

Lecture

HTML: Style Sheets

Style Sheets

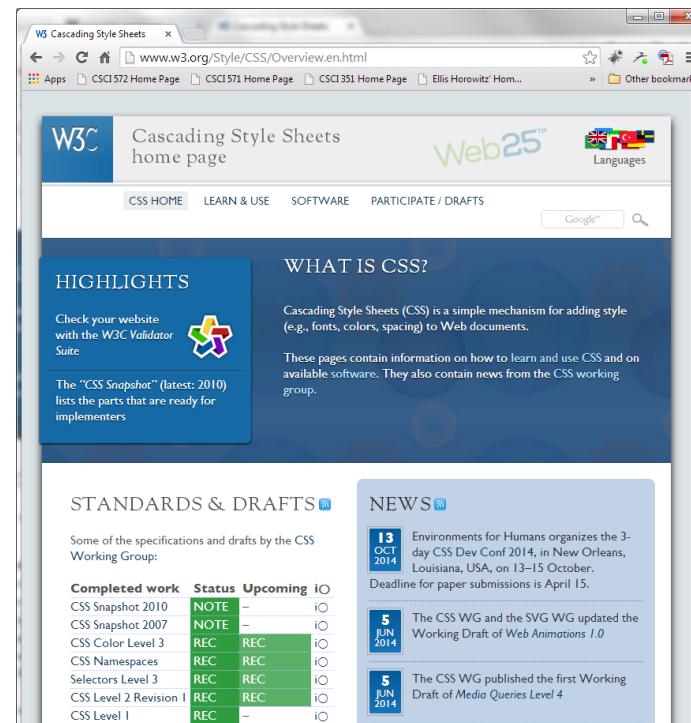
- Starting with HTML version 4.x there was an effort to separate the specification of style from the specification of content
- Style sheets are the mechanism HTML assumes will be used to specify
 - the amount of white space between text or between lines,
 - the amount lines are indented,
 - the colors used for the text and the backgrounds
 - the font size and style of text
 - the precise position of text and graphics
 - How front matter (preface, figure list, title page, and so forth) should look
 - How all or individual sections should be laid out in terms of space (for example, two newspaper columns, one column with headings having hanging heads, and so forth)

Style Sheet Languages

- These notes use the style language "Cascading Style Sheets" ([CSS1] and [CSS2]), abbreviated CSS, and described in:

<http://www.w3.org/TR/REC-CSS1> (level 1)
<http://www.w3.org/TR/REC-CSS2> (level 2)
<http://www.w3.org/TR/CSS21/> (level 2 Revision 1)
<http://www.w3.org/Style/CSS/current-work> (Level 3, in process)
<http://www.w3.org/Style/CSS/Overview.en.html> (see Status)

- There are other style sheet languages, e.g. XSL defined at
<http://www.w3.org/Style/XSL>



Expressing Style Within HTML

- HTML provides an element and an attribute to support the inclusion of style information
 - **<STYLE>** element, **style** attribute
- These HTML extensions permit
 - flexible placement of style information
 - independence from any particular style sheet language
- HTML provides the **<LINK>** to point to external style sheets
 - combining style information from multiple sources, called cascading
 - There is a defined order of precedence where the definitions of a style element conflict

Simple Example

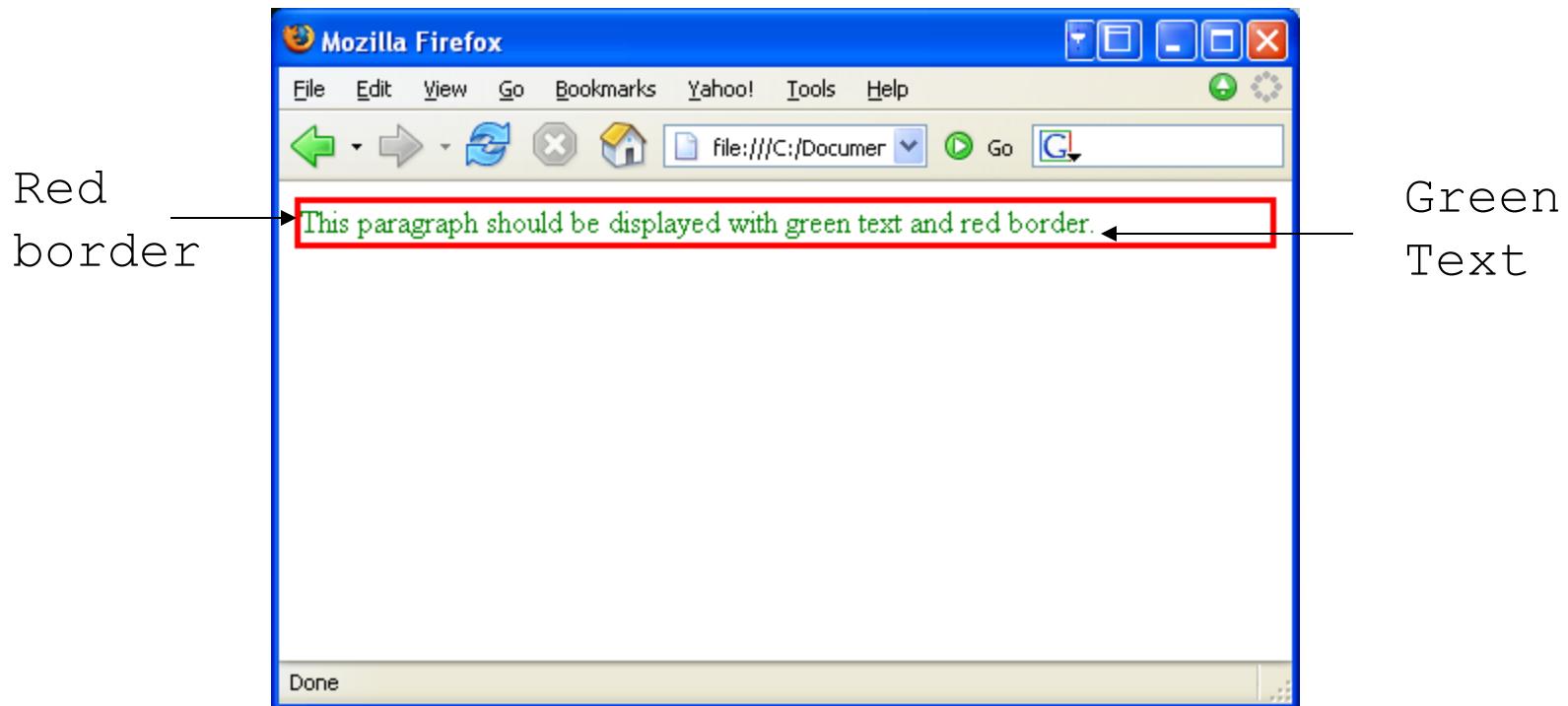
- Suppose a file, special.css contains 3 lines that sets the text color of a paragraph to green and surrounds it with a solid red border:

```
P.special {  
    color : green;  
    border: solid red;  
}
```

- Authors may link this style sheet to their source HTML document with the LINK element:

```
<HTML> <HEAD>  
    <LINK href="special.css" rel="stylesheet"  
          type="text/css">  
</HEAD> <BODY>  
    <P class="special">This paragraph should be  
        displayed with green text and red border.  
</BODY> </HTML>
```

Browser Output



Setting Color

- Expressed either as Red, Green, Blue (RGB) triple or using predefined color names
- Four equivalent forms of specifying color

```
EM { color: #f00 }      /* #rgb */  
EM { color: #ff0000 }    /* #rrggbb */  
EM { color: rgb(255,0,0) } /* integer [0,255] */  
EM { color: rgb(100%, 0%, 0%) } /* float range  
0.0% - 100.0% */
```

- Pre-defined color** names

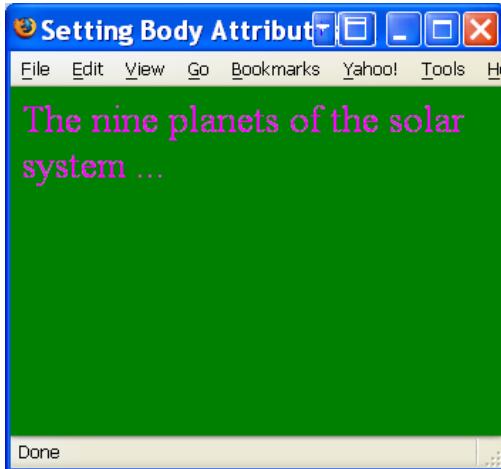
Black="#000000"	Green="#008000"
Silver="#C0C0C0"	Lime="#00FF00"
Gray="#808080"	Olive="#808000"
White="#FFFFFF"	Yellow="#FFFF00"
Maroon="#800000"	Navy="#000080"
Red="#FF0000"	Blue="#0000FF"
Purple="#800080"	Teal="#008080"
Fuschia="#FF00FF"	Aqua="#00FFFF"

Using the Inline Style Attribute

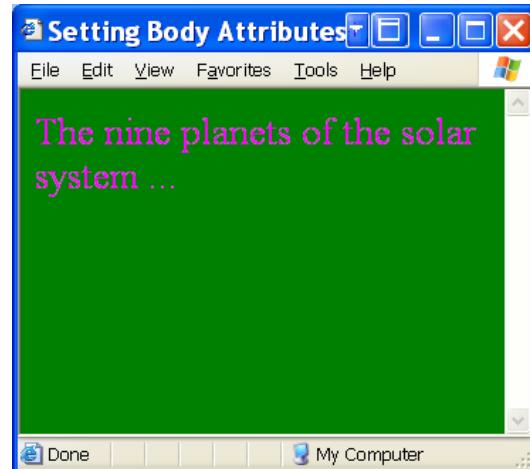
- Using inline style settings to set the font size, background and color of text

```
<HTML>
  <HEAD>
    <TITLE>Setting Body Attributes</TITLE>
  </HEAD>
  <BODY style="font-size: 20pt;
                background: green; color: fuchsia">
    The nine planets of the solar system ...
  </BODY>
</HTML>
```

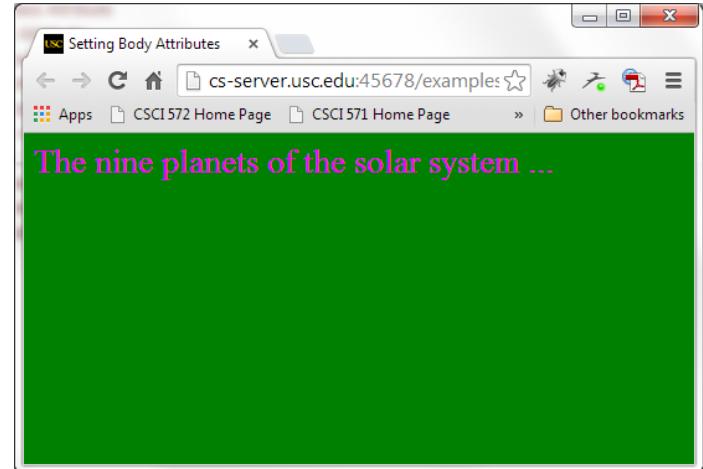
Browser Output



Firefox



Internet Explorer



Chrome

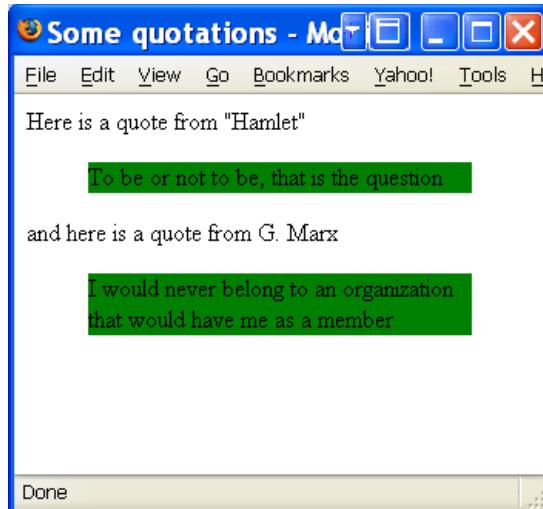
Using the <STYLE> Element

- <STYLE> element is placed in the <HEAD>
- Example using the <STYLE> element to assign a fuchsia background to all QUOTATIONS belonging to class named example

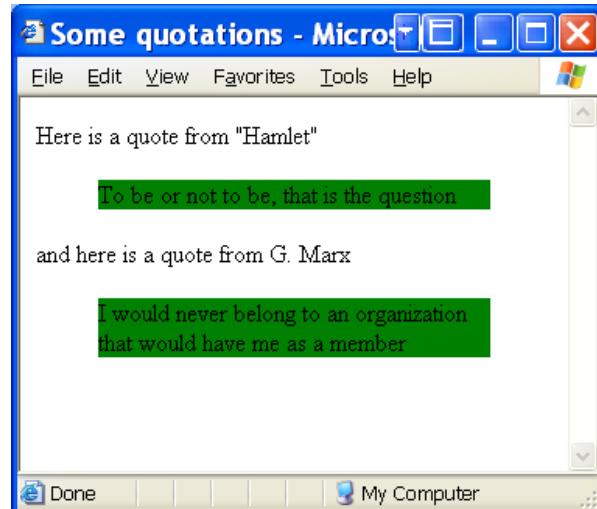
```
<HTML><HEAD><TITLE>Some quotations</TITLE>
<STYLE type="text/css">
BLOCKQUOTE.example { background : green }
</STYLE></HEAD>

<BODY>Here is a quote from "Hamlet"
<BLOCKQUOTE class="example" id="example-1"> To be or
not to be, that is the question</BLOCKQUOTE>
and here is a quote from G. Marx
<BLOCKQUOTE class="example" id="example-2"> I would
never belong to an organization that would have me as
a member</BLOCKQUOTE>
</BODY>
</HTML>
```

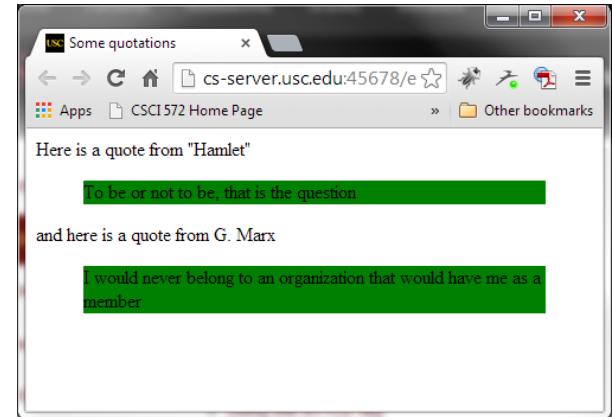
Browser Output



Firefox



Internet Explorer



Chrome

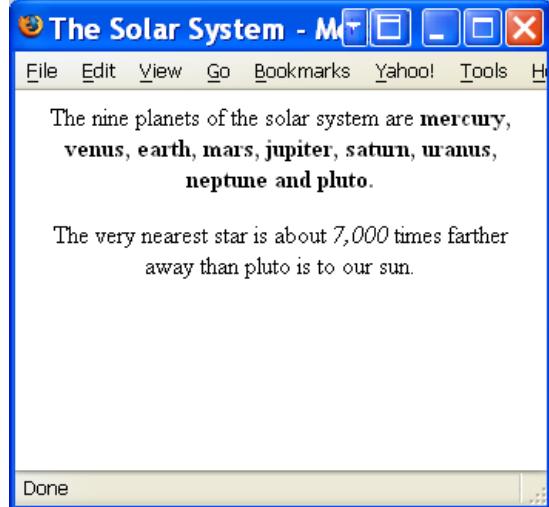
Example - Center Entire Document

```
<HTML>
<HEAD>
    <TITLE>The Solar System</TITLE>
    <STYLE type="text/css">
        BODY {text-align: center}
    </STYLE>
</HEAD>
<BODY>
    <P>The nine planets of the solar system are <B>mercury, venus, earth, mars, jupiter, saturn, uranus, neptune and pluto.</B></P>
    <P>The very nearest star is about <I>7,000</I> times farther away than pluto is to our sun.</P>
</BODY> </HTML>
```

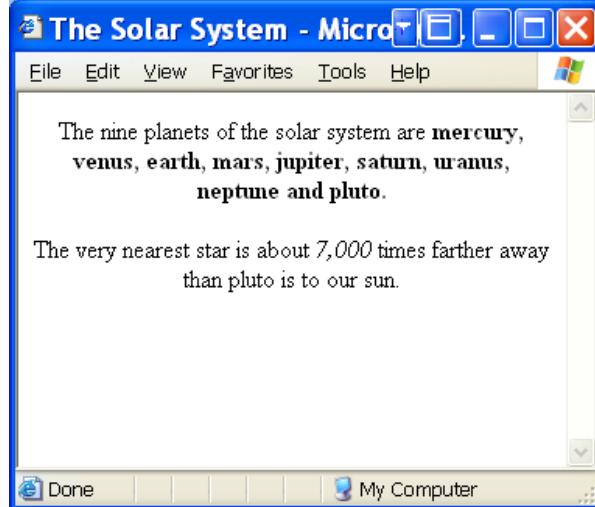
Note <CENTER> element is deprecated, removed in HTML5

```
<style>p {text-align:center;}</style>
```

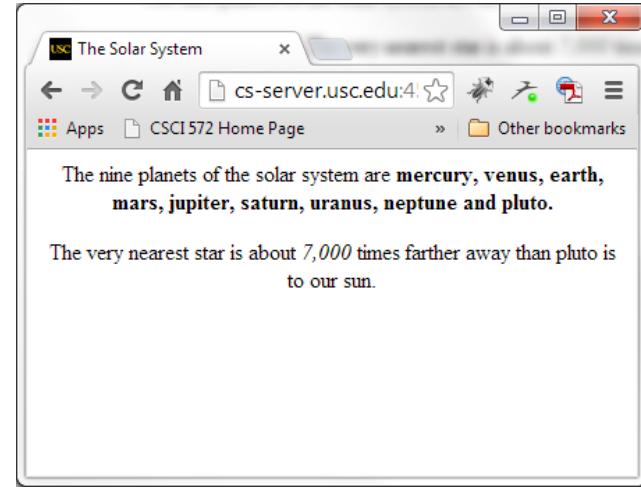
Browser Output



Firefox



Internet Explorer



Chrome

Two Different Forms of Selectors (. #)

- Recall: the **CLASS** attribute assigns a name to one or more elements
- CLASS can be used as a selector of style properties

Ex1: P.redtext {color: #FF0000}

would be applied when <P> contains the CLASS name

<P CLASS="redtext">some text</P>

Ex2: .redtext{color: #FF0000}

applies to all elements that use CLASS=redtext

- Context sensitive selectors

STRONG { color: #00FF00}

defines all occurrences of as green, but

P STRONG { color: #00FF00}

defines only within a <P> as green

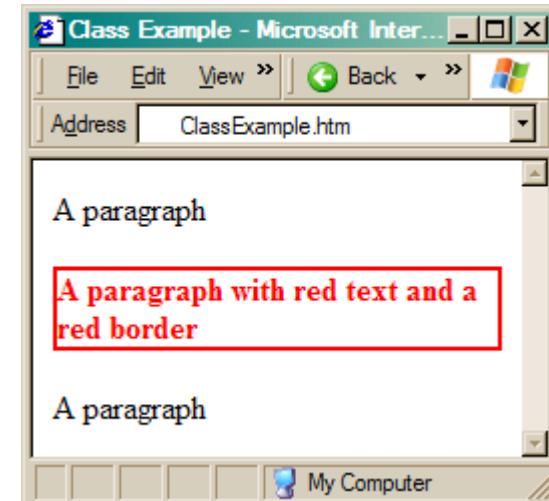
Class Attribute Another Example

- The **class attribute** is used for optional styles

```
<head>
  <style>
    .Warning { font-weight: bold; color: red;
               border:2px solid red; }

  </style>
</head>
<body>
  <p>A paragraph</p>
  <p class="Warning">A paragraph with
               red text and a red border</p>
  <p>A paragraph</p>
</body>
```

dot character

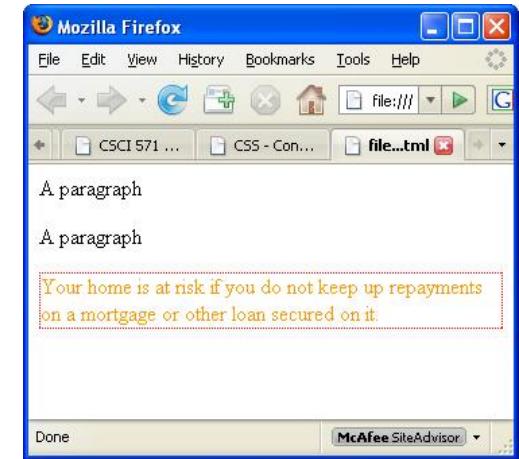
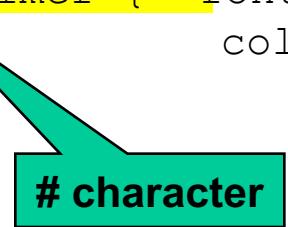


ID Attribute

- The **ID attribute** is also used for optional styles
 - but it can only be used **ONCE** in the entire document
- Normally used for major document sections
 - Header, Footer, TopNav, LeftNav,
 - Content, etc.

```
<head>
    <style>
        #Disclaimer { font-size:medium;
                      color: #ff9900;
                      border:1px dotted red; }

    </style>
</head>
<body>
    <p>A paragraph</p>
    <p>A paragraph</p>
    <p id="Disclaimer">Your home is at risk if you
       do not keep up repayments on a mortgage
       or other loan secured on it.</p>
</body>
```

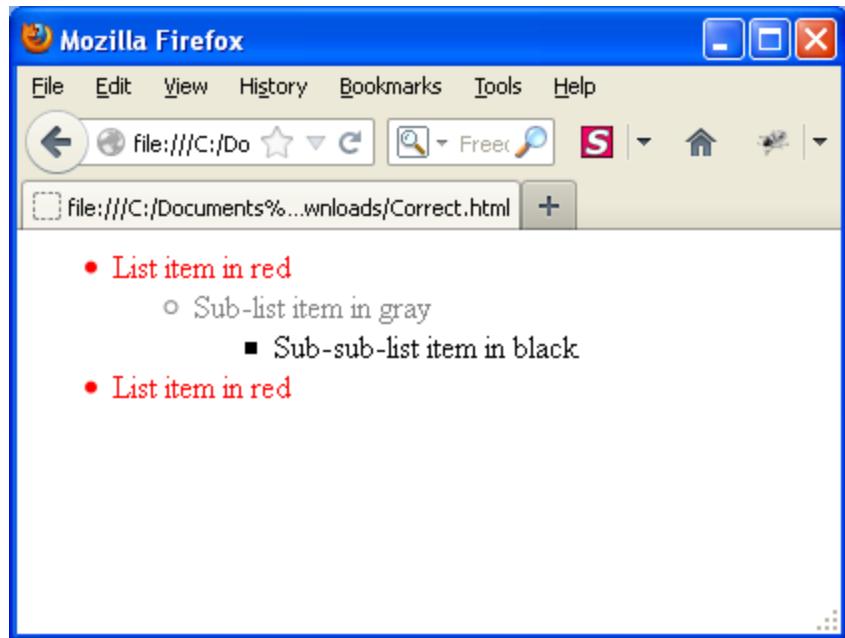


Specific Styles

- Styles aimed at specific tags

```
<head>
<style>
    ul { color: red; }
    ul ul { color: gray; }
    ul ul ul { color: black; }
</style> </head>

<body>
    <ul>
        <li>List item in red</li>
        <ul> <li>Sub-list item in gray</li>
            <ul> <li>Sub-sub-list item in black</li>
            </ul>
        </ul>
        <li>List item in red</li>
    </ul>
</body>
```

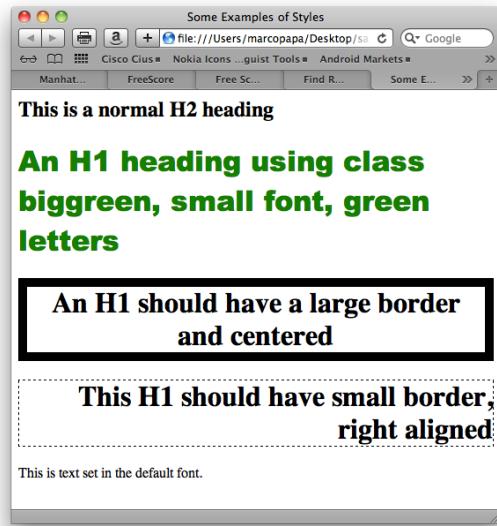


More <STYLE> Element Examples

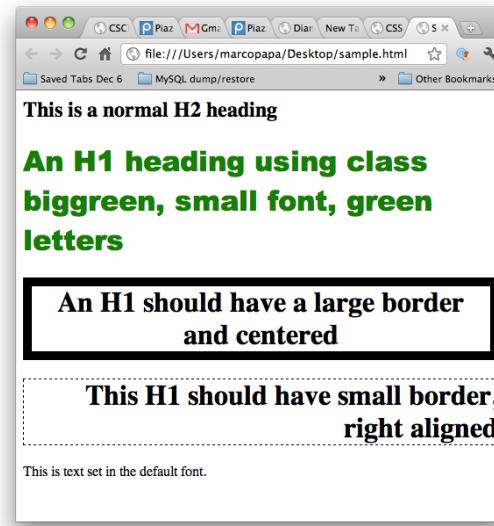
- Review
 - CLASS rule preceded by “.” and applied to multiple elements
 - ID rule preceded by “#” and applied to single elements
 - Values assigned to ID and CLASS are case sensitive

```
<HTML><HEAD><TITLE>Some Examples of Styles</TITLE>
<STYLE type=text/css>
.biggreen {font-family: "Arial Black"; font size:30; color:green}
H1.myh1 {border-width:10; border-style:solid; text-align:center}
#myid {border-width:1; border-style:dashed; text-
    align:right}</STYLE></HEAD><BODY>
<H2>This is a normal H2 heading</H2>
<H1 CLASS="biggreen">An H1 heading using class biggreen, small
    font, green letters</H1>
<H1 class=myh1>
    An H1 should have a large border and centered</H1>
<H1 id=myid> This H1 should have small border, right aligned
    </H1>This is text set in the default font.
</BODY></HTML>
```

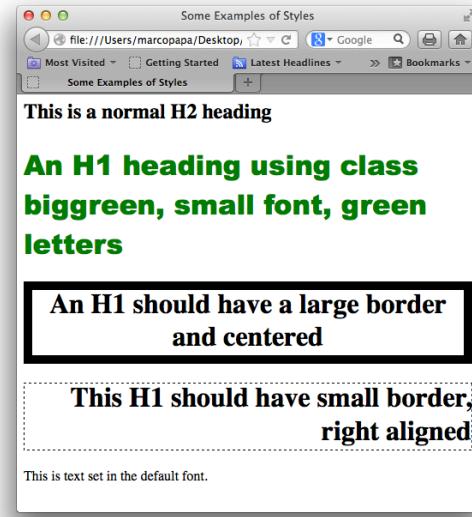
Browser Output



Safari



Chrome



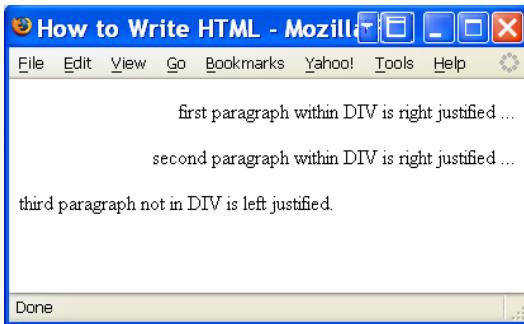
Firefox

Inheriting STYLE Properties

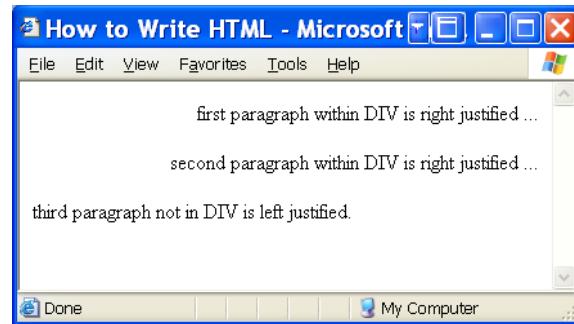
- <DIV> and tags have no initial presentation properties
 - **exception**, line break before and after a <DIV> tag
 - <**SPAN**> applies to **inline** elements (example:)
 - <**DIV**> applies to **block** elements (example: <p>)
- With CSS, properties such as text-align are “inherited” from the parent element

```
<HTML><HEAD><TITLE>How to Write HTML</TITLE>
<STYLE type="text/css">
DIV.mypars {text-align: right} </STYLE>   <BODY>
<DIV class="mypars">
<P>first paragraph within DIV is right justified ...
<P>second paragraph within DIV is right justified ...</DIV>
<P>third paragraph not in DIV is left justified.
</BODY></HTML>
```

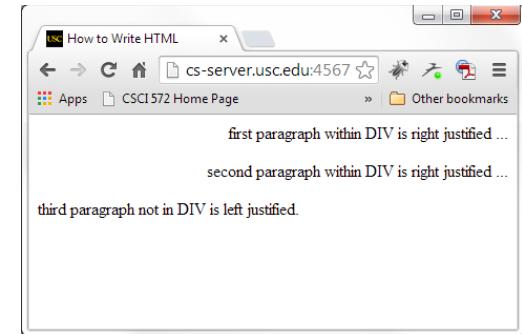
Browser Output



Firefox



Internet Explorer



Chrome

Precedence (specificity) of Style Settings

- The more precise a specification is, the higher the precedence, i.e. the more likely it is used
 - H1.mypars {text-align: center} [highest]
 - .biggreen {text-align: center} [next]
 - H1 { text-align: center} [lowest]
- a style for tag.class has higher precedence than one for .class, which has higher precedence than a style for the tag itself
- styles defined using a “style” attribute (inline) have highest precedence
- styles defined using <STYLE> element have next highest precedence
- styles defined in a separate file, e.g. special.css, have lowest precedence
- **Precedence** is guided by the **CSS cascading order**:

<https://www.w3.org/TR/CSS22/cascade.html#cascading-order>

Summary

- **Cascade**
 - At a very simple level this means that the **order of CSS rules matter**; when two rules apply that have equal specificity the one that comes **last** in the CSS is the one that will be used.
- **Specificity**
 - Specificity is how the browser decides which rule applies **if multiple rules have different selectors** but could still apply to the same element.
- **Inheritance**
 - Some CSS property values set on parent elements are **inherited by their child elements**, and some aren't.
- See Tutorial at:
https://developer.mozilla.org/en-US/docs/Learn/CSS/Building_blocks/Cascade_and_inheritance

Composite Styles

- Many styles can be combined in one selector:

```
font: normal small-caps bold small/2em Verdana,  
Arial, Helvetica, sans-serif;
```

- Or you could specify:

```
font-family: Verdana, Arial, Helvetica, sans-serif;  
font-size:small;  
font-style:normal;  
font-variant:small-caps;  
font-weight:bold;  
line-height:2em;
```

- Common uses include:

- Font
- Background
- Margin & Padding

The DOCTYPE Directive

- One of the most important tags on your page
- Instructs modern browsers to work in 'standards compliant mode'
 - Your web page will look the same in **all** browsers
 - Browsers turn off their proprietary extensions
 - Fonts are rendered in the same way
 - For example, **font-size: small**, is rendered the same size on all browsers
- **HOWEVER**, if you do not specify a !DOCTYPE, browsers work in 'Quirks' mode
 - Internet Explorer will display fonts larger than standards mode
 - e.g. fonts rendered in 12pt (medium) rather than 10pt
 - IE Uses the 'broken box model'
 - Measures the dimensions of a box using the inner size, not the outer size as in standard mode
- See <http://www.quirksmode.org/css/quirksmode.html> (scroll down to see specific differences)

DOCTYPE Examples

- **HTML4 Loose** compliance (minimum requirement) :

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01  
Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
```

- **HTML4 Strict** compliance:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"  
"http://www.w3.org/TR/html4/strict.dtd">
```

- **XHTML Transitional** compliance (less strict) :

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0  
Transitional//EN"  
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional-dtd">
```

- **HTML5**:

```
<!DOCTYPE html>
```

- Some browsers interpret the !DOCTYPE differently

- The first example (loose) turns on standard mode in most browsers, but renders in quirks mode on Safari (Mac OS X)
- Compound doctype declarations also exist for MathML and SVG
 - Math markup language, see <http://www.w3.org/Math/>
 - Scalable Vector Graphics, see <http://www.w3.org/Graphics/SVG/>

Style Sheet Media Types

- Enable authors to create documents for different media types
- **Example: all H1 displayed on a projector are in blue; when printed they are centered**

```
<HEAD>

<STYLE type=text/css media=projection>
    H1 {color:blue}
</STYLE>

<STYLE type=text/css media=print>
    H1{text-align:center}
</STYLE>
```

- **Example: add sound effects to anchors for speech output**

```
<STYLE type=text/css media=aural>
    A {cue-before:url(bell.aiff); cue-after:url(dong.wav)}
</STYLE></HEAD>
```

Style Sheet Media Types

- Used in CSS3 for **media queries**
- See Responsive Design later in the course
- **Example: Target specific physical characteristics of device.**

```
<link rel="stylesheet" type="text/css" media="screen  
and (max-device-width: 480px)" href="min.css" />
```

- **Example: two equivalent pair of media queries**

```
<style>  
...  
@media all and (min-width:500px) { ... }  
@media (min-width:500px) { ... }  
</style>
```

Recognized Media types

- **all** - Suitable for all devices (**CSS3**)
- **braille** - Intended for braille tactile feedback devices.
- **embossed** - Intended for paged braille printers.
- **handheld** - Intended for handheld devices (typically small screen, monochrome, limited bandwidth).
- **print** - Intended for paged, opaque material and for documents viewed on screen in print preview mode. (**CSS3**)
- **projection** - Intended for projected presentations (
- **screen** - Intended primarily for color computer screens. (**CSS3**)
- **speech** - intended for speech synthesizers (**CSS3**)
- **tty** - Intended for media using a fixed-pitch character grid, such as teletypes, terminals, or portable devices with limited display capabilities.
- **tv** - Intended for television-type devices (low resolution, color, limited-scrollability screens, sound available).
- **3d-glasses** - Intended for 3D Glasses like Oculus VR and Google Cardboard.

Pseudo Elements and classes

- pseudo elements and classes are ways of assigning style properties independent of the document tree
- pseudo-classes
 - **:link** - a normal, un-visited link
 - **:visited** - a link the user has visited
 - **:hover** - a link when the user mouses over it
 - **:active** - a link the moment it is clicked
- Example, given the style definition

```
<html><head>
<style>
a:link {color:#FF0000;}          /* unvisited link (red) */
a:visited {color:#00FF00;}        /* visited link (green) */
a:hover {color:#FF00FF;}         /* mouse over link (pink) */
a:active {color:#0000FF;}        /* selected link (blue) */
</style></head><body>
```

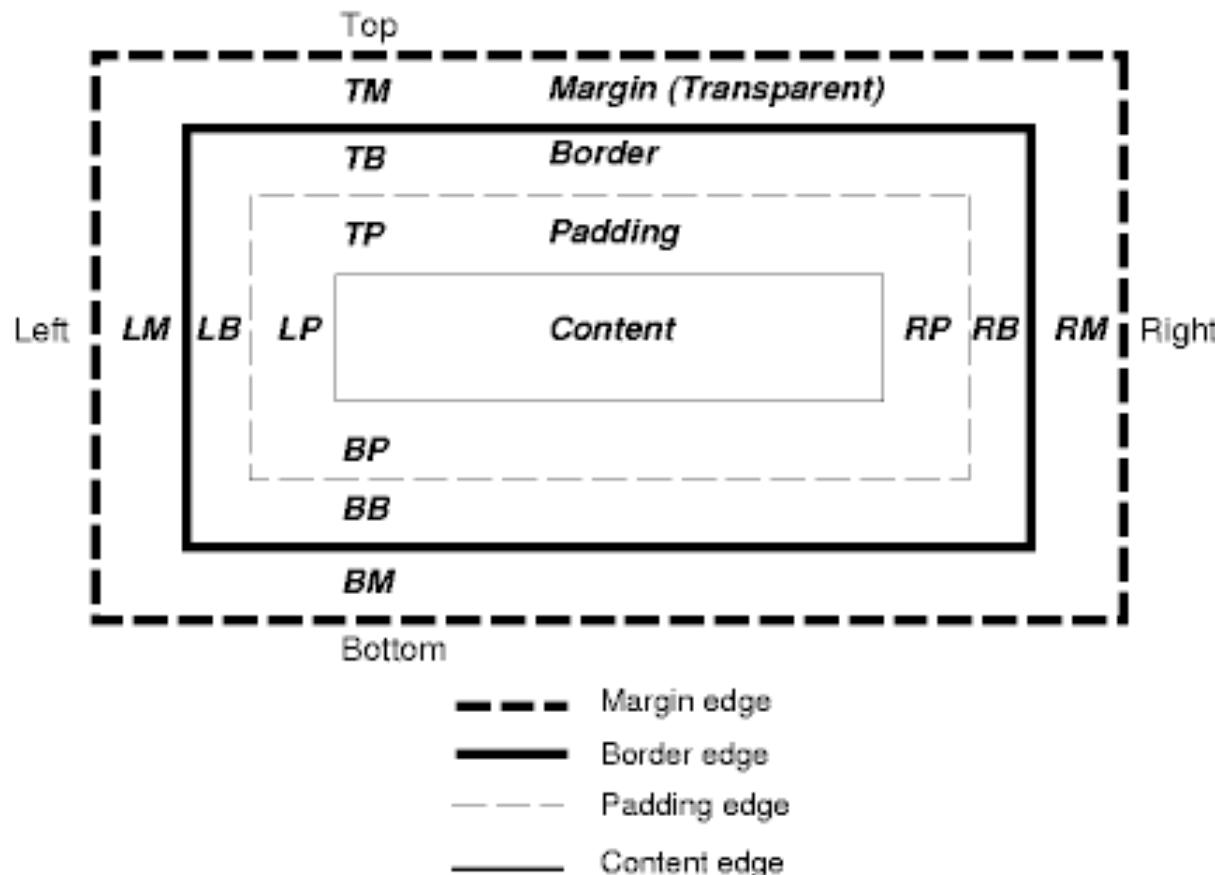
See <https://csci571.com/examples.html> and select CSS, "Setting Link Colors"

Pseudo Elements and classes (cont'd)

- Look up the meaning of these other pseudo elements and classes
<http://www.w3.org/TR/CSS2/selector.html#pseudo-elements>
- pseudo **classes**
 - **:first-child**, Selects every <p> elements that is the first child of its parent
 - **:hover**, Selects links on mouse over
 - **:active**, selects the active link
 - **:focus**, selects the input element which has the focus
 - **:lang**, selects every <p> element with a lang attribute
- pseudo **elements**
 - **:first-line**, add a special style to the first line of a text
 - **:first-letter**, add a special style to the first letter of a text
 - **:before**, to insert some content before the content of an element
 - **:after**, to insert some content after the content of an element

Box Model

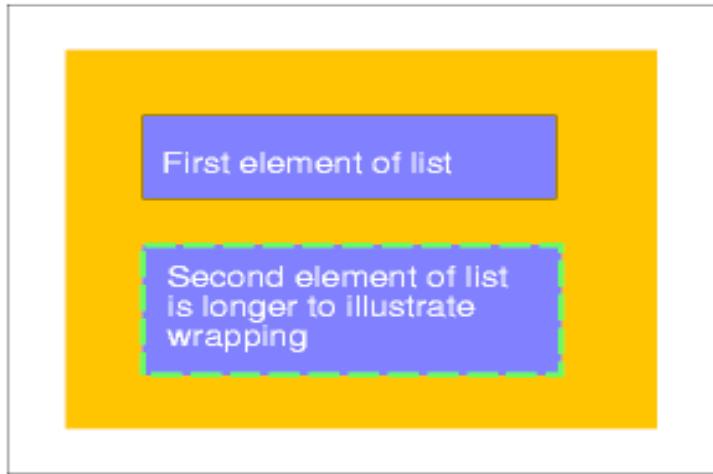
Each box has a **content** area (e.g., text, an image, etc.) and optional surrounding **padding**, **border**, and **margin** areas; the size of each area is specified by properties defined below. The following diagram shows how these areas relate and the terminology used to refer to pieces of margin, border, and padding



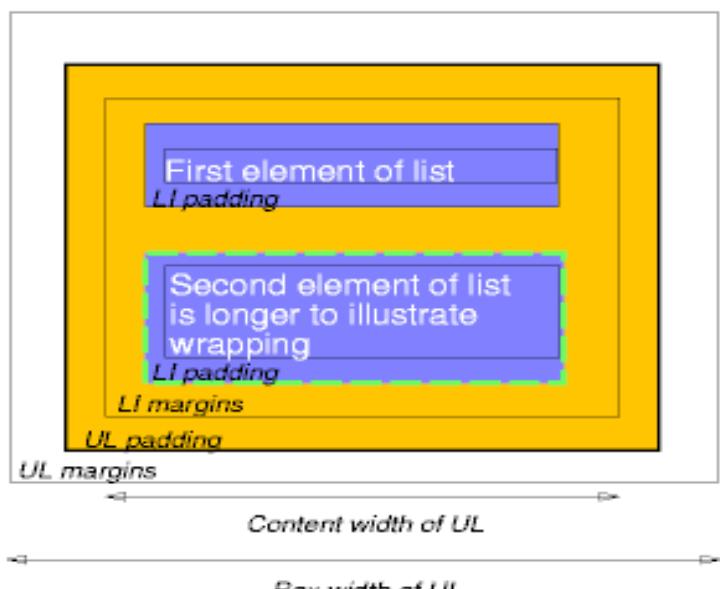
Example of Margins, Padding, Borders

```
<HTML><TITLE>Examples of margins, padding, and borders</TITLE>
<STYLE type="text/css">
UL { background: green;
margin: 12px 12px 12px 12px;
padding: 3px 3px 3px 3px; /* No borders set */ }
LI { color: black;      /* text color is black */
    background: gray; /* Content, padding will be gray */
    margin: 12px 12px 12px 12px;
    padding: 12px 0px 12px 12px; /* Note 0px padding right */
list-style: none /* no glyphs before a list item */
    /* No borders set */ }

LI.withborder { border-style: dashed;
border-width: medium; /* sets border width on all sides */
border-color: black; } </STYLE> </HEAD>
<BODY> <UL> <LI>First element of list
<LI class="withborder">Second element of list is longer to
    illustrate wrapping.
</UL>
</BODY>
</HTML>
```

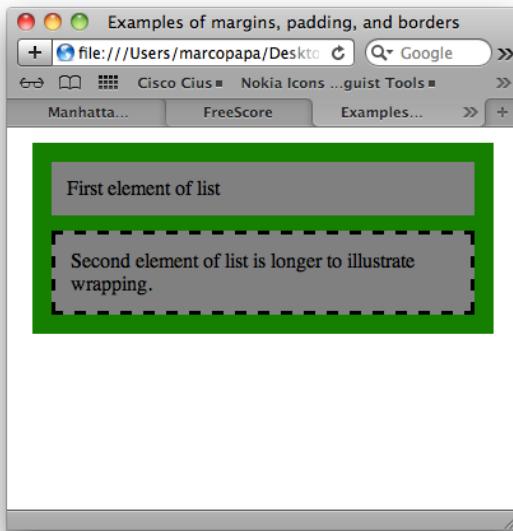


Content width of LI

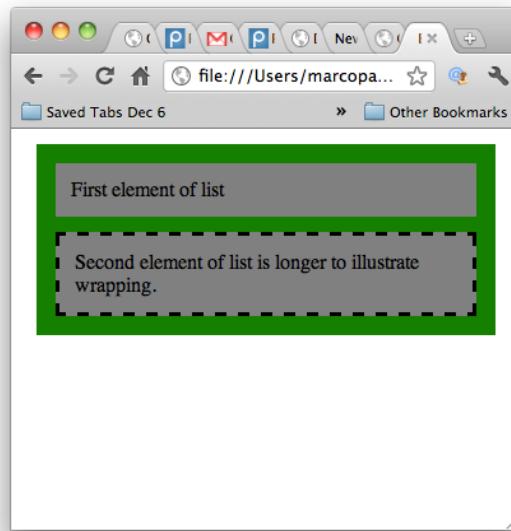


↑ Collapsed margin is
↓ $\max(12px, 12px) = 12px$

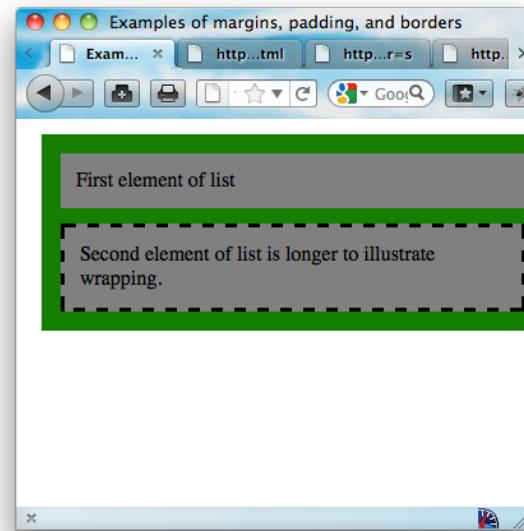
Browser Output



Safari



Chrome



Firefox

<https://csci571.com/examples/css/margins.html>

CSS Vendor Prefixes

- CSS vendor prefixes or CSS browser prefixes are a way for browser makers to add support for new CSS features during a testing and experimentation period.
- Browser prefixes are used to add new features that may not be part of a formal specification and to implement features in a specification that hasn't been finalized
- The CSS browser prefixes are:
 - Android: **-webkit-**
 - Chrome: -webkit-
 - Firefox: **-moz-**
 - Internet Explorer: **-ms-**
 - iOS: -webkit-
 - Opera: **-o-**
 - Safari: -webkit-
- E.g. before HTML 5, to set a rounded corner on a box one would have to write

```
-moz-border-radius: 10px 5px  
-webkit-border-top-left-radius: 10px;  
-webkit-border-top-right-radius: 5px;  
-webkit-border-bottom-right-radius: 10px;  
-webkit-border-bottom-left-radius: 5px;  
border-radius: 10px 5px;
```

Style Sheets Are Pervasive

- **espn.com:**
 - page.css:
 - <https://a.espncdn.com/redesign/0.459.21/css/page.css>
- **cbsnews.com:**
 - main.css:
<http://www.cbsnews.com/common/css/main.css>
- **microsoft.com:**
 - CSS dynamically generated (.aspx). Many CSS files:
<https://assets.onestore.ms/cdnfiles/external/mwf/long/v1/v1.23.2/css/uhf-west-european-default.min.css>
- Style sheets are often used for "branding" & for changing the look-and-feel
- **Hint: Use Firefox Web Developer Inspector or Chrome developer tools**

Reset CSS

- A **CSS Reset** is a short, often compressed (minified) set of CSS rules that *resets* the styling of all HTML elements to a consistent baseline.
- Every browser has its own default ‘user agent’ stylesheet, that it uses to make unstyled websites appear more legible.
 - For example, most browsers by default make links blue and visited links purple, give tables a certain amount of border and padding, apply variable font-sizes to H1, H2, H3 etc. and a certain amount of padding to almost everything.
- The goal of a reset stylesheet is to reduce browser inconsistencies in things like default line heights, margins and font sizes of headings, and so on.
- Reset styles quite often appear in CSS frameworks
- See <http://www.cssreset.com/> for several actual code examples

One Sample of css reset

```
/* http://meyerweb.com/eric/tools/css/reset/
   v2.0 | 20110126 License: none (public domain) */

html, body, div, span, applet, object, iframe, h1, h2, h3, h4, h5, h6,
p, blockquote, pre, a, abbr, acronym, address, big, cite, code, del, dfn,
em, img, ins, kbd, q, s, samp, small, strike, strong, sub, sup, tt,
var, b, u, i, center, dl, dt, dd, ol, ul, li, fieldset, form, label,
legend, table, caption, tbody, tfoot, thead, tr, th, td,
article, aside, canvas, details, embed, figure, figcaption, footer,
header, hgroup, menu, nav, output, ruby, section, summary, time, mark,
audio, video {

    margin: 0; padding: 0; border: 0; font-size: 100%; font:
    inherit; vertical-align: baseline; }

/* HTML5 display-role reset for older browsers */
article, aside, details, figcaption, figure,
footer, header, hgroup, menu, nav, section {display: block; }
body {line-height: 1; }

ol, ul {list-style: none; }

blockquote, q {quotes: none; }

blockquote:before, blockquote:after,
q:before, q:after {content: ''; content: none; }

table {border-collapse: collapse; border-spacing: 0; }
```

Style Sheet Examples

Style Sheet File

- Assume the style rules are stored in the file **mystyle.css**
- These rules re-define the <H1-H5> tags, set background to gray, alter the <P>, , tags, and name some color, font and text styles

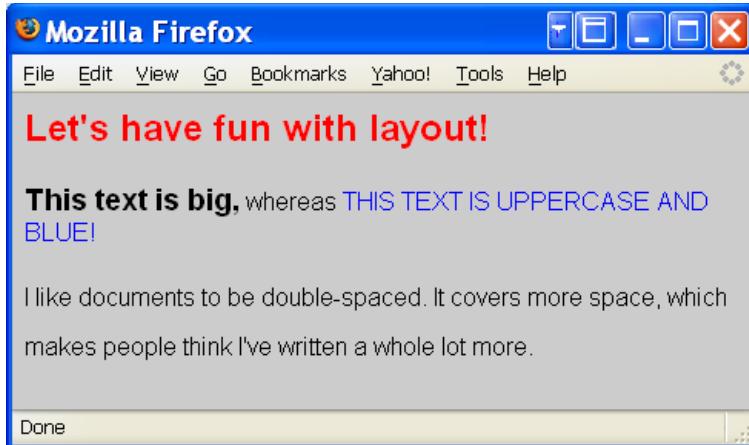
```
h1, h2, h3, h4, h5 { color: red }
body { background-color: #cccccc; font-family:
    Arial, Helvetica, sans-serif }
p { line-height: 200% }
ul li { font-size: 70% }
.red { color: red }
.green { color: green }
.blue { color: blue }
#big { font-size: 120% }
#upper { text-transform: uppercase }
```

Example - Using the Style Sheet

- This example links to an external style sheet and refers to named selectors to produce different colored text and line spacing

```
<HTML>
<HEAD><LINK rel="stylesheet" href="mystyle.css"
    type="text/css">
</HEAD>
<BODY>
<H2>Let's have fun with layout!</H2>
<STRONG id="big">This text is big,</STRONG>
    whereas <SPAN id="upper" class="blue">this text
        is uppercase and blue!</SPAN>
<P>
I like documents to be double-spaced. It covers
    more space, which makes people think I've
        written a whole lot more.
</P>
</BODY> </HTML>
```

Browser Output



Firefox



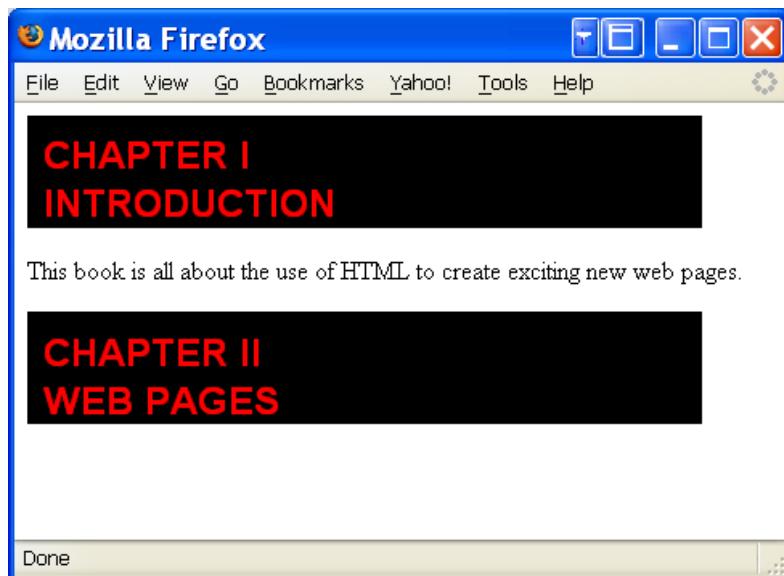
Internet Explorer

Example - Headlines with Graphic Backgrounds

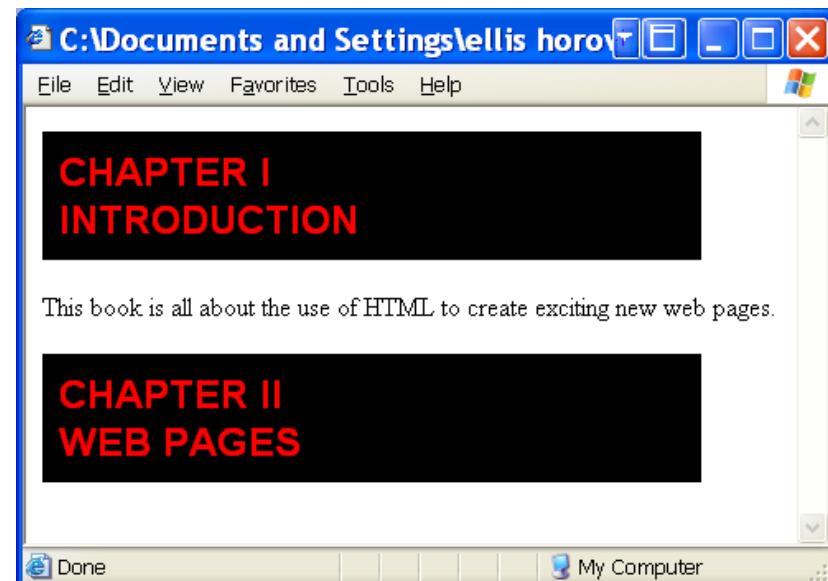
- Using CSS background property, one can create different titles using the same background

```
<HTML>
<HEAD><STYLE TYPE="text/css">
H1 {background: black url(black5.gif) no-repeat;
    font: bold 18pt helvetica, sans-serif; color:white;
    height:50px; width:400px; padding:10px; }
</STYLE></HEAD>
<BODY>
<H1><Font color="#FF0000>
    CHAPTER I<BR>
    INTRODUCTION</FONT></H1>
<P>This book is all about the use of HTML to create
exciting new web pages.
<H1><Font color="#FF0000>
    CHAPTER II<BR>
    WEB PAGES</FONT></H1> </BODY></HTML>
```

Browser Output



Firefox



Internet Explorer

Example - Creating Drop Caps

- A traditional form of book style

```
<HTML><HEAD>

<STYLE TYPE=text/css>
P {font: normal 10pt helvetica, arial, sans-serif; }
.dropcap {font:bold 300% times, serif; color:red;
  float:left; }

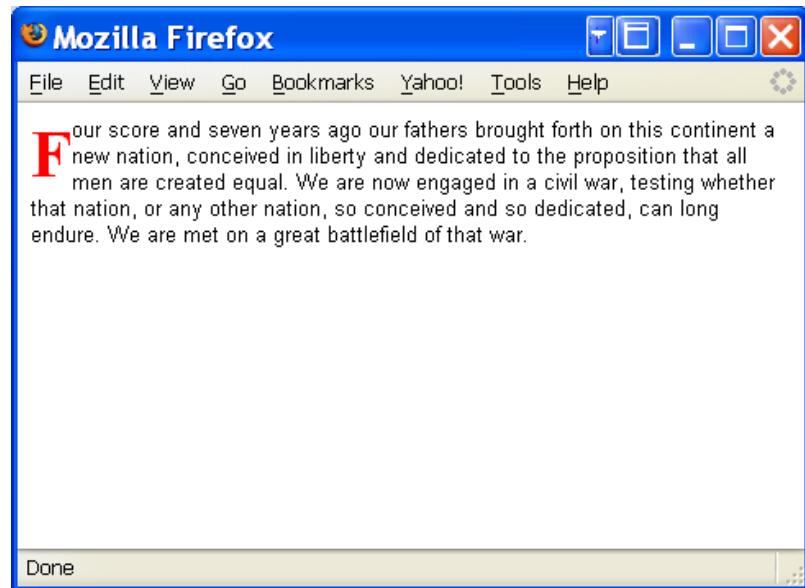
</STYLE></HEAD>

<BODY>

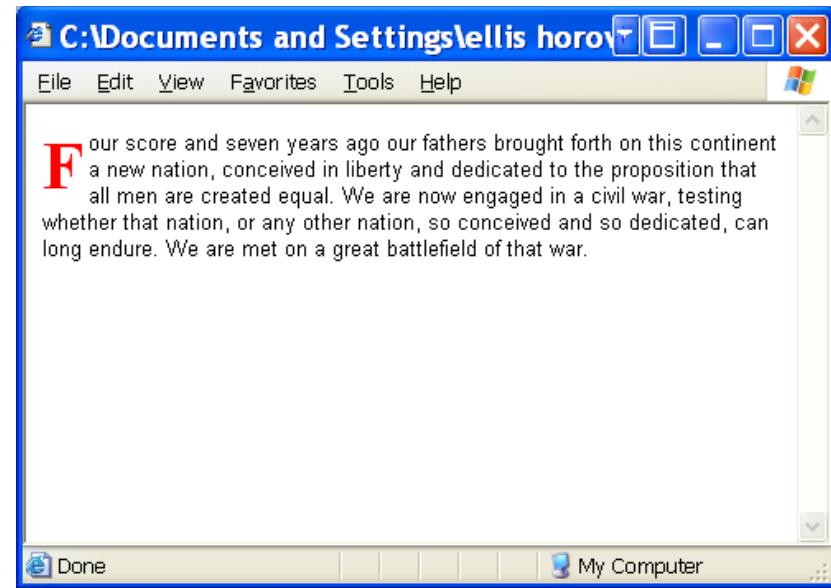
<P><SPAN CLASS=dropcap>F</SPAN>our score and seven
  years ago our fathers brought forth on this
  continent a new nation, conceived in liberty and
  dedicated to the proposition that all men are
  created equal. We are now engaged in a civil war,
  testing whether that nation, or any other nation,
  so conceived and so dedicated, can long endure. We
  are met on a great battlefield of that war.

</BODY></HTML>
```

Browser Output



Firefox



Internet Explorer

Creating Multiple Columns

```
<HTML><HEAD><STYLE TYPE=text/css>
#column1 {position : absolute; top:.5in; left: .1in;
           width:1.5in; font:12pt/14pt time,serif;}
#column2 {position : absolute; top:.5in; left: 1.8in;
           width:1.5in; font:12pt/14pt time,serif;}
#column3 {position : absolute; top:.5in; left: 3.5in;
           width:1.5in; font: bold 9pt/24pt helvetica, sans-serif;
           color:red;}
.relElement {position: relative; margin: 10px; }
</STYLE></HEAD><BODY> <H3>Today's News Today</H3>
<DIV CLASS=relElement>
<SPAN ID=column1><b>National and International News</B>
Yesterday's earthquake occurred on the . . . .
<SPAN ID=column2><B>Top Sports Stories</B><BR>
<UL><LI>Dodgers win again over Pittsburgh
<LI>Yankees lose to Detroit . . .
<UL></SPAN>
<SPAN ID=column3>The Dow Jones Industrial Average reached
another all-time high today, . . .
<SPAN>
</DIV></BODY></HTML>
```

Browser Output



Firefox



Internet Explorer

CSS3 Additional Features

- The W3C has announced the creation of four new modules for CSS Level 3.
- The modules add entirely new functionality and do not extend any previous CSS Level 1 or Level 2 functionality.
- They are based on proposals from Apple's WebKit team, and the current drafts are available from the following URLs:

≈

<http://www.w3.org/TR/css3-transitions/> (WD 2019)

<http://www.w3.org/TR/css3-2d-transforms/> (CR 2019)

<http://www.w3.org/TR/css3-3d-transforms/> (FPWD 2010)

<http://www.w3.org/TR/css3-mediaqueries/> (**REC**)

<http://www.w3.org/TR/css3-namespace/> (**REC**)

<http://www.w3.org/TR/css3-selectors/> (**REC**)

<http://www.w3.org/TR/css3-color/> (**REC**)

CSS 3 New Features

- The new CSS3 features can be organized according to the following categories
 - Borders
 - Backgrounds
 - Text Effects
 - Fonts
 - 2D Transforms
 - 3D Transforms
 - Transitions
 - Animations
 - Multiple Columns
 - User Interface

CSS3 Features supported by All modern Browsers

- Define “modern browsers”: **IE9+, Edge, Opera 10+, Firefox 3.5+, Chrome, Safari 3+**
- box-sizing
- border-radius
- box-shadow
- RGBA Colors
- HSLA Colors
- Multiple Backgrounds
- background-clip
- background-origin
- background-size
- Transforms
- Media Queries

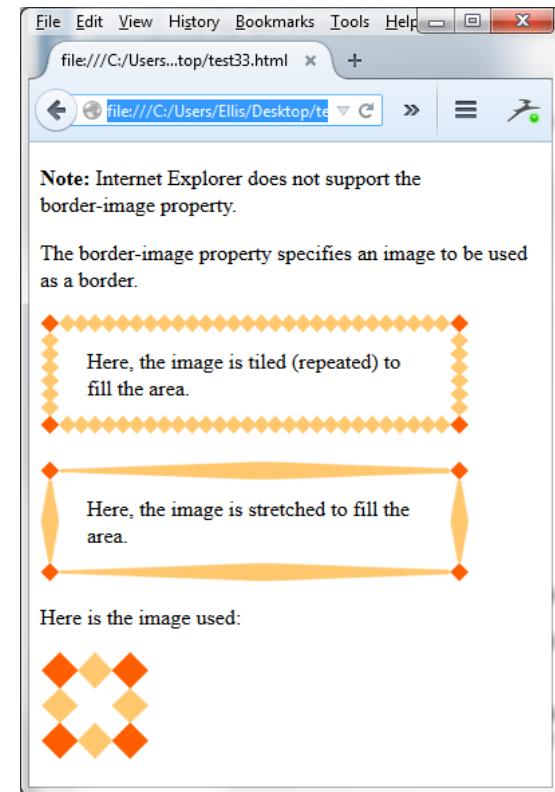
Border Images

```
<style>
div {
    border: 15px solid transparent;
    width: 250px;
    padding: 10px 20px; }

#round {
    -webkit-border-image: url(border.png) 30 30 round; /* Safari */
    -o-border-image: url(border.png) 30 30 round; /* Opera */
    border-image: url(border.png) 30 30 round; }

#stretch {
    -webkit-border-image: url(border.png) 30 30 stretch; /* Safari */
    -o-border-image: url(border.png) 30 30 stretch; /* Opera */
    border-image: url(border.png) 30 30 stretch; }

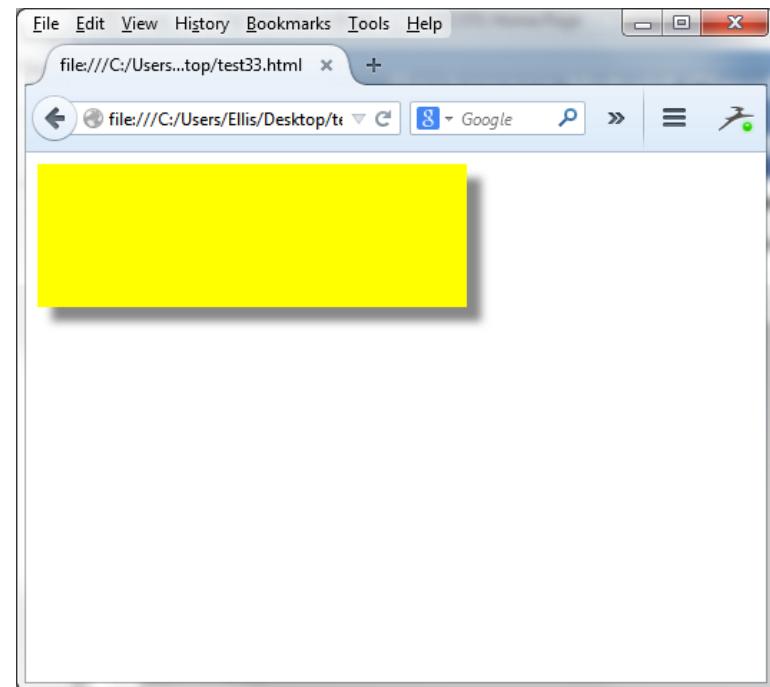
</style></head><body>
<p><b>Note:</b> Internet Explorer does not support the border-image property.</p>
<p>The border-image property specifies an image to be used as a border.</p>
<div id="round">Here, the image is tiled (repeated) to fill 'the area.</div><br>
<div id="stretch">Here, the image is stretched to fill the area.</div>
<p>Here is the image used:</p>
</body></html>
```



Prefix no longer needed: https://www.w3schools.com/cssref/css3_pr_border-image.asp

Box Shadow

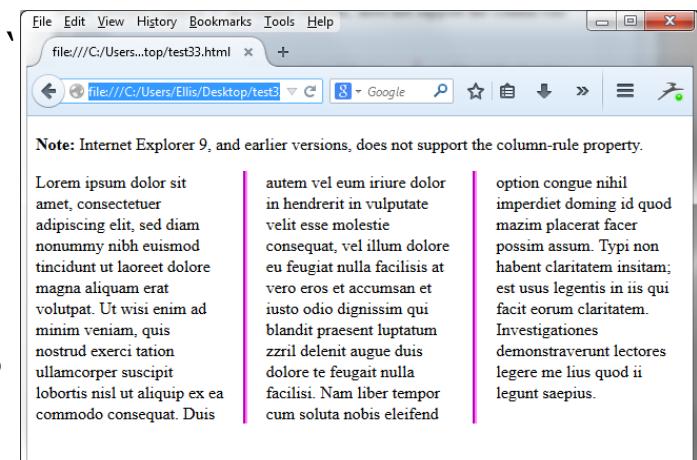
```
<style>
div {
    width: 300px;
    height: 100px;
    background-color: yellow;
    box-shadow: 10px 10px 5px #888888;
}
</style></head>
<body>
<div></div>
</body>
```



Multi-Column Layout

```
<!DOCTYPE html><html><head><style>
.newspaper {
-webkit-column-count: 3; /* Chrome, Safari, Opera */
-moz-column-count: 3; /* Firefox */
column-count: 3;
-webkit-column-gap: 40px; /* Chrome, Safari, Opera */
-moz-column-gap: 40px; /* Firefox */
column-gap: 40px;
-webkit-column-rule: 4px outset #ff00ff; /* Chrome, Safari, Opera */
-moz-column-rule: 4px outset #ff00ff; /* Firefox */
column-rule: 4px outset #ff00ff; }
</style></head><body>
<p><b>Note:</b> Internet Explorer 9, and earlier versions, does not support the column-rule property.</p>
<div class="newspaper">
Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis autem velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis. . . .
</div></body></html>
```

[Prefix no longer needed](https://www.w3schools.com/cssref/css3_pr_column-count.asp): https://www.w3schools.com/cssref/css3_pr_column-count.asp

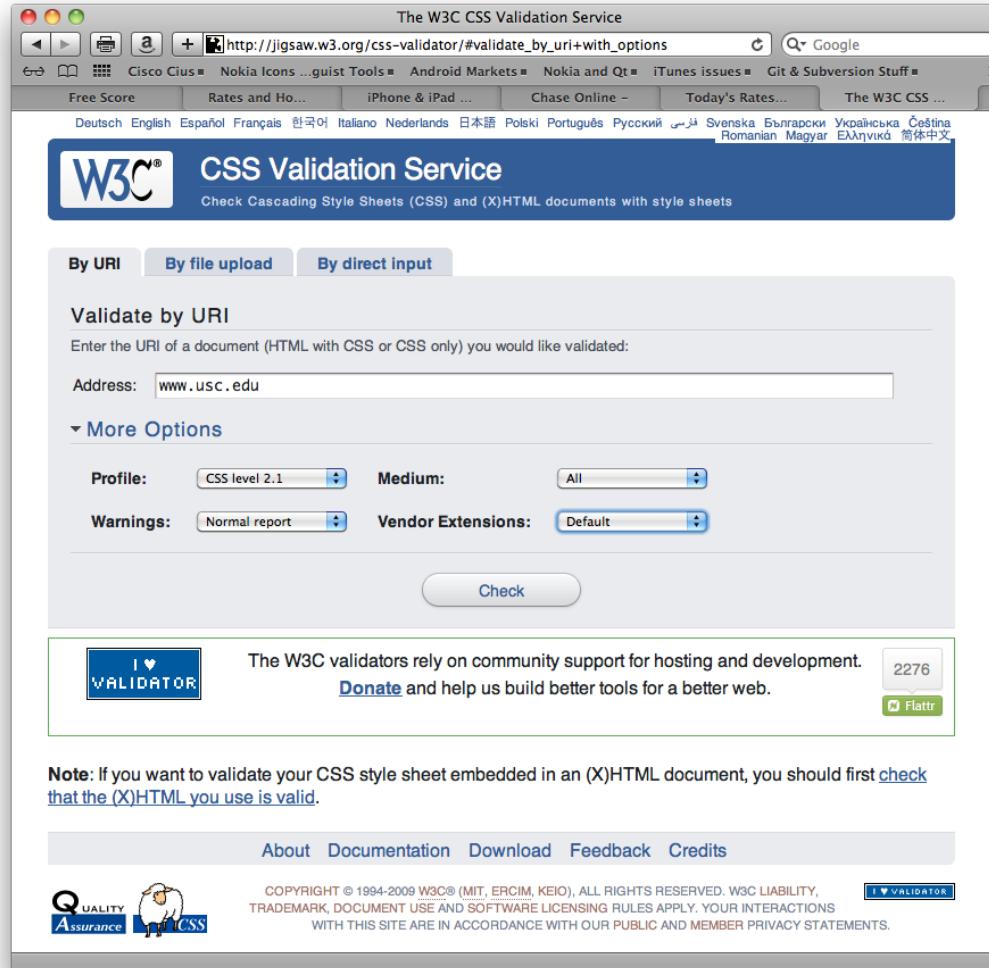


Discussion Section

Validations and Sample CSS

W3C CSS Validation Service

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



The screenshot shows the W3C CSS Validation Service interface running in a web browser. The title bar reads "The W3C CSS Validation Service". The address bar shows the URL "http://jigsaw.w3.org/css-validator/#validate_by_uri+with_options". The page content includes:

- A "CSS Validation Service" logo and a subtitle "Check Cascading Style Sheets (CSS) and (X)HTML documents with style sheets".
- Three validation methods: "By URI", "By file upload", and "By direct input".
- A "Validate by URI" section with a text input field for "Address" containing "www.usc.edu".
- A "More Options" section with dropdown menus for "Profile" (set to "CSS level 2.1"), "Medium" (set to "All"), "Warnings" (set to "Normal report"), and "Vendor Extensions" (set to "Default").
- A "Check" button.
- A green footer bar with a "I ❤ VALIDATOR" button, a message about community support, a "Donate" link, and a "2276" counter. It also features a "Flattr" button.
- A note: "Note: If you want to validate your CSS style sheet embedded in an (X)HTML document, you should first [check](#) that the (X)HTML you use is valid."
- A navigation bar with links to "About", "Documentation", "Download", "Feedback", and "Credits".
- A footer with logos for "QUALITY Assurance" and "css", and a copyright notice: "COPYRIGHT © 1994-2009 W3C® (MIT, ERCIM, KEIO), ALL RIGHTS RESERVED. W3C LIABILITY, TRADEMARK, DOCUMENT USE AND SOFTWARE LICENSING RULES APPLY. YOUR INTERACTIONS WITH THIS SITE ARE IN ACCORDANCE WITH OUR PUBLIC AND MEMBER PRIVACY STATEMENTS."

Discussion on Style

- For more examples of working with style sheets see
<http://www.w3.org/Style/Examples/007/>
<http://www.csszengarden.com/>



A screenshot of the CSS Zen Garden homepage. The background is a solid green color. In the center, there's a white box containing the text "CSS ZEN GARDEN" and "The Beauty of CSS Design". Below this is a "SELECT A DESIGN" button and a "VIEW ALL DESIGNS" link. The sidebar and main content area are similar to the first version.

A screenshot of the CSS Zen Garden homepage. The background is blue. The central content area features a large, stylized blue illustration of a figure with arms raised. The sidebar and main content area are consistent with previous versions.

Here are eight versions of the same HTML page created using 8 different css files

CSS3 Animation Demos

- Apple Webkit CSS3 features and technology preview
<https://developer.apple.com/safari/features/>
<https://webkit.org/blog/6017/introducing-safari-technology-preview/>
- For examples of CSS3 Animation Demos see:
<http://webdesignerwall.com/trends/47-amazing-css3-animation-demos>
<https://www.inttechnic.com/blog/30-creative-website-examples-of-css-animation/>
- More examples of CSS3 animations see
<http://www.creativebloq.com/css3/animation-with-css3-712437>
<https://www.creativebloq.com/web-design/examples-css-912710>

CSS Implementations

The screenshot shows the CanIuse.com website interface. At the top, there's a navigation bar with links for 'About', 'News' (showing 'July 27, 2014 - Added indicator for disabled by ...'), 'Compare browsers', and 'Index'. Below this is a search bar labeled 'Can I use _____ ?' with a 'Settings' link. The main content area is divided into several sections:

- CSS**: Includes @font-face Web fonts, Blending of HTML/SVG elements, calc() as CSS unit value, 2.1 selectors, background-blend-mode, Counters, Feature Queries, Filter Effects, Generated content for pseudo-elements, Gradients, Grid Layout, Hyphenation, inline-block, Masks, min/max-width/height, outline, position:fixed, Regions, Repeating Gradients, resize property, Shapes Level 1, Table display, and text-size-adjust.
- HTML5**: Includes Audio element, Canvas (basic support), Canvas blend modes, Color input type, contenteditable attribute (basic support), Custom Elements, Datalist element, dataset & data-* attributes, Date/time input types, Details & Summary elements, Download attribute, Drag and Drop, Form validation, HTML Imports, HTML5 form features, input placeholder attribute, Multiple file selection, New semantic elements, Number input type, Offline web applications, Picture element, Progress & Meter, Range input type, and Video element.
- SVG**: Includes Inline SVG in HTML5, SVG (basic support), SVG effects for HTML, SVG filters, SVG fonts, SVG fragment identifiers, SVG in CSS backgrounds, SVG in HTML img element, SVG SMIL animation, and All SVG features.
- Other**: Includes async attribute for external scripts, classList (DOMTokenList), Content Security Policy, Data URIs, defer attribute for external scripts, DOMContentLoaded, ECMAScript 5 Strict Mode, and getComputedStyle.

caniuse.com home page



CSS 2.1 selectors example