

Chapter 6 - Cascading Style Sheets™ (CSS)

1

Outline

- 6.1 Introduction
- 6.2 Inline Styles
- 6.3 Embedded Style Sheets
- 6.4 Conflicting Styles
- 6.5 Linking External Style Sheets
- 6.7 Positioning Elements
- 6.8 Backgrounds
- 6.9 Element Dimensions
- 6.10 Text Flow and the Box Model
- 6.11 User Style Sheets
- 6.12 Internet and World Wide Web Resources

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Outline

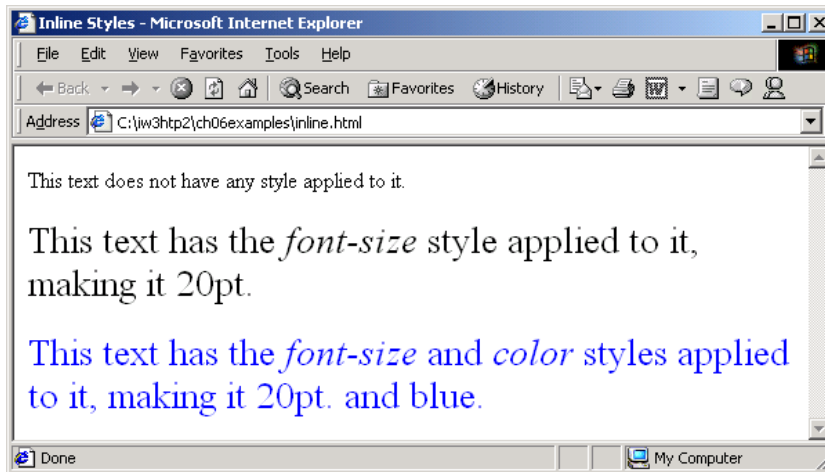
2

Inline.html

```
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. 6.1: inline.html -->
6  <!-- Using inline styles -->
7
8  <html xmlns = "http://www.w3.org/1999/xhtml">
9    <head>
10     <title>Inline Styles</title>
11   </head>
12
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>
```

The **style** attribute specifies the style for an element.
Some style properties are **font-size** and **color**.

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Program Output

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```
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. 6.2: declared.html -->
6  <!-- Declaring a style sheet in the header section. -->
7
8  <html xmlns = "http://www.w3.org/1999/xhtml">
9    <head>
10     <title>Style Sheets</title>
11
12     <!-- This begins the style sheet section. -->
13     <style type = "text/css">
14
15         em    { background-color: #8000ff;
16                 color: white }
17
18         h1    { font-family: arial, sans-serif }
19
20         p     { font-size: 14pt }
21
22         .special { color: blue }
23
24     </style>
25 </head>
26
```

Declared.html

Use the **style** element to create an embedded CSS.

Styles placed in the **head** apply to all elements in the document.

More style properties include font type (**font-family**) and background color (**background-color**).

A style class named **special** is created. Style classes inherit the style properties of the style sheet in addition to their own.

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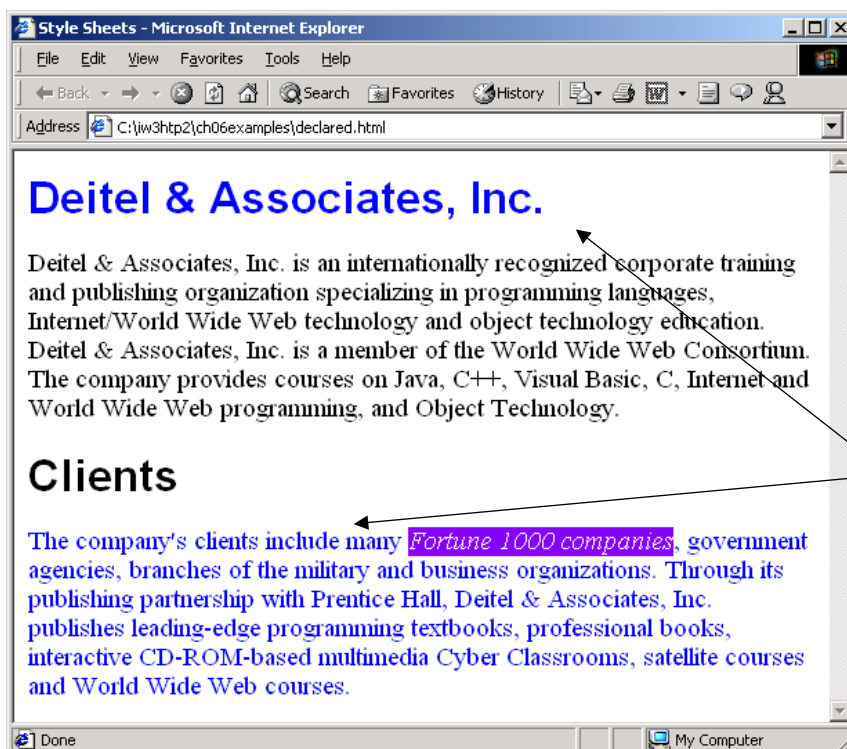


```

27 <body>
28
29 <!-- This class attribute applies the .blue style -->
30 <h1 class = "special">Deitel & Associates, Inc.</h1>
31
32 <p>Deitel & Associates, Inc. is an internationally
33 recognized corporate training and publishing organization
34 specializing in programming languages, Internet/World
35 Wide Web technology and object technology education.
36 Deitel & Associates, Inc. is a member of the World Wide
37 Web Consortium. The company provides courses on Java,
38 C++, Visual Basic, C, Internet and World Wide Web
39 programming, and Object Technology.</p>
40
41 <h1>Clients</h1>
42 <p class = "special"> The company's clients include many
43 <em>Fortune 1000 companies</em>, government agencies,
44 branches of the military and business organizations.
45 Through its publishing partnership with Prentice Hall,
46 Deitel & Associates, Inc. publishes leading-edge
47 programming textbooks, professional books, interactive
48 CD-ROM-based multimedia Cyber Classrooms, satellite
49 courses and World Wide Web courses.</p>
50
51 </body>
52 </html>

```

The styles associated with the **special** class are applied to the header and paragraph elements.



Notice the styles defined in the CSS are applied to all paragraphs, headers, and bolded text.

Elements that have the **special** class applied have the class's styles as well as the CSS styles applied.



Advanced.html

```
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 6.3: advanced.html -->
6  <!-- More advanced style sheets -->
7
8  <html xmlns = "http://www.w3.org/1999/xhtml">
9    <head>
10     <title>More Styles</title>
11
12     <style type = "text/css">
13
14         a.nodect { text-decoration: none }
15
16         a:hover { text-decoration: underline;
17                  color: red;
18                  background-color: #ccffcc }
19
20         li em { color: red;
21                font-weight: bold }
22
23         ul { margin-left: 75px }
24
25         ul ul { text-decoration: underline;
26                 margin-left: 15px }
27
28     </style>
29 </head>
30
31 <body>
32
33     <h1>Shopping list for <em>Monday</em>:</h1>
34
```

A style class is defined specifically for a elements. The style is applied if the a element's **class** attribute is set to **nodect**.

The **hover** psuedoclass defined for the a element is activated dynamically when the user rolls over the a element with a mouse.

The **em** element for **li** elements is defined to have bold red font.

Elements of an unordered list in another nested unordered list will be underlined and have a left-hand margin of 15 pixels.

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Advanced.html

```
35     <ul>
36         <li>Milk</li>
37         <li>Bread
38             <ul>
39                 <li>White bread</li>
40                 <li>Rye bread</li>
41                 <li>Whole wheat bread</li>
42             </ul>
43         </li>
44         <li>Rice</li>
45         <li>Potatoes</li>
46         <li>Pizza <em>with mushrooms</em></li>
47     </ul>
48
49     <p><a class = "nodect" href = "http://www.food.com">
50         Go to the Grocery store</a></p>
51
52 </body>
53 </html>
```

According to the CSS defined, the three elements listed under bread should be underlined and indented 15 pixels from the left margin when rendered.

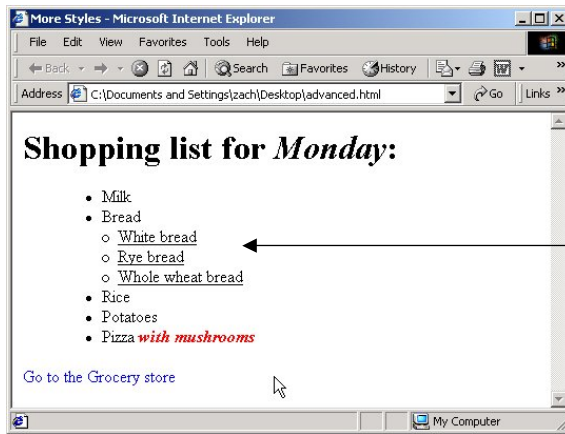
The text placed between the **em** tags should be bolded and colored red when rendered.

When the user scrolls over the text anchoring the link, the **hover** class will be activated and the text will change to the style defined by the **hover** class.

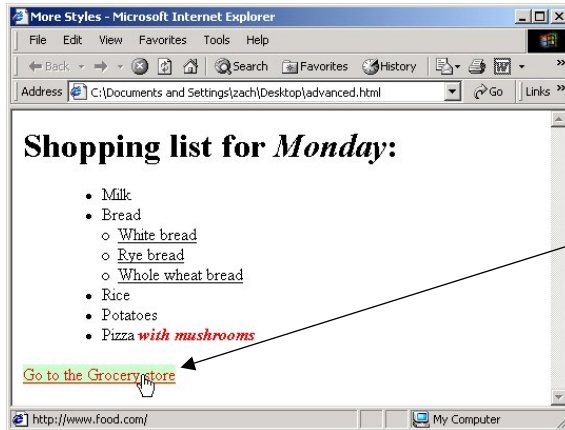
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Program Output



The elements in the nested unordered list are underlined and indented 15 pixels from the left margin.



By applying the **hover** pseudoclass to this anchor, the anchor's background and text color changes when the user rolls over it with the mouse.

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Styles.css

```

1  /* Fig. 6.4: styles.css */
2  /* An external stylesheet */
3
4  a      { text-decoration: none }
5
6  a:hover { text-decoration: underline;
7            color: red;
8            background-color: #ccffcc }
9
10 li em  { color: red;
11          font-weight: bold;
12          background-color: #ffffff }
13
14 ul      { margin-left: 2cm }
15
16 ul ul   { text-decoration: underline;
17           margin-left: .5cm }

```

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```

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. 6.5: external.html      -->
6  <!-- Linking external style sheets -->
7
8  <html xmlns = "http://www.w3.org/1999/xhtml">
9    <head>
10     <title>Linking External Style Sheets</title>
11     <link rel = "stylesheet" type = "text/css"
12         href = "styles.css" />
13    </head>
14
15    <body>
16
17     <h1>Shopping list for <em>Monday</em>:</h1>
18     <ul>
19       <li>Milk</li>
20       <li>Bread
21         <ul>
22           <li>White bread</li>
23           <li>Rye bread</li>
24           <li>Whole wheat bread</li>
25         </ul>
26       </li>
27       <li>Rice</li>
28       <li>Potatoes</li>
29       <li>Pizza <em>with mushrooms</em></li>
30     </ul>
31

```

The **link** element is used to reference an external style sheet.

The **type** attribute defines the MIME type.

The **rel** attribute is used to define the linking relationship.

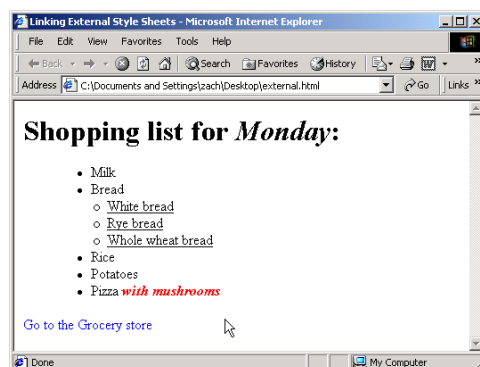


```

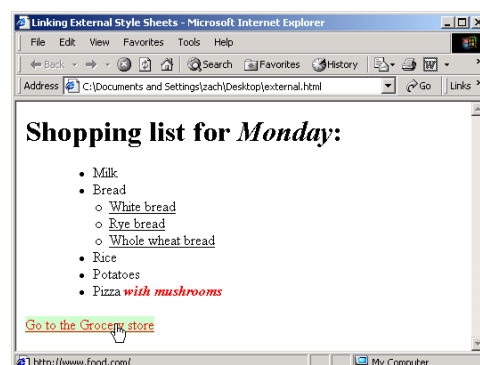
32    <p>
33      <a href = "http://www.food.com">Go to the Grocery store</a>
34    </p>
35
36  </body>
37 </html>

```

Program Output



The documents rendered with an external CSS should be the same as those rendered with an internal CSS.



6.6 W3C CSS Validation Service

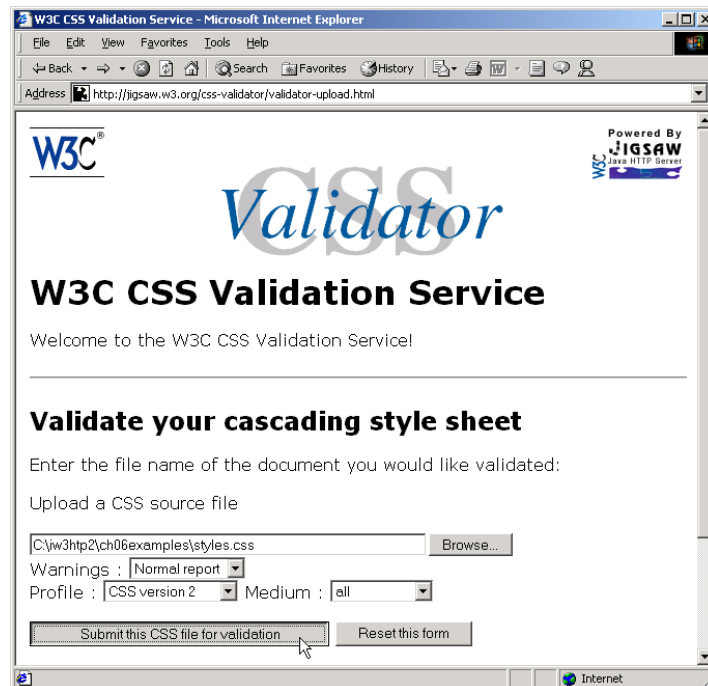


Fig. 6.6 Validating a CSS document. (Courtesy of World Wide Web Consortium (W3C).)

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6.6 W3C CSS Validation Service

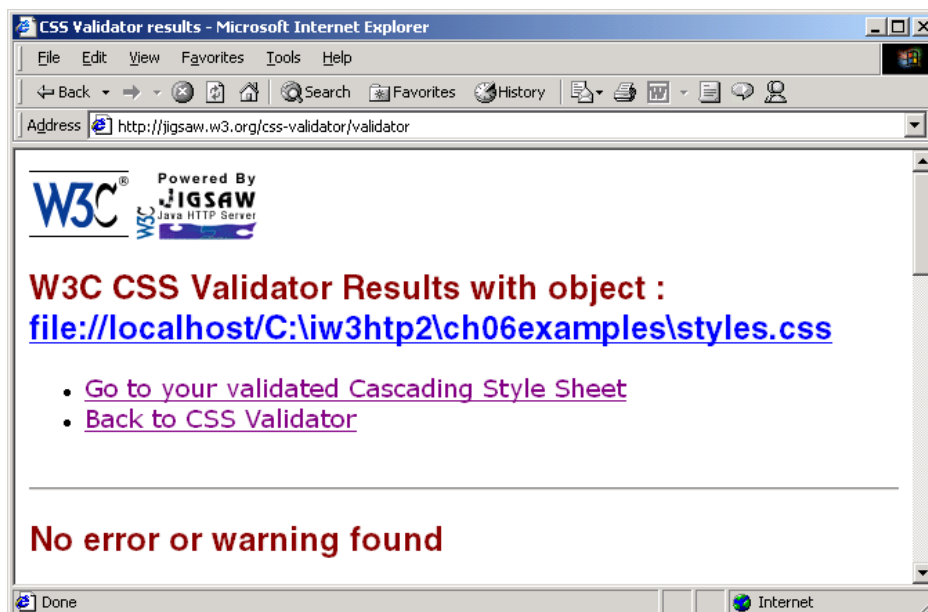


Fig. 6.7 CSS validation results. (Courtesy of World Wide Web Consortium (W3C).)

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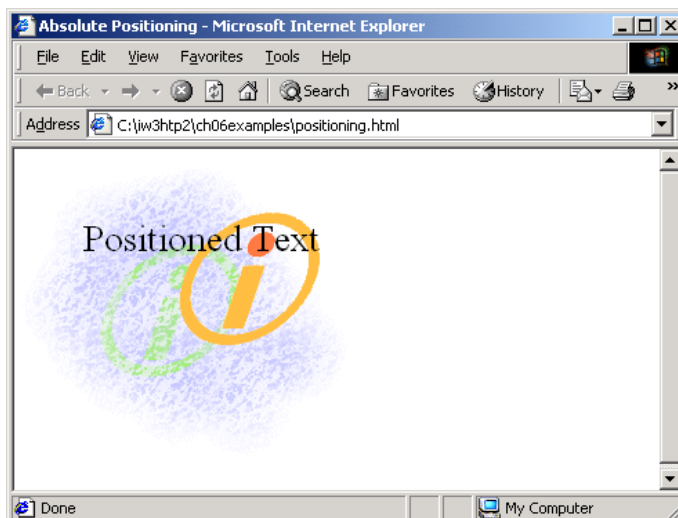
```

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 6.8: positioning.html      -->
6  <!-- Absolute positioning of elements -->
7
8  <html xmlns = "http://www.w3.org/1999/xhtml">
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" alt =
17       "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>

```

The **position** property of the **style** element allows for positioning of an element.

The **z-index** property allows layering of multiple images. The images are layered such that images with lower z-indexes are placed under images with higher ones.



The effect of the **z-index** property is several images layered on top of one another.



Positioning2.html

```
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>
```

Relative positioning places an element relative to a reference point on the page.

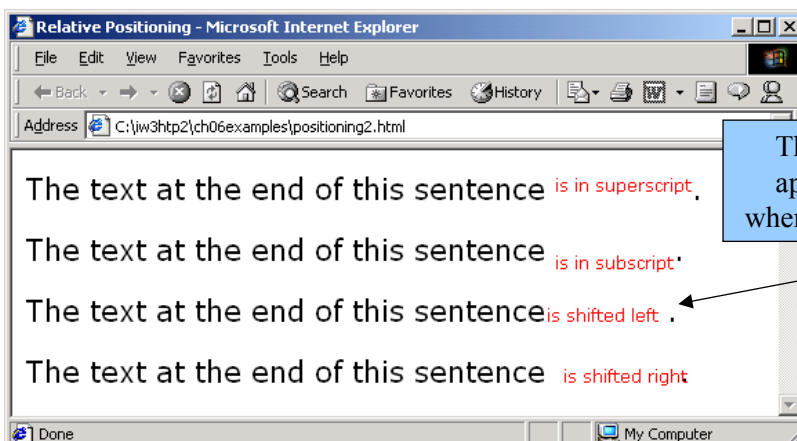
For instance, when this class is applied the element will be displayed -1cm relative to the left of where it would be placed.

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Positioning2.htm
1

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



Program Output

The text in red has the **shiftleft** class applied, and is shifted left relative to where it would have initially been placed.

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Background.html

```

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. 6.10: background.html -->
6  <!-- Adding background images and indentation -->
7
8  <html xmlns = "http://www.w3.org/1999/xhtml">
9    <head>
10     <title>Background Images</title>
11
12     <style type = "text/css">
13
14         body { background-image: url(logo.gif);
15                background-position: bottom right;
16                background-repeat: no-repeat;
17                background-attachment: fixed; }
18
19         p    { font-size: 18pt;
20                color: #aa5588;
21                text-indent: 1em;
22                font-family: arial, sans-serif; }
23
24         .dark { font-weight: bold; }
25
26     </style>
27 </head>
28

```

The **background-image** property assigns a background to the body of the page.

The **background-position** property assigns a location for the image on the page.

If set to **repeat**, the **background-repeat** property will tile the image as the background.

The value of the **background-attachment** property determines if the image moves as the user scrolls the page.

The font format specified will be applied to all **p** elements.

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Background.html

```

29  <body>
30
31  <p>
32    This example uses the background-image,
33    background-position and background-attachment
34    styles to place the <span class = "dark">Deitel
35    & Associates, Inc.</span> logo in the bottom,
36    right corner of the page. Notice how the logo
37    stays in the proper position when you resize the
38    browser window.
39  </p>
40
41  </body>
42 </html>

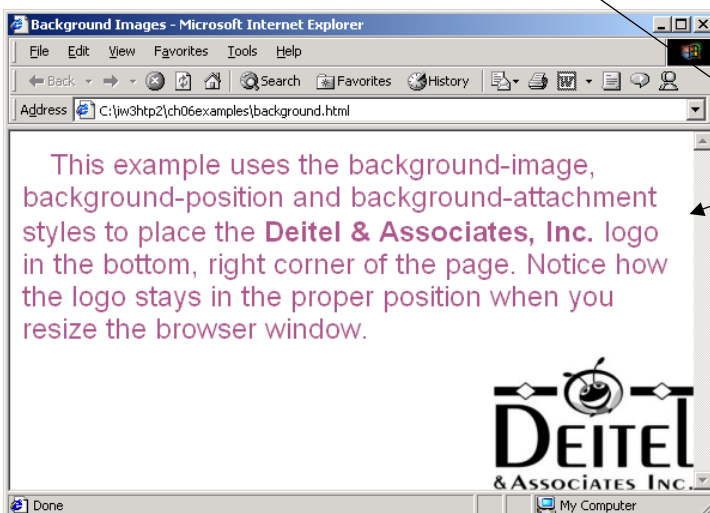
```

Program Output

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.



Note that no formatting needed to be set in the **p** element itself because it has already been defined in the CSS.



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```

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. 6.11: width.html -->
6  <!-- Setting box dimensions and aligning text -->
7
8  <html xmlns = "http://www.w3.org/1999/xhtml">
9    <head>
10     <title>Box Dimensions</title>
11
12     <style type = "text/css">
13
14         div { background-color: #ffccff;
15               margin-bottom: .5em }
16     </style>
17
18    </head>
19
20    <body>
21
22     <div style = "width: 20%">Here is some
23     text that goes in a box which is
24     set to stretch across twenty percent
25     of the width of the screen.</div>
26
27     <div style = "width: 80%; text-align: center">
28     Here is some CENTERED text that goes in a box
29     which is set to stretch across eighty percent of
30     the width of the screen.</div>
31

```

Elements placed between **div** tags will be set on their own line with a margin below and after it.

The **width** and **height** attributes of **style** allow the user to indicate the percentage of the width and height of the screen the element can occupy.

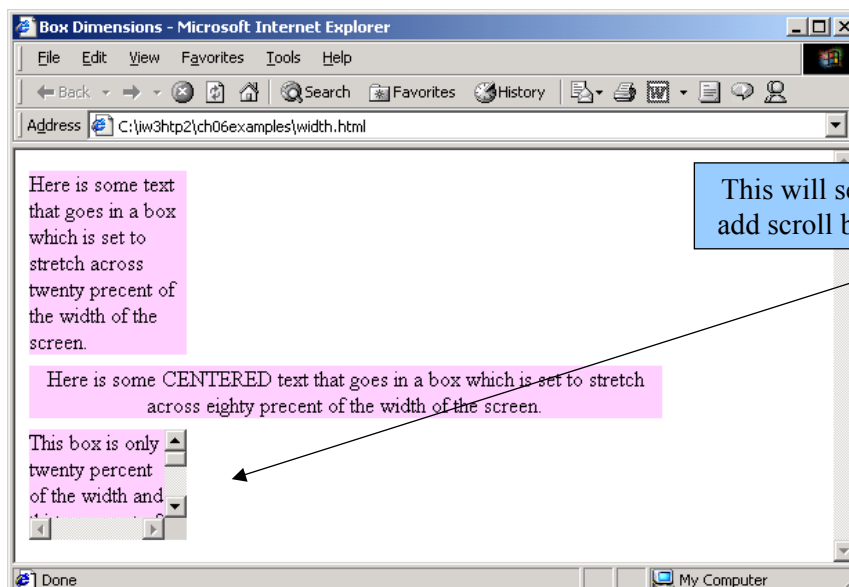


```

32     <div style = "width: 20%; height: 30%; overflow: scroll">
33     This box is only twenty percent of
34     the width and thirty percent of the height.
35     What do we do if it overflows? Set the
36     overflow property to scroll!</div>
37
38   </body>
39 </html>

```

Program Output



This will set the **overflow** attribute to add scroll bars for text that overflows.



```

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. 6.12: floating.html -->
6  <!-- Floating elements and element boxes -->
7
8  <html xmlns = "http://www.w3.org/1999/xhtml">
9    <head>
10     <title>Flowing Text Around Floating Elements</title>
11
12     <style type = "text/css">
13
14         div { background-color: #ffccff;
15               margin-bottom: .5em;
16               font-size: 1.5em;
17               width: 50% }
18
19         p { text-align: justify; }
20
21     </style>
22
23 </head>
24
25 <body>
26
27     <div style = "text-align: center">
28         Deitel & Associates, Inc.</div>
29
30     <div style = "float: right; margin: .5em;
31               text-align: right">
32         Corporate Training and Publishing</div>
33

```

The **float** property allows you to move an element to one side of the screen such that other content in the document then flows around the floated element.

The **margin** property specifies the distance between the edge of the element and any other element on the page.

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```

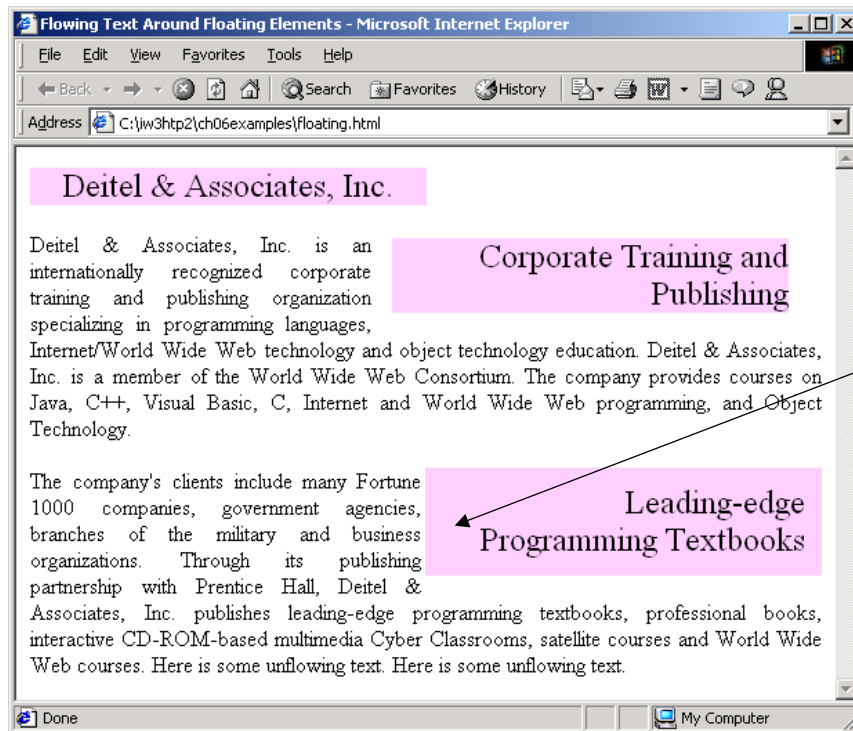
34  <p>Deitel & Associates, Inc. is an internationally
35  recognized corporate training and publishing organization
36  specializing in programming languages, Internet/World
37  Wide Web technology and object technology education.
38  Deitel & Associates, Inc. is a member of the World Wide
39  Web Consortium. The company provides courses on Java,
40  C++, Visual Basic, C, Internet and World Wide Web
41  programming, and Object Technology.</p>
42
43  <div style = "float: right; padding: .5em;
44               text-align: right">
45      Leading-edge Programming Textbooks</div>
46
47  <p>The company's clients include many Fortune 1000
48  companies, government agencies, branches of the military
49  and business organizations. Through its publishing
50  partnership with Prentice Hall, Deitel & Associates,
51  Inc. publishes leading-edge programming textbooks,
52  professional books, interactive CD-ROM-based multimedia
53  Cyber Classrooms, satellite courses and World Wide Web
54  courses.<span style = "clear: right"> Here is some
55  unflowing text. Here is some unflowing text.</span></p>
56
57  </body>
58  </html>

```

Padding is the distance between the content inside an element and the element's border.

The **clear** property can be used to interrupt the flow of text around a floating element.

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Program Output

A floating element with 5 em padding.

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6.10 Test Flow and Box Model

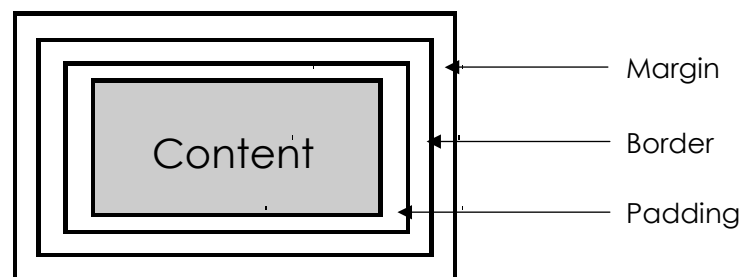


Fig. 6.13 Box model for block-level elements.





```

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. 6.14: borders.html      -->
6  <!-- Setting borders of an element -->
7
8  <html xmlns = "http://www.w3.org/1999/xhtml">
9    <head>
10      <title>Borders</title>
11
12      <style type = "text/css">
13
14          body    { background-color: #ccffcc }
15
16          div     { text-align: center;
17                  margin-bottom: 1em;
18                  padding: .5em }
19
20          .thick  { border-width: thick }
21
22          .medium { border-width: medium }
23
24          .thin   { border-width: thin }
25
26          .groove { border-style: groove }
27
28          .inset  { border-style: inset }
29
30          .outset { border-style: outset }
31
32          .red    { border-color: red }
33
34          .blue   { border-color: blue }

```

The **border-width** property is the width of the border around an element.

The **border-style** property is the style of border used.

The **border-color** property is the color of the border.

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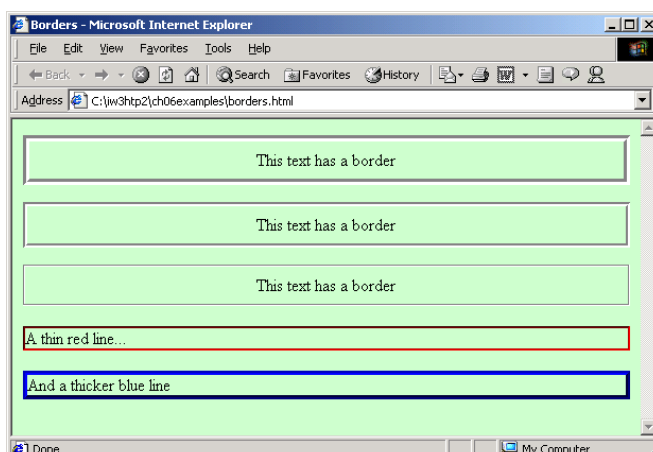


```

35
36     </style>
37 </head>
38
39 <body>
40
41     <div class = "thick groove">This text has a border</div>
42     <div class = "medium groove">This text has a border</div>
43     <div class = "thin groove">This text has a border</div>
44
45     <p class = "thin red inset">A thin red line...</p>
46     <p class = "medium blue outset">
47         And a thicker blue line</p>
48
49 </body>
50 </html>

```

Program Output



A sampling of the different types of borders that can be specified.

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Borders2.html

```

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. 6.15: borders2.html -->
6  <!-- Various border-styles -->
7
8  <html xmlns = "http://www.w3.org/1999/xhtml">
9    <head>
10      <title>Borders</title>
11
12      <style type = "text/css">
13
14          body    { background-color: #ccffcc }
15
16          div     { text-align: center;
17                    margin-bottom: .3em;
18                    width: 50%;
19                    position: relative;
20                    left: 25%;
21                    padding: .3em }
22
23      </style>
24    </head>
25
26    <body>
27
28      <div style = "border-style: solid">Solid border</div>
29      <div style = "border-style: double">Double border</div>
30      <div style = "border-style: groove">Groove border</div>
31      <div style = "border-style: ridge">Ridge border</div>
32      <div style = "border-style: inset">Inset border</div>
33      <div style = "border-style: outset">Outset border</div>
34
35    </body>
36  </html>

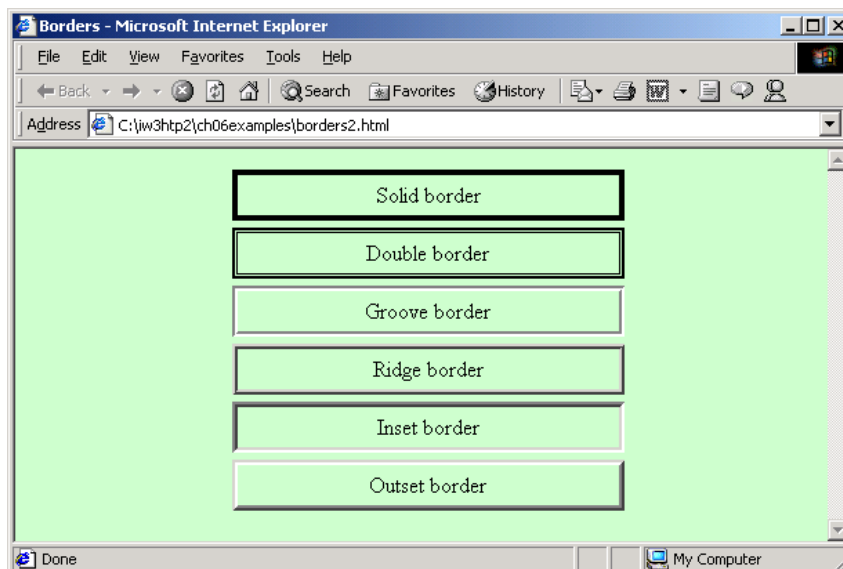
```

Specifying a border directly through the **style** attribute of the **div** element.

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Program Output



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User_absolute.html

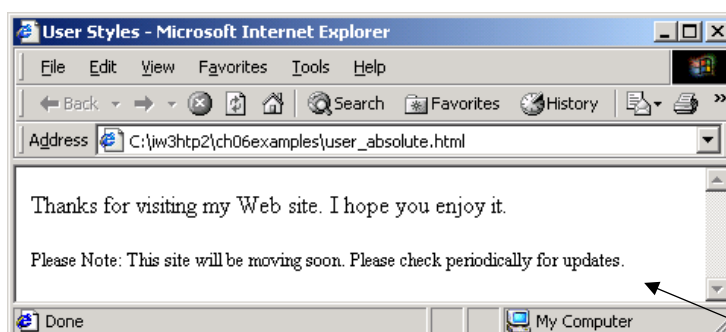
```
1  <?xml version = "1.0"?>
2  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4
5  <!-- Fig. 6.16: user_absolute.html -->
6  <!-- User styles -->
7
8  <html xmlns = "http://www.w3.org/1999/xhtml">
9    <head>
10     <title>User Styles</title>
11
12     <style type = "text/css">
13
14         .note { font-size: 9pt }
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>
```

Author defined style sheets are ones defined within the page.

By using absolute measurement (**pt** in this case) the developer will override user defined style sheets.



Program Output



Developer defined class applied to this **p** element decrease the font size of the text.

Styles set by the author have higher precedence over the styles set by user style sheets.



```

1  /* Fig. 6.17: userstyles.css */
2  /* A user stylesheet          */
3
4  body    { font-size: 20pt;
5           color: yellow;
6           background-color: #000080 }

```

User defined style sheets are usually external.
A user's style sheet is not linked to a page,
they are set in the browser's options.

6.11 User Style Sheets

Setting the user's style sheet in IE.

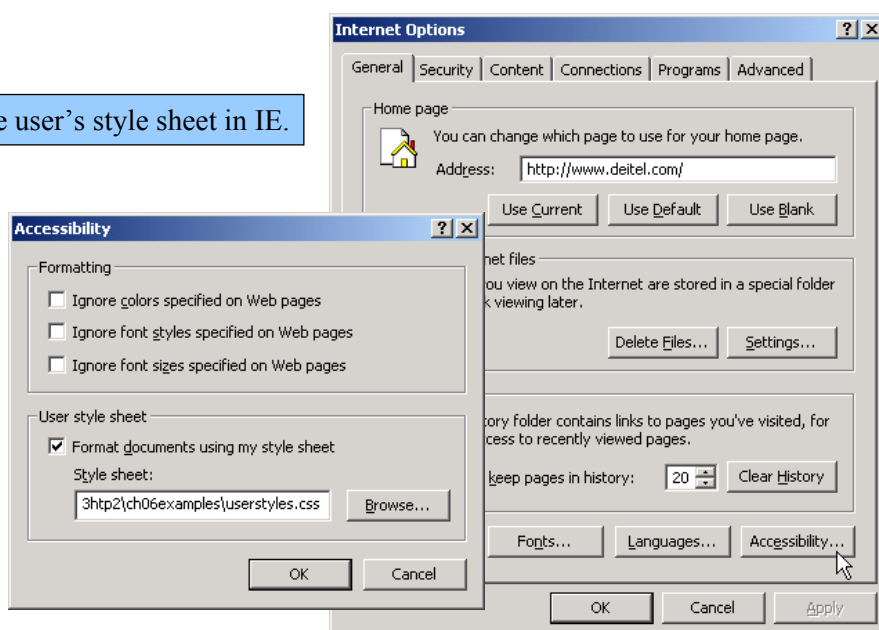


Fig. 6.18 Adding a user style sheet in Internet Explorer 5.5.



6.11 User Style Sheets

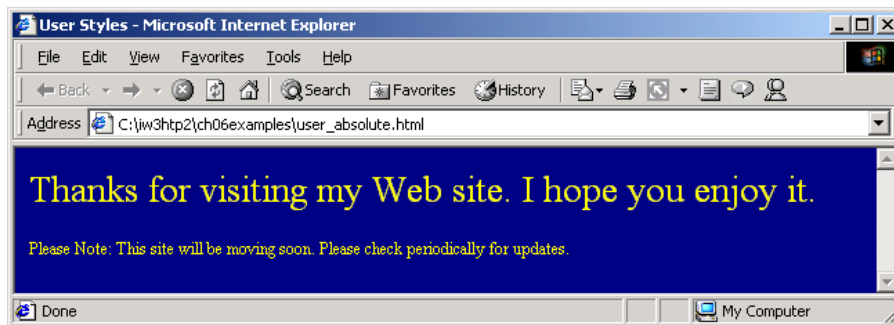


Fig. 6.19 Web page with user styles applied.

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36



Outline

User_relative.html

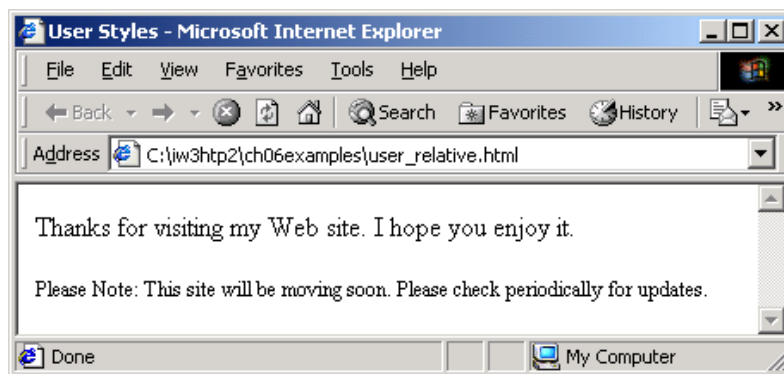
```

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>

```

By using relative measurements (in this case, **em**), the developer will not override user defined style sheet formats.

When rendered the font size displayed will be .75 percent times the value of the font size defined in the user style sheet.



Program Output

Output before relative measurement is used to define the font in the document.

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6.11 User Style Sheets

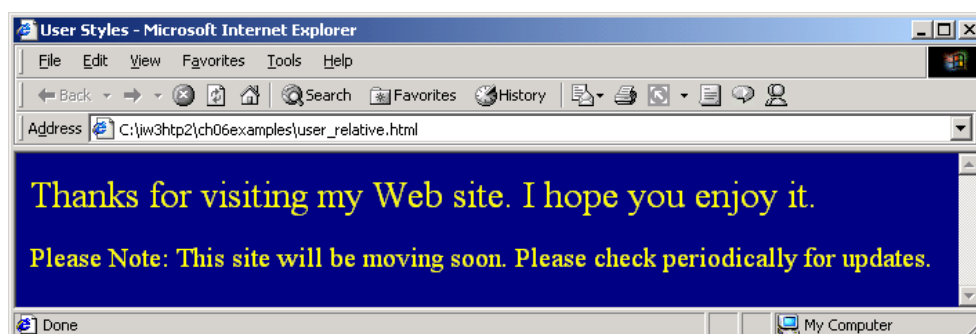


Fig. 6.21 Using relative measurements in author styles.

Output when relative measurement is used. By using relative measurements the user defined styles are not overwritten.

