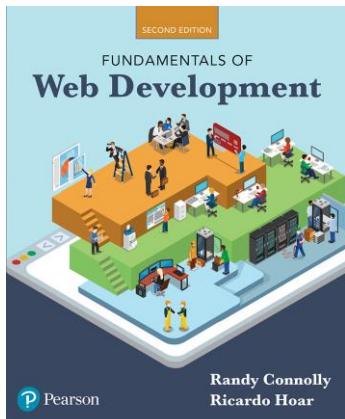


CSE 686 Internet Programming

Week 10: Introduction to CSS

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CSS Tutorial

w3schools.com/css/default.asp

THE WORLD'S LARGEST WEB DEVELOPER SITE

Home HTML CSS JavaScript SQL PHP Bootstrap JQuery More ▾ References Examples

CSS Tutorial

CSS HOME

CSS Introduction

CSS Syntax

CSS How To

CSS Colors

CSS Backgrounds

CSS Borders

CSS Margins

CSS Padding

CSS Height/Width

CSS Box Model

CSS Outline

CSS Text

CSS Fonts

CSS Icons

CSS Links

CSS Lists

CSS Tables

CSS Display



CSS Tutorial

◀ Home

Next ▶

CSS is a language that describes the style of an HTML document.

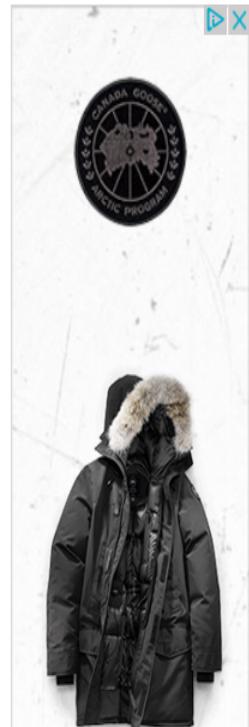
CSS describes how HTML elements should be displayed.

This tutorial will teach you CSS from basic to advanced.

Examples in Each Chapter

This CSS tutorial contains hundreds of CSS examples.

With our online editor, you can edit the CSS, and click on a button to view the result.



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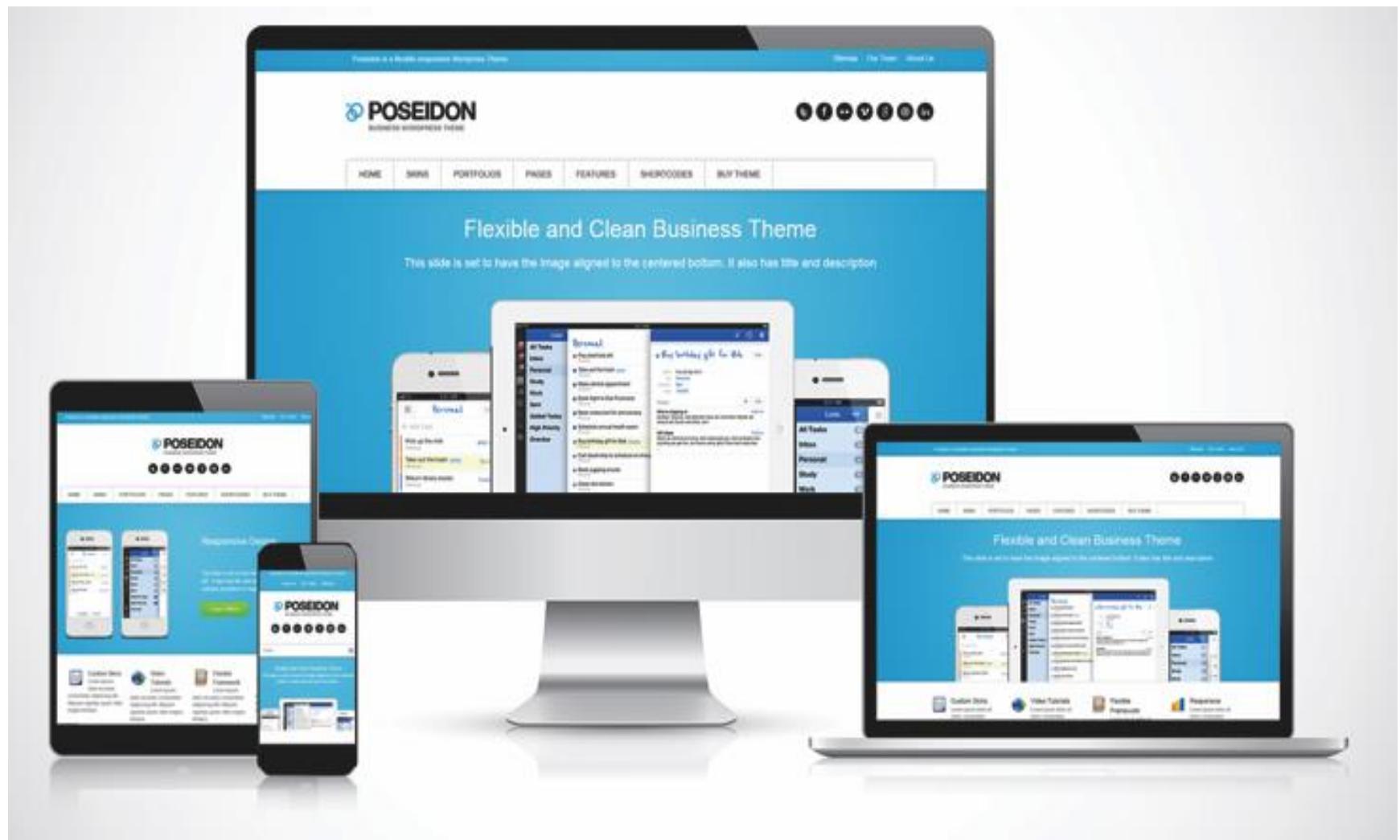
What Is CSS?

- ❖ CSS (Cascading Style Sheets) is a W3C standard for describing the appearance of HTML elements
 - ❖ With CSS, we can assign **fonts**, **colors**, **sizes**, **borders**, **background images**, and even **position** elements on the page
 - ❖ CSS can be added directly to any HTML element (via the **style** attribute), within the **<head>** element, or, most commonly, in a separate text file that contains only CSS.

Benefits

- ❖ Improved control over formatting:
 - ❖ CSS gives web authors fine-grained control over the appearance of their web content.
- ❖ Improved site maintainability:
 - ❖ because all formatting can be centralized into one or a handful CSS files, allowing you to make site-wide modifications by changing a single file.
- ❖ Improved accessibility:
 - ❖ By keeping presentation out of the HTML, accessibility tools work better.
- ❖ Improved page-download speed:
 - ❖ Because each individual HTML file will contain less style information and markup, and thus be smaller.
- ❖ Improved output flexibility (**responsive design**):
 - ❖ CSS can be used to adopt a page for different output media. (See next slide).

Responsive Design



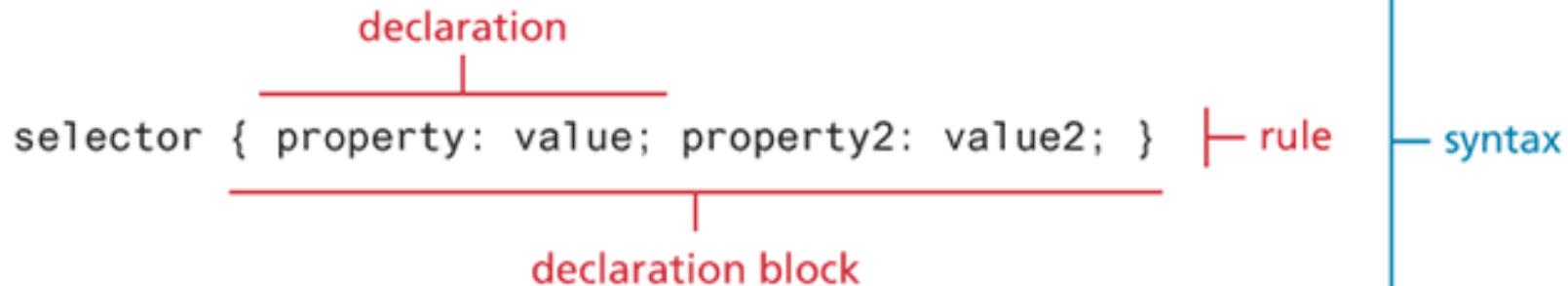
CSS Versions

- ❖ 1996: The CSS Level 1 Recommendation was published
- ❖ June 2011 - **CSS2.1** becomes an official W3C Recommendation
- ❖ A different group at the W3C was working on a CSS3 draft. So far the following **CSS3** modules have made it to official W3C Recommendations:
 - ❖ CSS Selectors,
 - ❖ CSS Namespaces,
 - ❖ CSS Media Queries,
 - ❖ CSS Color
 - ❖ CSS Style Attributes

CSS Syntax

- ❖ A CSS document consists of one or more **style rules**
 - ❖ A rule consists of a **selector** that identifies the HTML element or elements that will be affected, followed by a series of **property:value** pairs (each pair is also called a declaration)
- ❖ The series of declarations is also called the **declaration block**.

CSS Syntax

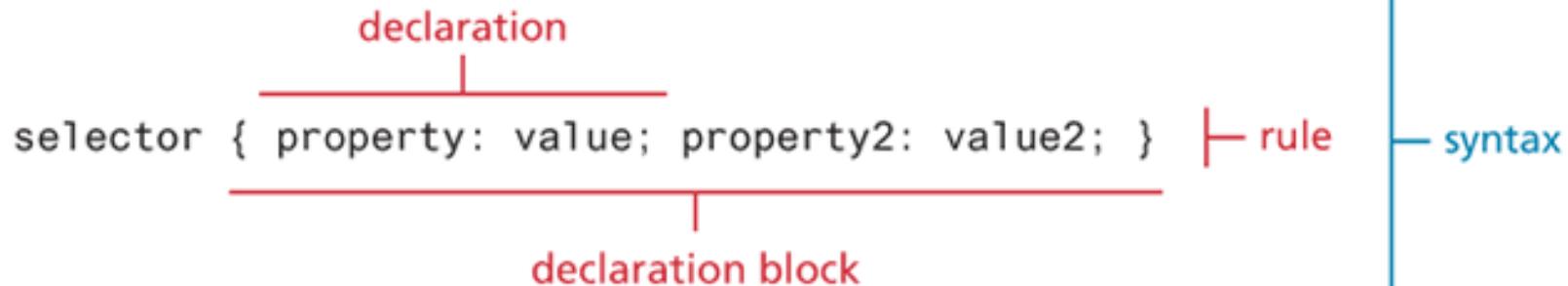


The diagram shows two examples of CSS rules. The first example, enclosed in a blue box labeled "examples", uses an "em" selector to set the color to red. A red arrow points from the word "selector" to the "em" keyword. Red brackets below the selector group the "color" property and its value "red". The second example shows a "p" selector with multiple properties: margin, font-weight, and font-family, each with its own value. A red arrow points from the word "examples" to the "p" selector.

```
em { color: red; }
```

```
p {  
    margin: 5px 0 10px 0;  
    font-weight: bold;  
    font-family: Arial, Helvetica, sans-serif;  
}
```

CSS Syntax



The diagram shows two examples of CSS code. The first example is for an em selector, defining a color property with a red value. A red arrow points from the text 'Each individual CSS declaration must contain a property.' to the 'color' keyword in the code. The second example is for a p selector, defining margin, font-weight, and font-family properties. A blue box labeled 'examples' encloses both code snippets.

```
selector  
em { color: red; }  
property value
```

```
p {  
    margin: 5px 0 10px 0;  
    font-weight: bold;  
    font-family: Arial, Helvetica, sans-serif;  
}
```

Each individual CSS declaration must contain a property. The CSS2.1 recommendation defines over a hundred different property names.

examples

CSS Syntax

Property Type	Property
Fonts	font font-family font-size font-style font-weight @font-face
Text	letter-spacing line-height text-align text-decoration* text-indent
Color and Background	background background-color background-image background-position background-repeat box-shadow color opacity
Borders	border* border-color border-width border-style border-top, border-left, ...* border-image* border-radius

CSS Syntax

Property Type	Property
Spacing	padding padding-bottom, padding-left, ... margin margin-bottom, margin-left, ...
Sizing	height max-height max-width min-height min-width width
Layout	bottom, left, right, top clear display float overflow position visibility z-index
Lists	list-style* list-style-image list-style-type
Effects	animation* filter perspective transform* transition*

CSS Values

- ❖ The unit of any given value is dependent upon the property.
 - ❖ Some property values are from a predefined list of keywords.
 - ❖ Others are values such as length measurements, percentages, numbers without units, color values, and URLs. (See next slide)

Table 4.2 Color Values

Method	Description	Example
Name	Use one of 17 standard color names. CSS3 has 140 standard names.	<pre>color: red;</pre> <pre>color: hotpink; /* CSS3</pre> <pre>only */</pre>
RGB	Uses three different numbers between 0 and 255 to describe the red, green, and blue values of the color.	<pre>color: rgb(255,0,0);</pre> <pre>color: rgb(255,105,180);</pre>
Hexadecimal	Uses a six-digit hexadecimal number to describe the red, green, and blue value of the color; each of the three RGB values is between 0 and FF (which is 255 in decimal). Notice that the hexadecimal number is preceded by a hash or pound symbol (#).	<pre>color: #FF0000;</pre> <pre>color: #FF69B4;</pre>
RGBa	This defines a partially transparent background color. The "a" stands for "alpha," which is a term used to identify a transparency that is a value between 0.0 (fully transparent) and 1.0 (fully opaque).	<pre>color: rgba</pre> <pre>(255,0,0,0.5);</pre>
HSL	Allows you to specify a color using Hue Saturation and Light values. This is available only in CSS3. HSLA is also available as well.	<pre>color: hsl(0,100%,100%);</pre> <pre>color: hsla</pre> <pre>(330,59%,100%,0.5);</pre>

Table 4.3 Units of Measure Values

Unit	Description	Type
px	Pixel. In CSS2 this is a relative measure, while in CSS3 it is absolute (1/96 of an inch).	Relative (CSS2) Absolute (CSS3)
em	Equal to the computed value of the font-size property of the element on which it is used. When used for font sizes, the em unit is in relation to the font size of the parent.	Relative
%	A measure that is always relative to another value. The precise meaning of % varies depending upon the property in which it is being used.	Relative
ex	A rarely used relative measure that expresses size in relation to the x-height of an element's font.	Relative
ch	Another rarely used relative measure; this one expresses size in relation to the width of the zero ("0") character of an element's font.	Relative (CSS3 only)
rem	Stands for root em, which is the font size of the root element. Unlike em, which may be different for each element, the rem is constant throughout the document.	Relative (CSS3 only)
vw, vh	Stands for viewport width and viewport height. Both are percentage values (between 0 and 100) of the viewport (browser window). This allows an item to change size when the viewport is resized.	Relative (CSS3 only)
in	Inches	Absolute
cm	Centimeters	Absolute
mm	Millimeters	Absolute
pt	Points (equal to 1/72 of an inch)	Absolute
pc	Pica (equal to 1/6 of an inch)	Absolute

Location of Styles: Inline Styles

- ❖ **Inline styles** are style rules placed within an HTML element via the `style` attribute:

```
<h1>Share Your Travels</h1>
```

```
<h2 style="font-size: 24pt">Description</h2>
```

...

```
<h2 style="font-size: 24pt; font-weight:bold;"> Reviews</h2>
```

- ❖ Using inline styles is generally discouraged
- ❖ Handy for quickly testing out a style change

```
C:\Users\Edmund\Desktop\686\FunWebDev2\0134481747_cl-268317\code-listings\chapter04\listing04-02.html - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Window ?
figure03-22.html figure03-20.html figure03-19.html figure03-18b.html chapter03-project03.html listing04-01.html listing04-02.html
1  <!DOCTYPE html>
2  
3  
4      <meta charset="utf-8">
5      <title>Share Your Travels -- New York - Central Park</title>
6      <style>
7          h1 { font-size: 24pt; }
8          h2 {
9              font-size: 18pt;
10             font-weight: bold;
11         }
12     </style>
13  </head>
14  <body>
15  <h1>Share Your Travels</h1>
16  <h2>New York - Central Park</h2>
17  ...
18  </body>
19  </html>
```



◆ **Embedded style sheets** (also called internal styles) are style rules placed within the `<style>` element (inside the `<head>` element of an HTML document)



```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4      <meta charset="utf-8">
5      <title>Share Your Travels -- New York - Central Park</title>
6      <link rel="stylesheet" href="styles.css" />
7  </head>
8  <body>
9      <h1>Share Your Travels</h1>
10     <h2>New York - Central Park</h2>
11     ...
12 </body>
13 </html>
```

- ❖ **External style sheets** are style rules placed within a external text file with the .css extension

Selectors: Element Selections

- ❖ **Element selectors** select all instances of a given HTML element. (See next slide for a sample HTML document and its elements.)

selector

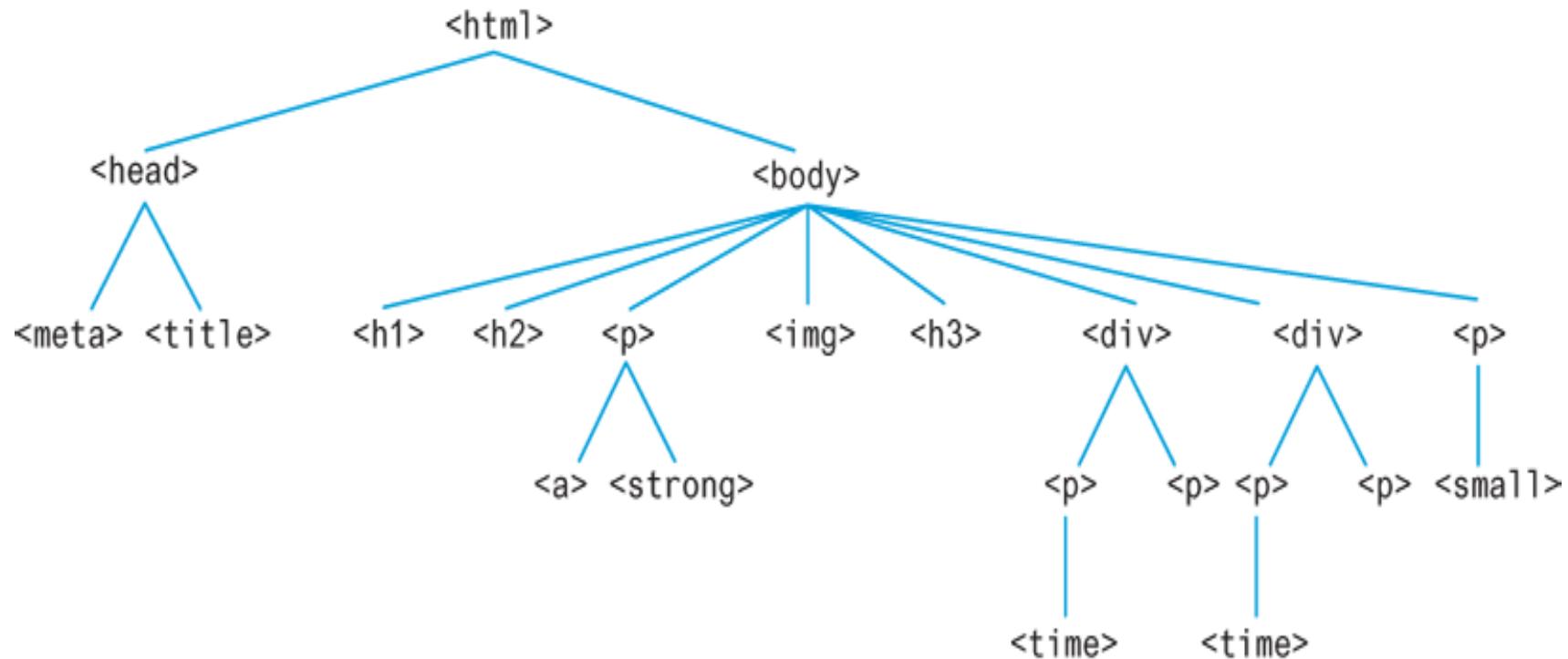
em { color: red; }

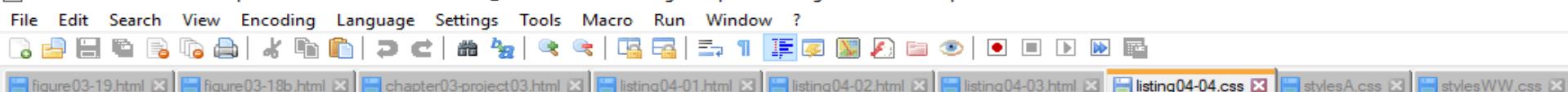
property value

```
p {  
    margin: 5px 0 10px 0;  
    font-weight: bold;  
    font-family: Arial, Helvetica, sans-serif;  
}
```

DOM

- ❖ The following DOM (Document Object Model) shows sample HTML document structure as a hierarchical tree. This is how a browser represents an HTML page internally.





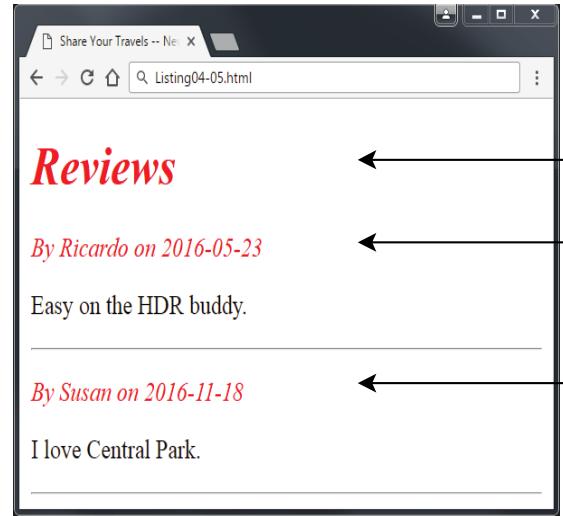
```
1  /* commas allow you to group selectors */
2  p, div, aside {
3      margin: 0;
4      padding: 0;
5  }
6  /* the above single grouped selector is equivalent to the following: */
7  p {
8      margin: 0;
9      padding: 0;
10 }
11 div {
12     margin: 0;
13     padding: 0;
14 }
15 aside {
16     margin: 0;
17     padding: 0;
18 }
```

Selectors: Class Selectors

- ❖ A **class selector** allows you to simultaneously target different HTML elements regardless of their position in the document tree.
- ❖ If a series of HTML elements have been labeled with the same class attribute value, then you can target them for styling by using a class selector, which takes the form: **period (.) followed by the class name.**

Selectors: Class Selectors

```
<head>
  <title>Share Your Travels </title>
  <style>
    .first {
      font-style: italic;
      color: red;
    }
  </style>
</head>
<body>
  <h1 class="first">Reviews</h1>
  <div>
    <p class="first">By Ricardo on <time>2016-05-23</time></p>
    <p>Easy on the HDR buddy.</p>
  </div>
  <hr/>
  <div>
    <p class="first">By Susan on <time>2016-11-18</time></p>
    <p>I love Central Park.</p>
  </div>
  <hr/>
</body>
```



```
.first {
  font-style: italic;
  color: red;
}
```

Selectors: Id Selectors

- An **id selector** allows you to target a specific element by its **id** attribute regardless of its type or position.

```
<head>
    <title>Share Your Travels </title>
    <style>
        #latestComment {
            font-style: italic;
            color: red;
        }
    </style>
</head>
<body>
    <h1 class="first">Reviews</h1>
    <div id="latestComment">
        <p class="first">By Ricardo on <time>2016-05-23</time></p>
        <p>Easy on the HDR buddy.</p>
    </div>
    <hr/>
    <div>
        <p class="first">By Susan on <time>2016-11-18</time></p>
        <p>I love Central Park.</p>
    </div>
    <hr/>
</body>
```



```
#latestComment {
    font-style: italic;
    color: red;
}
```

Selectors: Attribute Selectors

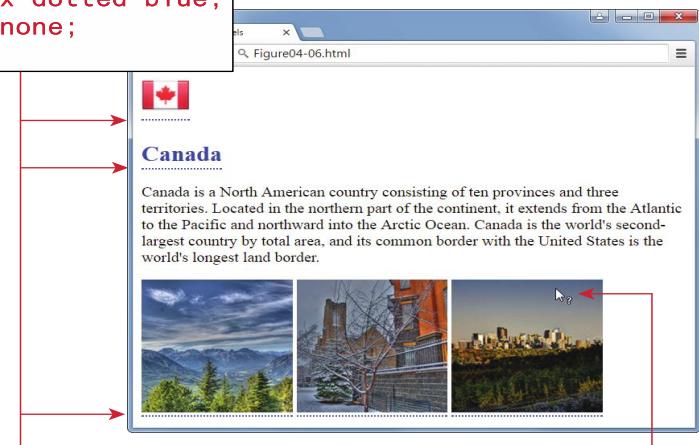
- ❖ An **attribute selector** provides a way to select HTML elements either by the presence of an element attribute or by the value of an attribute

```
[title] { ... }
```

Attribute Selectors

```
<head>
  <meta charset="utf-8">
  <title>Share Your Travels</title>
  <style>
    [title] {
      cursor: help;
      padding-bottom: 3px;
      border-bottom: 2px dotted blue;
      text-decoration: none;
    }
  </style>
</head>
<body>
  <div>
    
    <h2><a href="countries.php?id=CA" title="see posts from Canada"> Canada</a></h2>
    <p>Canada is a North American country consisting of ... </p>
    <div>
      
      
      
    </div>
  </div>
</body>
```

```
[title] {
  cursor: help;
  padding-bottom: 3px;
  border-bottom: 2px dotted blue;
  text-decoration: none;
}
```





Canada

Canada is a North American country consisting of ten provinces and three territories. Located in the northern part of the continent, it extends from the Atlantic to the Pacific and northward into the Arctic Ocean. Canada is the world's second-largest country by total area, and its common border with the United States is the world's longest land border.



Attribute Selectors

Selector	Matches
[]	A specific attribute.
[=]	A specific attribute with a specific value.
[~=]	A specific attribute whose value matches at least one of the words in a space delimited list of words.
[^=]	A specific attribute whose value begins with a specified value.
[*=]	A specific attribute whose value contains a substring.
[\$=]	A specific attribute whose value ends with a specified value.

Selector	Matches	Example
[]	A specific attribute.	[title] Matches any element with a title attribute
[=]	A specific attribute with a specific value.	a[title="posts from this country"] Matches any <code><a></code> element whose title attribute is exactly “posts from this country”
[~=]	A specific attribute whose value matches at least one of the words in a space-delimited list of words.	[title~="Countries"] Matches any <code>title</code> attribute that contains the word “Countries”
[^=]	A specific attribute whose value begins with a specified value.	a[href^="mailto"] Matches any <code><a></code> element whose <code>href</code> attribute begins with “mailto”
[*=]	A specific attribute whose value contains a substring.	img[src*="flag"] Matches any <code></code> element whose <code>src</code> attribute contains somewhere within it the text “flag”
[\${=]}	A specific attribute whose value ends with a specified value.	a[href\$=".pdf"] Matches any <code><a></code> element whose <code>href</code> attribute ends with the text “.pdf”

Pseudo Selectors

- ❖ A **pseudo-element selector** is a way to select something that does not exist explicitly as an element in the HTML document tree but which is still a recognizable selectable object.
- ❖ A **pseudo-class selector** does apply to an HTML element, but targets either a particular state or, in CSS3, a variety of family relationships.

Table 4.5 Common Pseudo-Class and Pseudo-Element Selectors

Selector	Type	Description
<code>a:link</code>	pseudo-class	Selects links that have not been visited.
<code>a:visited</code>	pseudo-class	Selects links that have been visited.
<code>:focus</code>	pseudo-class	Selects elements (such as text boxes or list boxes) that have the input focus.
<code>:hover</code>	pseudo-class	Selects elements that the mouse pointer is currently above.
<code>:active</code>	pseudo-class	Selects an element that is being activated by the user. A typical example is a link that is being clicked.
<code>:checked</code>	pseudo-class	Selects a form element that is currently checked. A typical example might be a radio button or a check box.
<code>:first-child</code>	pseudo-class	Selects an element that is the first child of its parent. A common use is to provide different styling to the first element in a list.
<code>:first-letter</code>	pseudo-element	Selects the first letter of an element. Useful for adding drop-caps to a paragraph.
<code>:first-line</code>	pseudo-element	Selects the first line of an element.

Pseudo Selectors

```
<style>
    a:link {
        text-decoration: underline;
        color: blue;
    }
    a:visited {
        text-decoration: underline;
        color: purple;
    }
    a:hover {
        text-decoration: none;
        font-weight: bold;
    }
    a:active {
        background-color: yellow;
    }
</style>
```

C:\Users\Edmund\Desktop\686\FunWebDev2\0134481747_cl-268317\code-listings\chapter04\listing04-08.html - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Window ?

listing04-03.html listing04-04.css listing04-05.css listing04-06.html listing04-07.html listing04-08.html

```
1 |     <!DOCTYPE html>
2 |     <html>
3 |         <head>
4 |             <title>Share Your Travels</title>
5 |             <style>
6 |                 a:link {
7 |                     text-decoration: underline;
8 |                     color: blue;
9 |                 }
10 |                a:visited {
11 |                    text-decoration: underline;
12 |                    color: purple;
13 |                    font-weight: bold;
14 |                }
15 |                a:hover {
16 |                    text-decoration: none;
17 |                    font-weight: bold;
18 |                }
19 |                a:active {
20 |                    background-color: yellow;
21 |                }
22 |            </style>
23 |        </head>
24 |        <body>
25 |            <p>Links are an important part of any web page. To learn more about
26 |            links visit the <a href="#">W3C</a> website.</p>
27 |            <nav>
28 |                <ul>
29 |                    <li><a href="#">Canada</a></li>
30 |                    <li><a href="#">Germany</a></li>
31 |                    <li><a href="#">United States</a></li>
32 |                </ul>
33 |            </nav>
34 |        </body>
```



Links are an important part of any web page. To learn more about links visit the [W3C](#) website.

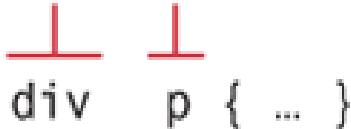
- [Canada](#)
- [Germany](#)
- [United States](#)

Contextual Selectors

- ❖ A contextual selector (in CSS3 also called combinators) allows you to select elements based on their ancestors, descendants, or siblings.
- ❖ It selects elements based on their context or their relation to other elements in the document tree.
- ❖ While some of these contextual selectors are used relatively infrequently, almost all web authors find themselves using **descendant** selectors.
- ❖ A descendant selector matches all elements that are contained within another element. The character used to indicate descendant selection is the **space** character.

Descendant Selectors

context selected element


div p { ... }

Selects a `<p>` element
somewhere
within a `<div>` element

`#main div p:first-child { ... }`



Selects the first `<p>` element
somewhere within a `<div>` element
that is somewhere within an element
with an `id="main"`

Contextual Selectors

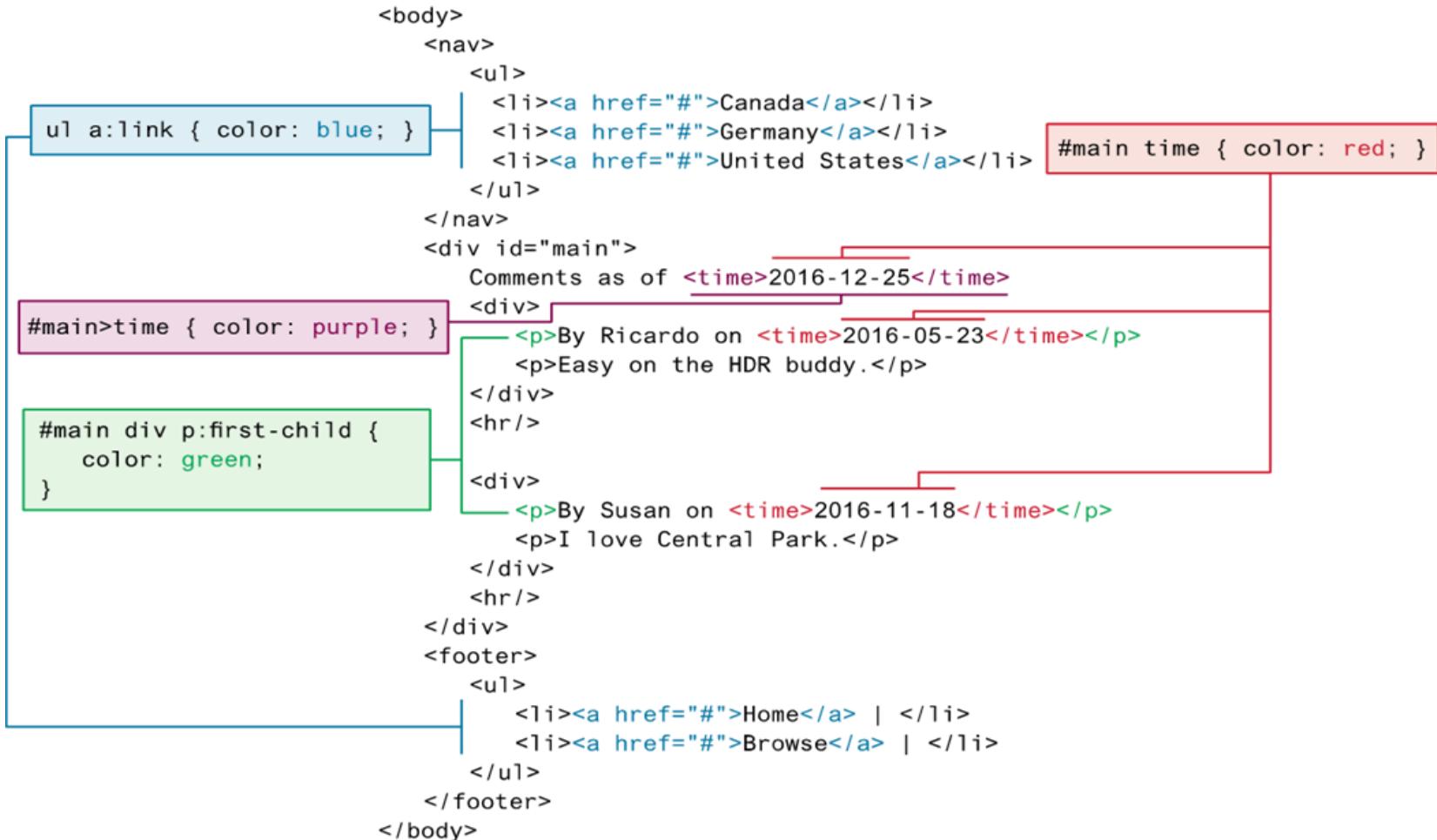




figure04-08.html

```
1 <html>
2 <head>
3 <style>
4     ul a:link { color: blue; }
5
6     #main time { color: red; }
7
8     #main div p:first-child {
9         color: green;
10    }
11
12    #main>time { color: orange; }
13
14 </style>
15
16 </head>
17 <body>
18     <nav>
19         <ul>
20             <li><a href="#">Canada</a></li>
21             <li><a href="#">Germany</a></li>
22             <li><a href="#">United States</a></li>
23         </ul>
24     </nav>
25     <div id="main">
26         Comments as of <time>2016-12-25</time>
27         <div>
28             <p>By Ricardo on <time>2016-05-23</time></p>
29             <p>Easy on the HDR buddy.</p>
30         </div>
31         <hr/>
32
33         <div>
34             <p>By Susan on <time>2016-11-18</time></p>
35             <p>I love Central Park.</p>
36         </div>
37         <hr/>
38     </div>
39     <footer>
40         <ul>
41             <li><a href="#">Home</a> | </li>
```



File Edit View Favorites Tools Help

- [Canada](#)
- [Germany](#)
- [United States](#)

Comments as of 2016-12-25

By Ricardo on 2016-05-23

Easy on the HDR buddy.

By Susan on 2016-11-18

I love Central Park.

- [Home](#) |
- [Browse](#) |

Contextual Selectors

Selector	Matches	Example
Descendant	A specified element that is contained somewhere within another specified element.	div p Selects a <code><p></code> element that is contained somewhere within a <code><div></code> element.
Child	A specified element that is a direct child of the specified element.	div>h2 Selects an <code><h2></code> element that is a child of a <code><div></code> element.
Adjacent Sibling	A specified element that is the next sibling (i.e., comes directly after) of the specified element	h3+p Selects the first <code><p></code> after any <code><h3></code> .
General Sibling	A specified element that shares the same parent as the specified element.	h3~p Selects all the <code><p></code> elements that share the same parent as the <code><h3></code> .

The Cascade: How Styles Interact

- ❖ The “Cascade” in CSS refers to how conflicting rules are handled.
- ❖ The downward movement of water down a cascade is meant to be analogous to how a given style rule will continue to take precedence with child elements
- ❖ CSS uses the following cascade principles to help it deal with conflicts:
 1. Inheritance
 2. Specificity
 3. Location

Inheritance

Many (but not all) CSS properties affect not only themselves but their descendants as well.

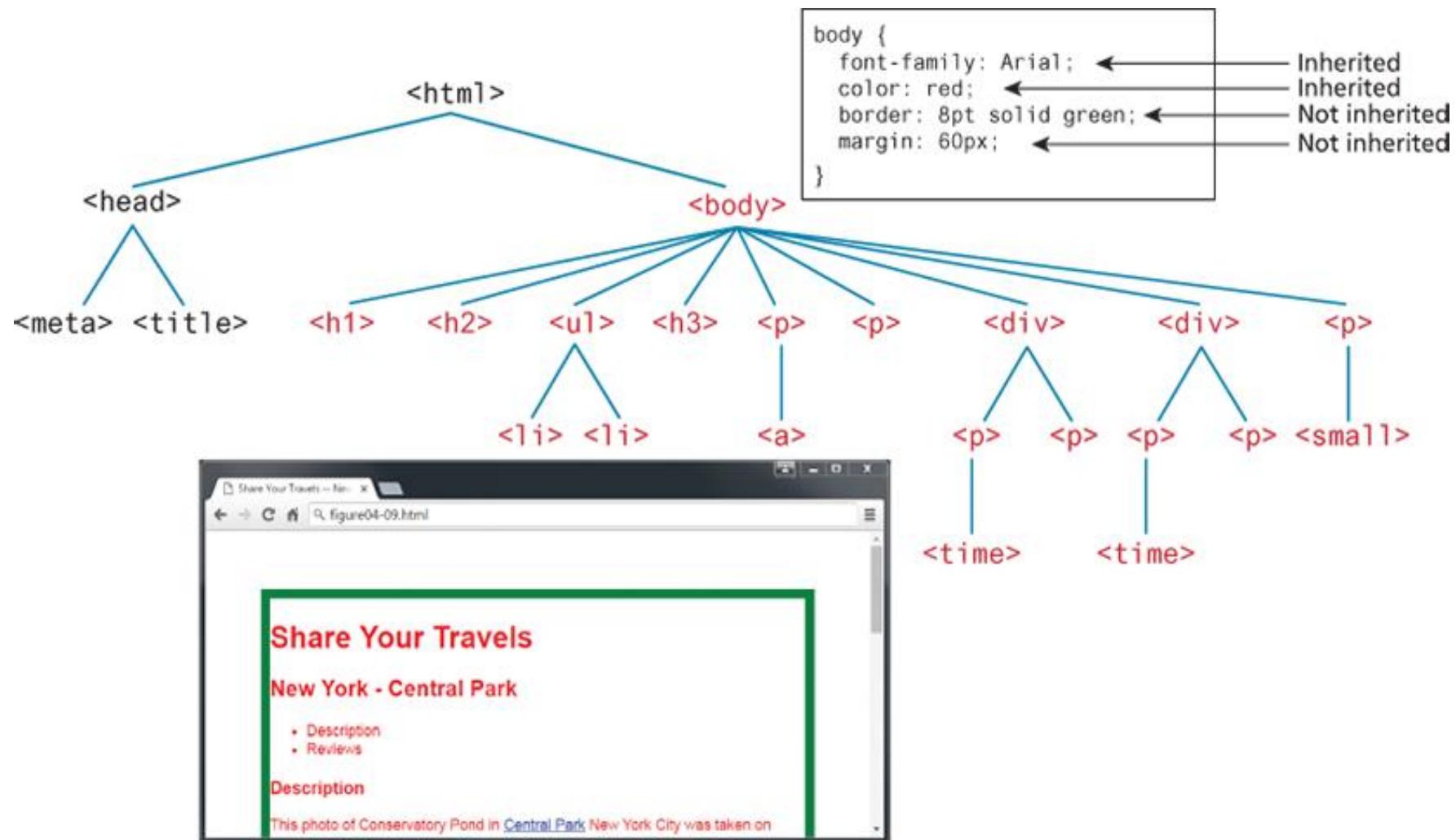
Are inheritable:

- ❖ Font
- ❖ Color
- ❖ List
- ❖ Text properties

Not inheritable:

- ❖ Layout
- ❖ Sizing
- ❖ Border
- ❖ Background
- ❖ Spacing properties

Inheritance



```
1  <!DOCTYPE html>
2  <html>
3  <head lang="en">
4      <meta charset="utf-8">
5      <title>Share Your Travels -- New York - Central Park</title>
6      <style>
7  body {
8      font-family: Arial;
9      color: red;
10     border: 8pt solid green;
11     margin: 60px;
12 }
13
14     </style>
15 </head>
16 <body>
17     <h1>Share Your Travels</h1>
18     <h2>New York - Central Park</h2>
19     <ul>
20         <li>Description</li>
21         <li>Reviews</li>
22     </ul>
23     <h3>Description</h3>
24     <p>This photo of Conservatory Pond in
25     <a href="http://www.centralpark.com/">Central Park</a> New York City was
26     taken on October 22, 2011 with a <strong>Canon EOS 30D</strong> camera.
27     </p>
28     
29
30     <h3>Reviews</h3>
31     <div>
32         <p>By Ricardo on <time>2016-05-23</time></p>
33         <p>Easy on the HDR buddy.</p>
34     </div>
35     <hr/>
36
37     <div>
38         <p>By Susan on <time>2016-11-18</time></p>
39         <p>I love Central Park.</p>
40     </div>
41     <hr/>
```

[C:\Users\Edmund\Desktop\686\FunWebDev2\0134481747_cl-268317\code-listings\chapter04\figure04-09.html](#)

Share Your Travels -- New Y... X

File Edit View Favorites Tools Help

Share Your Travels

New York - Central Park

- Description
- Reviews

Description

This photo of Conservatory Pond in [Central Park](#) New York City was taken on October 22, 2011 with a [Canon EOS 30D](#) camera.



Reviews

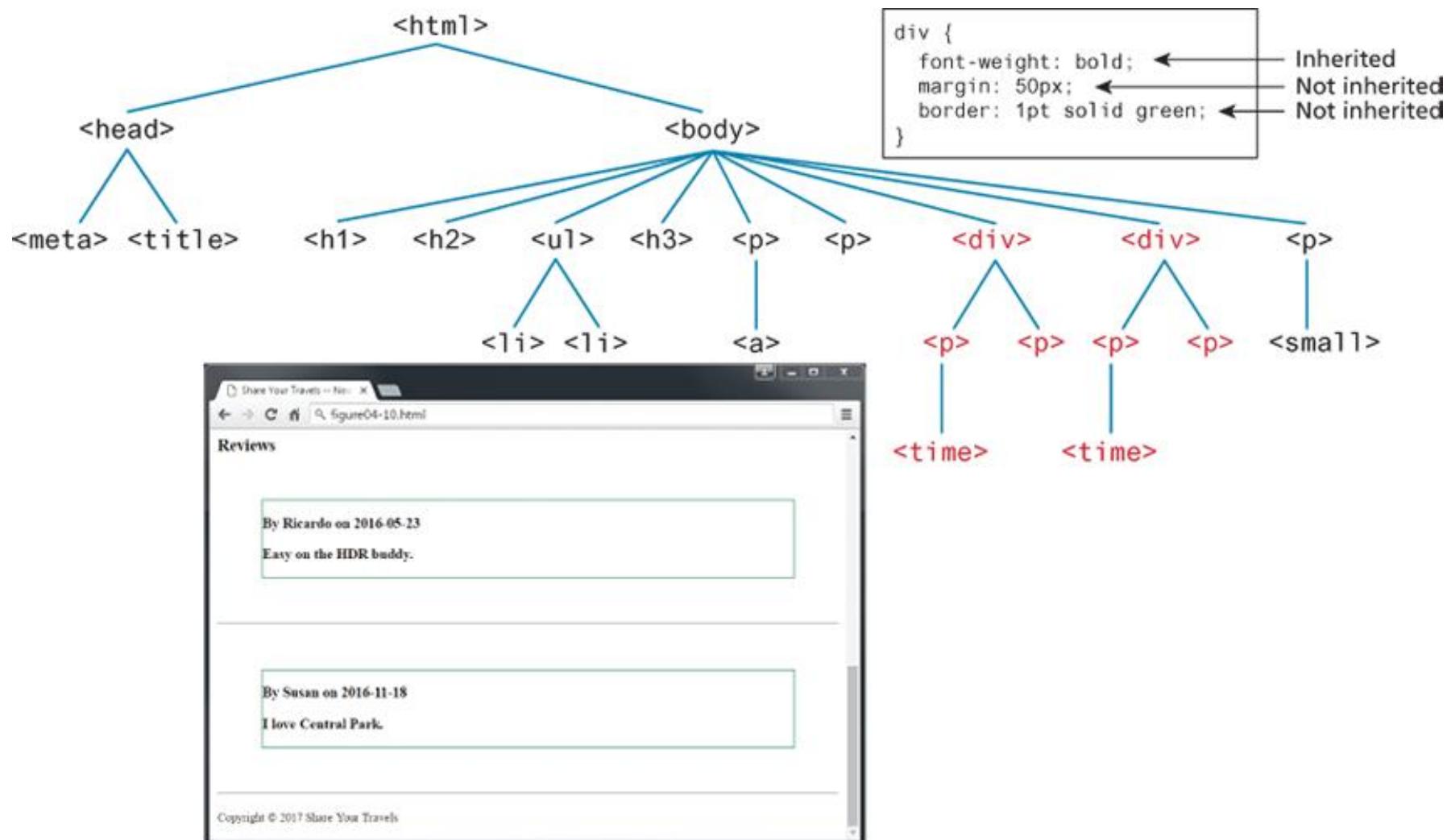
By Ricardo on 2016-05-23

Easy on the HDR buddy.

By Susan on 2016-11-18

I love Central Park.

Inheritance





File Edit View Favorites Tools Help

Reviews

By Ricardo on 2016-05-23

Easy on the HDR buddy.

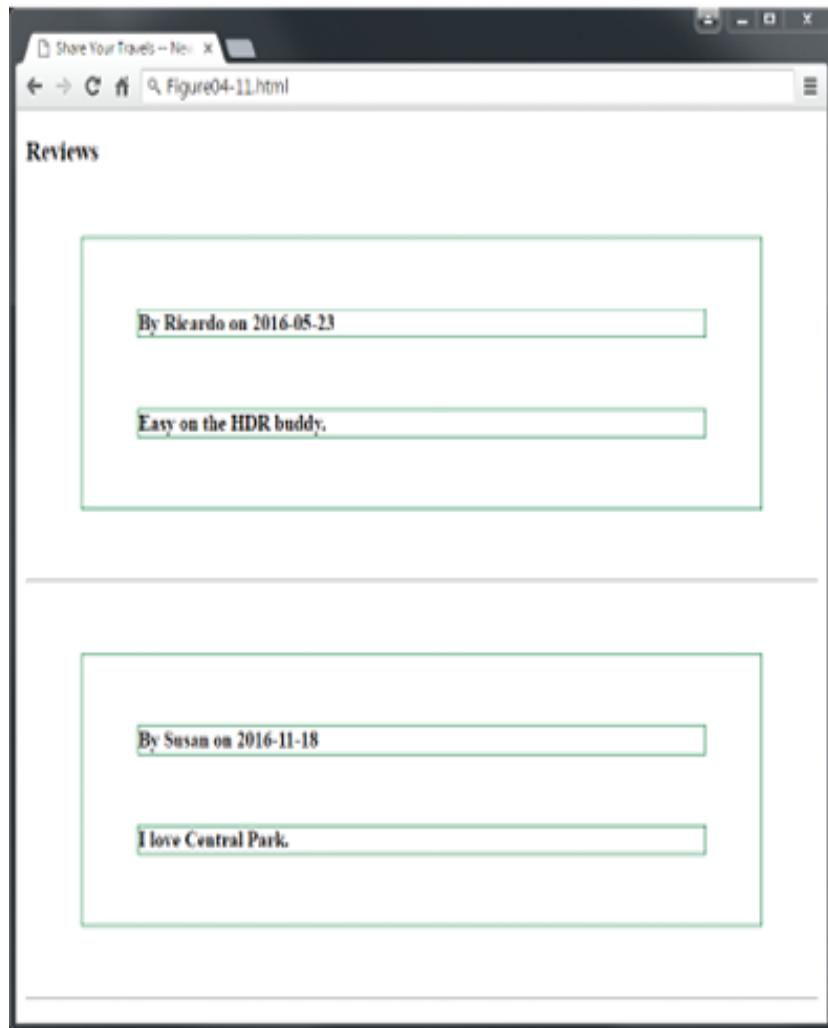
By Susan on 2016-11-18

I love Central Park.



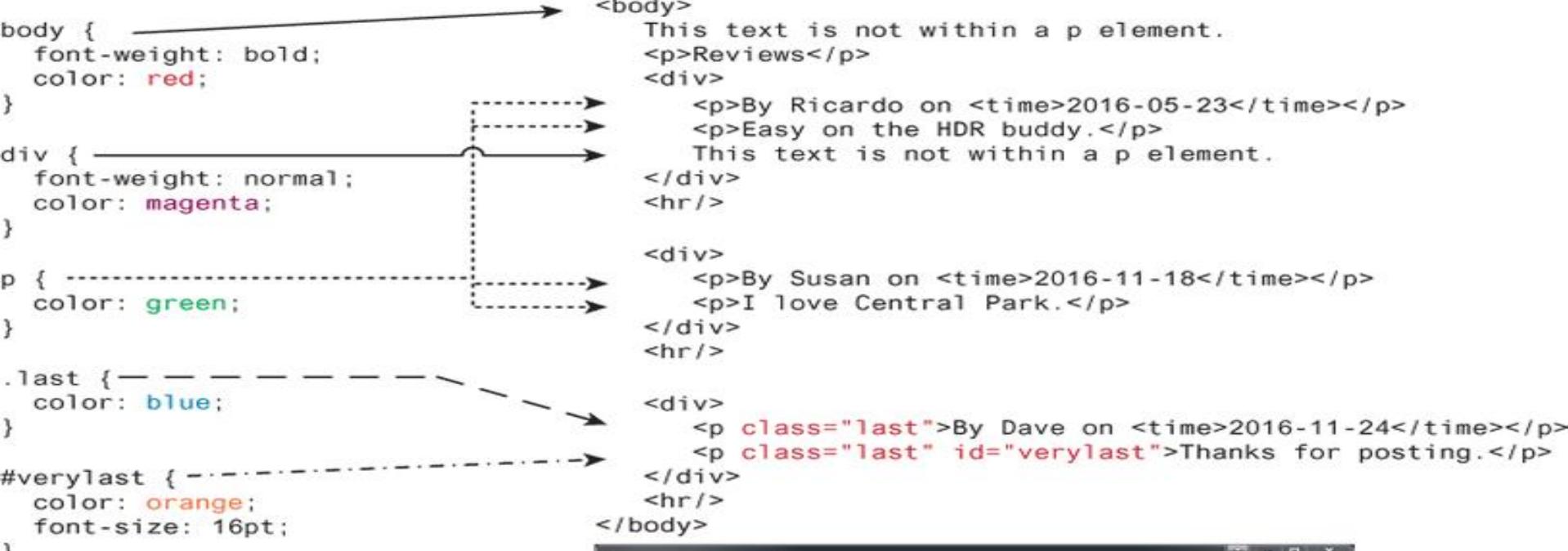
```
1  <!DOCTYPE html>
2  <html>
3  <head lang="en">
4      <meta charset="utf-8">
5      <title>Share Your Travels -- New York - Central Park</title>
6      <style>
7      ...
8      div {
9          font-weight: bold;
10         margin: 50px;
11         border: 1pt solid green;
12     }
13
14     </style>
15 </head>
16 <body>
17
18
19     <h3>Reviews</h3>
20     <div>
21         <p>By Ricardo on <time>2016-05-23</time></p>
22         <p>Easy on the HDR buddy.</p>
23     </div>
24     <hr/>
25
26     <div>
27         <p>By Susan on <time>2016-11-18</time></p>
28         <p>I love Central Park.</p>
29     </div>
30     <hr/>
31
32     <p><small>Copyright © 2017 Share Your Travels</small></p>
33 </body>
34 </html>
```

Inheritance

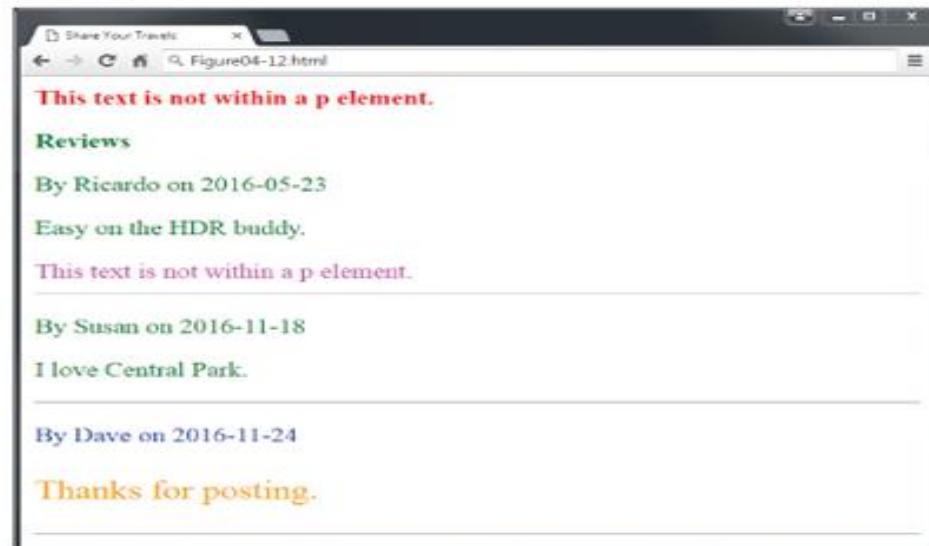


```
div {  
    font-weight: bold;  
    margin: 50px; ←  
    border: 1pt solid green; ←  
}  
  
p {  
    border: inherit; ←  
    margin: inherit; ←  
}  
  
<h3>Reviews</h3>  
<div>  
    <p>By Ricardo on <time>2016-05-23</time></p>  
    <p>Easy on the HDR buddy.</p>  
</div>  
<hr/>  
  
<div>  
    <p>By Susan on <time>2016-11-18</time></p>  
    <p>I love Central Park.</p>  
</div>  
<hr/>
```

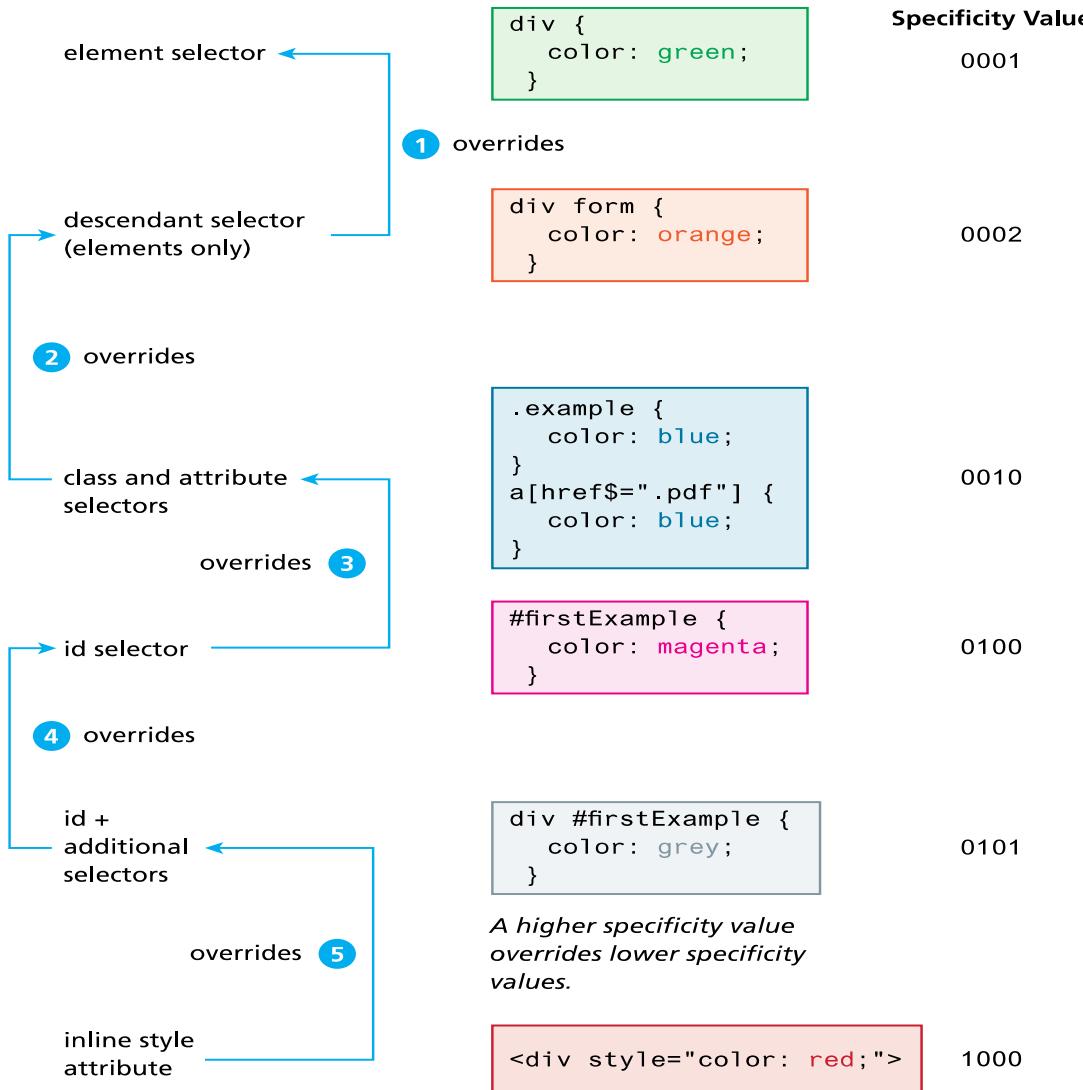
Specificity



- ❖ Specificity is how the browser determines which style rule takes precedence.
- ❖ In CSS, the more specific the selector, the more it takes precedence.



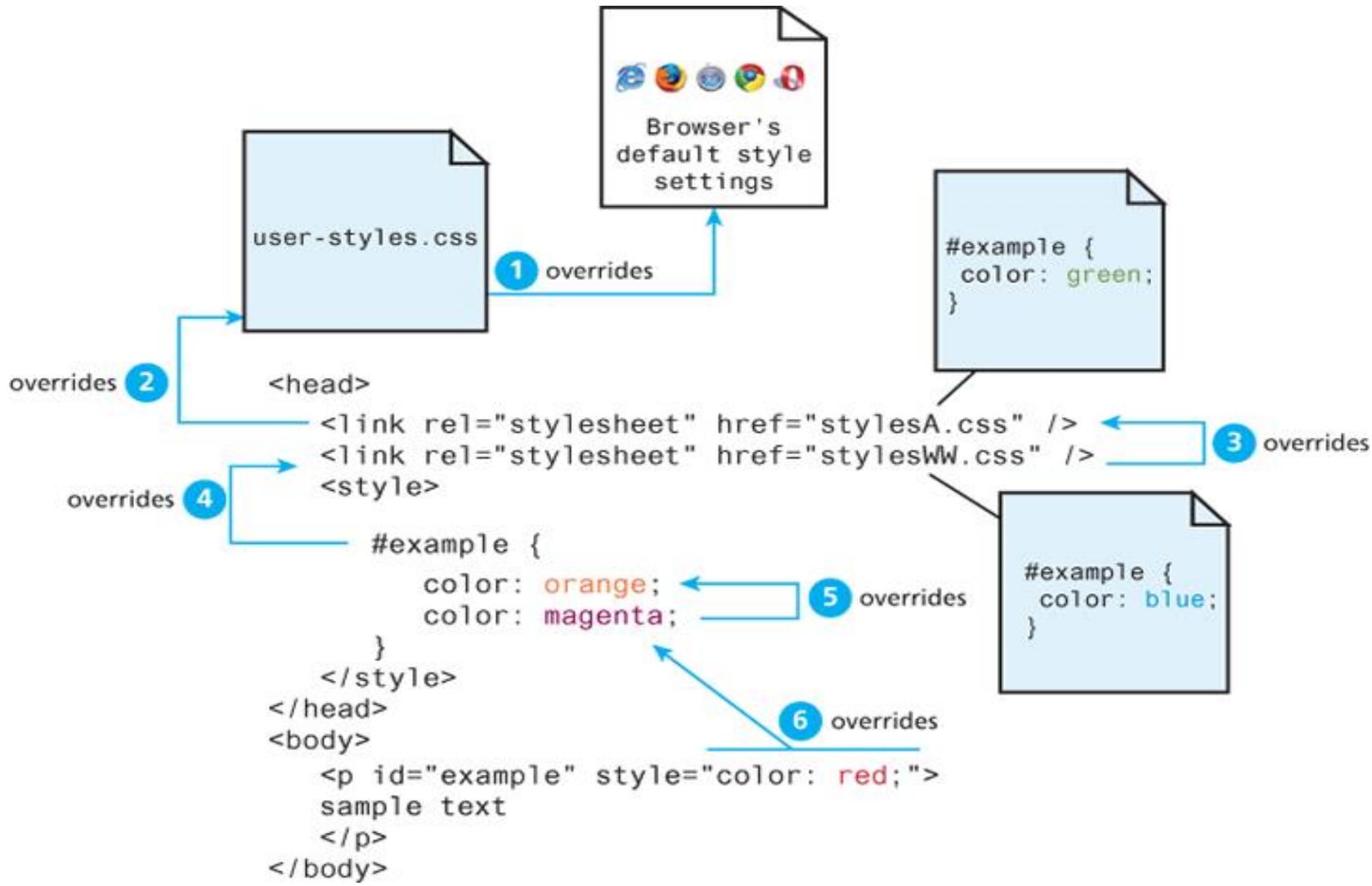
Specificity Algorithm



Location

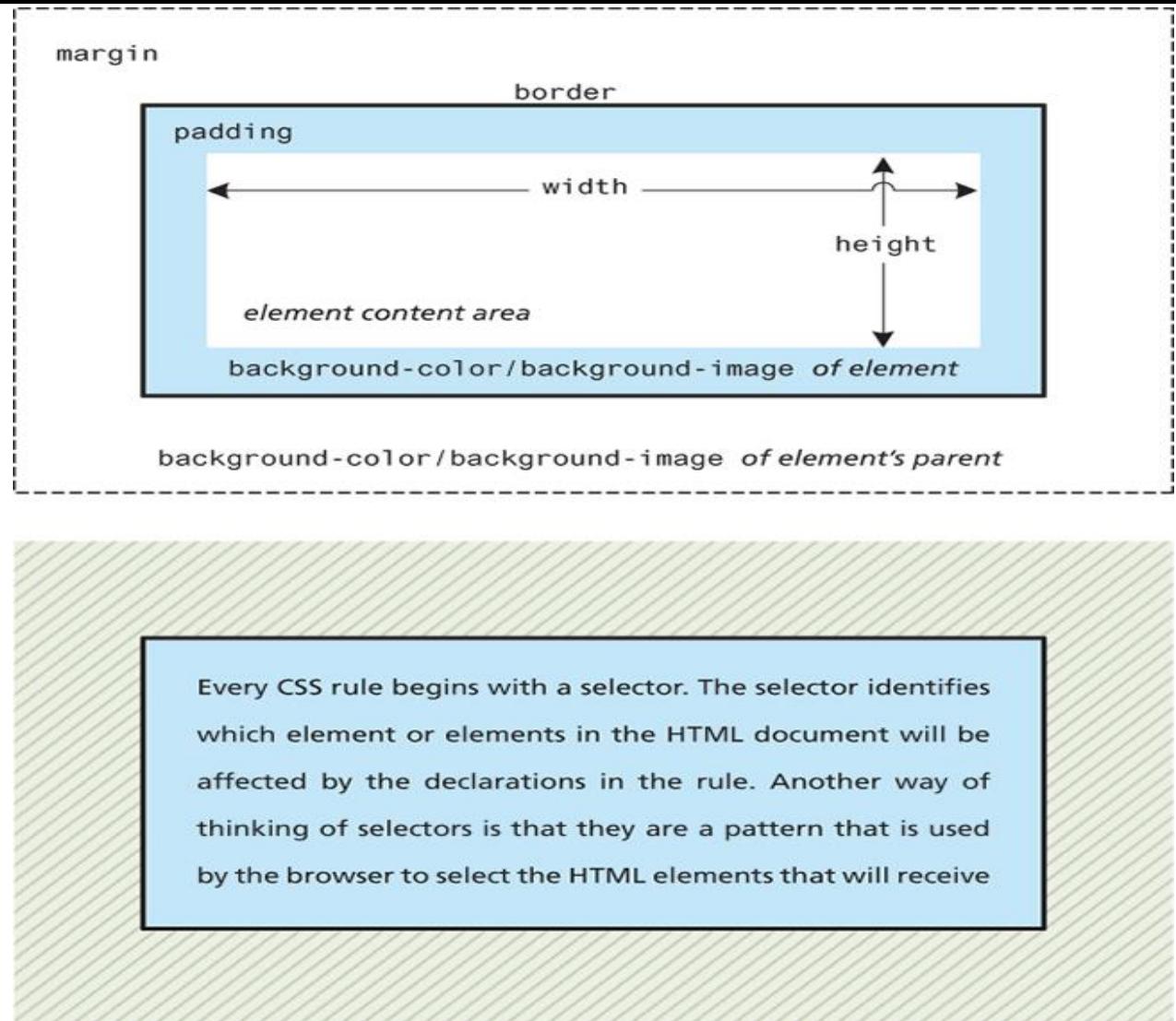
- ❖ Finally, when inheritance and specificity cannot determine style precedence, the principle of location will be used.
 - ❖ When rules have the same specificity, then the latest are given more weight.
 - ❖ An inline style will override one defined in an external author style sheet or an embedded style sheet.)
 - ❖ An embedded style will override an equally specific rule defined in an external author style sheet if it appears after the external sheet's element.
 - ❖ Styles defined in external author style sheet X will override styles in external author style sheet Y if X's element is after Y's in the HTML document.
 - ❖ When the same style property is defined multiple times within a single declaration block, the last one will take precedence.
-

Location

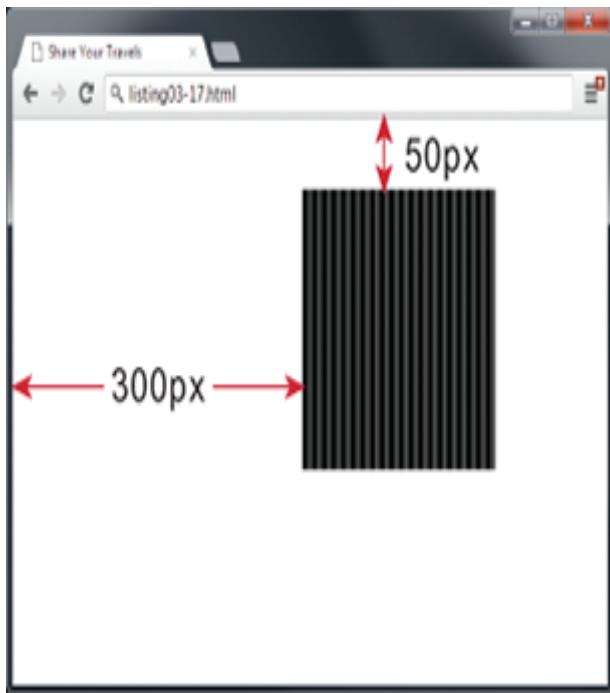


The Box Model

- ❖ In CSS, all HTML elements exist within an **element box** shown in Figure 4.15 (right):

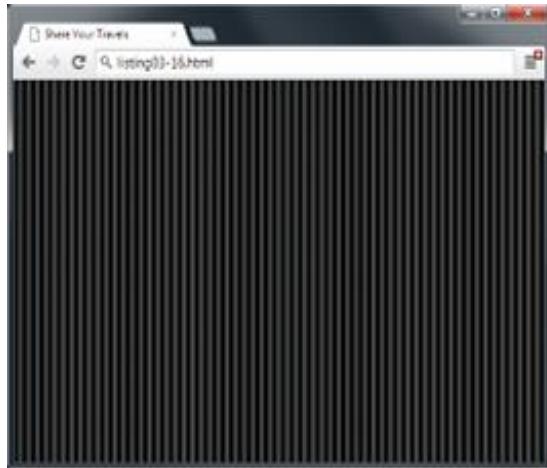


The Box Model

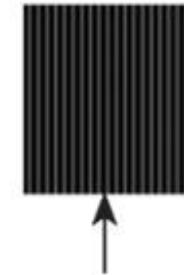


```
body {  
    background: white url(..../images/backgrounds/body-background-tile.gif) no-repeat;  
    background-position: 300px 50px;  
}
```

The Box Model



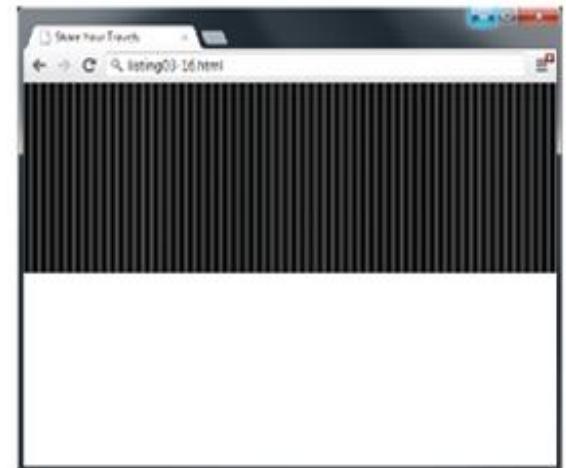
```
background-image: url(..../images/backgrounds/body-background-tile.gif);  
background-repeat: repeat;
```



```
background-repeat: no-repeat;
```



```
background-repeat: repeat-y;
```



```
background-repeat: repeat-x;
```

Table 4.8 Border Properties

Property	Description
<code>border</code>	A combined shorthand property that allows you to set the style, width, and color of a border in one property. The order is important and must be: <code>border-style border-width border-color</code>
<code>border-style</code>	Specifies the line type of the border. Possible values are: <code>solid, dotted, dashed, double, groove, ridge, inset, and outset.</code>
<code>border-width</code>	The width of the border in a unit (but not percents). A variety of keywords (<code>thin, medium, etc.</code>) are also supported.
<code>border-color</code>	The color of the border in a color unit.
<code>border-radius</code>	The radius of a rounded corner.
<code>border-image</code>	The URL of an image to use as a border.

Border widths are perhaps the one exception to the general advice against using the pixel measure. Using `em` units or percentages for border widths can result in unpredictable widths as the different browsers use different algorithms (some round up, some round down) as the zoom level increases or decreases. For this reason, border widths are almost always set to pixel units.



CSS border Property

[◀ Previous](#)[Complete CSS Reference](#)[Next ▶](#)

Example

Set the style of the borders for different elements:

```
h1 {  
    border: 5px solid red;  
}  
  
h2 {  
    border: 4px dotted blue;  
}  
  
div {  
    border: double;  
}
```

[Try it Yourself »](#)

Definition and Usage

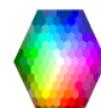
The **border** property is a shorthand property for **border-width**, **border-style** and **border-color**.

last three years, we've shared \$10 billion in profits with participants.

[LEARN MORE](#)

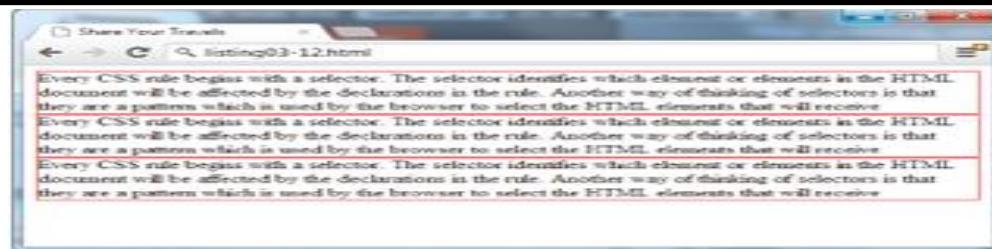
 TIAA
307767

COLOR PICKER

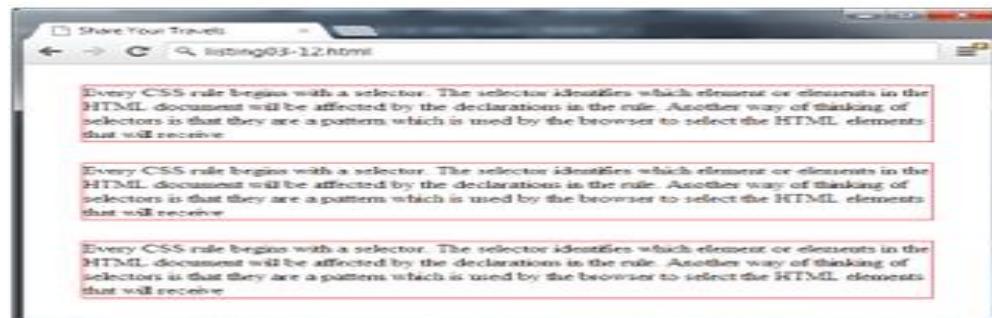


HOW TO

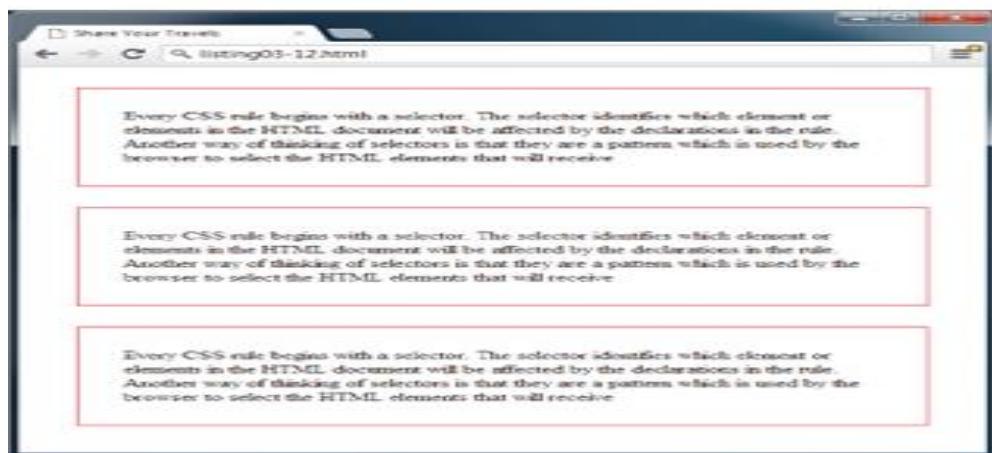
Margins and Paddings



```
p {  
    border: solid 1pt red;  
    margin: 0;  
    padding: 0;  
}
```

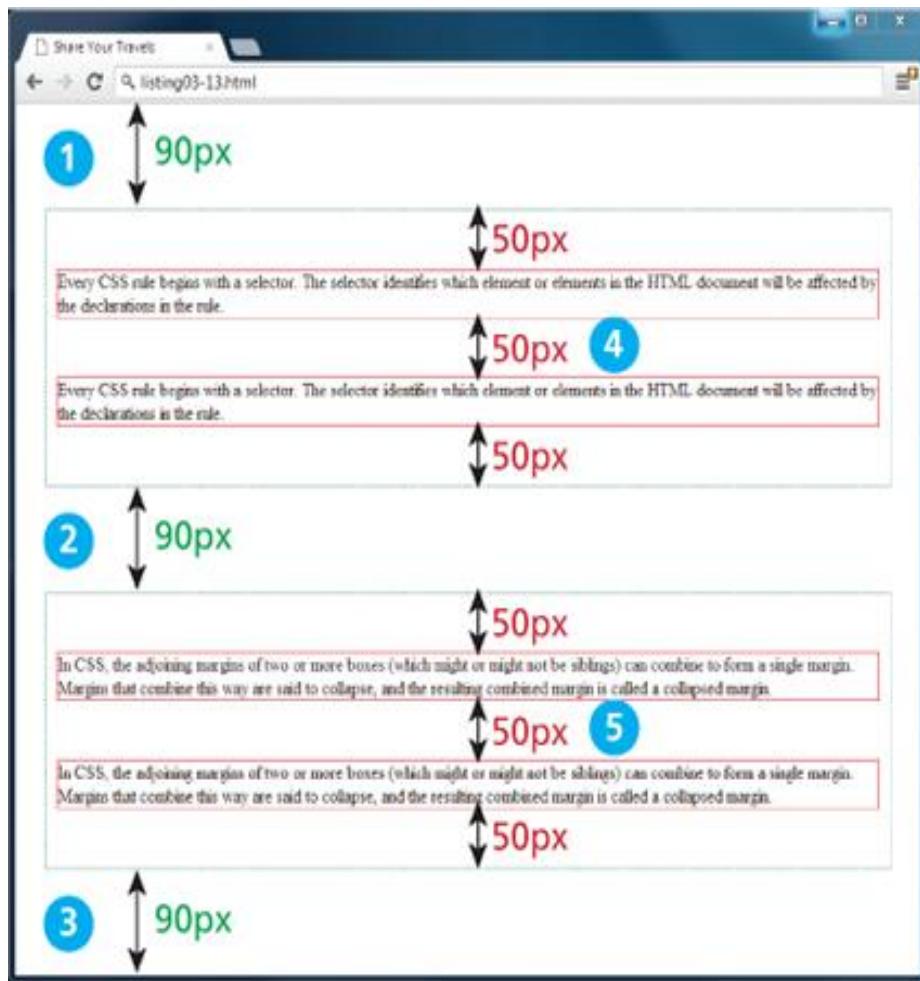


```
p {  
    border: solid 1pt red;  
    margin: 30px;  
    padding: 0;  
}
```



```
p {  
    border: solid 1pt red;  
    margin: 30px;  
    padding: 30px;  
}
```

Collapsing Margins



```
<div>
  <p>Every CSS rule ...</p>
  <p>Every CSS rule ...</p>
</div>
<div>
  <p>In CSS, the adjoining ... </p>
  <p>In CSS, the adjoining ... </p>
</div>
```

```
div {
  border: dotted 1pt green;
  padding: 0;
  margin: 90px 20px;
}
```

```
p {
  border: solid 1pt red;
  padding: 0;
  margin: 50px 20px;
}
```

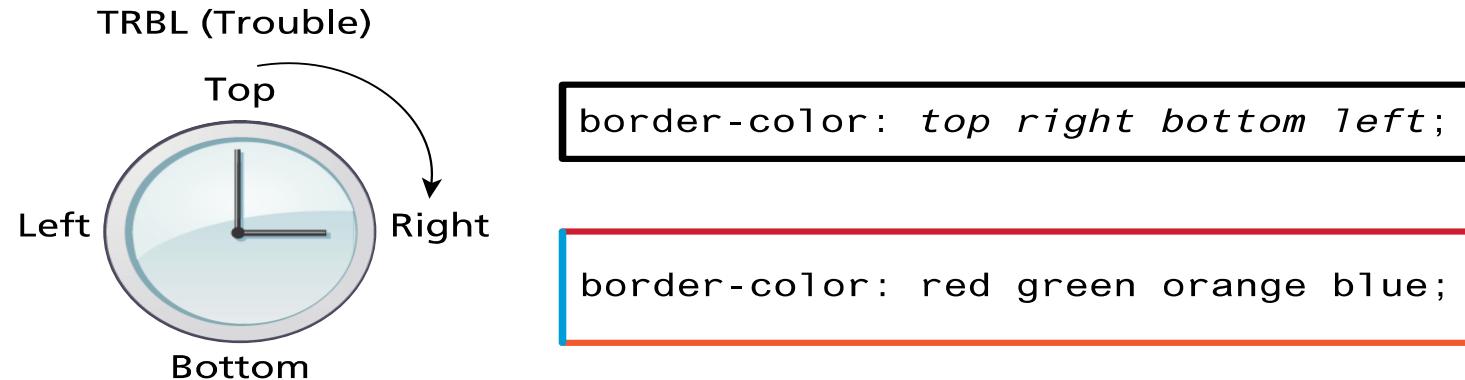
TRBL Shortcut

```
border-top-color: red; /* sets just the top side */  
border-right-color: green; /* sets just the right side */  
border-bottom-color: yellow; /* sets just the bottom side */  
border-left-color: blue; /* sets just the left side */
```

Alternately, we can set all four sides at once:

```
border-color: red; /* sets all four sides to red */
```

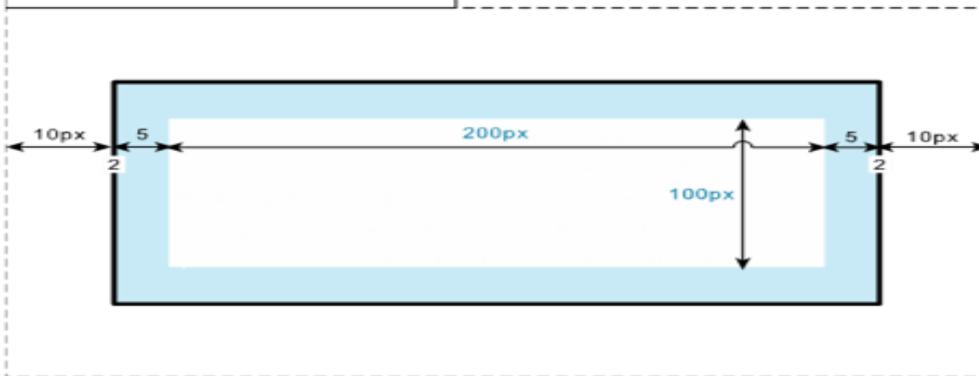
```
border-color: red green orange blue; /* sets 4 colors */
```



Box Dimensions

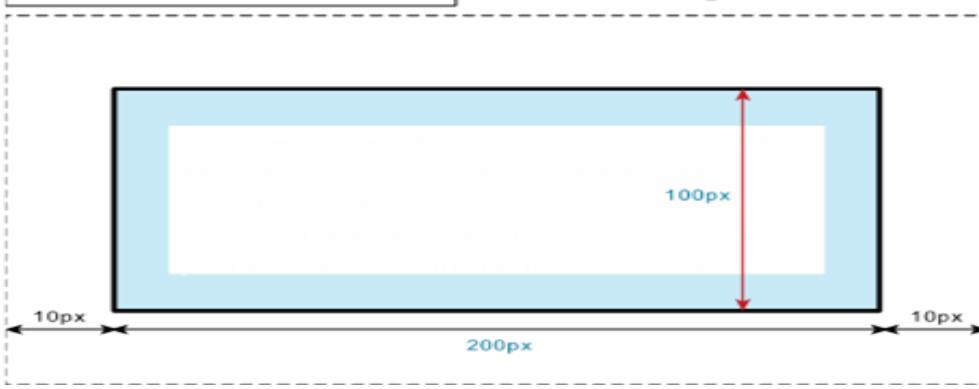
```
div {  
  box-sizing: content-box;  
  width: 200px;  
  height: 100px;  
  padding: 5px;  
  margin: 10px;  
  border: solid 2pt black;  
}
```

True element width = $10 + 2 + 5 + 200 + 5 + 2 + 10 = 234$ px
True element height = $10 + 2 + 5 + 100 + 5 + 2 + 10 = 134$ px

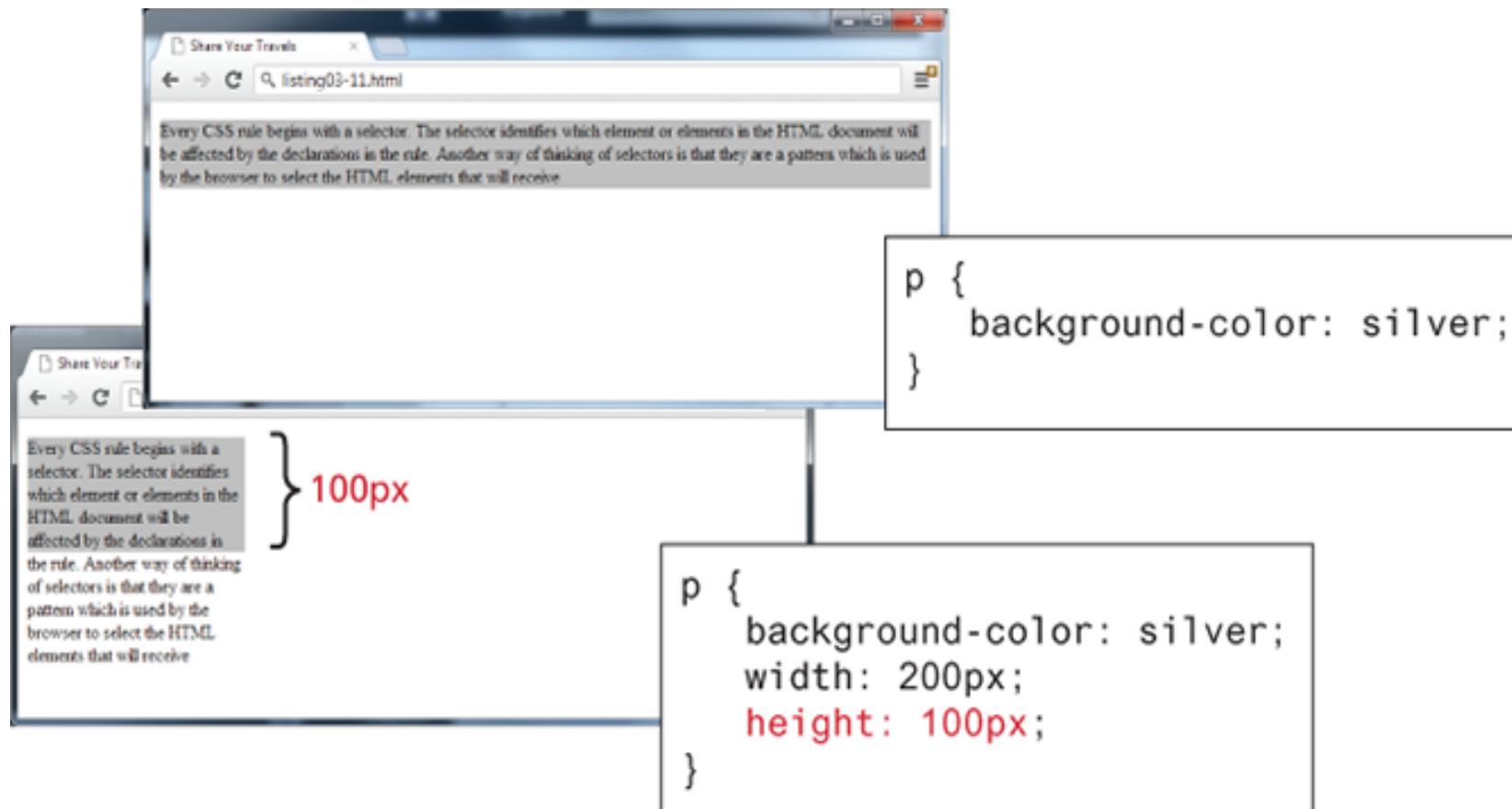


```
div {  
  ...  
  box-sizing: border-box;  
}
```

True element width = $10 + 200 + 10 = 220$ px
True element height = $10 + 100 + 10 = 120$ px

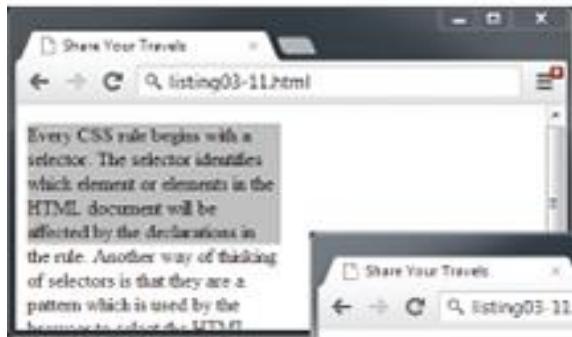


Limitations of Height Property



Limitations of Height Property

`overflow: visible;`



`overflow: hidden;`



`overflow: scroll;`

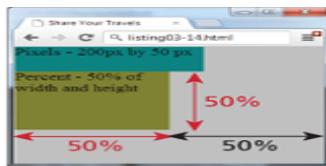


`overflow: auto;`

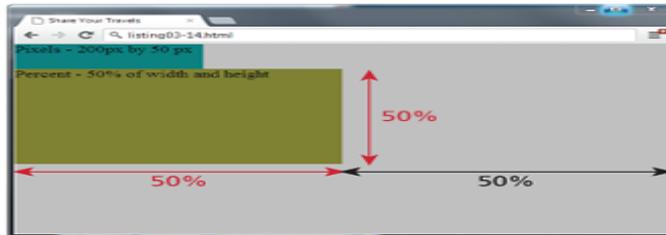


Box Sizing Using Percents

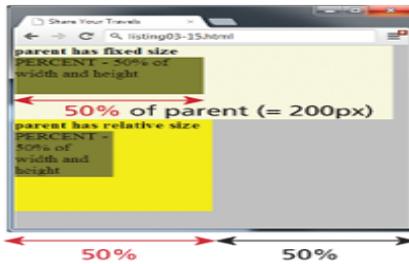
```
<style>
  html, body {
    margin:0;
    width:100%;
    height:100%;
    background: silver;
  }
  .pixels {
    width:200px;
    height:50px;
    background: teal;
  }
  .percent {
    width:50%;
    height:50%;
    background: olive;
  }
</style>
```



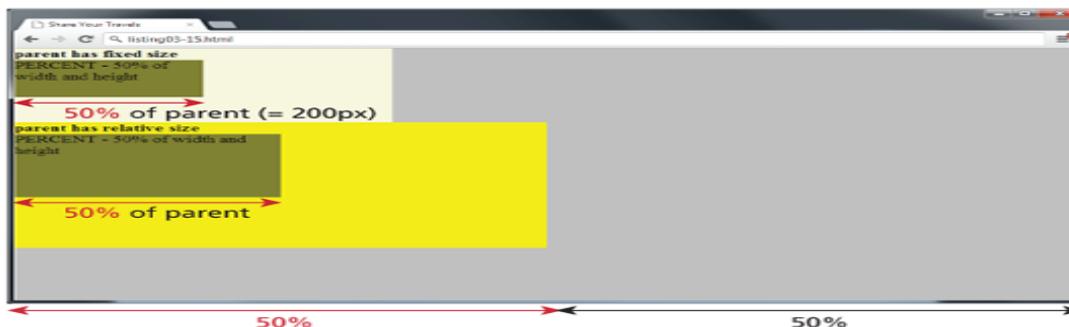
```
<body>
  <div class="pixels">
    Pixels - 200px by 50 px
  </div>
  <div class="percent">
    Percent - 50% of width and height
  </div>
</body>
```



```
.parentFixed {
  width:400px;
  height:150px;
  background: beige;
}
.parentRelative {
  width:50%;
  height:50%;
  background: yellow;
}
</style>
```



```
<body>
  <div class="parentFixed">
    <strong>parent has fixed size</strong>
    <div class="percent">
      PERCENT - 50% of width and height
    </div>
  </div>
  <div class="parentRelative">
    <strong>parent has relative size</strong>
    <div class="percent">
      PERCENT - 50% of width and height
    </div>
  </div>
</body>
```



CSS Text Styling: Fonts

Property	Description
font	A combined shorthand property that allows you to set the family, style, size, variant, and weight in one property. style weight variant size font-family
font-family	Specifies the typeface/font to use. More than one can be specified.
font-size	The size of the font in one of the measurement units
font-style	Specifies whether italic, oblique, or normal
font-variant	Specifies either small-caps text or none
font-weight	Specifies either normal, bold, bolder, lighter, or a value between 100 and 900 in multiples of 100, where larger number represents weightier (i.e., bolder) text.

Table 4.9 Font Properties

Property	Description
<code>font</code>	A combined shorthand property that allows you to set the family, style, size, variant, and weight in one property. While you do not have to specify each property, you must include at a minimum the font size and font family. In addition, the order is important and must be: <code>style weight variant size font-family</code>
<code>font-family</code>	Specifies the typeface/font (or generic font family) to use. More than one can be specified.
<code>font-size</code>	The size of the font in one of the measurement units.
<code>font-style</code>	Specifies whether <code>italic</code> , <code>oblique</code> (i.e., skewed by the browser rather than a true italic), or <code>normal</code> .
<code>font-variant</code>	Specifies either <code>small-caps</code> text or <code>none</code> (i.e., regular text).
<code>font-weight</code>	Specifies either <code>normal</code> , <code>bold</code> , <code>bolder</code> , <code>lighter</code> , or a value between <code>100</code> and <code>900</code> in multiples of 100, where larger number represents weightier (i.e., bolder) text.

CSS Fonts

w3schools.com/css/css_font.asp

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Home HTML CSS JavaScript SQL PHP Bootstrap jQuery More References Examples

CSS Tutorial

CSS HOME

CSS Introduction

CSS Syntax

CSS How To

CSS Colors

CSS Backgrounds

CSS Borders

CSS Margins

CSS Padding

CSS Height/Width

CSS Box Model

CSS Outline

CSS Text

CSS Fonts

CSS Icons

CSS Links

CSS Lists

CSS Tables

CSS Display

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CSS Fonts

< Previous

Next >

The CSS font properties define the font family, boldness, size, and the style of a text.

Difference Between Serif and Sans-serif Fonts

F

Sans-serif

F

Serif

F

Serif
(red serifs)

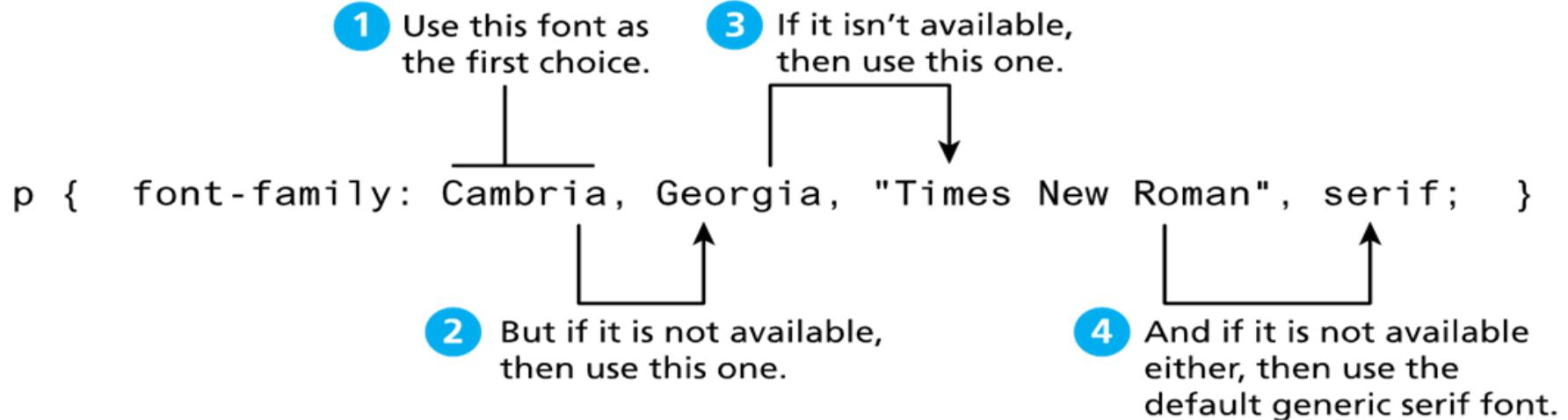


Charmin Super Mega
Roll Ultra Soft Toilet
Paper, 18 Count

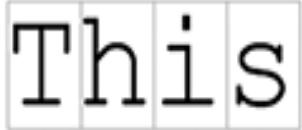
★★★★★ 56

\$29.91 prime

Specifying the Font Family



Different Font Families

Generic Font-Family Name	
serif	
sans-serif	
monospace	 <p>In a monospace font, each letter has the same width.</p>
cursive	
fantasy	<p>Decorative and cursive fonts vary from system to system; rarely used as a result.</p>

Font Sizes

<body>	Browser's default text size is usually 16 pixels
<p>	100% or 1em is 16 pixels
<h3>	125% or 1.125em is 18 pixels
<h2>	150% or 1.5em is 24 pixels
<h1>	200% or 2em is 32 pixels

/ using 16px scale */*

```
body { font-size: 100%; }  
p { font-size: 1em; }      /* 1.0 x 16 = 16 */  
h3 { font-size: 1.125em; } /* 1.25 x 16 = 18 */  
h2 { font-size: 1.5em; }   /* 1.5 x 16 = 24 */  
h1 { font-size: 2em; }     /* 2 x 16 = 32 */
```

```
<body>  
  Browser's default text size is usually 16 pixels  
  <p>100% or 1em is 16 pixels</p>  
  <h3>125% or 1.125em is 18 pixels</h3>  
  <h2>150% or 1.5em is 24 pixels</h2>  
  <h1>200% or 2em is 32 pixels</h1>  
</body>
```

Points	Pixels	Ems	Percent
6pt	8px	0.5em	50%
7pt	9px	0.55em	55%
7.5pt	10px	0.625em	62.5%
8pt	11px	0.7em	70%
9pt	12px	0.75em	75%
10pt	13px	0.8em	80%
10.5pt	14px	0.875em	87.5%
11pt	15px	0.95em	95%
12pt	16px	1em	100%
13pt	17px	1.05em	105%
13.5pt	18px	1.125em	112.5%
14pt	19px	1.2em	120%
14.5pt	20px	1.25em	125%
15pt	21px	1.3em	130%
16pt	22px	1.4em	140%
17pt	23px	1.45em	145%
18pt	24px	1.5em	150%
20pt	26px	1.6em	160%
22pt	29px	1.8em	180%
24pt	32px	2em	200%
26pt	35px	2.2em	220%
27pt	36px	2.25em	225%
28pt	37px	2.3em	230%
29pt	38px	2.35em	235%
30pt	40px	2.45em	245%
32pt	42px	2.55em	255%

Paragraph Properties

- ❖ Just as there are properties that affect the font in CSS, there are also a range of CSS properties that affect text independently of the font.
 - ❖ letter-spacing
 - ❖ line-height
 - ❖ text-align
 - ❖ text-decoration
 - ❖ text-direction
 - ❖ text-shadow ...

Table 4.10 Text Properties

Property	Description
<code>letter-spacing</code>	Adjusts the space between letters. Can be the value <code>normal</code> or a length unit.
<code>line-height</code>	Specifies the space between baselines (equivalent to leading in a desktop publishing program). The default value is <code>normal</code> , but can be set to any length unit. Can also be set via the shorthand <code>font</code> property.
<code>list-style-image</code>	Specifies the URL of an image to use as the marker for unordered lists.
<code>list-style-type</code>	Selects the marker type to use for ordered and unordered lists. Often set to <code>none</code> to remove markers when the list is a navigational menu or a input form.
<code>text-align</code>	Aligns the text horizontally in a container element in a similar way as a word processor. Possible values are <code>left</code> , <code>right</code> , <code>center</code> , and <code>justify</code> .
<code>text-decoration</code>	Specifies whether the text will have lines below, through, or over it. Possible values are: <code>none</code> , <code>underline</code> , <code>overline</code> , <code>line-through</code> , and <code>blink</code> . Hyperlinks by default have this property set to <code>underline</code> .
<code>text-direction</code>	Specifies the direction of the text, left-to-right (<code>ltr</code>) or right-to-left (<code>rtl</code>).
<code>text-indent</code>	Indents the first line of a paragraph by a specific amount.
<code>text-shadow</code>	A new CSS3 property that can be used to add a drop shadow to a text.
<code>text-transform</code>	Changes the capitalization of text. Possible values are <code>none</code> , <code>capitalize</code> , <code>lowercase</code> , and <code>uppercase</code> .
<code>vertical-align</code>	Aligns the text vertically in a container element. Most common values are: <code>top</code> , <code>bottom</code> , and <code>middle</code> .
<code>word-spacing</code>	Adjusts the space between words. Can be the value <code>normal</code> or a length unit.



CSS Tutorial

CSS HOME

CSS Introduction

CSS Syntax

CSS How To

CSS Colors

CSS Backgrounds

CSS Borders

CSS Margins

CSS Padding

CSS Height/Width

CSS Box Model

CSS Outline

CSS Text

CSS Fonts

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CSS Text

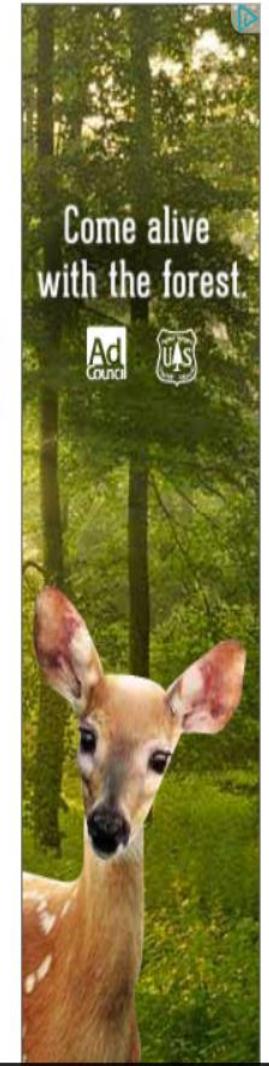
< Previous

Next >

TEXT FORMATTING

This text is styled with some of the text formatting properties. The heading uses the text-align, text-transform, and color properties. The paragraph is indented, aligned, and the space between characters is specified. The underline is removed from this colored "Try it Yourself" link.

Try it Yourself »



The Text Shadow Properties

The diagram illustrates three text shadows and one box shadow. The first shadow is a pink blur at the top left of the text 'First Shadow'. The second shadow is a blue blur below it. The third shadow is a pink blur to the right of the second. A box shadow is visible at the bottom left of the text area. Callouts numbered 1 through 4 point to these features. Callout 1 points to the first shadow. Callout 2 points to the second shadow. Callout 3 points to the third shadow. Callout 4 points to the box shadow.

1 First Shadow

2 Second Shadow

3 Third Shadow

4 Box Shadow

You will likely want the shadow color to be partly transparent

1 text-shadow: 20px 20px 10px rgba(0,0,0,0.5);

2 text-shadow: 4px 4px 0 #5C6BC0,
8px 8px 0 #7986CB,
12px 12px 0 #9FA8DA; multiple shadows can be defined
(separated by commas)

3 text-shadow: 0 1px 1px #1A237E;

4 box-shadow: 0px 0px 30px #1A237E;
box shadows work in the same way as text shadows

ColorCodeHex .com #1A237E - Hex Color - Color Code

#1A237E Hex Color, Includes conversions, schemes, html color codes and much more.



search

#1A237E Color Information

This page lists many detailed information about the hex color #1A237E. Its Hexadecimal code is 1A237E. In a RGB color space, which is consist of 10.2% red, 13.73% green and 49.41% blue, and that corresponding RGB values are 26, 35, 126. In a CMYK color space, it is consist of 79.4% cyan, 72.2% magenta, 0% yellow and 50.6% black, whereas that corresponding CMYK values are 0.79, 0.72, 0, 0.51. Other more information such as degree, lightness, saturation, please browses the following content.

424
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Hexadecimal : 1A237E

RGB Decimal : 26, 35, 126

HSL : 235°, 66%, 30%

HSV : 235°, 79%, 49%

CMYK : 79.4%, 72.2%, 0%, 50.6%

XYZ : 4.793, 2.928, 20.051

xyY : 0.173, 0.105, 2.928

CIE-LAB : 19.753, 30.615, -52.143

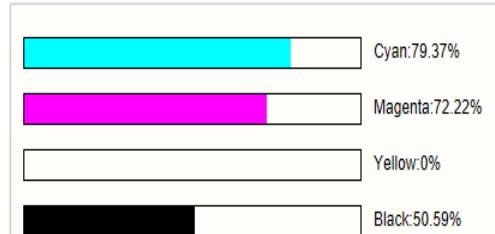
CIE-LCH : 19.753, 60.466, 300.419

Hunter-Lab : 17.111, 20.053, -57.498

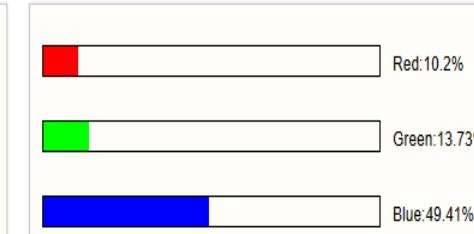
Color Conversion with #1A237E



CMYK Color Model with #1A237E



RGB Color Model with #1A237E



Color Schemes with #1A237E



Colors Tutorial

[Colors HOME](#)

[Color Names](#)

[Color Values](#)

[Color Groups](#)

[Color Shades](#)

[Color Picker](#)

[Color Mixer](#)

[Color Converter](#)

[Color RGB](#)

[Color HEX](#)

[Color HSL](#)

[Color HWB](#)

[Color CMYK](#)

[Color NCol](#)

[Color Gradient](#)

[Color Theory](#)

[Color Wheels](#)

[Color Hues](#)

[Color Schemes](#)

[Color Palettes](#)

[Color Brands](#)

[Color Trends](#)

Color Schemes

[Colors Monochromatic](#)

[Colors Analogous](#)

[Colors Complementary](#)

[Colors Triadic](#)

[Colors Tetradic](#)

Color Names Supported by All Browsers

All modern browsers support the following 140 color names (click on a color name, or a hex value, to view the color as the background-color along with different text colors):

[Click here to see the 140 colors sorted by HEX Value](#)

Color Name	HEX	Color	Shades	Mix
AliceBlue	#F0F8FF		Shades	Mix
AntiqueWhite	#FAEBD7		Shades	Mix
Aqua	#00FFFF		Shades	Mix
Aquamarine	#7FFFDD		Shades	Mix
Azure	#F0FFFF		Shades	Mix
Beige	#F5F5DC		Shades	Mix
Bisque	#FFE4C4		Shades	Mix
Black	#000000		Shades	Mix
BlanchedAlmond	#FFEBBC		Shades	Mix
Blue	#0000FF		Shades	Mix
BlueViolet	#8A2BE2		Shades	Mix
Brown	#A52A2A		Shades	Mix
BurlyWood	#DEB887		Shades	Mix
CadetBlue	#5F9EA0		Shades	Mix

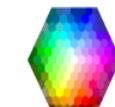


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COLOR PICKER



HOW TO

Tabs

Dropdowns

Accordions

Convert Weights

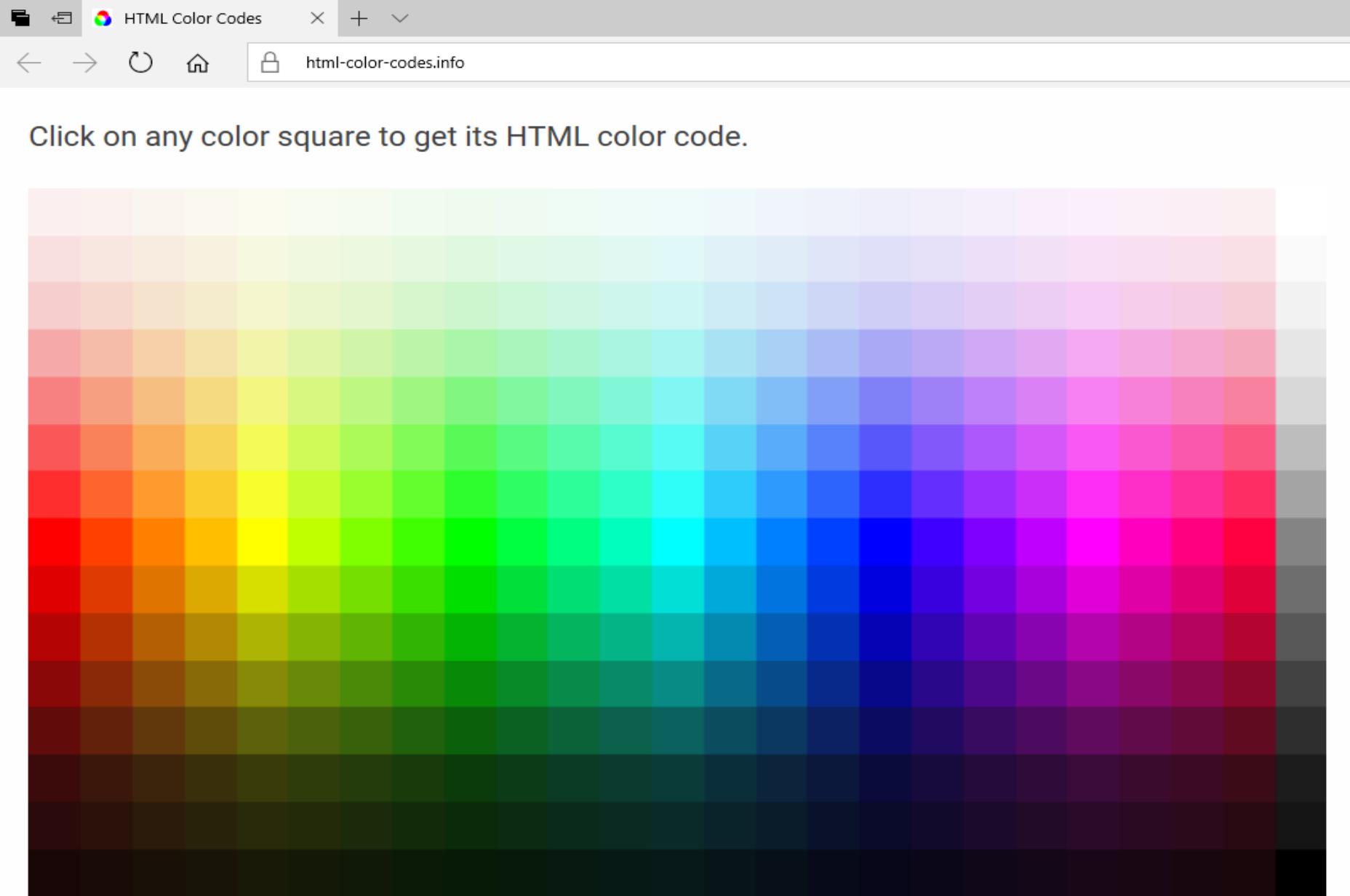
Animated Buttons

Side Navigation

Top Navigation

Modal Boxes

Progress Bars



Color code:

#58FAAC

