

Web Application Development

Cascading Style Sheet (CSS)

Outline

- Concepts of CSS
- Controlling font
- Text format
- Box model
- Table

Introduction

- CSS: Cascading Style Sheet
- CSS is a **style language** for **defining layout** of HTML documents
 - Separation of structure from presentation
 - CSS covers fonts, colors, margins, lines, height, width, background images, advanced positions and many other things

Adding CSS Rules to HTML

- 3 CSS Styles: Inline style, Embedded style & External style

- Inline style: specify for each element

```
<h1 style="color:blue;margin-left:30px;">
```

This is a heading.

```
</h1>
```

Adding CSS Rules to HTML

- Embedded/Internal style: embed an entire CSS document in an HTML document's head section

```
<head>
```

```
    <style>
```

```
        body {background-color: red;}
```

```
    </style>
```

```
</head>
```

Adding CSS Rules to HTML

- External style: style sheet can be stored in a separate file
- “mystyle.css” looks as follows:

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

```
h1 {  
    color: red;  
    margin-left: 20px;  
}
```

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

Advantages of External Style Sheets

- Reuse CSS rules
- Reduce size of Web pages
- Change the appearance of several pages by altering just the style sheet rather than modifying each individual page
- Because the source document does not contain the style rules, different style sheets can be attached to the same document (i.e. desktops vs. phones)

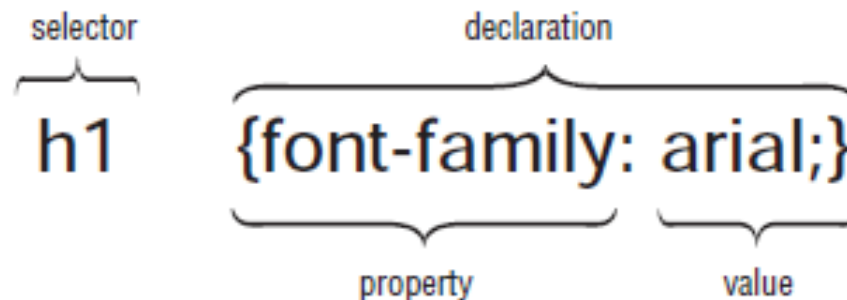
Cascading

Priority

- inline
- embedded
- external

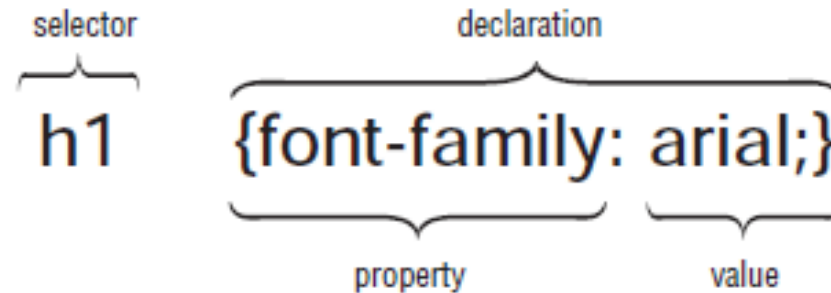
CSS Rules

- CSS works by associating rules with elements in documents
- Each rule has two parts
 - Selector: indicates which elements the declaration applies to
 - Declaration: indicates how elements should be styled



Type of Selectors

- Class selector
- ID selector
- Type selector



Class Selector

```
<p class="highlight">This paragraph has red text.</p>  
<p class="default">This paragraph has dark gray text.</p>  
<p class="default">This paragraph also has dark gray text.</p>
```

```
/* Define highlight class */  
.highlight {  
    color:#F00;  
}  
/* Define default class */  
.default {  
    color:#333;  
}
```

Class Selector

```
<p class="highlight">This paragraph has red text.</p>  
<p class="default">This paragraph has dark gray text.</p>  
<p class="default">This paragraph also has dark gray text.</p>
```

- The same class can be used on multiple elements
- Multiple classes can be applied on the same element

ID Selector

```
<p id="highlight">This paragraph has red text.</p>  
<p id="default">This paragraph has dark gray text.</p>
```

```
/* Define highlighted text */  
#highlight {  
    color:#F00;  
}  
/* Define default text */  
#default {  
    color:#333;  
}
```

ID Selector

```
<p id="highlight">This paragraph has red text.</p>  
<p id="default">This paragraph has dark gray text.</p>
```

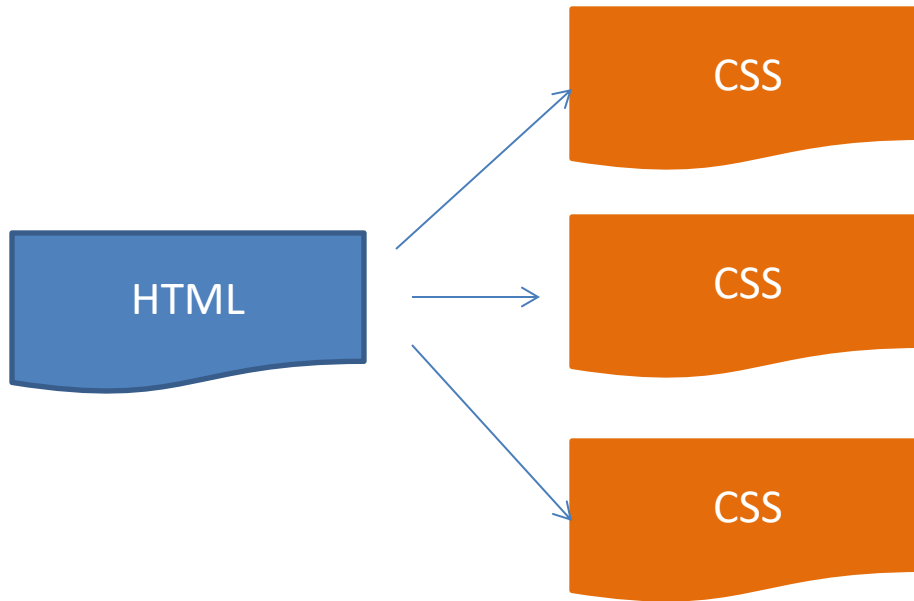
- Each element can have only one ID
- Each page can have only one element with that ID

Type Selector

```
<p>This paragraph has red text.</p>  
<p>This paragraph has red text.</p>
```

```
/* Define red text */  
p {  
    color:#F00;  
}
```

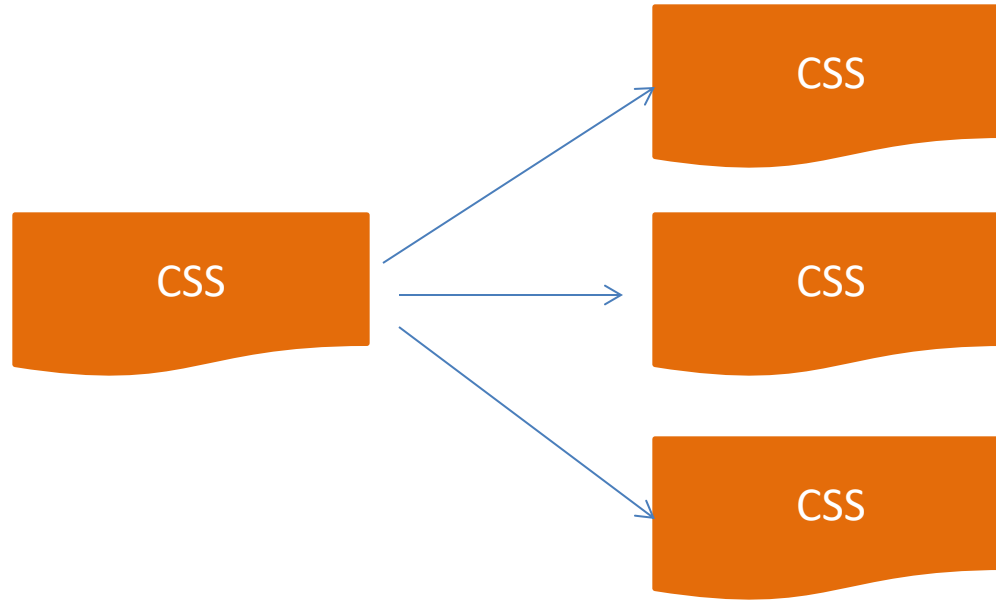
Multiple external style sheets



```
<link rel="stylesheet" type="text/css" href="css/one.css" />  
<link rel="stylesheet" type="text/css" href="css/two.css" />  
<link rel="stylesheet" type="text/css" href="css/three.css"/>
```

three.css has the highest priority

Imported Style Sheets



```
<style>@import url("one.css")</style>  
<style> @import url("two.css")</style>  
<style> @import url("three.css")</style>
```

Grouping

```
/* Heading styles */  
h1 {  
    font-family:Helvetica,Arial,sans-serif;  
    color:#333;  
}  
h2 {  
    font-family:Helvetica,Arial,sans-serif;  
    color:#333;  
}  
h3 {  
    font-family:Helvetica,Arial,sans-serif;  
    color:#333;  
}
```

```
/* Heading styles */  
h1, h2, h3 {  
    font-family:Helvetica,Arial,sans-  
    serif;  
    color:#333;  
}
```

Grouping

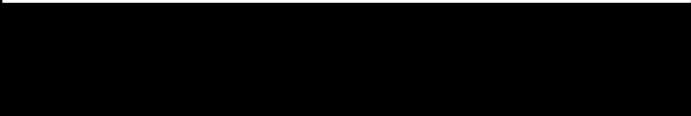
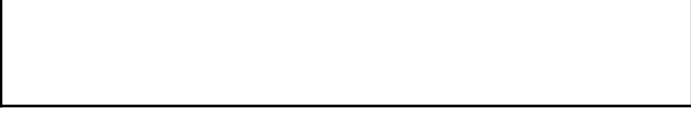
```
/* Heading styles */
h1, h2, h3 {
    font-family:Helvetica,Arial,sans-serif;
    color:#333;
}
/* Additionally, render all h1 headings in italics */
h1 {
    font-style:italic;
}
```

Colors

Every color on a computer screen is created by mixing amounts of red, green, and blue.



Colors

Color	Color HEX	Color RGB	Color Name
	#000000	rgb(0,0,0)	Black
	#FF0000	rgb(255,0,0)	Red
	#00FF00	rgb(0,255,0)	Green
	#0000FF	rgb(0,0,255)	Blue
	#FFFF00	rgb(255,255,0)	Yellow
	#00FFFF	rgb(0,255,255)	Cyan
	#FF00FF	rgb(255,0,255)	Fuchsia
	#C0C0C0	rgb(192,192,192)	Silver
	#FFFFFF	rgb(255,255,255)	White

Division

```
<div id="container">  
    <p>This is our content area.</p>  
</div>
```

```
/* Container holds all visible page elements */  
#container {  
    padding: 20px;  
    border: 1px solid #000;  
    background: #CCC;  
}
```

Controlling Fonts

- Typeface: is a family of fonts (for example: Arial, Times New Roman, Calibri, etc)
- A font is a specific member of typeface, for example: Arial 12pt
- Font types

- Serif

lm

lm

lm

- Sans serif

- Monospace

Controlling Fonts

The font-family Property

```
<p class="one">Here is some text.</p>
```

```
<p class="two">Here is some text.</p>
```

```
<p class="three">Here is some text.</p>
```

```
.one {font-family:arial, verdana, sans-serif;}
```

```
.two {font-family:times, "times new roman", serif;}
```

```
.three {font-family:courier, "courier new", serif;}
```

Generic Fonts

Generic Font Name	Type of Font	Example
Serif	Fonts with serifs	Times
Sans-serif	Fonts without serifs	Arial
Monospace	Fixed-width fonts	Courier
Cursive	Fonts that emulate handwriting	Comic Sans
Fantasy	Decorative fonts for titles, and so on	Impact

Controlling Fonts

WEIGHT	STYLE	STRETCH
Light	Normal	Condensed
Medium	<i>Italic</i>	Regular
Bold	<i>Oblique</i>	Extended
Black		

- Weight: p {font-weight: bold}
- Style: p {font-style: italic}
- Stretch: p {font-stretch: condensed}

Formatting Text

- **color:** color of text

```
<html>
```

```
  <head>
```

```
    <style>
```

```
      h1 { color: green; }
```

```
      p {color: blue}
```

```
    </style>
```

```
  </head>
```

```
  <body>
```

```
    <h1>This is heading 1</h1>
```

```
    <p>This is a paragraph</p>
```

```
  </body>
```

```
</html>
```

This is heading 1

This is a paragraph

Formatting Text

- **text-align:** Specifies the alignment of the text within its containing element; values = {left, right, center, justify}

```
<html>
```

```
<head>
```

```
<style>
```

```
h1 { text-align: center; }
```

```
h2 { text-align: right; }
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<h1>This is heading 1</h1>
```

```
<h2>This is heading 2</h2>
```

```
</body>
```

```
</html>
```

This is heading 1

This is heading 2

Formatting Text

- **vertical-align**: Vertical alignment of text within containing element and in relation to containing element; values={baseline, sub, super, top, etc.}

```
<html>
```

```
<head>
```

```
<style>
```

```
    img.top { vertical-align: text-top; }
```

```
    img.bottom { vertical-align: text-bottom; }
```

```
</style>
```

```
</head>
```

```
<body>
```

```
    <p>An  image with a default alignment.</p>
```

```
    <p>An  image with a text-top  
alignment.</p>
```

```
    <p>An  image with a text-bottom  
alignment.</p>
```

```
</body>
```

```
</html>
```

An  image with a default alignment.

An  image with a text-top alignment.

An  image with a text-bottom alignment.

Formatting Text

- **text-decoration:** Specifies whether the text should be underlined, overlined, strikethrough, or blinking text; values={overline, underline, line-through, blink}

```
<html>
<head>
  <style>
    h1 { text-decoration: overline; }
    h2 { text-decoration: line-through; }
    h3 { text-decoration: underline; }
  </style>
</head>
<body>
  <h1>This is heading 1</h1>
  <h2>This is heading 2</h2>
  <h3>This is heading 3</h3>
</body>
</html>
```

This is heading 1

~~This is heading 2~~

This is heading 3

Pseudo-class

- Pseudo class: a mechanism allows to add some special effect to some selector
- Indicated by: **selector: pseudo class**
- Example: a:link, a:visited, a:hover, a:active

Pseudo-class

<style>

```
/* unvisited link */
```

```
a:link {
```

```
  color: red;
```

```
}
```

```
/* visited link */
```

```
a:visited {
```

```
  color: green;
```

```
}
```

```
/* mouse over link */
```

```
a:hover {
```

```
  color: hotpink;
```

```
}
```

```
/* selected link */
```

```
a:active {
```

```
  background-color: yellow;
```

```
}
```

</style>

This is a link

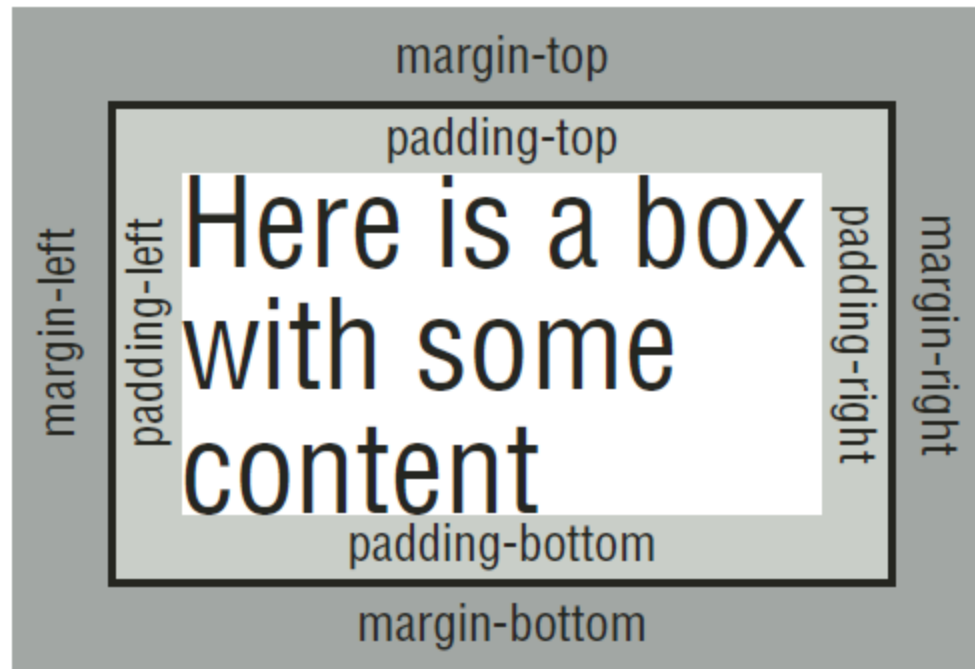
This is a link

This is a link

This is a link

Box Model

Every element is treated as a box in CSS



Box Model

Property	Description
border	Even if you cannot see it, every box has a border. This separates the edge of the box from other boxes.
margin	The margin is the distance between the edge of a box and the box next to it.
padding	This padding is the space between the content of the box and its border.

Border Properties

- border-color
- border-style: none, solid, dotted, etc.
- border-width
- border-top/bottom/left/right
- Example of a blue solid border

Blue solid border

Border Properties

- border-style: none, dotted, dashed, solid, ridge, etc.

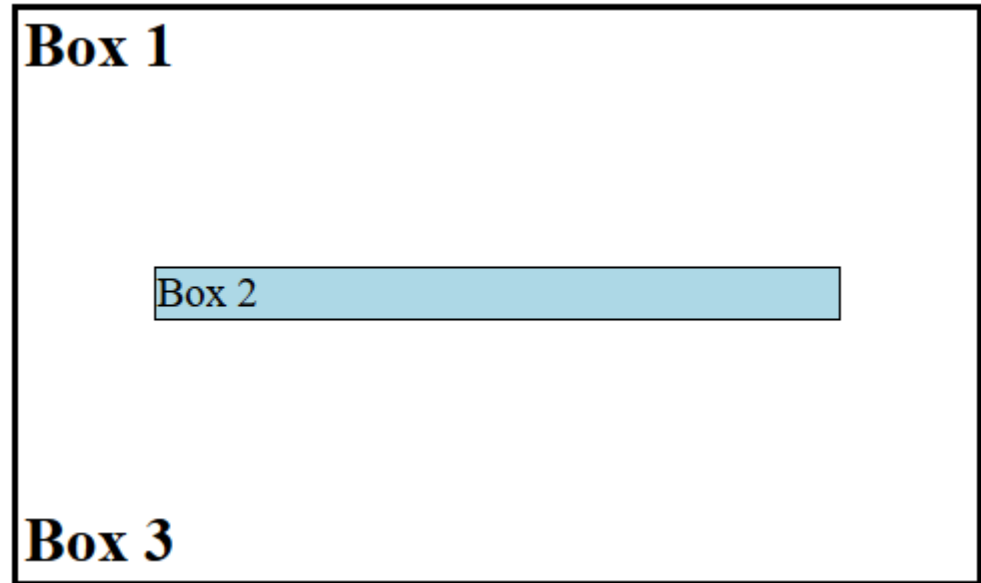
```
#container {  
    width: 400px;  
    margin: 10px auto 10px auto;  
    padding: 20px;  
    // rules: top right bottom left  
    border-style: dashed dotted solid ridge;  
}
```



Margin Properties

The margin property is used to declare the margin between an HTML element and those elements outside of it

```
#container {  
    margin-top: 70px;  
    margin-right: 50px;  
    margin-bottom: 70px;  
    margin-left: 50px;  
}
```



```
#container {  
    margin: 70px 50px 70px 50px;  
}
```

Padding Properties

Padding is the distance between the edges (borders) of an HTML element and the content within it

```
#container {  
  padding-top: 50px;  
  padding-left: 80px;  
  padding-right: 50px;  
  padding-bottom: 50px;  
}
```

This div element has a top padding of 50px, a right padding of 50px, a bottom padding of 50px, and a left padding of 80px.

Dimensions

Property	Purpose
height	Sets the height of a box
width	Sets the width of a box
line-height	Sets the height of a line of text
max-height	Sets a maximum height for a box
min-height	Sets the minimum height for a box
max-width	Sets the maximum width for a box
min-width	Sets the minimum width for a box

Height and Width

```
<style>  
  div {  
    height: 100px;  
    width: 320px;  
  }  
</style>
```

This div element has a height of 100px and a width of 320px

Line-height

```
<style>
  p.small {
    line-height: 70%;
  }

  p.big {
    line-height: 200%;
  }
</style>
```

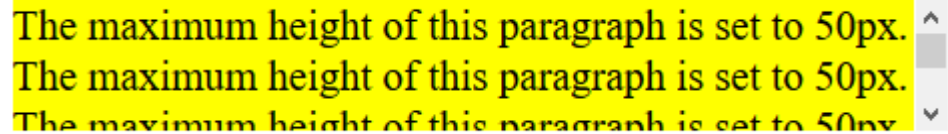
This is a paragraph with a standard line-height.
This is a paragraph with a standard line-height.

This is a paragraph with a smaller line-height.
This is a paragraph with a smaller line-height.

This is a paragraph with a bigger line-height.
This is a paragraph with a bigger line-height.

Max-height

```
<style>
  p {
    max-height: 50px;
    background-color: yellow;
    overflow: auto;
  }
</style>
```



The maximum height of this paragraph is set to 50px.
The maximum height of this paragraph is set to 50px.
The maximum height of this paragraph is set to 50px.

Background

Property	Purpose
<code>background-color</code>	Specifies a color that should be used for the background of the page or box
<code>background-image</code>	Sets an image to be in the background of a page or box
<code>background-repeat</code>	Indicates whether the background image should be repeated across the page or box
<code>background-attachment</code>	Indicates a background image should be fixed in one position on the page, and whether it should stay in that position when the user scrolls down the page or not
<code>background-position</code>	Indicates where an image should be positioned in either the window or the containing box
<code>background</code>	A shorthand form that allows you to specify all of these properties

Tables

- **padding** to set the amount of space between the border of a table cell and its content — this property is very important to make tables easier to read.
- **border** to set the properties of the border of a table.
- **text** and **font** properties to change the appearance of anything written in the cell.
- **text-align** to align writing to the left, right, or center of a cell.

Tables

- **vertical-align** to align writing to the top, middle, or bottom of a cell.
- **width** to set the width of a table or cell.
- **height** to set the height of a cell (often used on a row as well).
- **background-color** to change the background color of a table or cell.
- **background-image** to add an image to the background of a table or cell.
- **:hover** to highlight a table row when a user point the mouse to it

