

Web Development & Design Foundations with HTML5 8th Edition

CHAPTER 3 KEY CONCEPTS

Learning Outcomes

In this chapter, you will learn how to . . .

- Describe the evolution of style sheets from print media to the Web
- List advantages of using Cascading Style Sheets
- Use color on web pages
- Create style sheets that configure common color and text properties
- Apply inline styles
- Use embedded style sheets
- Use external style sheets
- Configure element, class, id, and contextual selectors
- Utilize the “cascade” in CSS
- Validate CSS

Overview of Cascading Style Sheets (CSS)

- See what is possible with CSS:
- Visit <http://www.csszengarden.com>

Style Sheets

- used for years in Desktop Publishing
- apply typographical styles and spacing to printed media



CSS

- provides the functionality of style sheets (*and much more*) for web developers
- a flexible, cross-platform, standards-based language developed by the W3C.

Cascading
Style
Sheet



A single Cascading Style Sheet file can control the color, typography, and layout of multiple web pages.

CSS Advantages

- Greater typography and page layout control
- Style is separate from structure
- Styles can be stored in a separate document and associated with the web page
- Potentially smaller documents
- Easier site maintenance

Types of Cascading Style Sheets

Inline Styles

Embedded Styles

External Styles

Imported Styles

Cascading Style Sheets

- **Inline Styles**
 - body section
 - HTML style attribute
 - apply only to the specific element
- **Embedded Styles**
 - head section
 - HTML style element
 - apply to the entire web page document
- **External Styles**
 - Separate text file with .css file extension
 - Associate with a HTML link element in the head section of a web page
- **Imported Styles**
 - Similar to External Styles
 - We'll concentrate on the other three types of styles.

CSS Syntax

Style sheets are composed of "Rules" that describe the styling to be applied.

Each Rule contains a Selector and a Declaration



Selector

Declaration
Property

Declaration
Value

CSS Syntax Sample

```
body { color: blue }
```

Configure a web page to display blue text and yellow background.

```
body { color: blue;  
      background-color: yellow; }
```

This could also be written using hexadecimal color values as shown below.

```
body { color: #0000FF;  
      background-color: #FFFF00; }
```

Common Formatting CSS Properties

- See Table 3.1 Common CSS Properties, including:
 - background-color
 - color
 - font-family
 - font-size
 - font-style
 - font-weight
 - line-height
 - margin
 - text-align
 - text-decoration
 - width

Using Color on Web Pages

	Red: #FF0000
	Green: #00FF00
	Blue: #0000FF
	Black: #000000
	White: #FFFFFF
	Grey: #CCCCCC

Computer monitors display color as intensities of red, green, and blue light

RGB Color

The values of red, green, and blue vary from 0 to 255.

Hexadecimal numbers (base 16) represent these color values.

#FFFFFF	#FFFFCC	#FFFF99	#FFFF66	#FFFF33	#FFFF00
#FFCCFF	#FFCCCC	#FFCC99	#FFCC66	#FFCC33	#FFCC00
#FF99FF	#FF99CC	#FF9999	#FF9966	#FF9933	#FF9900
#FF66FF	#FF66CC	#FF6699	#FF6666	#FF6633	#FF6600
#FF33FF	#FF33CC	#FF3399	#FF3366	#FF3333	#FF3300
#FF00FF	#FF00CC	#FF0099	#FF0066	#FF0033	#FF0000

Hexadecimal Color Values

- # indicates a hexadecimal value
- Hex value pairs range from 00 to FF
- Three hex value pairs describe an RGB color

#000000 black	#FFFFFF white
#FF0000 red	#00FF00 green
#0000FF blue	#CCCCCC grey

Web Color Palette

- A collection of 216 colors
- Display the most similar on the Mac and PC platforms
- Hex values:
00, 33, 66, 99, CC, FF
- Color Chart
<http://webdevfoundations.net/color>

Web Safe Color Chart

#FFFFFF	#FFFFCC	#FFFF99	#FFFF66	#FFFF33	#FFFF00
#FFCCFF	#FFCCCC	#FFCC99	#FFCC66	#FFCC33	#FFCC00
#FF99FF	#FF99CC	#FF9999	#FF9966	#FF9933	#FF9900
#FF66FF	#FF66CC	#FF6699	#FF6666	#FF6633	#FF6600
#FF33FF	#FF33CC	#FF3399	#FF3366	#FF3333	#FF3300
#FF00FF	#FF00CC	#FF0099	#FF0066	#FF0033	#FF0000
#CCCCFF	#CCFFCC	#CCFF99	#CCFF66	#CCFF33	#CCFF00
#CCCCFF	#CCCCCC	#CCCC99	#CCCC66	#CCCC33	#CCCC00
#CC99FF	#CC99CC	#CC9999	#CC9966	#CC9933	#CC9900
#CC66FF	#CC66CC	#CC6699	#CC6666	#CC6633	#CC6600
#CC33FF	#CC33CC	#CC3399	#CC3366	#CC3333	#CC3300
#CC00FF	#CC00CC	#CC0099	#CC0066	#CC0033	#CC0000
#99FFFF	#99FFCC	#99FF99	#99FF66	#99FF33	#99FF00
#99CCFF	#99CCCC	#99CC99	#99CC66	#99CC33	#99CC00
#9999FF	#9999CC	#999999	#999966	#999933	#999900
#9966FF	#9966CC	#996699	#996666	#996633	#996600
#9933FF	#9933CC	#993399	#993366	#993333	#993300
#9900FF	#9900CC	#990099	#990066	#990033	#990000

Making Color Choices

How to choose a color scheme?

- Monochromatic
 - <http://meyerweb.com/eric/tools/color-blend>
- Choose from a photograph or other image
 - <http://www.colr.org>
- Begin with a favorite color
 - Use one of the sites below to choose other colors
 - <http://colorsontheweb.com/colorwizard.asp>
 - <https://color.adobe.com/create/color-wheel>
 - <http://paletton.com>



Support Web Accessibility Verify Sufficient Contrast

When you choose colors for text and background, sufficient contrast is needed so that the text is easy to read.

Use one of the following online tools to verify contrast:

- <http://webaim.org/resources/contrastchecker>
- http://snook.ca/technical/colour_contrast/colour.html
- <http://juicystudio.com/services/luminositycontrastratio.php>

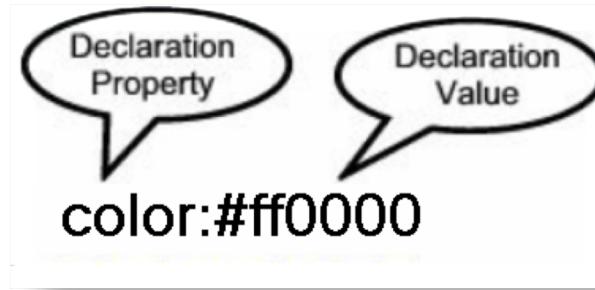
Configuring Color with Inline CSS

Inline CSS

- Configured in the body of the web page
- Use the style attribute of an HTML tag
- Apply only to the specific element

The Style Attribute

- Value: one or more style declaration property and value pairs



Example: configure red color text in an <h1> element:

```
<h1 style="color:#ff0000">Heading text is red</h1>
```

Heading text is red

Configuring Color with Inline CSS (2)

Example 2: configure the red text in the heading

configure a gray background in the heading

Separate style rule declarations with ;

```
<h1 style="color:#FF0000;background-color:#cccccc">This is  
displayed as a red heading with gray background</h1>
```

This is displayed as a red heading with gray background

CSS Embedded (Internal) Styles

Configured in the head section of a web page.

Use the HTML <style> element

Apply to the entire web page document

Style declarations are contained between the opening and closing <style> tags

Example: Configure a web page with white text on a black background

```
<style>
  body { background-color: #000000;
         color: #FFFFFF;
  }
</style>
```

CSS Embedded Styles



```
<style>
body { background-color: #E6E6FA;
      color: #191970; }

h1 { background-color: #191970;
     color: #E6E6FA; }

h2 { background-color: #AEAED4;
     color: #191970; }

</style>
```

- The body selector sets the global style rules for the entire page.
- These global rules are overridden for `<h1>` and `<h2>` elements by the `h1` and `h2` style rules.

Checkpoint 3.1

- 1.** *List three reasons to use CSS on a web page.*

- 2.** *When designing a page that uses colors other than the default colors for text and background, explain why it is a good reason to configure style rules for both text color and background color.*

- 3.** *Describe one advantage to using embedded styles instead of inline styles.*

Configuring Text with CSS

CSS properties for configuring text:

- **font-weight**
 - Configures the boldness of text
- **font-style**
 - Configures text to an italic style
- **font-size**
 - Configures the size of the text
- **font-family**
 - Configures the font typeface of the text

The font-size Property

Accessibility Recommendation: Use em or percentage font sizes – these can be easily enlarged in all browsers by users

Text Values	Em Units	Px Units	Pt Units	Percentage
xx-small	.5 em	8 px	6 pt	50%
x-small	.60 em	11 px	8 pt	60%
small	.75 em	13 px	10 pt	75%
medium	1 em	16 px	12 pt	100%
large	1.15 em	18 px	13.5 pt	110%
x-large	1.5 em	24 px	18 pt	150%
xx-large	2 em	30 px	24 pt	200%

The font-family Property

Font-family Category	Font Typeface
serif	Times New Roman, Georgia, Times
sans-serif	Arial, Verdana, Geneva
monospace	Courier New, Lucida Console
cursive	<i>Brush Script MT, Comic Sans MS</i>
fantasy	<i>Jokerman, Curbz MT</i>

Not everyone has the same fonts installed in their computer

Configure a list of fonts and include a generic family name

```
p { font-family: Arial, Verdana, sans-serif; }
```

Embedded Styles Example



```
<style>
body { background-color: #E6E6FA;
      color: #191970;
      font-family: Arial, Verdana, sans-serif; }

h1 { background-color: #191970;
    color: #E6E6FA;
    line-height: 200%;
    font-family: Georgia, "Times New Roman", serif; }

h2 { background-color: #AEAED4;
    color: #191970; text-align: center;
    font-family: Georgia, "Times New Roman", serif; }

p {font-size: .90em; text-indent: 3em; }

ul {font-weight: bold; }

</style>
```

More CSS TEXT Properties

- **line-height**
 - Configures the height of the line of text
(use the value 200% to appear double-spaced)
- **text-align**
 - Configures alignment of text within a block display element
- **text-indent**
 - Configures the indentation of the first line of text
- **text-decoration**
 - Modifies the appearance of text with an underline, overline, or line-through
- **text-transform**
 - Configures the capitalization of text
- **letter-spacing**
 - Configures space between text characters
- **word-spacing**
 - Configures space between words
- **text-shadow**
 - Configures a drop shadow on text

CSS Selectors

CSS style rules can be configured for an:

- HTML element selector
- class selector
- id selector
- descendant selector

Using CSS with “class”

class Selector

- Apply a CSS rule to a certain "class" of elements on a web page
- Does not associate the style to a specific HTML element

```
<style>
.new { color: #FF0000;
      font-style: italic;
    }
</style>
```

Configure with .classname

- code CSS to create a class called “new” with red italic text.

Apply the class:

```
<p class="new">This is text is red and in italics</p>
```

This is text is red and in italics

Using CSS with “id”

id Selector

- Apply a CSS rule to ONE element on a web page.

Configure with #idname

- Code CSS to create an id called “new” with red, large, italic text.

Apply the id:

```
<p id="new">This is text is red, large, and in italics</p>
```

This is text is red, large, and in italics

```
<style>
#new { color: #FF0000;
        font-size:2em;
        font-style: italic;
    }
</style>
```

CSS Descendant Selector

Specify an element within the context of its container (parent) element.

AKA contextual selector

The example configures a green text color only for p tags located *within* an element assigned to the id named content

```
<style>  
#content p { color: #00ff00; }  
</style>
```

Advantage of contextual selectors:

Reduces the number of classes and ids you need to apply in the HTML

span element

Purpose:

- configure a specially formatted area displayed in-line with other elements, such as within a paragraph.

There is no additional empty space above or below a span – it is inline display.

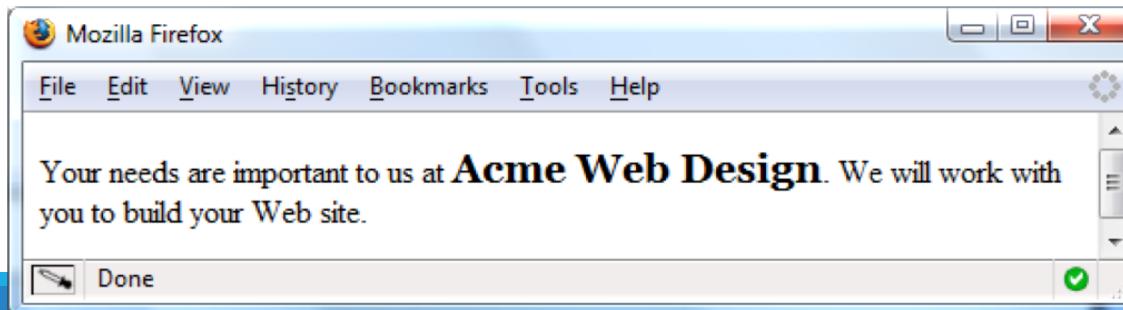
span Element Example

Embedded CSS:

```
<style>  
.companynname { font-weight: bold;  
                font-family: Georgia, "Times New Roman", serif;  
                font-size: 1.25em; }  
  
</style>
```

HTML:

```
<p>Your needs are important to us at <span  
class="companynname">Acme Web Design</span>.  
We will work with you to build your Web site.</p>
```



External Style Sheets - 1

CSS style rules are contained in a text file separate from the HTML documents.

The External Style Sheet text file:

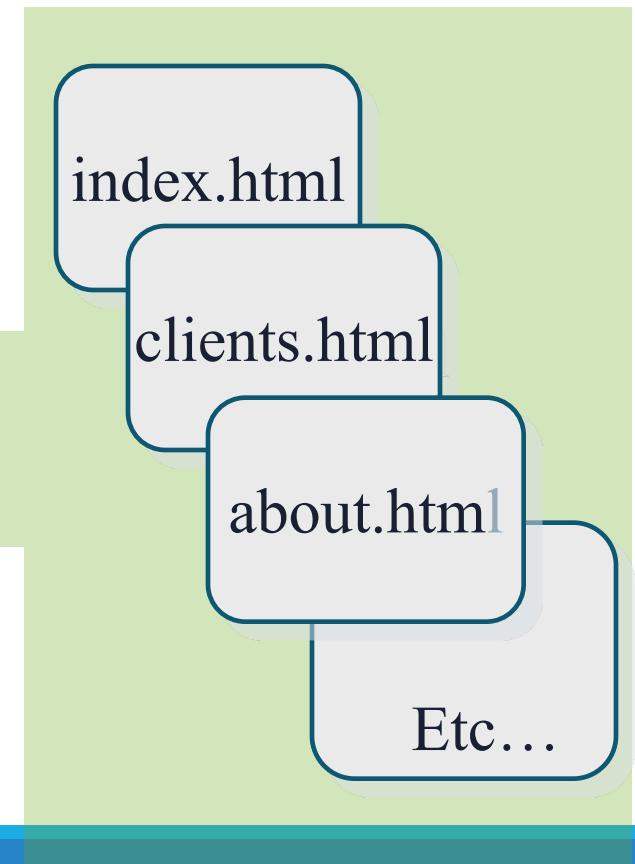
- extension ".css"
- contains only style rules
- does not contain any HTML tags

External Style Sheets - 2

Multiple web pages can associate with the same external style sheet file.

site.css

```
body {background-color:#E6E6FA;  
      color:#000000;  
      font-family: Arial, sans-serif;  
      font-size:90%; }  
  
h2 { color: #003366; }  
  
nav { font-size: 16px;  
      font-weight: bold; }
```



link Element

A self-contained tag

Placed in the head section

Purpose: associates the external style sheet file with the web page.

Example:

```
<link rel="stylesheet" href="color.css">
```

Using an External Style Sheet

External Style Sheet color.css

```
body { background-color: #0000FF;  
       color: #FFFFFF;  
 }
```

To associate the external style sheet called color.css, the HTML code placed in the head section is:

```
<link rel="stylesheet" href="color.css">
```

Checkpoint 3.2

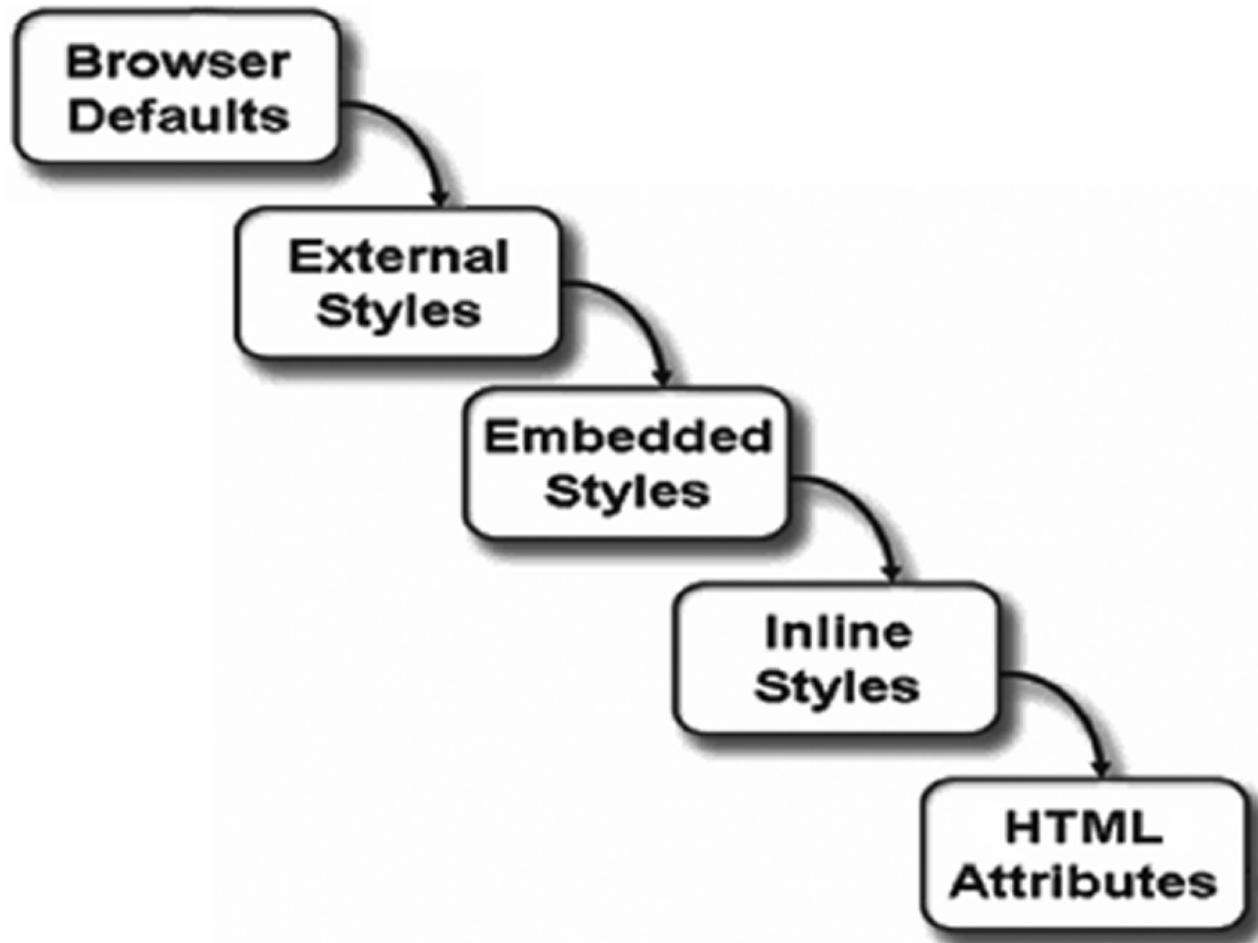
1. Describe a reason to use embedded styles. Explain where embedded styles are placed on a web page.
2. Describe a reason to use external styles. Explain where external styles are placed and how web pages indicate they are using external styles.
3. Write the code to configure a web page to use an external style sheet called “mystyles.css”.

Centering Page Content with CSS

```
#container { margin-left: auto;  
            margin-right: auto;  
            width:80%; }
```

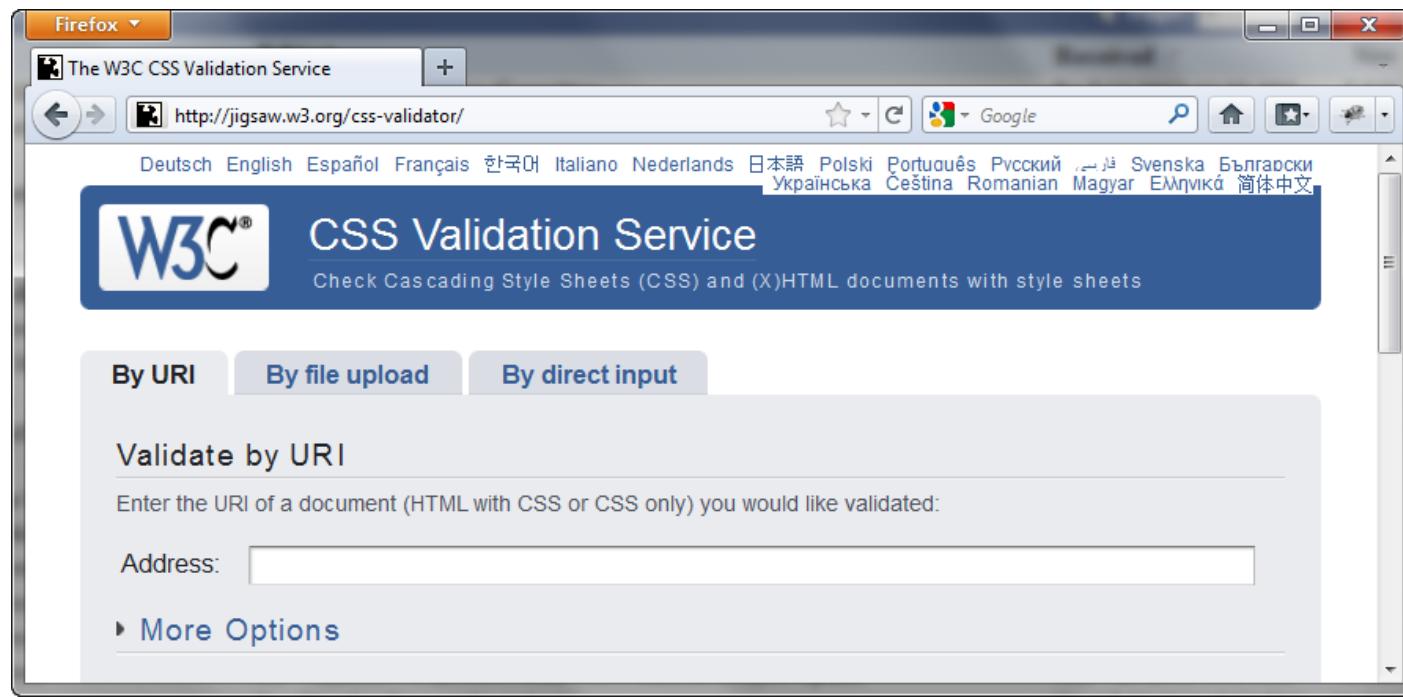


The “Cascade”



W3C CSS Validation

<http://jigsaw.w3.org/css-validator/>



Summary

This chapter introduced you to Cascading Style Sheet Rules associated with color and text on web pages.

You configured inline styles, embedded styles, and external styles.

You applied CSS style rules to HTML, class, id, and descendant selectors.

You are able to submit your CSS to the W3C CSS Validation test.