6

Cascading Style Sheets™ (CSS)

Objectives

- To take control of the appearance of a Web site by creating style sheets.
- To use a style sheet to give all the pages of a Web site the same look and feel.
- To use the **`class`** attribute to apply styles.
- To specify the precise font, size, color and other properties of displayed text.
- To specify element backgrounds and colors.
- To understand the box model and how to control the margins, borders and padding.
- To use style sheets to separate presentation from content.

Fashions fade, style is eternal.
Yves Saint Laurent

A style does not go out of style as long as it adapts itself to its period. When there is an incompatibility between the style and a certain state of mind, it is never the style that triumphs.
Coco Chanel

How liberating to work in the margins, outside a central perception.
Don DeLillo

I've gradually risen from lower-class background to lower-class foreground.
Marvin Cohen

Outline

6.1 Introduction

This chapter focuses on formatting and presenting information using a W3C technology called *Cascading Style Sheets* (*CSS*) that allows document authors to specify the presentation of elements on a Web page (spacing, margins, etc.) separately from the structure of the document (section headers, body text, links, etc.). This *separation of structure from presentation* simplifies maintaining and modifying a document's layout.

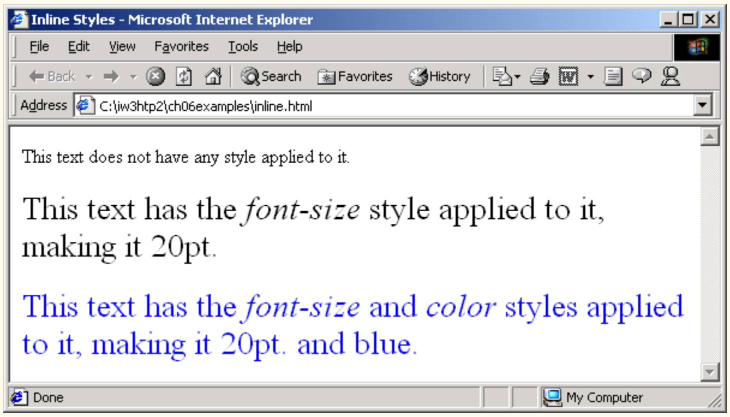
6.2 Inline Styles

A Web developer can declare document styles in many ways. In this section, we present *inline styles* that declare an individual element's format using *attribute* **`style`**. Figure 6.1 applies inline styles to **p** elements to alter their font size and color.

```
<?xml version = "1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

<!-- Fig. 6.1: inline.html -->
<!-- Using inline styles   -->

<html xmlns = "http://www.w3.org/1999/xhtml">
   <head>
      <title>Inline Styles</title>
   </head>

```

Fig. 6.1 Inline styles (part 1 of 2).

```
13     <body>
14
15        <p>This text does not have any style applied to it.</p>
16
17        <!-- The style attribute allows you to declare -->
18        <!-- inline styles. Separate multiple styles   -->
19        <!-- with a semicolon.                         -->
20        <p style = "font-size: 20pt">This text has the
21        <em>font-size</em> style applied to it, making it 20pt.
22        </p>
23
24        <p style = "font-size: 20pt; color: #0000ff">
25        This text has the <em>font-size</em> and
26        <em>color</em> styles applied to it, making it
27        20pt. and blue.</p>
28
29     </body>
30  </html>
```


Inline Styles - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address C:\iw3htp2\ch06examples\inline.html
Done
My Computer

This text does not have any style applied to it.

This text has the *font-size* style applied to it, making it 20pt.

This text has the *font-size* and *color* styles applied to it, making it 20pt. and blue.

Fig. 6.1 Inline styles (part 2 of 2).

The first inline style declaration appears in line 20. Attribute **`style`** specifies the style for an element. Each *CSS property* (the ***`font-size`*** property in this case) is followed by a colon and a value. On line 20, we declare the **`p`** element to have 20-point text size. Line 21 uses element ***`em`*** to "emphasize" text, which most browsers do by making the font italic.

Line 24 specifies the two properties, **`font-size`** and ***`color`***, separated by a semicolon. In this line, we set the text's **`color`** to blue, using the hexadecimal code **`#0000ff`**. Color names may be used in place of hexadecimal codes, as we demonstrate in the next example. [*Note*: Inline styles override any other styles applied using the techniques we discuss later in this chapter.]

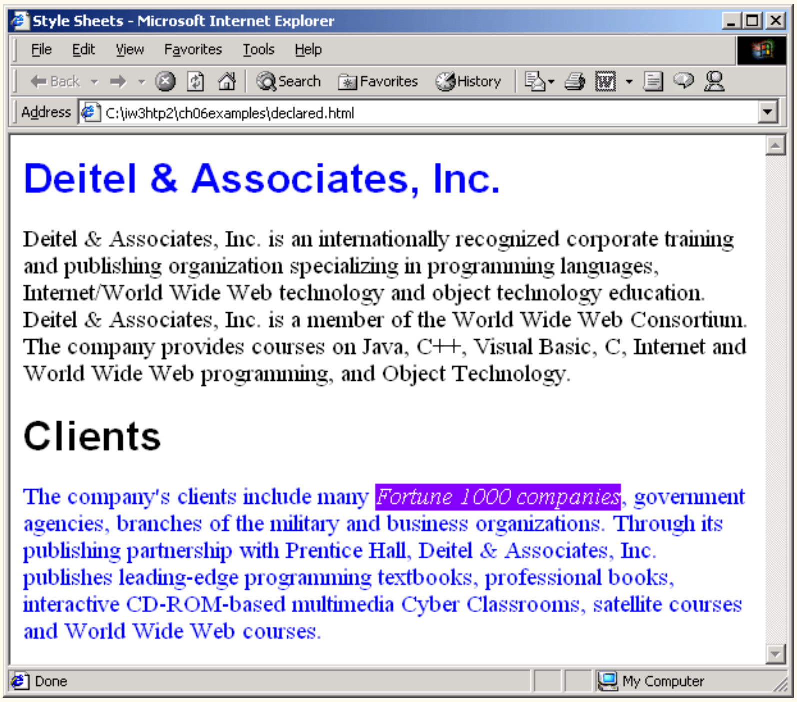
6.3 Embedded Style Sheets

In this section, we present a second technique for using style sheets called *embedded style sheets*. Embedded style sheets enable a Web-page author to embed an entire CSS document in an XHTML document's **head** section. Figure 6.2 creates an embedded style sheet containing four styles.

```
<?xml version = "1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

<!-- Fig. 6.2: declared.html                          -->
<!-- Declaring a style sheet in the header section. -->

<html xmlns = "http://www.w3.org/1999/xhtml">
   <head>
      <title>Style Sheets</title>

      <!-- this begins the style sheet section -->
      <style type = "text/css">

         em      { background-color: #8000ff;
                   color: white }

         h1      { font-family: arial, sans-serif }

         p       { font-size: 14pt }

         .special { color: blue }

      </style>
   </head>

   <body>

      <!-- this class attribute applies the .blue style -->
      <h1 class = "special">Deitel & Associates, Inc.</h1>

      <p>Deitel & Associates, Inc. is an internationally
      recognized corporate training and publishing organization
      specializing in programming languages, Internet/World
      Wide Web technology and object technology education.
      Deitel & Associates, Inc. is a member of the World Wide
      Web Consortium. The company provides courses on Java,
      C++, Visual Basic, C, Internet and World Wide Web
      programming, and Object Technology.</p>

      <h1>Clients</h1>
      <p class = "special"> The company's clients include many
      <em>Fortune 1000 companies</em>, government agencies,
      branches of the military and business organizations.
      Through its publishing partnership with Prentice Hall,
      Deitel & Associates, Inc. publishes leading-edge
      programming textbooks, professional books, interactive
      CD-ROM-based multimedia Cyber Classrooms, satellite
      courses and World Wide Web courses.</p>
```

Fig. 6.2 Declaring styles in the **head** of a document (part 1 of 2).

```
50
51      </body>
52   </html>
```


Style Sheets - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address C:\iw3htp2\ch06examples\declared.html
Done
My Computer

Deitel & Associates, Inc.

Deitel & Associates, Inc. is an internationally recognized corporate training and publishing organization specializing in programming languages, Internet/World Wide Web technology and object technology education. Deitel & Associates, Inc. is a member of the World Wide Web Consortium. The company provides courses on Java, C++, Visual Basic, C, Internet and World Wide Web programming, and Object Technology.

Clients

The company's clients include many *Fortune 1000 companies*, government agencies, branches of the military and business organizations. Through its publishing partnership with Prentice Hall, Deitel & Associates, Inc. publishes leading-edge programming textbooks, professional books, interactive CD-ROM-based multimedia Cyber Classrooms, satellite courses and World Wide Web courses.

Fig. 6.2 Declaring styles in the **head** of a document (part 2 of 2).

The **style** element (lines 13–24) defines the embedded style sheet. Styles placed in the **head** apply to matching elements in the entire document, not just to a single element. The **type** attribute specifies the *Multipurpose Internet Mail Extension* (*MIME*) *type* that describes a file's content. CSS documents use the MIME type **text/css**. Other MIME types include **image/gif** (for GIF images) and **text/javascript** (for the JavaScript scripting language).

The body of the style sheet (lines 15–22) declares the *CSS rules* for the style sheet. We declare rules for **em** (lines 15–16), **h1** (line 18) and **p** (line 20) elements. When the browser renders this document, it applies the properties defined in these rules to each element to which the rule applies. For example, the rule on lines 15–16 will be applied to all **em** elements. The body of each rule is enclosed in curly braces (**{** and **}**). We declare a *style class* named **special** in line 22. Class declarations are preceded with a period and are applied to elements only of that class. We discuss how to apply a style class momentarily.

CSS rules in embedded style sheets use the same syntax as inline styles; the property name is followed by a colon (**:**) and the value of that property. Multiple properties are separated by *semicolons* (**;**). In this example, the **color** property specifies the color of text in an element line and property ***background-color*** specifies the background color of the element.

The **font-family** property (line 18) specifies the name of the font to use. In this case, we use the **arial** font. The second value, **sans-serif**, is a *generic font family*. Not all users have the same fonts installed on their computers, so Web-page authors often specify a comma-separated list of fonts to use for a particular style. The browser attempts to use the fonts in the order they appear in the list. Many Web-page authors end a font list with a generic font family name in case the other fonts are not installed on the user's computer. In this example, if the **arial** font is not found on the system, the browser instead will display a generic **sans-serif** font such as **helvetica** or **verdana**. Other generic font families include **serif** (e.g., **times new roman**, **Georgia**), **cursive** (e.g., **script**), **fantasy** (e.g., **critter**) and **monospace** (e.g., **courier**, **fixedsys**).

The ***font-size*** *property* (line 20) specifies a 14-point font. Other possible measurements in addition to ***pt*** (point) are introduced later in the chapter. Relative values— ***xx-small***, ***x-small***, ***small***, ***smaller***, ***medium***, ***large***, ***larger***, ***x-large*** and ***xx-large*** also can be used. Generally, relative values for **font-size** are preferred over point sizes because an author does not know the specific measurements of the display for each client. For example, a user may wish to view a Web page on a handheld device with a small screen. Specifying an 18-point font size in a style sheet will prevent such a user from seeing more than one or two characters at a time. However, if a relative font size is specified, such as **large** or **larger**, the actual size will be determined by the browser that displays the font.

Line 30 uses attribute ***class*** in an **h1** element to apply a *style class*—in this case class **special** (declared as **.special** in the style sheet). When the browser renders the **h1** element, notice that the text appears on screen with both the properties of an **h1** element (**arial** or **sans-serif** font defined at line 18) and the properties of the **.special** style class applied (the color **blue** defined on line 22).

The **p** element and the **.special** class style are applied to the text in lines 42–49. All styles applied to an element (the *parent*, or *ancestor*, *element*) also apply to that element's nested elements (*descendant elements*). The **em** element *inherits* the style from the **p** element (namely, the 14-point font size in line 20), but retains its italic style. However, this property overrides the **color** property of the **special** class because the **em** element has its own **color** property. We discuss the rules for resolving these conflicts in the next section.

6.4 Conflicting Styles

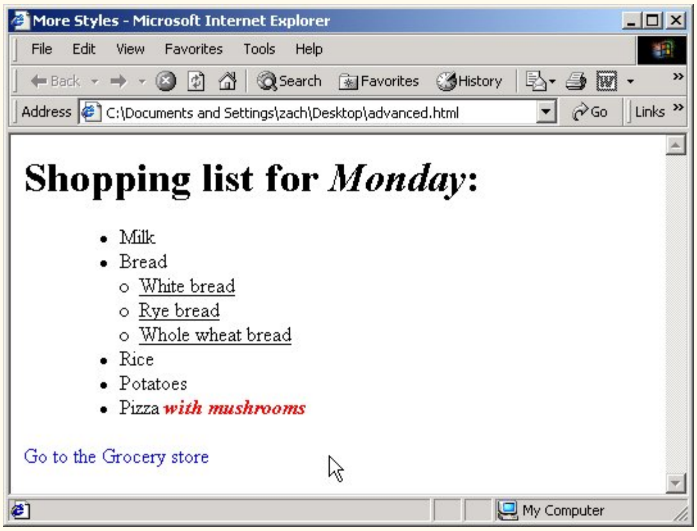
Cascading style sheets are "cascading" because styles may be defined by a user, an author or a *user agent* (e.g., a Web browser). Styles defined by authors take precedence over styles defined by the user and styles defined by the user take precedence over styles defined by the user agent. Styles defined for parent and ancestor elements are also inherited by child and descendant elements. In this section, we discuss the rules for resolving conflicts between styles defined for elements and styles inherited from parent and ancestor elements.

Figure 6.2 presented an example of *inheritance* in which a child **em** element inherited the **font-size** property from its parent **p** element. However, in Fig. 6.2, the child **em** element had a **color** property that conflicted with (i.e., had a different value than) the **color** property of its parent **p** element. Properties defined for child and descendant elements have a greater *specificity* than properties defined for parent and ancestor elements. According to the W3C CSS Recommendation, conflicts are resolved in favor of properties with a higher specificity. In other words, the styles defined for the child (or descendant) are more specific than the styles for that child's parent (or ancestor) element; therefore, the child's styles take precedence. Figure 6.3 illustrates examples of inheritance and specificity.

```
<?xml version = "1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

<!-- Fig 6.3: advanced.html     -->
<!-- More advanced style sheets -->

<html xmlns = "http://www.w3.org/1999/xhtml">
   <head>
      <title>More Styles</title>

      <style type = "text/css">

         a.nodec  { text-decoration: none }

         a:hover  { text-decoration: underline;
                    color: red;
                    background-color: #ccffcc }

         li em    { color: red;
                    font-weight: bold }

         ul       { margin-left: 75px }

         ul ul    { text-decoration: underline;
                    margin-left: 15px }

      </style>
   </head>

   <body>

      <h1>Shopping list for <em>Monday</em>:</h1>

      <ul>
         <li>Milk</li>
         <li>Bread
            <ul>
               <li>White bread</li>
               <li>Rye bread</li>
               <li>Whole wheat bread</li>
            </ul>
         </li>
         <li>Rice</li>
         <li>Potatoes</li>
         <li>Pizza <em>with mushrooms</em></li>
      </ul>

```

Fig. 6.3 Inheritance in style sheets (part 1 of 2).

```
        <p><a class = "nodec" href = "http://www.food.com">
        Go to the Grocery store</a></p>

     </body>
  </html>
```



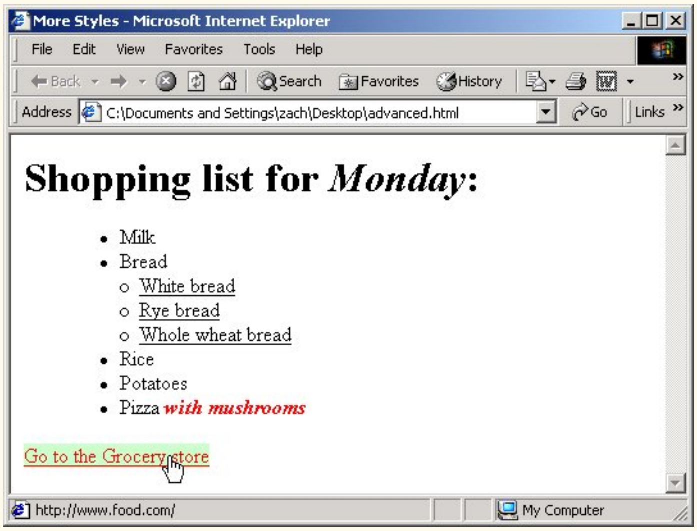
More Styles - Microsoft Internet Explorer

Address C:\Documents and Settings\zach\Desktop\advanced.html

Shopping list for *Monday*:

- Milk
- Bread
  - White bread
  - Rye bread
  - Whole wheat bread
- Rice
- Potatoes
- Pizza ***with mushrooms***

Go to the Grocery store



More Styles - Microsoft Internet Explorer

Address C:\Documents and Settings\zach\Desktop\advanced.html

Shopping list for *Monday*:

- Milk
- Bread
  - White bread
  - Rye bread
  - Whole wheat bread
- Rice
- Potatoes
- Pizza ***with mushrooms***

Go to the Grocery store

http://www.food.com/

Fig. 6.3 Inheritance in style sheets (part 2 of 2).

Line 14 applies property **`text-decoration`** to all **`a`** elements whose **`class`** attribute is set to **`nodec`**. The **`text-decoration`** property applies *decorations* to text within an element. By default, browsers underline the text marked up with an **`a`** element. Here, we set the **`text-decoration`** property to **`none`** to indicate that the browser should not underline hyperlinks. Other possible values for **`text-decoration`** include ***`blink`***, ***`overline`***,

line-through and ***underline***. The **.nodec** appended to **a** is an extension of class styles; this style will apply only to **a** elements that specify **nodec** as their class.

Lines 16–18 specify a style for **hover**, which is a *pseudoclass*. Pseudoclasses give the author access to content not specifically declared in the document. The **hover** pseudoclass is activated dynamically when the user moves the mouse cursor over an element.

Portability Tip 6.1

To ensure that your style sheets work in various Web browsers, test your style sheets on all client Web browsers that will render documents using your styles.

Lines 20–21 declare a style for all **em** elements that are descendants of **li** elements. In the screen output of Fig. 6.3, notice that **Monday** (which line 33 contains in an **em** element) does not appear in bold red, because the **em** element is not in an **li** element. However, the **em** element containing **with mushrooms** (line 46) is in an **li** element; therefore, it is formatted in bold red.

The syntax for applying rules to multiple elements is similar. For example, to apply the rule in lines 20–21 to all **li** and **em** elements, you would separate the elements with commas, as follows:

```
li, em  { color: red;
          font-weight: bold }
```

Lines 25–26 specify that all nested lists (**ul** elements that are descendants of **ul** elements) be underlined and have a left-hand margin of 15 pixels. A pixel is a *relative-length measurement*—it varies in size, based on screen resolution. Other relative lengths are ***em*** (the so-called "*M*-height" of the font, which is usually set to the height of an uppercase *M*), ***ex*** (the so-called "*x*-height" of the font, which is usually set to the height of a lowercase *x*) and percentages (e.g., **margin-left: 10%**). To set an element to display text at 150% of its default text size, the author could use the syntax

```
font-size: 1.5em
```

Other units of measurement available in CSS are *absolute-length measurements*—i.e., units that do not vary in size based on the system. These units are ***in*** (inches), ***cm*** (centimeters), ***mm*** (millimeters), **pt** (points; 1 **pt**=1/72 **in**) and ***pc*** (picas—1 **pc** = 12 **pt**).

Good Programming Practice 6.1

Whenever possible, use relative-length measurements. If you use absolute-length measurements, your document may not be readable on some client browsers (e.g., wireless phones).

In Fig. 6.3, the entire list is indented because of the 75-pixel left-hand margin for top-level **ul** elements. However, the nested list is indented only 15 pixels more (not another 75 pixels) because the child **ul** element's **margin-left** property overrides the parent **ul** element's **margin-left** property.

6.5 Linking External Style Sheets

Style sheets are a convenient way to create a document with a uniform theme. With *external style sheets* (i.e., separate documents that contain only CSS rules), Web-page authors can provide a uniform look and feel to an entire Web site. Different pages on a site can all use the same style sheet. Then, when changes to the style are required, the Web-page author needs to modify only a single CSS file to make style changes across the entire Web site.

Figure 6.4 presents an external style sheet and Fig. 6.5 contains an XHTML document that references the style sheet.

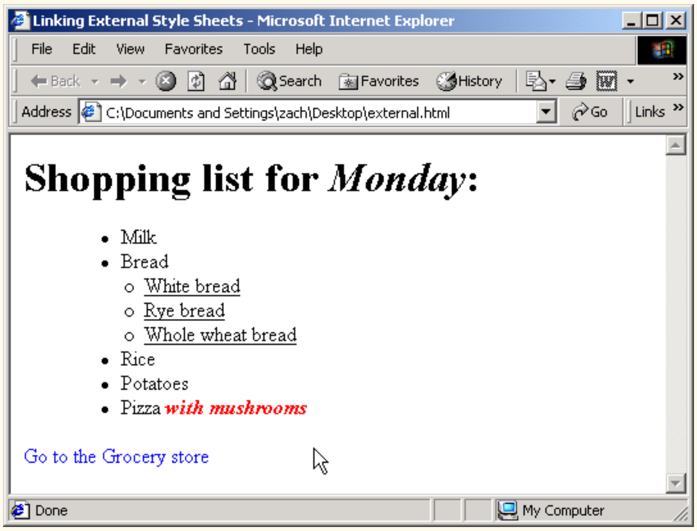
```
/* Fig. 6.4: styles.css   */
/* An external stylesheet */

a       { text-decoration: none }

a:hover { text-decoration: underline;
          color: red;
          background-color: #ccffcc }

li em   { color: red;
          font-weight: bold;
          background-color: #ffffff }

ul      { margin-left: 2cm }

ul ul   { text-decoration: underline;
          margin-left: .5cm }
```

Fig. 6.4 External style sheet (**styles.css**).

```
<?xml version = "1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

<!-- Fig. 6.5: external.html        -->
<!-- Linking external style sheets  -->

<html xmlns = "http://www.w3.org/1999/xhtml">
   <head>
      <title>Linking External Style Sheets</title>
      <link rel = "stylesheet" type = "text/css"
         href = "styles.css" />
   </head>

   <body>

      <h1>Shopping list for <em>Monday</em>:</h1>
      <ul>
         <li>Milk</li>
         <li>Bread
            <ul>
               <li>White bread</li>
               <li>Rye bread</li>
               <li>Whole wheat bread</li>
            </ul>
         </li>
         <li>Rice</li>
         <li>Potatoes</li>
```

Fig. 6.5 Linking an external style sheet (part 1 of 2).

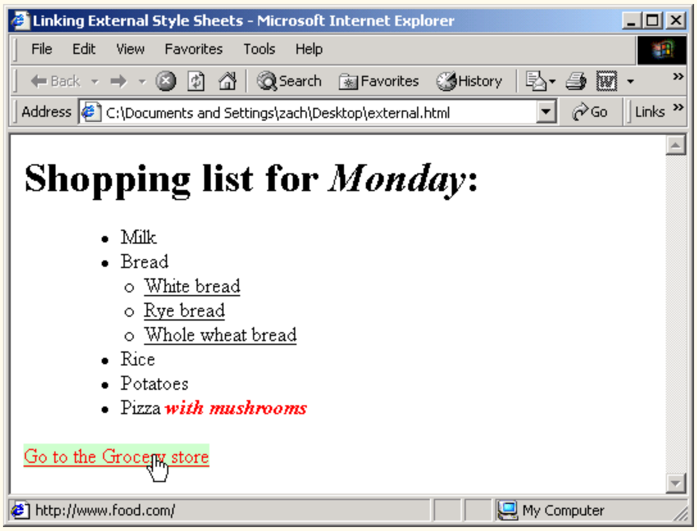
```
            <li>Pizza <em>with mushrooms</em></li>
         </ul>

         <p>
         <a href = "http://www.food.com">Go to the Grocery store</a>
         </p>

      </body>
   </html>
```


Linking External Style Sheets - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address C:\Documents and Settings\zach\Desktop\external.html
Go Links
Done
My Computer

Shopping list for *Monday*:

- Milk
- Bread
  - White bread
  - Rye bread
  - Whole wheat bread
- Rice
- Potatoes
- Pizza *with mushrooms*

Go to the Grocery store


Linking External Style Sheets - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address C:\Documents and Settings\zach\Desktop\external.html
Go Links
http://www.food.com/
My Computer

Shopping list for *Monday*:

- Milk
- Bread
  - White bread
  - Rye bread
  - Whole wheat bread
- Rice
- Potatoes
- Pizza *with mushrooms*

Go to the Grocery store

Fig. 6.5 Linking an external style sheet (part 2 of 2).

Lines 11–12 (Fig. 6.5) show a **`link`** *element*, which uses the **`rel`** *attribute* to specify a *relationship* between the current document and another document. In this case, we declare the linked document to be a **`stylesheet`** for this document. The **`type`** attribute specifies the MIME type as **`text/css`**. The **`href`** attribute provides the URL for the document containing the style sheet .

Software Engineering Observation 6.1

Style sheets are reusable. Creating them once and reusing them reduces programming effort.

Software Engineering Observation 6.2

*The **`link`** element can be placed only in the **`head`** element. The user can specify **`next`** and **`previous`**, which allow the user to link a whole series of documents. This feature allows browsers to print a large collection of related documents at once. (In Internet Explorer, select **Print all linked documents** in the **Print...** submenu of the **File** menu.)*

6.6 W3C CSS Validation Service

The W3C provides a validation service (**`jigsaw.w3.org/css-validator`**) that validates external CSS documents to ensure that they conform to the W3C CSS Recommendation. Like XHTML validation, CSS validation ensures that style sheets are syntactically correct. The validator provides the option of either entering the CSS document's URL, pasting the CSS document's contents into a text area or uploading a CSS document from disk. The file upload feature is available at

```
jigsaw.w3.org/css-validator/validator-upload.html
```

To validate the document, click the **Browse** button to locate the file on your computer. After locating the file, click **Submit this CSS file for validation** to upload the file for validation. [*Note*: Like many W3C technologies, CSS is being developed in stages (or *versions*). The current version under development is Version 3.]

6.7 Positioning Elements

Prior to CSS, controlling the positioning of elements in an XHTML document was difficult—the browser determined positioning. CSS introduces the **`position`** property and a capability called *absolute positioning*, which provides authors greater control over how document elements are displayed. Figure 6.6 demonstrates absolute positioning.

```
<?xml version = "1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

<!-- Fig 6.8: positioning.html        -->
<!-- Absolute positioning of elements -->

<html xmlns = "http://www.w3.org/1999/xhtml">
```

Fig. 6.6 Positioning elements with CSS (part 1 of 2).

```
 9     <head>
10        <title>Absolute Positioning</title>
11     </head>
12
13     <body>
14
15        <p><img src = "i.gif" style = "position: absolute;
16           top: 0px; left: 0px; z-index: 1"
17           alt = "First positioned image" /></p>
18        <p style = "position: absolute; top: 50px; left: 50px;
19           z-index: 3; font-size: 20pt;">Positioned Text</p>
20        <p><img src = "circle.gif" style = "position: absolute;
21           top: 25px; left: 100px; z-index: 2" alt =
22           "Second positioned image" /></p>
23
24     </body>
25  </html>
```

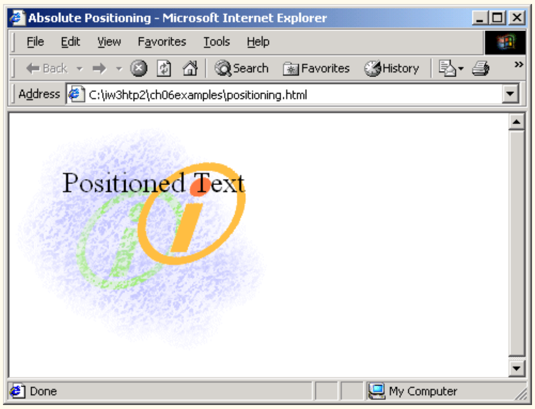

Absolute Positioning - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address C:\iw3htp2\ch06examples\positioning.html
Positioned Text
Done
My Computer

Fig. 6.6 Positioning elements with CSS (part 2 of 2).

Lines 15–17 position the first **img** element (**i.gif**) on the page. Specifying an element's **position** as ***absolute*** removes the element from the normal flow of elements on the page, instead positioning the element according to the distance from the **top**, **left**, **right** or **bottom** margins of its *containing block* (i.e., an element such as **body** or **p**). Here, we position the element to be **0** pixels away from both the **top** and **left** margins of the **body** element.

The ***z-index*** *attribute* allows you to layer overlapping elements properly. Elements that have higher **z-index** values are displayed in front of elements with lower **z-index** values. In this example, **i.gif** has the lowest **z-index** (**1**), so it displays in the background. The **img** element at lines 20–22 (**circle.gif**) has a **z-index** of **2**, so it displays in front of **i.gif**. The **p** element at lines 18–19 (**Positioned Text**) has a **z-index** of **3**, so it displays in front of the other two. If you do not specify a **z-index** or if elements have the same **z-index** value, the elements are placed from background to foreground in the order they are encountered in the document.

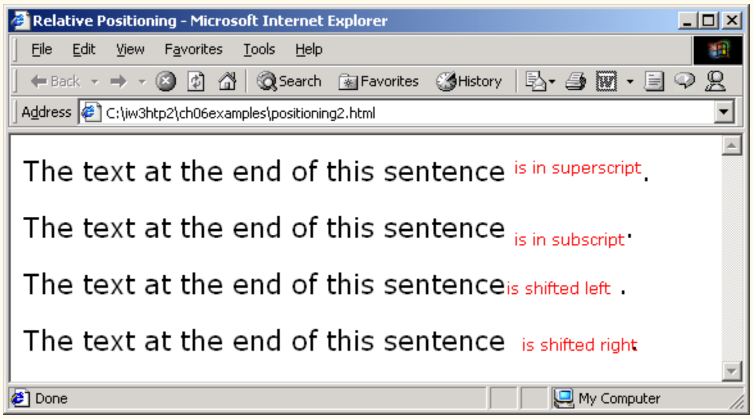
Absolute positioning is not the only way to specify page layout. Figure 6.7 demonstrates *relative positioning* in which elements are positioned relative to other elements.

Setting the **position** property to **relative**, as in class **super** (lines 21–22), lays out the element on the page and offsets the element by the specified **top**, **bottom**, **left** or **right** values. Unlike absolute positioning, relative positioning keeps elements in the general flow of elements on the page, so positioning is relative to other elements in the flow.

```
1  <?xml version = "1.0"?>
2  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3     "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4  
5  <!-- Fig. 6.9: positioning2.html       -->
6  <!-- Relative positioning of elements  -->
7  
8  <html xmlns = "http://www.w3.org/1999/xhtml">
9     <head>
10       <title>Relative Positioning</title>
11 
12       <style type = "text/css">
13 
14          p           { font-size: 1.3em;
15                        font-family: verdana, arial, sans-serif }
16 
17          span        { color: red;
18                        font-size: .6em;
19                        height: 1em }
20 
21          .super      { position: relative;
22                        top: -1ex }
23 
24          .sub        { position: relative;
25                        bottom: -1ex }
26 
27          .shiftleft  { position: relative;
28                        left: -1ex }
29 
30          .shiftright { position: relative;
31                        right: -1ex }
32 
33       </style>
34    </head>
35 
36    <body>
37 
38       <p>The text at the end of this sentence
39       <span class = "super">is in superscript</span>.</p>
40 
41       <p>The text at the end of this sentence
42       <span class = "sub">is in subscript</span>.</p>
43 
44       <p>The text at the end of this sentence
45       <span class = "shiftleft">is shifted left</span>.</p>
46 
```

Fig. 6.7 Relative positioning of elements (part 1 of 2).

```
47          <p>The text at the end of this sentence
48          <span class = "shiftright">is shifted right</span>.</p>
49
50       </body>
51    </html>
```



Relative Positioning - Microsoft Internet Explorer

Address C:\iw3htp2\ch06examples\positioning2.html

The text at the end of this sentence is in superscript.

The text at the end of this sentence is in subscript.

The text at the end of this sentence is shifted left .

The text at the end of this sentence is shifted right

File Edit View Favorites Tools Help
Back Search Favorites History
Done
My Computer

Fig. 6.7 Relative positioning of elements (part 2 of 2).

We introduce the ***span*** element in line 39. Element **span** is a *grouping element*—it does not apply any inherent formatting to its contents. Its primary purpose is to apply CSS rules or ***id*** *attributes* to a block of text. Element **span** is an *inline-level element*—it is displayed inline with other text and with no line breaks. Lines 17–19 define the CSS rule for **span**. A similar element is the ***div*** element, which also applies no inherent styles but is displayed on its own line, with margins above and below (a *block-level element*).

Common Programming Error 6.1

Because relative positioning keeps elements in the flow of text in your documents, be careful to avoid unintentionally overlapping text.

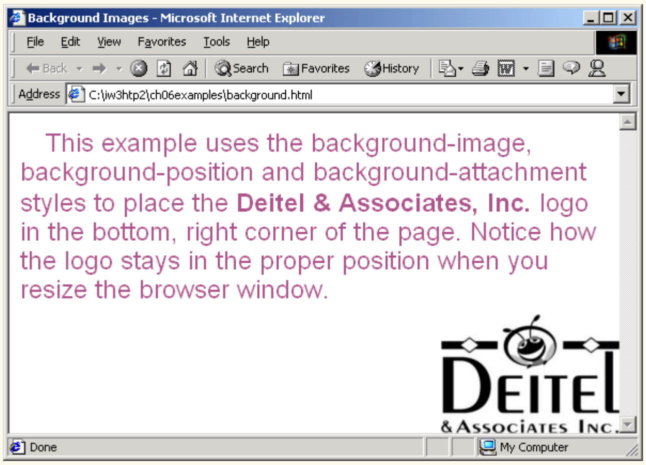
6.8 Backgrounds

CSS also provides control over the element backgrounds. In previous examples, we introduced the **background-color** property. CSS also can add background images to documents. Figure 6.8 add a corporate logo to the bottom-right corner of the document. This logo stays fixed in the corner, even when the user scrolls up or down the screen.

```
<?xml version = "1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

<!-- Fig. 6.10: background.html               -->
<!-- Adding background images and indentation -->

<html xmlns = "http://www.w3 .org/1999/xhtml">
```

Fig. 6.8 Adding a background image with CSS (part 1 of 2).

```
   <head>
      <title>Background Images</title>

      <style type = "text/css">

         body  { background-image: url(logo.gif);
                 background-position: bottom right;
                 background-repeat: no-repeat;
                 background-attachment: fixed; }

         p     { font-size: 18pt;
                 color: #aa5588;
                 text-indent: 1em;
                 font-family: arial, sans-serif; }

         .dark { font-weight: bold; }

      </style>
   </head>

   <body>

      <p>
      This example uses the background-image,
      background-position and background-attachment
      styles to place the <span class = "dark">Deitel
      & Associates, Inc.</span> logo in the bottom,
      right corner of the page. Notice how the logo
      stays in the proper position when you resize the
      browser window.
      </p>

   </body>
</html>
```


Background Images - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address C:\iw3htp2\ch06examples\background.html
Done
My Computer

This example uses the background-image, background-position and background-attachment styles to place the **Deitel & Associates, Inc.** logo in the bottom, right corner of the page. Notice how the logo stays in the proper position when you resize the browser window.

Fig. 6.8 Adding a background image with CSS (part 2 of 2).

The ***`background-image`*** *property* (line 14) specifies the image URL for the image **`logo.gif`** in the format **`url(`***fileLocation***`)`**. The Web-page author can set the **`background-color`** in case the image is not found.

The ***`background-position`*** *property* (line 15) places the image on the page. The keywords ***`top`***, ***`bottom`***, ***`center`***, ***`left`*** and ***`right`*** are used individually or in combination for vertical and horizontal positioning. Image can be positioned using lengths by specifying the horizontal length followed by the vertical length. For example, to position the image as vertically centered (positioned at 50% of the distance across the screen) and 30 pixels from the top, use

```
background-position: 50% 30px;
```

The ***`background-repeat`*** *property* (line 16) controls the *tiling* of the background image. Tiling places multiple copies of the image next to each other to fill the background. Here, we set the tiling to ***`no-repeat`*** to display only one copy of the background image. The **`background-repeat`** property can be set to ***`repeat`*** (the default) to tile the image vertically and horizontally, ***`repeat-x`*** to tile the image only horizontally or ***`repeat-y`*** to tile the image only vertically.

The final property setting, ***`background-attachment: fixed`*** (line 17), fixes the image in the position specified by **`background-position`**. Scrolling the browser window will not move the image from its position. The default value, ***`scroll`***, moves the image as the user scrolls through the document.

Line 21 indents the first line of text in the element by the specified amount, in this case **`1em`**. An author might use this property to create a Web page that reads more like a novel, in which the first line of every paragraph is indented.

Line 24 uses the ***`font-weight`*** *property* to specify the “boldness” of text. Possible values are ***`bold`***, ***`normal`*** (the default), ***`bolder`*** (bolder than **`bold`** text) and ***`lighter`*** (lighter than **`normal`** text). Boldness also can be specified with multiples of 100, from 100 to 900 (e.g., **`100`**, **`200`**, …, **`900`**). Text specified as **`normal`** is equivalent to **`400`**, and **`bold`** text is equivalent to **`700`**. However, many systems do not have fonts can scale this finely, so using the values from **`100`** to **`900`** might not display the desired effect.

Another CSS property that formats text is the ***`font-style`*** *property*, which allows the developer to set text to ***`none`***, ***`italic`*** or ***`oblique`*** (**`oblique`** will default to **`italic`** if the system does not support oblique text).

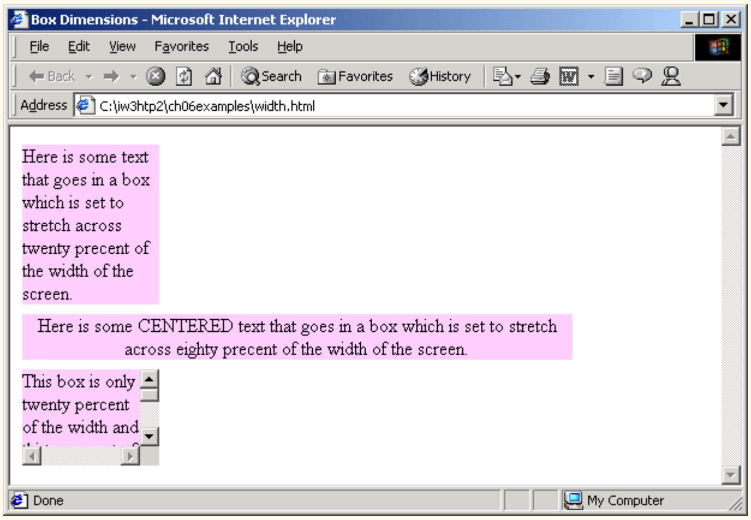
6.9 Element Dimensions

In addition to positioning elements, CSS rules can specify the actual dimensions of each page element. Figure 6.9 demonstrates how to set the dimensions of elements.

```
<?xml version = "1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

<!-- Fig. 6.11: width.html                       -->
<!-- Setting box dimensions and aligning text    -->

```

Fig. 6.9 Setting box dimensions and aligning text (part 1 of 2).

```
<html xmlns = "http://www.w3.org/1999/xhtml">
   <head>
      <title>Box Dimensions</title>

      <style type = "text/css">

         div { background-color: #ffccff;
               margin-bottom: .5em }
      </style>

   </head>

   <body>

      <div style = "width: 20%">Here is some
      text that goes in a box which is
      set to stretch across twenty percent
      of the width of the screen.</div>

      <div style = "width: 80%; text-align: center">
      Here is some CENTERED text that goes in a box
      which is set to stretch across eighty percent of
      the width of the screen.</div>

      <div style = "width: 20%; height: 30%; overflow: scroll">
      This box is only twenty percent of
      the width and thirty percent of the height.
      What do we do if it overflows? Set the
      overflow property to scroll!</div>

   </body>
</html>
```


Box Dimensions - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address C:\iw3htp2\ch06examples\width.html
Done
My Computer

Here is some text that goes in a box which is set to stretch across twenty precent of the width of the screen.

Here is some CENTERED text that goes in a box which is set to stretch across eighty precent of the width of the screen.

This box is only twenty percent of the width and

Fig. 6.9 Setting box dimensions and aligning text (part 2 of 2).

The inline style in line 22 illustrates how to set the ***width*** of an element on screen; here, we indicate that the **div** element should occupy 20% of the screen width. Most elements are left-aligned by default; however, this alignment can be altered to position the element elsewhere. The height of an element can be set similarly, using the ***height*** property. The **height** and **width** values also can be specified relative and absolute lengths. For example

```
width: 10em
```

sets the element's width to be equal to 10 times the font size. Line 27 sets text in the element to be ***center*** aligned; some other values for the **text-align** property are ***left*** and ***right***.

One problem with setting both dimensions of an element is that the content inside the element can exceed the set boundaries, in which case the element is simply made large enough for all the content to fit. However, in line 32, we set the ***overflow*** property to ***scroll***, a setting that adds scrollbars if the text overflows the boundaries.

6.10 Text Flow and the Box Model

A browser normally places text and elements on screen in the order in which they appear in the XHTML document. However, as we have seen with absolute positioning, it is possible to remove elements from the normal flow of text. *Floating* allows you to move an element to one side of the screen; other content in the document then flows around the floated element. In addition, each block-level element has a box drawn around it, known as the *box model*. The properties of this box can be adjusted to control the amount of padding inside the element and the margins outside the element (Fig. 6.12).

In addition to text, whole elements can be *floated* to the left or right of content. This means that any nearby text will wrap around the floated element. For example, in lines 30–32 we float a **div** element to the **right** side of the screen. As you can see from the sample screen capture, the text from lines 34–41 flows cleanly to the left and underneath the **div** element.

The second property on line 30, **margin**, specifies the distance between the edge of the element and any other element on the page. When the browser renders elements using the box model, the content of each element is surrounded by *padding*, a *border* and a *margin* (Fig. 6.13).

Margins for individual sides of an element can be specified by using ***margin-top***, ***margin-right***, ***margin-left*** and ***margin-bottom***.

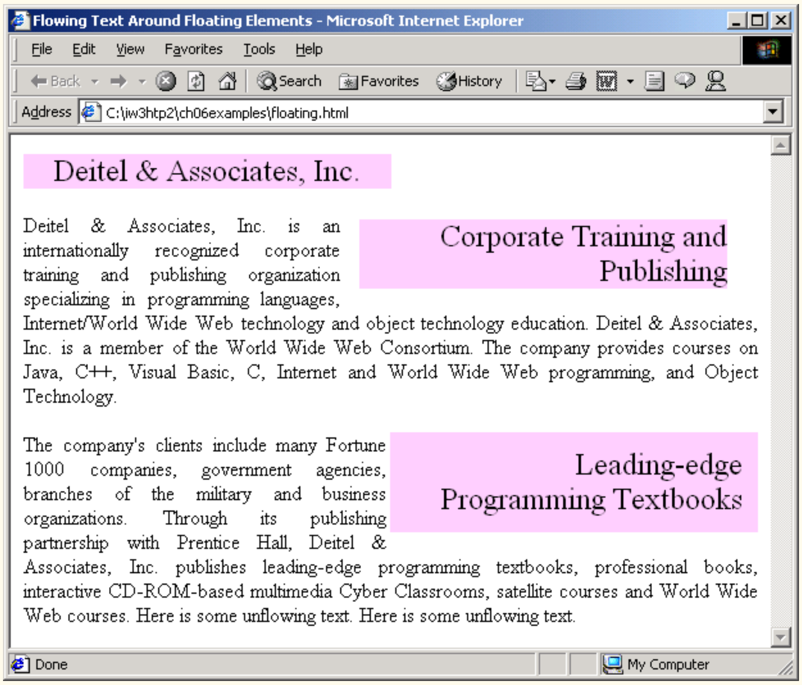
Lines 43–45 specify a **div** element that floats at the right side of the content. Property ***padding*** for the **div** element is set to **.5em**. *Padding* is the distance between the content inside an element and the element's border. Like the **margin**, the **padding** can be set for each side of the box, with ***padding-top***, ***padding-right***, ***padding-left*** and ***padding-bottom***.

A portion of lines 54–55 show that you can interrupt the flow of text around a **float**ed element by setting the **clear** *property* to the same direction as that in which the element is **float**ed—**right** or **left**. Setting the ***clear*** property to ***all*** interrupts the flow on both sides of the document.

```
<?xml version = "1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

<!-- Fig. 6.12: floating.html            -->
<!-- Floating elements and element boxes -->

<html xmlns = "http://www.w3.org/1999/xhtml">
   <head>
      <title>Flowing Text Around Floating Elements</title>

      <style type = "text/css">

         div { background-color: #ffccff;
               margin-bottom: .5em;
               font-size: 1.5em;
               width: 50% }

         p   { text-align: justify; }

      </style>

   </head>

   <body>

      <div style = "text-align: center">
         Deitel & Associates, Inc.</div>

      <div style = "float: right; margin: .5em;
         text-align: right">
         Corporate Training and Publishing</div>

      <p>Deitel & Associates, Inc. is an internationally
      recognized corporate training and publishing organization
      specializing in programming languages, Internet/World
      Wide Web technology and object technology education.
      Deitel & Associates, Inc. is a member of the World Wide
      Web Consortium. The company provides courses on Java,
      C++, Visual Basic, C, Internet and World Wide Web
      programming, and Object Technology.</p>

      <div style = "float: right; padding: .5em;
         text-align: right">
         Leading-edge Programming Textbooks</div>

      <p>The company's clients include many Fortune 1000
      companies, government agencies, branches of the military
      and business organizations. Through its publishing
      partnership with Prentice Hall, Deitel & Associates,
      Inc. publishes leading-edge programming textbooks,
      professional books, interactive CD-ROM-based multimedia
      Cyber Classrooms, satellite courses and World Wide Web
```

Fig. 6.10 Floating elements, aligning text and setting box dimensions (part 1 of 2).

```
         courses.<span style = "clear: right"> Here is some
         unflowing text. Here is some unflowing text.</span></p>

      </body>
   </html>
```


Flowing Text Around Floating Elements - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address C:\iw3htp2\ch06examples\floating.html
Done
My Computer

Deitel & Associates, Inc.

Corporate Training and Publishing

Deitel & Associates, Inc. is an internationally recognized corporate training and publishing organization specializing in programming languages, Internet/World Wide Web technology and object technology education. Deitel & Associates, Inc. is a member of the World Wide Web Consortium. The company provides courses on Java, C++, Visual Basic, C, Internet and World Wide Web programming, and Object Technology.

Leading-edge Programming Textbooks

The company's clients include many Fortune 1000 companies, government agencies, branches of the military and business organizations. Through its publishing partnership with Prentice Hall, Deitel & Associates, Inc. publishes leading-edge programming textbooks, professional books, interactive CD-ROM-based multimedia Cyber Classrooms, satellite courses and World Wide Web courses. Here is some unflowing text. Here is some unflowing text.

Fig. 6.10 Floating elements, aligning text and setting box dimensions (part 2 of 2).

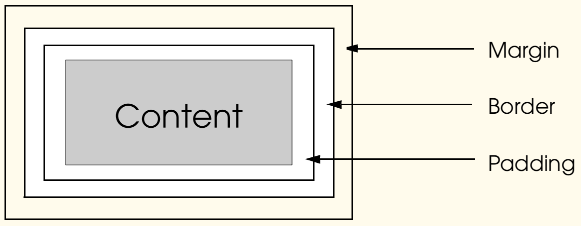
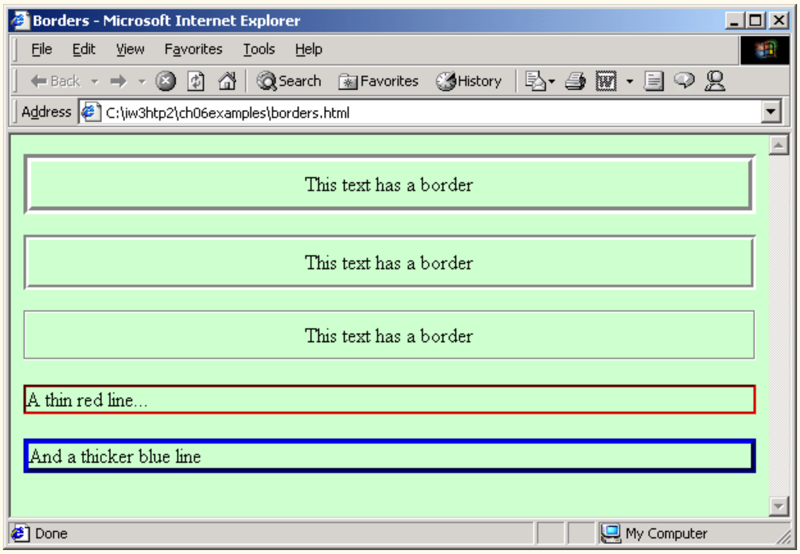


Fig. 6.11 Box model for block-level elements.

Another property of every block-level element on screen is the border, which lies between the padding space and the margin space and has numerous properties for adjusting its appearance as shown in Fig. 6.12.

```
<?xml version = "1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

<!-- Fig. 6.14: borders.html       -->
<!-- Setting borders of an element -->

<html xmlns = "http://www.w3.org/1999/xhtml">
   <head>
      <title>Borders</title>

      <style type = "text/css">

         body    { background-color: #ccffcc }

         div     { text-align: center;
                   margin-bottom: 1em;
                   padding: .5em }

         .thick  { border-width: thick }

         .medium { border-width: medium }

         .thin   { border-width: thin }

         .groove { border-style: groove }

         .inset  { border-style: inset }

         .outset { border-style: outset }

         .red    { border-color: red }

         .blue   { border-color: blue }

      </style>
   </head>

   <body>

      <div class = "thick groove">This text has a border</div>
      <div class = "medium groove">This text has a border</div>
      <div class = "thin groove">This text has a border</div>

      <p class = "thin red inset">A thin red line...</p>
      <p class = "medium blue outset">
         And a thicker blue line</p>

   </body>
</html>
```

Fig. 6.12 Applying borders to elements (part 1 of 2).


Borders - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address C:\iw3htp2\ch06examples\borders.html
Done
My Computer

This text has a border

This text has a border

This text has a border

A thin red line...

And a thicker blue line

Fig. 6.12 Applying borders to elements (part 2 of 2).

In this example, we set three properties—**`border-width`**, **`border-color`** and **`border-style`**. The **`border-width`** property may be set to any of the CSS lengths or to the predefined values of ***`thin`***, ***`medium`*** or ***`thick`***. The **`border-color`** property sets the color. (This property has different meanings for different borders.)

As with **`padding`** and **`margin`**s, each of the border properties may be set for individual sides of the box (e.g., **`border-top-style`** or **`border-left-color`**). A developer can assign more than one class to an XHTML element by using the **`class`** attribute as shown in line 41.

The **`border-style`**s are ***`none`***, ***`hidden`***, ***`dotted`***, ***`dashed`***, ***`solid`***, ***`double`***, ***`groove`***, ***`ridge`***, ***`inset`*** and ***`outset`***. Borders ***`groove`*** and ***`ridge`*** have opposite effects, as do ***`inset`*** and ***`outset`***. Figure 6.13 illustrates these border styles.

```
<?xml version = "1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

<!-- Fig. 6.15: borders2.html   -->
<!-- Various border-styles      -->

<html xmlns = "http://www.w3.org/1999/xhtml">
   <head>
      <title>Borders</title>

      <style type = "text/css">

         body    { background-color: #ccffcc }
```

Fig. 6.13 Various **`border-style`**s (part 1 of 2).

```

         div     { text-align: center;
                   margin-bottom: .3em;
                   width: 50%;
                   position: relative;
                   left: 25%;
                   padding: .3em }
      </style>
   </head>

   <body>

      <div style = "border-style: solid">Solid border</div>
      <div style = "border-style: double">Double border</div>
      <div style = "border-style: groove">Groove border</div>
      <div style = "border-style: ridge">Ridge border</div>
      <div style = "border-style: inset">Inset border</div>
      <div style = "border-style: outset">Outset border</div>

   </body>
</html>
```

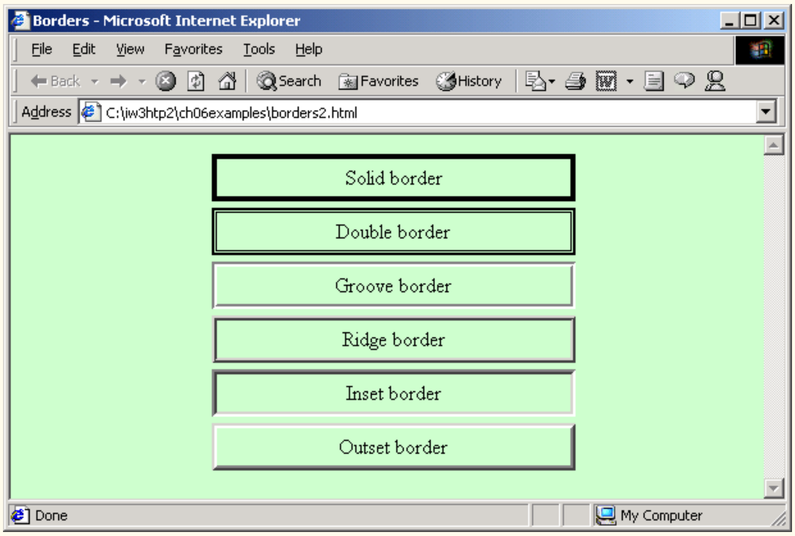

Borders - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address C:\iw3htp2\ch06examples\borders2.html
Solid border
Double border
Groove border
Ridge border
Inset border
Outset border
Done
My Computer

Fig. 6.13 Various **`border-style`**s (part 2 of 2).

6.11 User Style Sheets

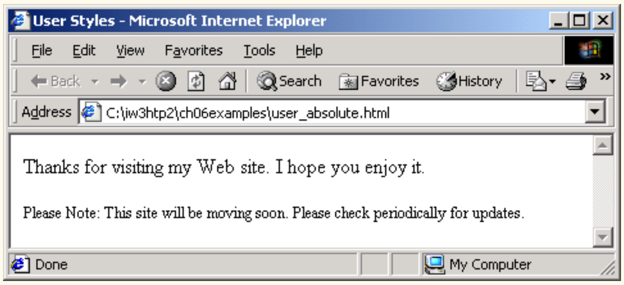
Users can define their own *user style sheets* to format pages based on their preferences. For example, people with visual impairments may want to increase the page's text size. A Web-page author needs to be careful because they may inadvertently override user preferences with defined styles. This section discusses possible conflicts between *author styles* and *user styles*.

Figure 6.14 contains an author style. The **`font-size`** is set to **`9pt`** for all **`<p>`** tags that have class **`note`** applied to them.

User style sheets are external style sheets. Figure 6.15 shows a user style sheet that sets the **`body`**'s **`font-size`** to **`20pt`**, **`color`** to **`yellow`** and **`background-color`** to **`#000080`**.

User style sheets are not **`link`**ed to a document; rather, they are set in the browser's options. To add a user style sheet in Internet Explorer 5.5, select **Internet Options...**, located in the **Tools** menu. In the **Internet Options** dialog (Fig. 6.16) that appears, click **Accessibility...**, Check the **Format documents using my style sheet** check box and type the location of the user style sheet. Internet Explorer 5.5 applies the user style sheet to any document it loads.

```
<?xml version = "1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

<!-- Fig. 6.16: user_absolute.html   -->
<!-- User styles                     -->

<html xmlns = "http://www.w3.org/1999/xhtml">
   <head>
      <title>User Styles</title>

      <style type = "text/css">

         .note { font-size: 9pt }

      </style>
   </head>

   <body>

      <p>Thanks for visiting my Web site. I hope you enjoy it.
      </p><p class = "note">Please Note: This site will be
      moving soon. Please check periodically for updates.</p>

   </body>
</html>
```


User Styles - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address C:\iw3htp2\ch06examples\user_absolute.html
Done
My Computer

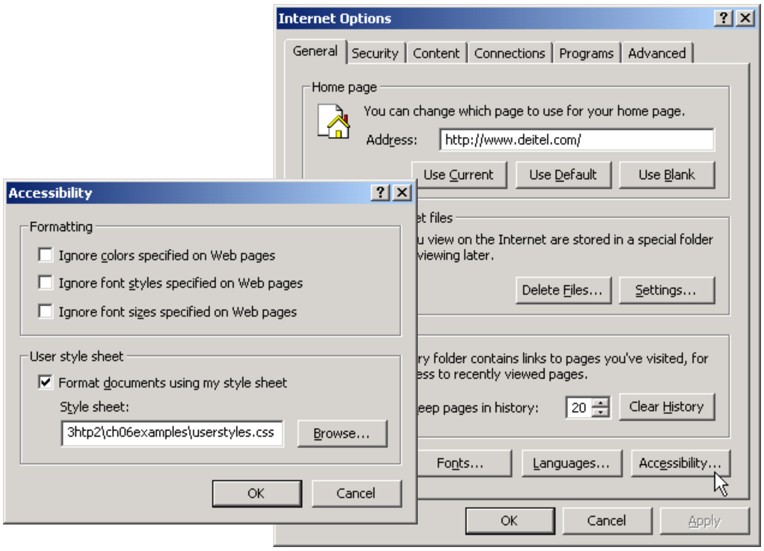
Thanks for visiting my Web site. I hope you enjoy it.

Please Note: This site will be moving soon. Please check periodically for updates.

Fig. 6.14 Modifying text size with the **`pt`** measurement.

```
/* Fig. 6.17: userstyles.css */
/* A user stylesheet        */

body     { font-size: 20pt;
           color: yellow;
           background-color: #000080 }
```

Fig. 6.15 User style sheet.

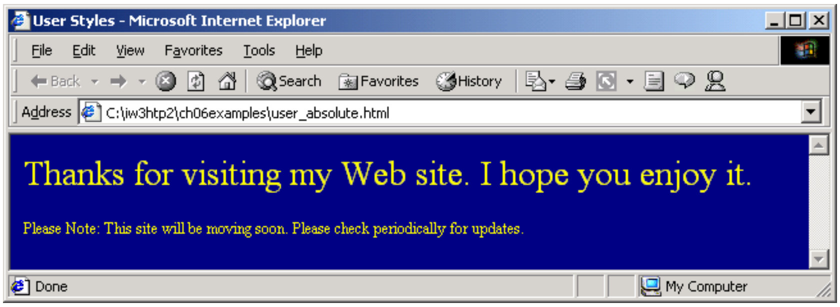


Internet Options — General tab. Home page: You can change which page to use for your home page. Address: http://www.deitel.com/

Accessibility — Formatting: [ ] Ignore colors specified on Web pages; [ ] Ignore font styles specified on Web pages; [ ] Ignore font sizes specified on Web pages. User style sheet: [✓] Format documents using my style sheet. Style sheet: 3htp2\ch06examples\userstyles.css

Fig. 6.16 Adding a user style sheet in Internet Explorer 5.5.

The Web page from Fig. 6.14 is displayed in Fig. 6.17, with the user style sheet from Fig. 6.15 applied.



User Styles - Microsoft Internet Explorer

Address: C:\iw3htp2\ch06examples\user_absolute.html

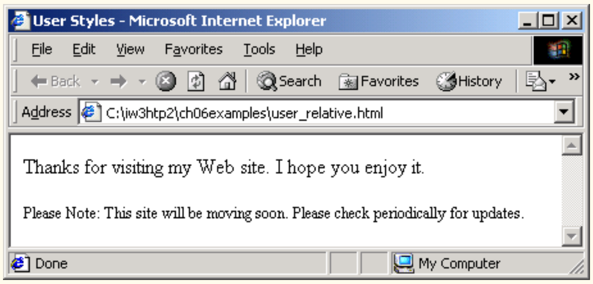
Thanks for visiting my Web site. I hope you enjoy it.

Please Note: This site will be moving soon. Please check periodically for updates.

Fig. 6.17 Web page with user styles applied.

In this example if users define their own **`font-size`** in a user style sheet, the author style has a higher precedence and overrides the user style. The **`9pt`** font specified in the author style sheet overrides the **`20pt`** font specified in the user style sheet. This small font may make pages difficult to read, especially for individuals with visual impairments. A developer can avoid this problem by using relative measurements (such as **`em`** or **`ex`**) instead of absolute measurements such as **`pt`**. Figure 6.18 changes the **`font-size`** property to use a relative measurement (line 14), which does not override the user style set in Fig. 6.15. Instead, the font size displayed is relative to that specified in the user style sheet. In this case, text enclosed in the **`<p>`** tag displays as **`20pt`** and **`<p>`** tags that have class **`note`** applied to them are displayed in **`15pt`** (**`.75`** times **`20pt`**).

```
1   <?xml version = "1.0"?>
2   <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3      "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4
5   <!-- Fig. 6.20: user_relative.html   -->
6   <!-- User styles                     -->
7
8   <html xmlns = "http://www.w3.org/1999/xhtml">
9      <head>
10        <title>User Styles</title>
11
12        <style type = "text/css">
13
14           .note { font-size: .75em }
15
16        </style>
17     </head>
18
19     <body>
20
21        <p>Thanks for visiting my Web site. I hope you enjoy it.
22        </p><p class = "note">Please Note: This site will be
23        moving soon. Please check periodically for updates.</p>
24
25     </body>
26  </html>
```



Thanks for visiting my Web site. I hope you enjoy it.

Please Note: This site will be moving soon. Please check periodically for updates.

User Styles - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address C:\iw3htp2\ch06examples\user_relative.html
Done
My Computer

Fig. 6.18 Modifying text size with the **`em`** measurement.

Fig. 6.19 displays the Web page from Fig. 6.18 with the user style sheet from Fig. 6.14 applied. Notice that the second line of text displayed is larger than the same line of text in Fig. 6.17.

6.12 Internet and World Wide Web Resources

`www.w3.org/TR/REC-CSS2`
The W3C *Cascading Style Sheets, Level 2* specification contains a list of all the CSS properties. The specification also provides helpful examples detailing the use of many of the properties.

`www.webreview.com/style`
This site has several charts of CSS properties, including a list containing which browsers support what attributes and to what extent.

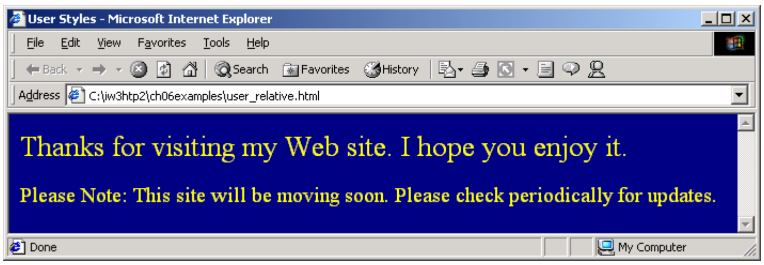
`tech.irt.org/articles/css.htm`
This site contains articles dealing with CSS.

`msdn.microsoft.com/workshop/author/css/site1014.asp`
This site contains samples of some CSS features.

`www.web-weaving.net`
This site contains many CSS articles.

SUMMARY

- The inline style allows a developer to declare a style for an individual element by using the **`style`** attribute in that element's opening XHTML tag.
- Each CSS property is followed by a colon and the value of the attribute.
- The **`color`** property sets text color. Color names and hexadecimal codes may be used as the value.
- Styles that are placed in the **`<style>`** tag apply to the entire document.
- **`style`** element attribute **`type`** specifies the MIME type (the specific encoding format) of the style sheet. Style sheets use **`text/css`**.
- Each rule body begins and ends with a curly brace (**`{`** and **`}`**).
- Style class declarations are preceded by a period and are applied to elements of that specific class.
- The CSS rules in a style sheet use the same format as inline styles: The property is followed by a colon (**`:`**) and the value of that property. Multiple properties are separated by semicolons (**`;`**).
- The **`background-color`** attribute specifies the background color of the element.


User Styles - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address C:\iw3htp2\ch06examples\user_relative.html
Done
My Computer

Thanks for visiting my Web site. I hope you enjoy it.

Please Note: This site will be moving soon. Please check periodically for updates.

Fig. 6.19 Using relative measurements in author styles.

- The **`font-family`** attribute names a specific font that should be displayed. Generic font families allow authors to specify a type of font instead of a specific font, in case a browser does not support a specific font. The **`font-size`** property specifies the size used to render the font.
- The **`class`** attribute applies a style class to an element.
- Pseudoclasses provide the author access to content not specifically declared in the document. The **`hover`** pseudoclass is activated when the user moves the mouse cursor over an element.
- The **`text-decoration`** property applies decorations to text within an element, such as **`underline`**, **`overline`**, **`line-through`** and **`blink`**.
- To apply rules to multiple elements, separate the elements with commas in the style sheet.
- A pixel is a relative-length measurement: It varies in size based on screen resolution. Other relative lengths are **`em`**, **`ex`** and percentages.
- The other units of measurement available in CSS are absolute-length measurements—i.e., units that do not vary in size. These units can be **`in`** (inches), **`cm`** (centimeters), **`mm`** (millimeters), **`pt`** (points; 1 **`pt`**=1/72 **`in`**) and **`pc`** (picas; 1 **`pc`** = 12 **`pt`**).
- External linking can create a uniform look for a Web site; separate pages can all use the same styles. Modifying a single file makes changes to styles across an entire Web site.
- **`link`**'s **`rel`** attribute specifies a relationship between two documents.
- The CSS **`position`** property allows absolute positioning, which provides greater control over where on a page elements reside. Specifying an element's **`position`** as **`absolute`** removes it from the normal flow of elements on the page and positions it according to distance from the **`top`**, **`left`**, **`right`** or **`bottom`** margins of its parent element.
- The **`z-index`** property allows a developer to layer overlapping elements. Elements that have higher **`z-index`** values are displayed in front of elements with lower **`z-index`** values.
- Unlike absolute positioning, relative positioning keeps elements in the general flow on the page and offsets them by the specified **`top`**, **`left`**, **`right`** or **`bottom`** values.
- Property **`background-image`** specifies the URL of the image, in the format **`url(`***fileLocation***`)`**. The property **`background-position`** places the image on the page using the values **`top`**, **`bottom`**, **`center`**, **`left`** and **`right`** individually or in combination for vertical and horizontal positioning. You can also position by using lengths.
- The **`background-repeat`** property controls the tiling of the background image. Setting the tiling to **`no-repeat`** displays one copy of the background image on screen. The **`background-repeat`** property can be set to **`repeat`** (the default) to tile the image vertically and horizontally, to **`repeat-x`** to tile the image only horizontally or to **`repeat-y`** to tile the image only vertically.
- The property setting **`background-attachment: fixed`** fixes the image in the position specified by **`background-position`**. Scrolling the browser window will not move the image from its set position. The default value, **`scroll`**, moves the image as the user scrolls the window.
- The **`text-indent`** property indents the first line of text in the element by the specified amount.
- The **`font-weight`** property specifies the "boldness" of text. Values besides **`bold`** and **`normal`** (the default) are **`bolder`** (bolder than **`bold`** text) and **`lighter`** (lighter than **`normal`** text). The value also may be justified using multiples of 100, from 100 to 900 (i.e., **`100`**, **`200`**, …, **`900`**). Text specified as **`normal`** is equivalent to **`400`**, and **`bold`** text is equivalent to **`700`**.
- The **`font-style`** property allows the developer to set text to **`none`**, **`italic`** or **`oblique`** (**`oblique`** will default to **`italic`** if the system does not have a separate font file for oblique text, which is normally the case).
- **`span`** is a generic grouping element; it does not apply any inherent formatting to its contents. Its main use is to apply styles or **`id`** attributes to a block of text. Element **`span`** is displayed inline

(an inline element) with other text and with no line breaks. A similar element is the **`div`** element, which also applies no inherent styles, but is displayed on a separate line, with margins above and below (a block-level element).

- The dimensions of elements on a page can be set with CSS by using the **`height`** and **`width`** properties.
- Text within an element can be **`center`**ed using **`text-align`**; other values for the **`text-align`** property are **`left`** and **`right`**.
- One problem with setting both dimensions of an element is that the content inside the element might sometimes exceed the set boundaries, in which case the element must be made large enough for all the content to fit. However, a developer can set the **`overflow`** property to **`scroll`**; this setting adds scroll bars if the text overflows the boundaries set for it.
- Browsers normally place text and elements on screen in the order in which they appear in the XHTML file. Elements can be removed from the normal flow of text. Floating allows you to move an element to one side of the screen; other content in the document will then flow around the floated element.
- Each block-level element has a box drawn around it, known as the box model. The properties of this box are easily adjusted.
- The **`margin`** property determines the distance between the element's edge and any outside text.
- CSS uses a box model to render elements on screen. The content of each element is surrounded by padding, a border and margins.
- Margins for individual sides of an element can be specified by using **`margin-top`**, **`margin-right`**, **`margin-left`** and **`margin-bottom`**.
- The padding is the distance between the content inside an element and the edge of the element. Padding can be set for each side of the box by using **`padding-top`**, **`padding-right`**, **`padding-left`** and **`padding-bottom`**.
- A developer can interrupt the flow of text around a **`float`**ed element by setting the **`clear`** property to the same direction in which the element is **`float`**ed—**`right`** or **`left`**. Setting the **`clear`** property to **`all`** interrupts the flow on both sides of the document.
- A property of every block-level element on screen is its border. The border lies between the padding space and the margin space and has numerous properties with which to adjust its appearance.
- The **`border-width`** property may be set to any of the CSS lengths or to the predefined values of **`thin`**, **`medium`** or **`thick`**.
- The **`border-style`**s available are **`none`**, **`hidden`**, **`dotted`**, **`dashed`**, **`solid`**, **`double`**, **`groove`**, **`ridge`**, **`inset`** and **`outset`**.
- The **`border-color`** property sets the color used for the border.
- The class attribute allows more than one class to be assigned to an XHTML element.

TERMINOLOGY

absolute positioning
absolute-length measurement
`arial` font
`background`
`background-attachment`
`background-color`
`background-image`
`background-position`
`background-repeat`
`blink`
block-level element
border
`border-color`
`border-style`
`border-width`
box model

Cascading Style Sheets (CSS)
class attribute
clear property value
cm (centimeter)
colon (**:**)
color
CSS rule
cursive generic font family
dashed border-style
dotted border-style
double border-style
em (size of font)
embedded style sheet
ex (*x*-height of font)
floated element
font-style property
generic font family
groove border style
hidden border style
href attribute
in (inch)
inline style
inline-level element
inset border-style
large relative font size
larger relative font size
left
line-through text decoration
link element
linking to an external style sheet
margin
margin-bottom property
margin-left property
margin-right property
margin-top property
medium relative border width
medium relative font size
mm (millimeter)
monospace
none border-style
outset border-style
overflow property
overline text decoration
padding
parent element
pc (pica)
pseudoclass
pt (point)
rel attribute (**link**)
relative positioning
relative-length measurement
repeat
ridge border-style
right
sans-serif generic font family
scroll
separation of structure from content
serif generic font family
small relative font size
smaller relative font size
solid border-style
span element
style
style attribute
style class
style in header section of the document
text flow
text/css MIME type
text-align
text-decoration property
text-indent
thick border width
thin border width
user style sheet
x-large relative font size
x-small relative font size
xx-large relative font size
xx-small relative font size
z-index