt file

Murach's HTML5 and CSS3, 2nd Edition
Instructor: _2.html © 2012, Mike Murach & Associates, Inc.

I.e. Manually adds elements to the DOM

Another way to provide the shiv

```
<head>
  <script>
    document.createElement(article) ;
    document.createElement(aside) ;
    document.createElement(figure) ;
    document.createElement(footer) ;
    document.createElement(header) ;
    document.createElement(nav) ;
    document.createElement(section) ;
  </script>
</head>
```

If, you do not include the code from the previous slide. You will need to add this script and code to each web page's head section. *(Note: we will use the external link, not this.)*

CSS for using HTML5 tags in older browsers

```
article, aside, figure, footer, header, nav, section {  
    display: block;  
}
```

Regardless which shiv inclusion you use. You will need to add this code until older browsers go away. Don't forget to include all the HTML5 semantic elements used in your files.

Adding Shiv CSS

- Create a new file called shiv.css saved in your c4_html/styles folder.
- Inside the file add:

```
article, aside, figure, footer, header, nav, section  
{  
  
display: block;  
  
}
```

- In your HTML add to the <head> section:
<link type="text/css" rel="stylesheet" href="styles/shiv.css" >

Note:

- In future code, we will typically use this browser compatibility code for semantic elements. You should remember this process.
 - Add the shiv `<script>` element to your code or account for older browsers.
 - Add the semantic element style sheet (css file) to your site.
 - Link the semantic style sheet to your code.

Review page 124 & 125

Common units of measure

Symbol	Name	Type	Description
px	pixel	absolute	A single dot on a monitor. The number of dots per inch depends on the resolution of the monitor.
pt	point	absolute	A point is 1/72 of an inch.
em	ems	relative	One em is equal to the font size for the current font.
%	percent	relative	A percent specifies a value relative to the current value.

Because many web pages are viewed on different screen resolutions and sizes; the units of measure that you choose can be very important. (tablets, cell phones, and etc..) As a result, em or % (relative) units of measure are the best to structure elements.

CSS that uses relative units of measure

```
body {  
    font-size: 87.5%;  
    margin-left: 2em; }  
header {  
    padding-bottom: .75em;  
    border-bottom: 3px solid black;  
    margin-bottom: 0; }  
h1 {  
    font-size: 200%;  
    margin-bottom: 0; }
```

Fonts as %, margins and padding as ems

~Add code to our example.

* - Instructor note: See _5.html source.

16 descriptive color names

black	silver	white	aqua
red	lime	green	maroon
yellow	olive	purple	teal
gray	blue	fuchsia	navy

The above list of colors are supported by all browsers, new and old.

Three ways to specify colors

With a color name

```
color: silver;
```

With an RGB (red-green-blue) value

```
color: rgb(100%, 40%, 20%);
```

```
color: rgb(255, 102, 51);
```

With a hexadecimal number for an RGB value

```
color: #ffffff;
```

```
color: #000000;
```

```
color: #ff0000;
```

Accessibility guideline for the visually impaired

- Dark text on a light background is easier to read, and black type on a white background is easiest to read.

Three ways to code CSS3 colors

The syntax for RGBA colors

`rgba(red%, green%, blue%, opacity-value)`

The syntax for HSL and HSLA colors

`hsl(hue-degrees, saturation%, lightness%)`

`hsla(hue-degrees, saturation%, lightness%, opacity-value)`

rgba and hsl are
new html5 color
styles

Examples of CSS3 colors

```
h1 { color: rgba(0, 0, 255, .2) }      /* transparent blue */
h1 { color: hsl(120, 100%, 25%) }      /* dark green */
h1 { color: hsl(120, 75%, 75%) }       /* pastel green */
h1 { color: hsla(240, 100%, 50%, 0.5) } /* semi-transparent  
solid blue */
```

Review the description on page 129

HTML that can be selected by type, id, or class

```
<section id="main">
  <h1>The 2011-2012 Speaker Lineup</h1>
  <p class="blue">October 19, 2011: Jeffrey Toobin</p>
  <p class="blue">
    November 16, 2011: Andrew Ross Sorkin</p>
</section>
<footer>
  <p class="blue right">Copyright 2012</p>
</footer>
```

Instructor note: _6.html

CSS rule sets that select by type, id, and class

All elements

```
* { margin: .5em 1em; }
```

Elements by type

```
h1 { font-family: Arial, sans-serif; }  
p { margin-left: 3em; }
```

One element by ID

```
#main {  
    border: 2px solid black;  
    padding: 1em; }
```

Elements by class

```
.blue { color: blue; }  
.right { text-align: right; }
```

Instructor Note: _7.html

Type of CSS Selectors:

- On the next couple slides are several different ways to apply styles to elements.
- We will probably not use all examples in this course. However for future use, you should be aware of their syntax and applications.
- We will not add all code to the example file. For now, we need to keep things simple.

Contextual Selectors:

The bracketed selectors we will use regularly. So, we have examples of these selectors.

Selector	Description
*	Matches any element in the hierarchy
<i>e</i>	Matches any element, <i>e</i> , in the hierarchy
<i>e1, e2, e3,...</i>	Matches the group of elements <i>e1, e2, e3,...</i>
<i>e f</i>	Matches any element, <i>f</i> , that is a descendant of an element, <i>e</i>
<i>e>f</i>	Matches any element, <i>f</i> , that is a direct child of an element, <i>e</i>
<i>e+f</i>	Matches any element, <i>f</i> , that is immediately preceded by a sibling element, <i>e</i>
<i>e~f</i>	Matches any element, <i>f</i> , that is a sibling to an element, <i>e</i>

Review page 133

We will use bracketed ones, too. We already have examples of these selectors.

Review page 135.
Combination
selectors only. (I.e.
Top of page)

Attribute selectors

Selector	Description	Example	Matches
<code>#id</code>	The element with the id value, <i>id</i>	<code>#intro</code>	The element with the id <i>intro</i>
<code>.class</code>	All elements with the class value, <i>class</i>	<code>.main</code>	All elements belonging to the <i>main</i> class
<code>elem.class</code>	All <i>elem</i> elements with the class value <i>class</i>	<code>p.main</code>	All paragraphs belonging to the <i>main</i> class
<code>elem[att]</code>	All <i>elem</i> elements containing the <i>att</i> attribute	<code>a[href]</code>	All hypertext elements containing the href attribute
<code>elem[att="text"]</code>	All <i>elem</i> elements whose <i>att</i> attribute equals <i>text</i>	<code>a[href="gloss.htm"]</code>	All hypertext elements whose href attribute equals <i>gloss.htm</i>
<code>elem[att~="text"]</code>	All <i>elem</i> elements whose <i>att</i> attribute contains the word <i>text</i>	<code>a[rel~="glossary"]</code>	All hypertext elements whose rel attribute contains the word <i>glossary</i>
<code>elem[att ="text"]</code>	All <i>elem</i> elements whose <i>att</i> attribute value is a hyphen-separated list of words beginning with <i>text</i>	<code>p[id="first"]</code>	All paragraphs whose id attribute starts with the word <i>first</i> in a hyphen-separated list of words
<code>elem[att^="text"]</code>	All <i>elem</i> elements whose <i>att</i> attribute begins with <i>text</i> (CSS3)	<code>a[rel^="prev"]</code>	All hypertext elements whose rel attribute begins with <i>prev</i>
<code>elem[att\$="text"]</code>	All <i>elem</i> elements whose <i>att</i> attribute ends with <i>text</i> (CSS3)	<code>a[href\$="org"]</code>	All hypertext elements whose href attribute ends with <i>org</i>
<code>elem[att*="text"]</code>	All <i>elem</i> elements whose <i>att</i> attribute contains the value <i>text</i> (CSS3)	<code>a[href*="faq"]</code>	All hypertext elements whose href attribute contains the text string <i>faq</i>

These pseudo classes focus on how an item is used, not how its formatted. (*Descriptions on the top of page 137.*)

Dynamic pseudo-classes

Pseudo-Class	Description	Example
link	The link has not yet been visited by the user.	<code>a:link {color: red;}</code>
visited	The link has been visited by the user.	<code>a:visited {color: green;}</code>
active	The element is in the process of being activated or clicked by the user.	<code>a:active {color: yellow;}</code>
hover	The mouse pointer is hovering over the element.	<code>a:hover {color: blue;}</code>
focus	The element has received the focus of the keyboard or mouse pointer.	<code>input:focus {background-color: yellow;}</code>

More types of CSS3 pseudo-class selectors

Note: Some of these may be used in the Halloween assignments.

Structural pseudo-classes

Pseudo-Class	Matches
root	The top element in the document hierarchy (the html element)
empty	An element with no children
only-child	An element with no siblings
first-child	The first child of the parent element
last-child	The last child of the parent element
first-of-type	The first element of the parent that matches the specified type
last-of-type	The last element of the parent that matches the specified type
nth-of-type(<i>n</i>)	The <i>n</i> th element of the parent of the specified type
nth-last-of-type(<i>n</i>)	The <i>n</i> th from the last element of the parent of the specified type
only-of-type	An element that has no siblings of the same type
lang(<i>code</i>)	The element that has the specified language indicated by <i>code</i>
not(<i>s</i>)	An element not matching the specified selector, <i>s</i>

HTML that can be used by pseudo selectors

```
<section>
  <p>Welcome to San Joaquin Valley Town Hall.</p>
  <p>We have some fascinating speakers for you this
    season!</p>
  <ul>
    <li><a href="toobin.html">Jeffrey Toobin</a></li>
    <li><a href="sorkin.html">Andrew Ross
      Sorkin</a></li>
    <li><a href="chua.html">Amy Chua</a></li>
  </ul>
</section>
```

Instructor note: _8.html

Refers to code on the previous slide.

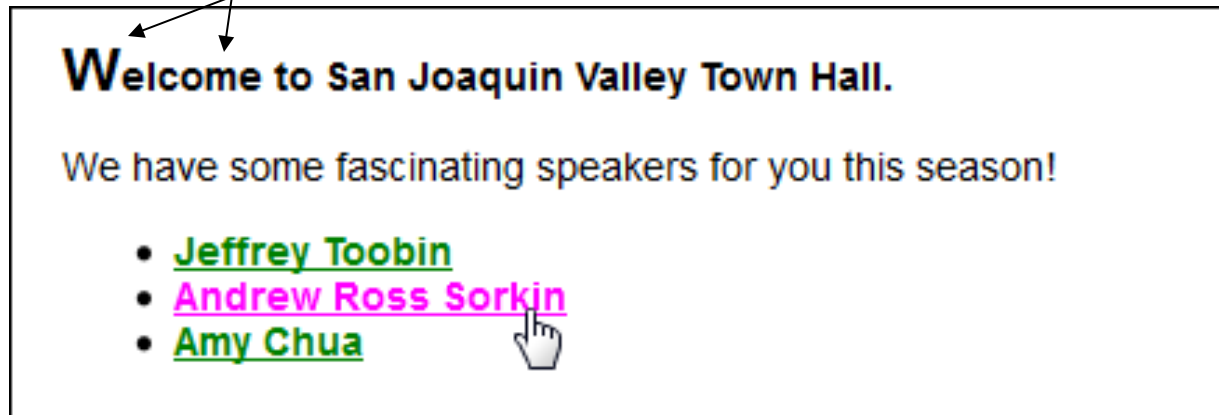
CSS for pseudo-class selectors

```
a:link { color: green; }  
a:hover, a:focus { color: fuchsia }
```

CSS for pseudo-element selectors

```
section p:first-child { font-weight: bold; }  
section p:first-child:first-letter { font-size: 150% }
```

The rules in a browser



Instructor note: _9.html

How to identify a rule as important

```
.highlight {  
    font-weight: bold !important;  
}
```

By applying an “!important” style rule. You can have this style take precedence over all other conflicting rules.



Review: Style Rule Precedence

External styles in linked order

Embedded styles

Inline styles

Important styles

*If styles conflict, the last style will be applied.

The five generic font families

- serif
- sans-serif
- monospace
- cursive
- fantasy

Examples of the five generic font families

Times New Roman is a serif font. It is the default for most web browsers.

Arial is a sans-serif font that is widely used, and sans-serif fonts are best for web pages.

Courier New is a monospace font that is used for code examples.

Lucida Handwriting is a cursive font that is not frequently used.

Impact is a fantasy font that is rarely used.

How to specify a font family

```
font-family: Arial, Helvetica, sans-serif;  
font-family: "Times New Roman", Times, serif;  
font-family: "Courier New", Courier, monospace;
```

How to specify the font size

```
font-size: 12pt;      /* points */  
font-size: 150%;      /* percent of the parent element */  
font-size: 1.5em;     /* same as 150% */
```

Fonts are applied in order. As soon as a font is found. It is applied and the rest ignored.

A font-family rule that's inherited by descendants

```
body {  
    font-family: Arial, Helvetica, sans-serif;  
    font-size: 87.5%; }
```

A rule that overrides the inherited font family

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

Notice how the “body” element selector defines the default font and size for the entire web page. (a.k.a. Child elements inherit styles from its parent.)

Other properties for styling fonts

- font-style
- font-weight
- font-variant
- line-height

How to specify font styles and variants

```
font-style: italic;  
font-style: normal;          /* remove style */  
font-variant: small-caps;
```

How to specify font weights;

```
font-weight: 700;  
font-weight: bold;           /* same as 700 */  
font-weight: normal;         /* same as 400 */  
font-weight: lighter;        /* relative to the parent  
                             element */
```

How to specify line height

```
line-height: 14pt;  
line-height: 140%;  
line-height: 1.4em;          /* same as 140% */  
line-height: 1.4;            /* same as 140% and 1.4em */
```

Remember for relative fonts use a %

The syntax for the shorthand font property

```
font: [style] [weight] [variant]  
      size[/line-height] family;
```

How to use the shorthand font property

```
font: italic bold 14px/19px Arial, sans-serif;  
font: small-caps 150% "Times New Roman", Times, serif;  
font: 90%/120% "Comic Sans MS", Impact, sans-serif;
```

Margin-left:2em;

Margin-right:2em;

Margin-top:2em;

Margin-bottom:2em;

Margin:2em 2em 1em 2em;

Properties for indenting and aligning text

- text-indent
- text-align
- vertical-align

Note: By default, these style selectors align the components in relation to its block level parent element/tag. (I.e. the one that it is nested within. E.g. text within `<p>`.)

The HTML for a web page

```
<header>
  <h1>San Joaquin Valley Town Hall</h1>
</header>
<section id="main">
  <p>Welcome to San Joaquin Valley Town Hall. We have
    some fascinating speakers for you this season!</p>
</section>
<footer>
  <p>&copy; Copyright 2012 San Joaquin Valley Town
    Hall.</p>
</footer>
```

CSS for indenting and horizontal alignment

```
body {  
    font-size: 87.5%;  
    margin: 2em; }  
h1 {  
    font-size: 180%; }  
#main p { text-indent: 2em; }  
footer p {  
    font-size: 80%;  
    text-align: right; }
```

Remember to use em for relative margins and padding.

The HTML in a web browser

San Joaquin Valley Town Hall

Welcome to San Joaquin Valley Town Hall. We have some fascinating speakers for you this season!

© Copyright 2012 San Joaquin Valley Town Hall.

Properties for transforming and decorating text

- text-transform
- text-decoration

The HTML for a web page

```
<header>
  <h1>San Joaquin Valley Town Hall</h1>
</header>
<section>
  <p>Welcome to San Joaquin Valley Town Hall. We have
    some fascinating speakers for you this season!</p>
</section>
```

CSS that specifies transforms and decorations

```
h1 {
  font-size: 150%;
  text-align: center;
  text-transform: uppercase;
  text-decoration: underline overline;
}
```

Text is aligned
within its block.
You may have to
align the block, too.

Add the highlighted styling to your H1 element. Don't need to add the HTML above it.

Instructor note: __10.html

The syntax of the text-shadow property

```
text-shadow: horizontalOffset, verticalOffset,  
                blurRadius, shadowColor;
```

Accessibility guideline

- Remember the visually-impaired. Too much shadow or blur makes text harder to read.

A heading that uses a shadow

The h1 element

```
<h1>San Joaquin Valley Town Hall</h1>
```

The CSS

```
h1 {  
    color: #ef9c00;  
    text-shadow: 4px 4px; }
```

The heading in a browser



San Joaquin Valley Town Hall

Another way to apply a shadow

The h1 element

```
<h1>San Joaquin Valley Town Hall</h1>
```

The CSS

```
h1 {  
    color: blue;  
    text-shadow: -2px -2px 4px red; }
```

The heading in a browser

The image shows a browser window with a white background. Inside the window, the text "San Joaquin Valley Town Hall" is displayed in a blue, serif font. The text has a red drop shadow applied to it, which is visible as a faint, red, slightly offset outline of the letters. The text is centered within the browser window.

External CSS

- The CSS created so far is inline or in-page. This is rare.
- It's more common to store CSS in a separate file (like we did for shiv.css).
- Doing so promotes code reuse – common styles can be applied across multiple pages.

Moving Our CSS

- Create a new file called main.css and save it into c4_html/styles.
- Copy everything *between* the opening and closing <style> tags in your HTML and paste it into this main.css file.
- Delete the <style> and </style> tags from your HTML
- Link the CSS file to your web page (same process as for shiv.css)
- Reload the page – should be no change.

Styles and Design

- This course is much less concerned about design, though design is a huge component of a successful web page.
- By learning the HTML and CSS structure, you can support a robust design later.

Next: Images

- Working with images can be very frustrating when applying styles for:
 - Correct size
 - Positioning them on the page
 - Relationship/relative to other content
 - Floating left or right
- Due to quality/clarity issues, it is easier to make an image smaller rather than larger.

~If you have not created an “images” folder in your site’s root. Please do it now. Then, copy the rat.jpg file into this new images folder.

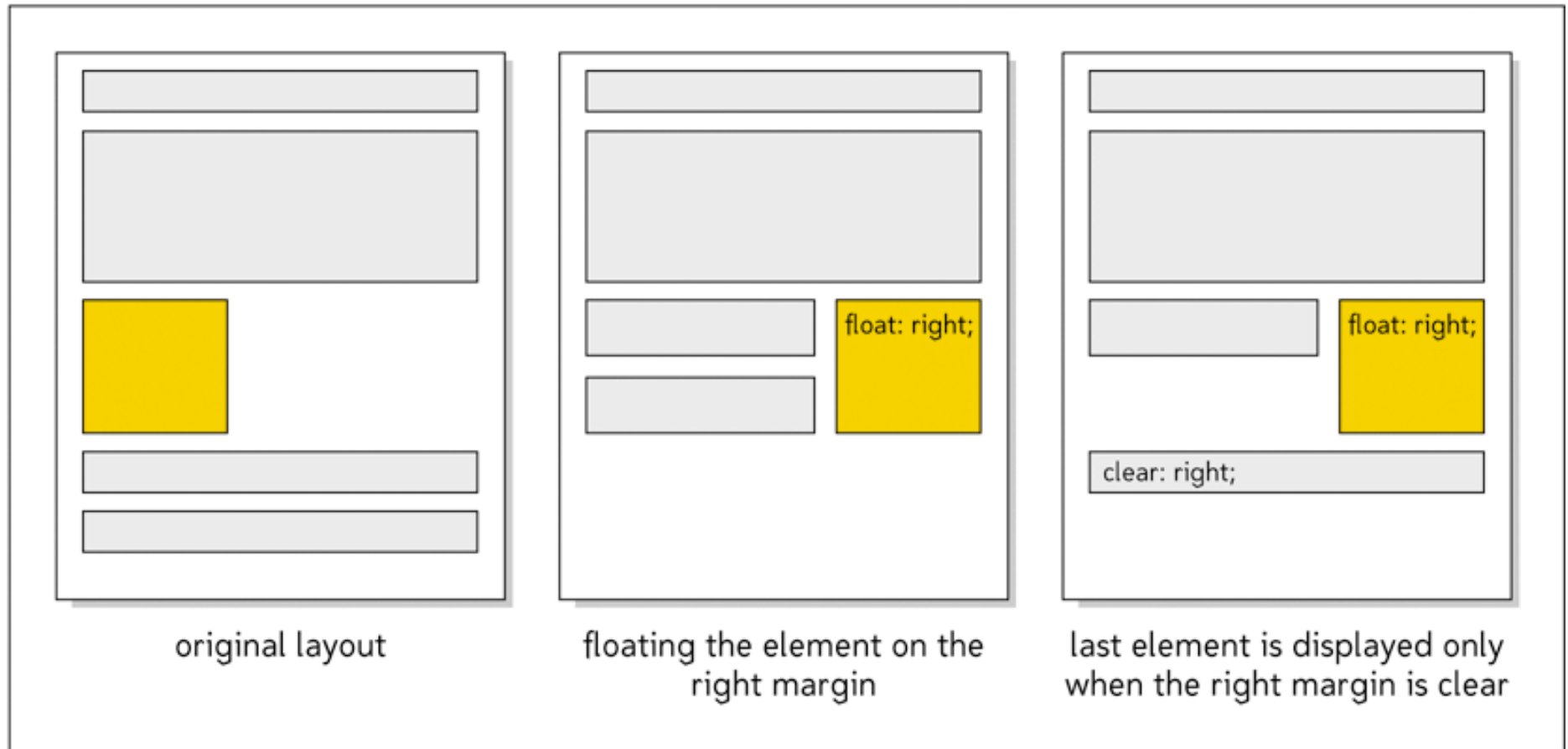
New File

- Create a new HTML file in your c4_html folder, called c4_images.html
- Use the default HTML5 document structure, and add the "shiv" code, both the JS and the CSS.
- Add `<style> </style>` tags in `<head>` section.

~If you have not created an “images” folder in your site’s root. Please do it now. Then, copy the rat.jpg file into this new images folder.

Left will place the image on the left side

Clearing a float



~Let's add the logo.jpg to our web page. 151

An image that has been floated to the left



San Joaquin Valley Town Hall

Bringing cutting-edge speakers to the valley

The HTML

```

<h1>San Joaquin Valley Town Hall</h1>
<h2>Bringing cutting-edge speakers to the valley</h2>
```

The CSS

```
img {
    float: left;
    margin-right: 1em;
}
```

The page if the image width is reduced to 60



San Joaquin Valley Town Hall

Bringing cutting-edge speakers to the valley

How to stop the floating before an element

```
section { clear: left; }
```

E.g.

clear:left;

clear:right;

clear:both;

End of Chapter 4

- So far, we've learned:
 - Basic web page syntax with HTML5 semantic elements
 - Basic HTML tag/element syntax
 - How to apply style rules to elements using different types of selectors
- For Next Week Read Chapter 5
- Questions?