

Cascading Style Sheets™ (CSS)

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Objectives

- In this lesson, you will learn:
 - To control 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.

6.1 Introduction

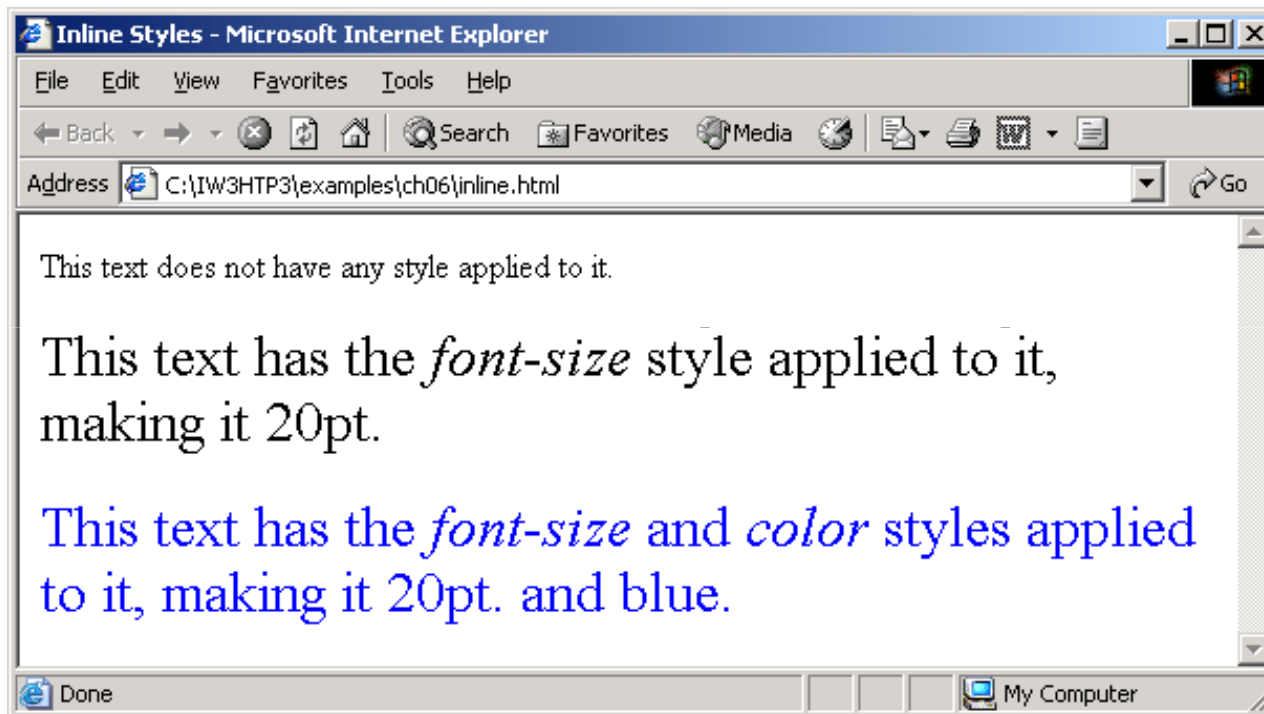
- Cascading Style Sheets (CSS)
 - Separation of structure from presentation

6.2 Inline Styles

- Declare an individual element's format
 - Attribute `style`
 - CSS property
 - Followed by a colon and a value

```
1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
3   "http://www.w3.org/TR/xhtml11/DTD/xhtml11.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>
```



6.3 Embedded Style Sheets

- Embed an entire CSS document in an XHTML document's head section
 - Multipurpose Internet Mail Extensions (MIME) type
 - Describes a file's content
 - Property `background-color`
 - Specifies the background color
 - Property `font-family`
 - Specifies the name of the font to use
 - Property `font-size`
 - Specifies a 14-point font

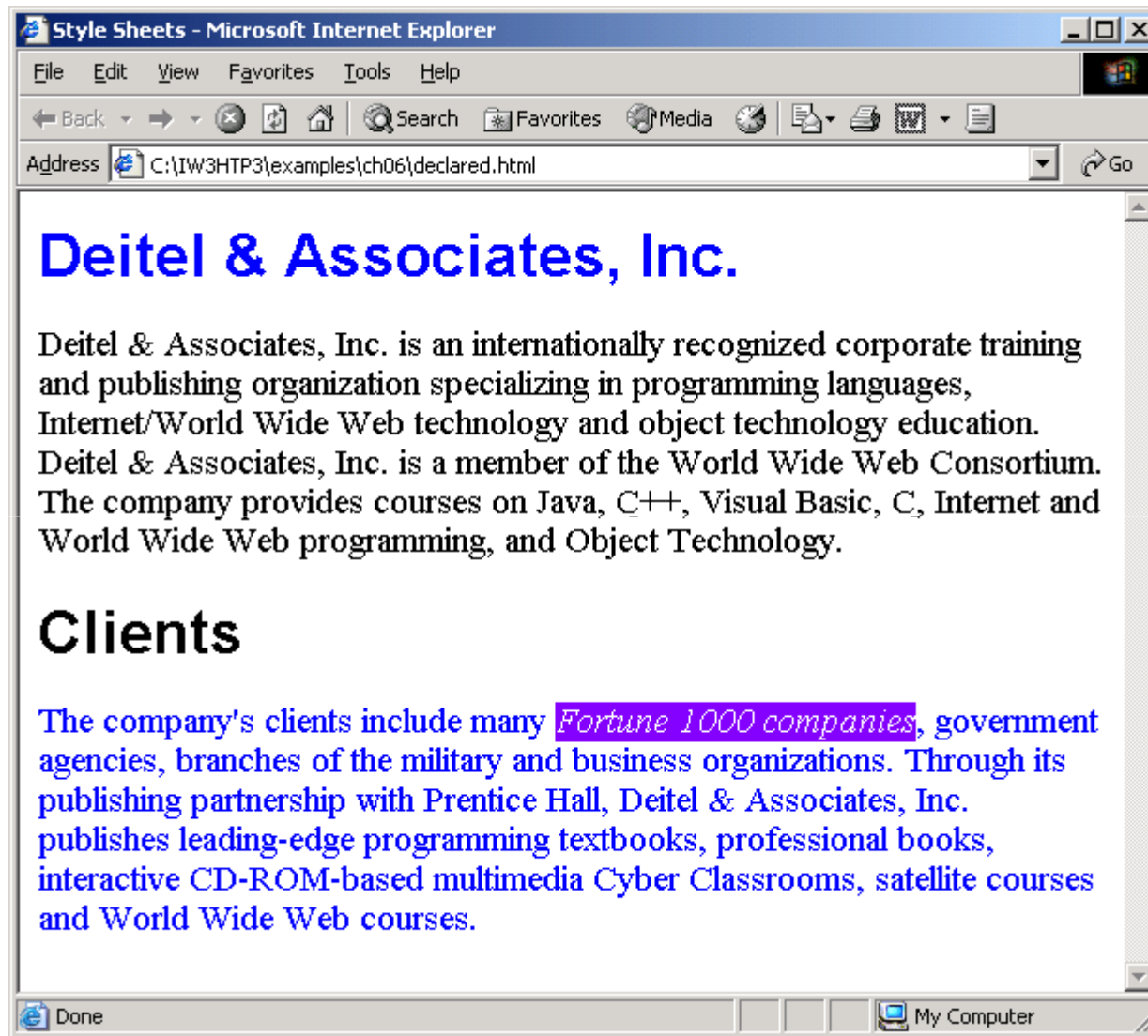
```
1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
3   "http://www.w3.org/TR/xhtml11/DTD/xhtml11.dtd">
4
5 <!-- Fig. 6.2: declared.html -->
6 <!-- Declaring a style sheet in the header section. -->
7
8 <html xmlns = "http://www.w3.org/1999/xhtml">
9   <head>
10     <title>Style 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
27 <body>
28
29 <!-- this class attribute applies the .special 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>



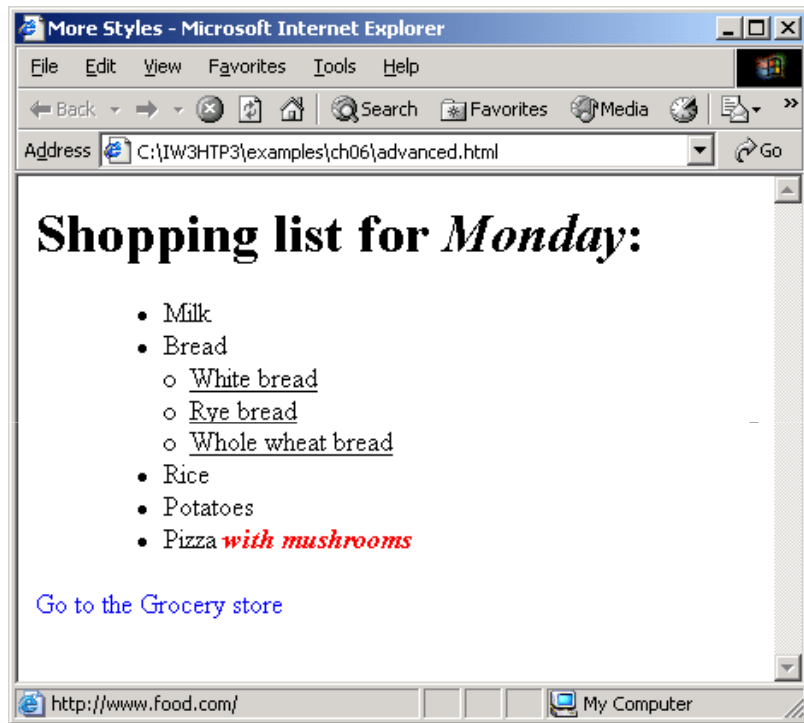
6.4 Conflicting Styles

- Inheritance
 - Descendant's properties have greater specificity than ancestor's properties

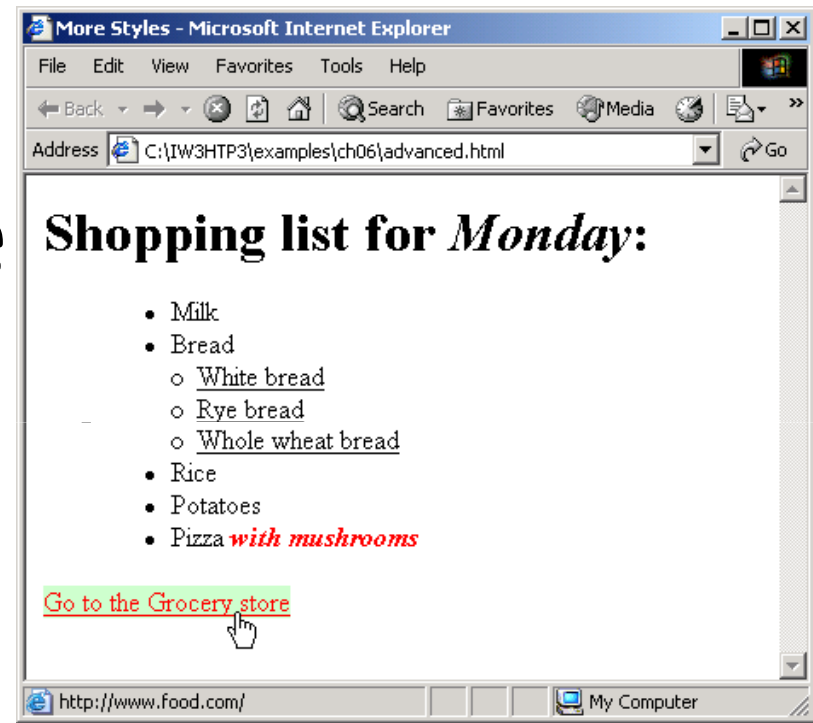
```
1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
3   "http://www.w3.org/TR/xhtml11/DTD/xhtml11.dtd">
4
5 <!-- Fig 6.3: advanced.html -->
6 <!-- More advanced style sheets -->
7
8 <html xmlns = "http://www.w3.org/1999/xhtml">
9   <head>
10     <title>More Styles</title>
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
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 = "nodec" href = "http://www.food.com">
50 Go to the Grocery store</a></p>
51
52 </body>
53 </html>
```



nce
of



6.5 Linking External Style Sheets

- External style sheets
 - Can provide uniform look and feel to entire site

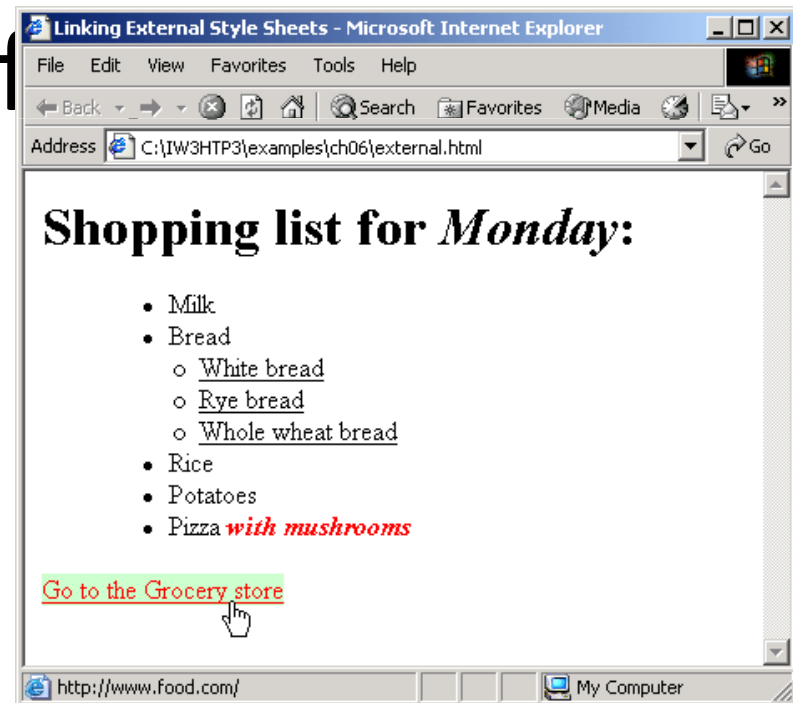
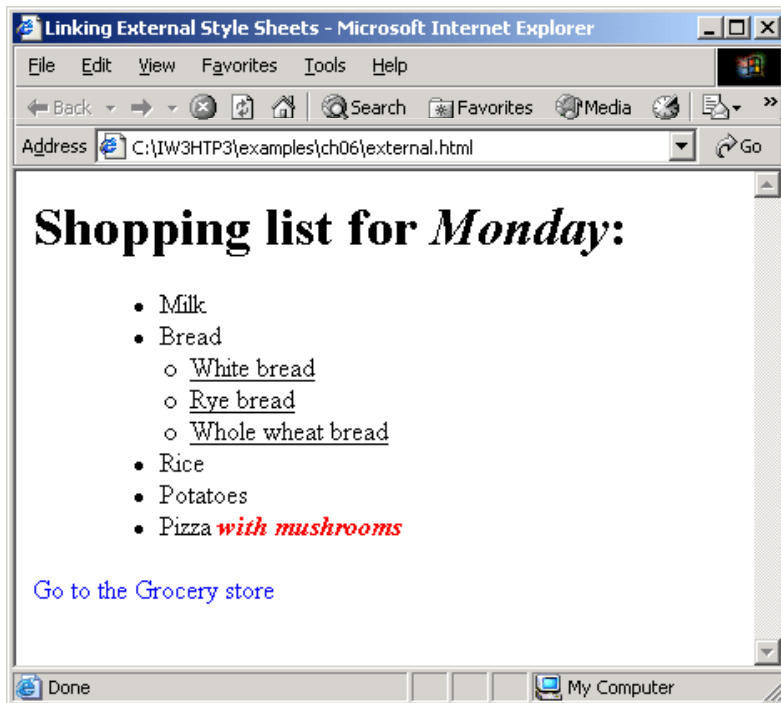
```
1  /* Fig. 6.4: styles.css  */
2  /* An external stylesheet */
3
4  a      { text-decoration: none }
5
6  a:hover { text-decoration: underline;
7            color: red;
8            background-color: #ccffcc }
9
10 li em  { color: red;
11          font-weight: bold;
12          background-color: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



```
1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
3   "http://www.w3.org/TR/xhtml11/DTD/xhtml11.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
32 <p>
33 <a href = "http://www.food.com">Go to the Grocery store</a>
34 </p>
35
36 </body>
37 </html>
```

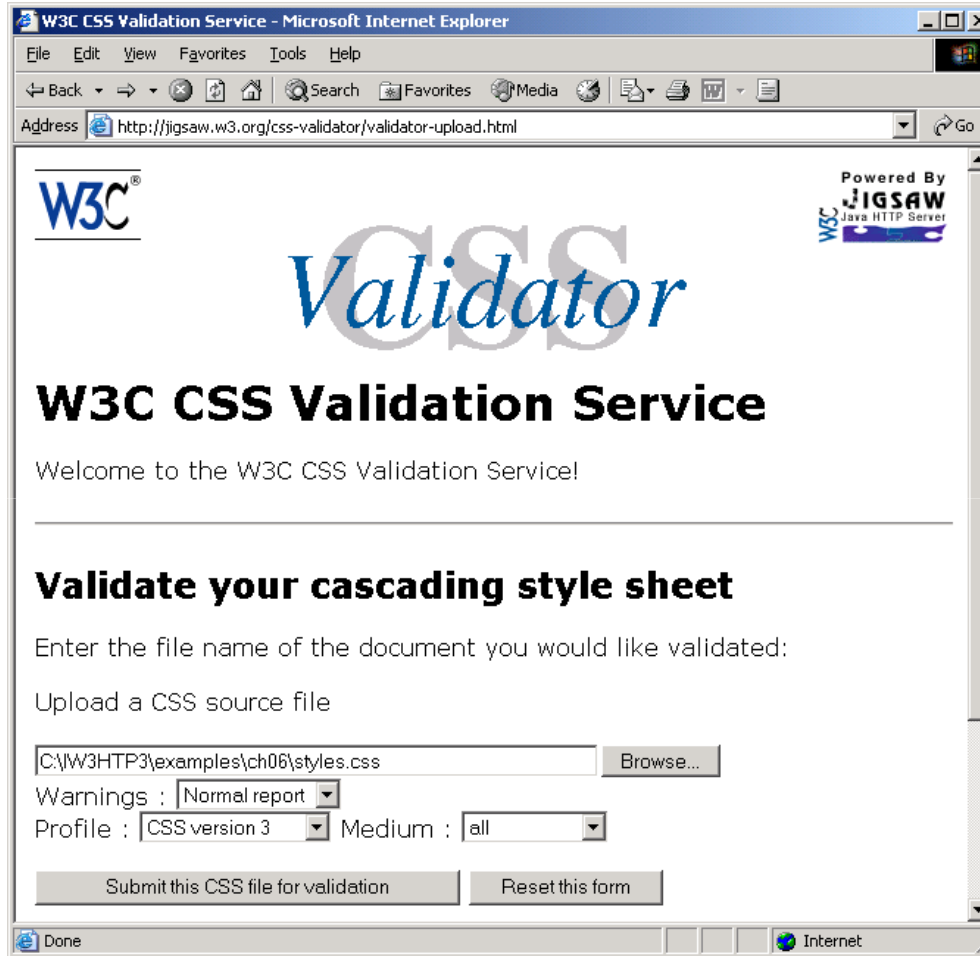
2 of



6.6 W3C CSS Validation Service

- Validates external CSS documents
- Ensures that style sheets are syntactically correct

6.6 W3C CSS Validation Service



The screenshot shows a Microsoft Internet Explorer browser window displaying the W3C CSS Validation Service. The address bar shows the URL: `http://jigsaw.w3.org/css-validator/validator-upload.html`. The page features the W3C logo and the text "Powered By JIGSAW Java HTTP Server". The main heading is "W3C CSS Validation Service" with a sub-heading "Validate your cascading style sheet". Below this, there is a form for uploading a CSS file. The form includes a text input field containing the file path `C:\W3HTP3\examples\ch06\styles.css` and a "Browse..." button. There are also dropdown menus for "Warnings" (set to "Normal report"), "Profile" (set to "CSS version 3"), and "Medium" (set to "all"). At the bottom of the form, there are two buttons: "Submit this CSS file for validation" and "Reset this form". The browser's status bar at the bottom shows "Done" and "Internet".

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

6.6 W3C CSS Validation Service

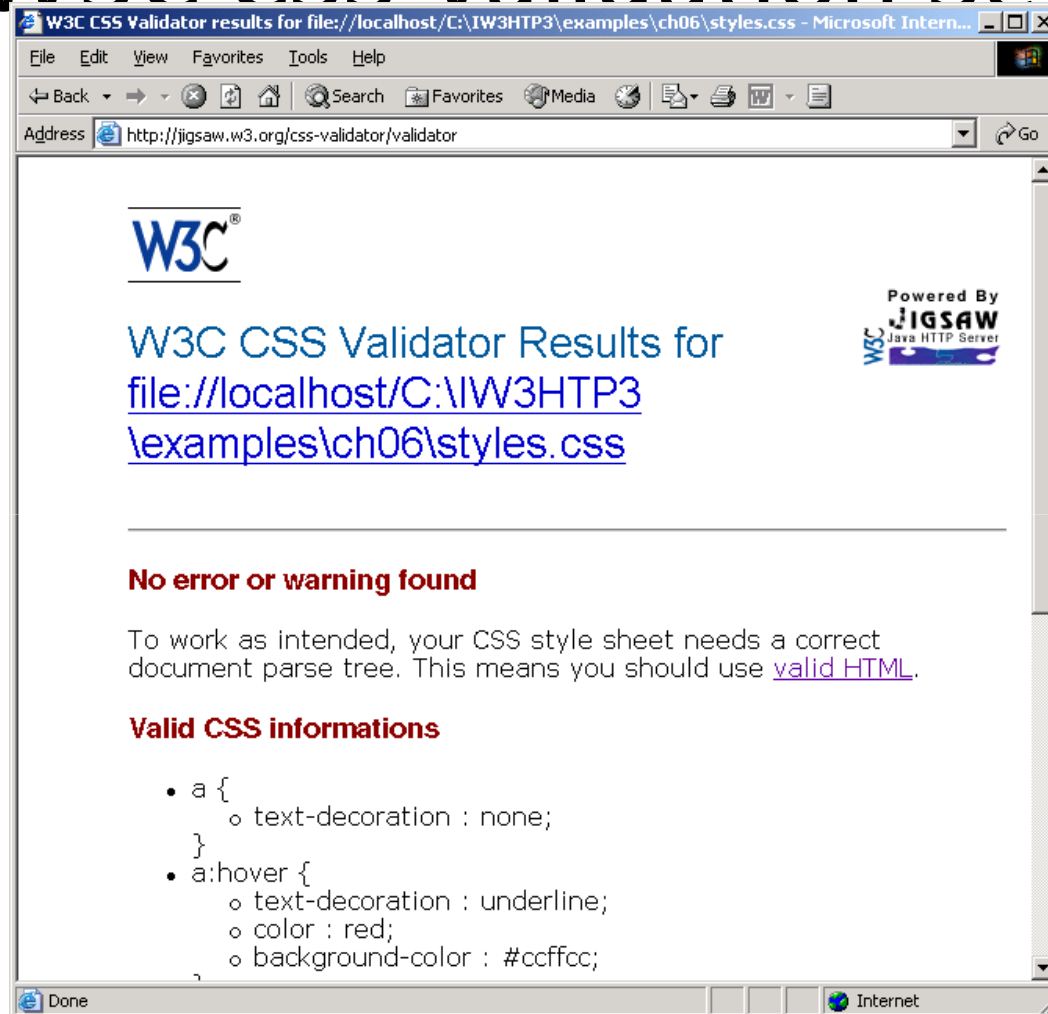
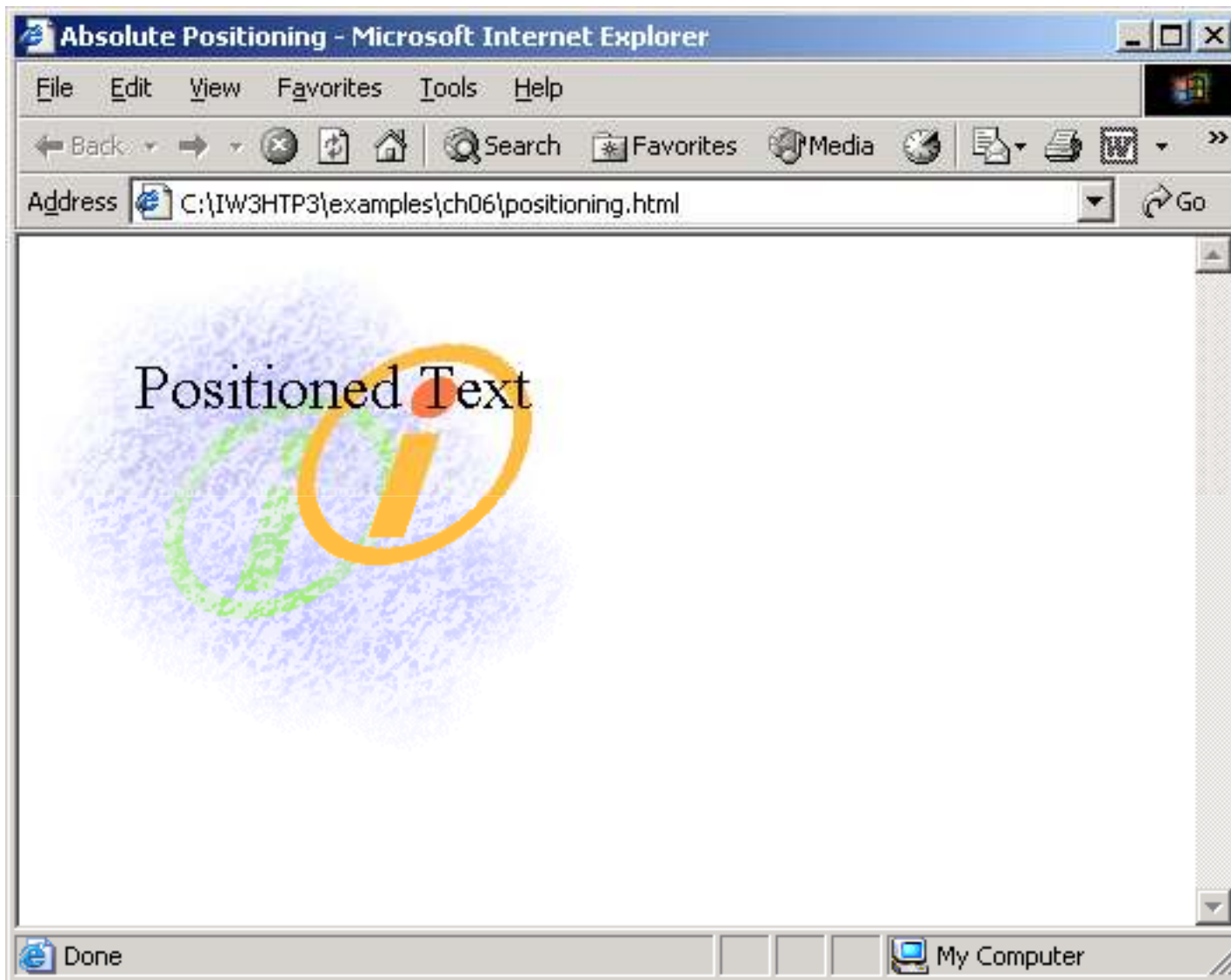


Fig. 6.7 CSS validation results. (Courtesy of World Wide Web Consortium (W3C).)

6.7 Positioning Elements

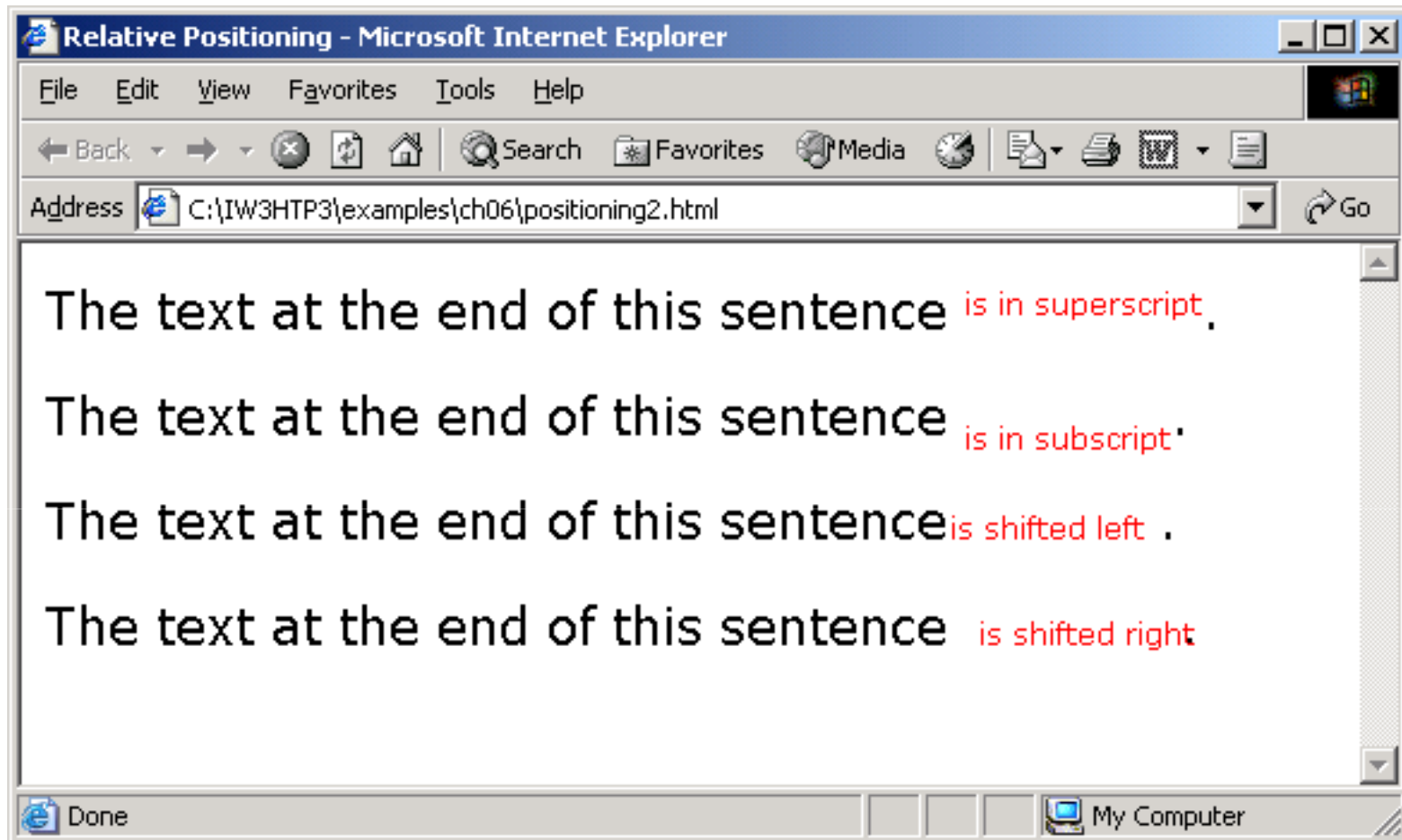
- Absolute positioning
 - z-index attribute
 - Layer overlapping elements properly
- Relative positioning
 - Elements are positioned relative to other elements

```
1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
3   "http://www.w3.org/TR/xhtml11/DTD/xhtml11.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"
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>
```




```
1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
3   "http://www.w3.org/TR/xhtml11/DTD/xhtml11.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: -1em }
29
30     .shiftright { position: relative;
31                  right: -1em }
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
47     <p>The text at the end of this sentence
48     <span class = "shiftright">is shifted right</span>.</p>
49
50 </body>
51 </html>
```

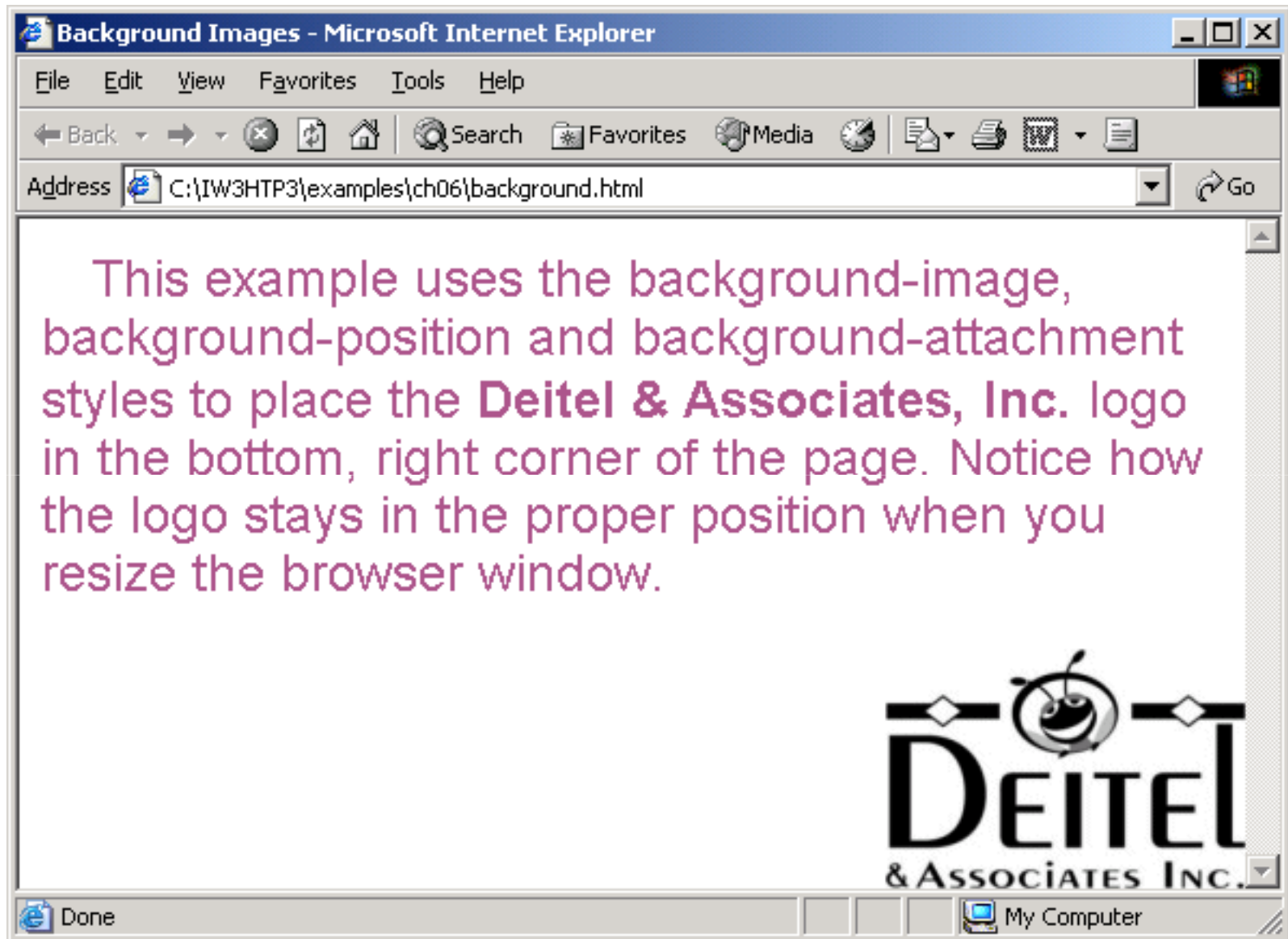


6.8 Backgrounds

- background-image
 - Specifies the image URL
- background-position
 - Places the image on the page
- background-repeat
 - Controls the tiling of the background image
- background-attachment
 - fixed
 - scroll
- font-weight
 - Specify the “boldness” of text

```
1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
3   "http://www.w3.org/TR/xhtml11/DTD/xhtml11.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
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>
```



6.9 Element Dimensions

- CSS rules can specify the actual dimensions of each page element


```
1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
3   "http://www.w3.org/TR/xhtml11/DTD/xhtml11.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

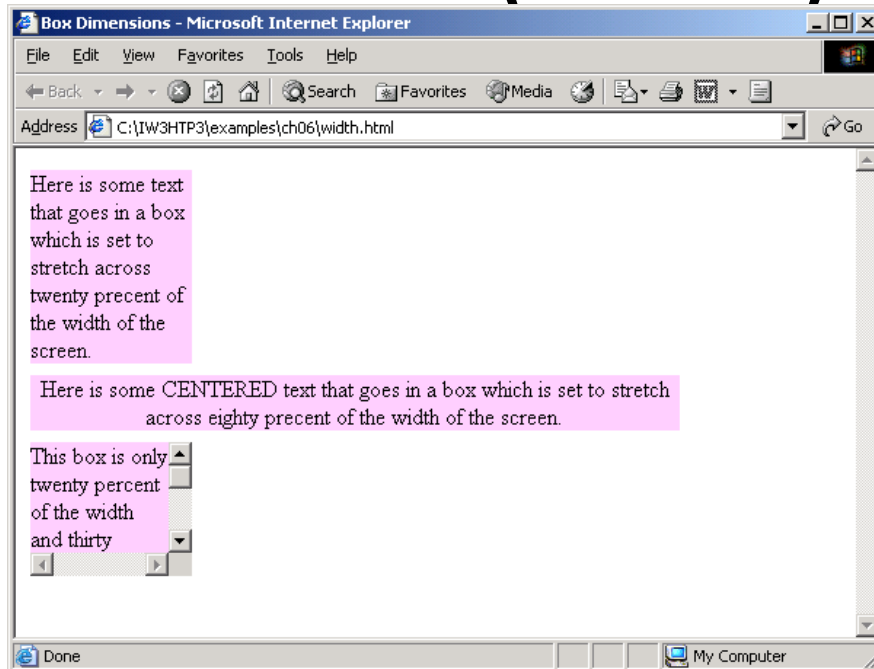
32 `<div style = "width: 20%; height: 30%; overflow: scroll">`

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>`



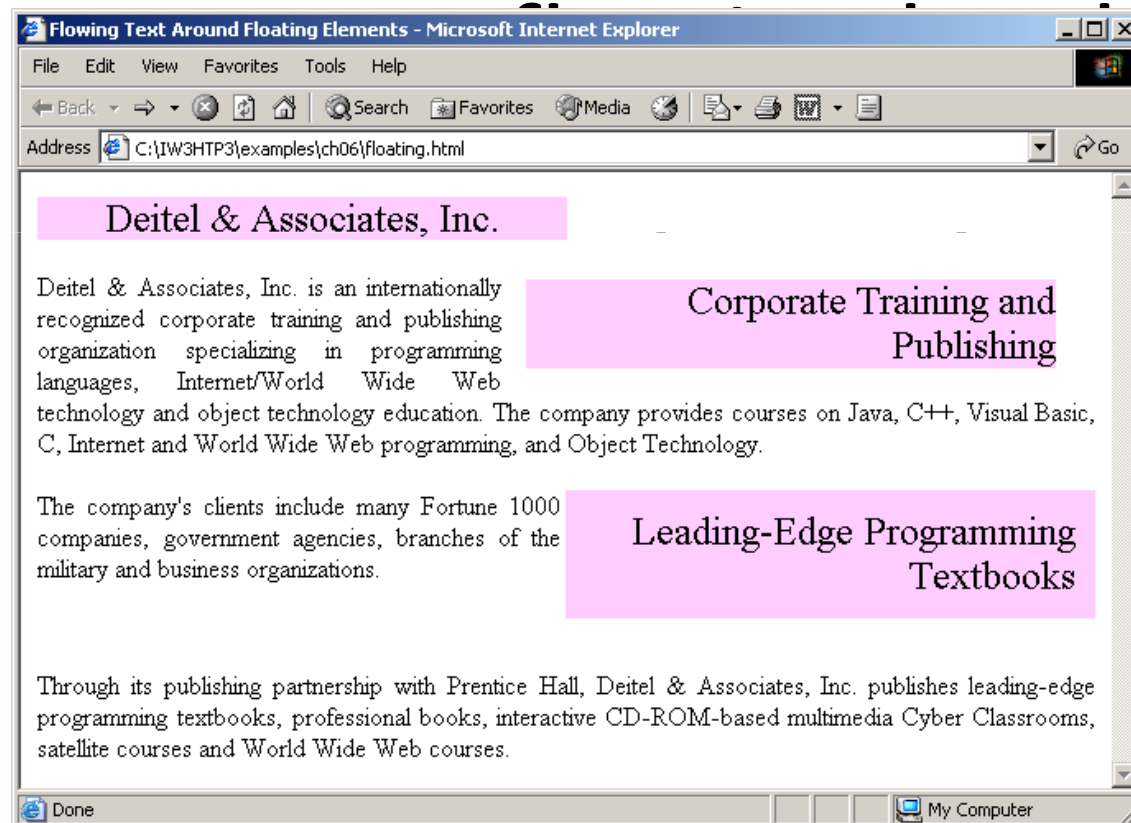
6.10 Text Flow and the Box Model

- Floating
 - Move an element to one side of the screen
- Box model
 - Margins
 - margin-top, margin-right, margin-left, margin-bottom
 - Padding
 - padding-top, padding-right, padding-left, and padding-bottom
 - Border
 - border-width
 - thin, medium, thick
 - border-color
 - Sets the color
 - border-style
 - none, hidden, dotted, dashed, solid, double, groove, ridge, inset and outset

```
1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
3   "http://www.w3.org/TR/xhtml11/DTD/xhtml11.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
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 The company provides courses on Java, C++, Visual Basic, C,
39 Internet and world wide web programming, and Object Technology.</p>
40
41 <div style = "float: right; padding: .5em;
42     text-align: right">
43     Leading-Edge Programming Textbooks</div>
44
45 <p>The company's clients include many Fortune 1000
46 companies, government agencies, branches of the military
47 and business organizations.</p>
48
```

```
49 <p style = "clear: right">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.</p>
55
56 </body>
57 </html>
```



6.10 Text Flow and the Box Model

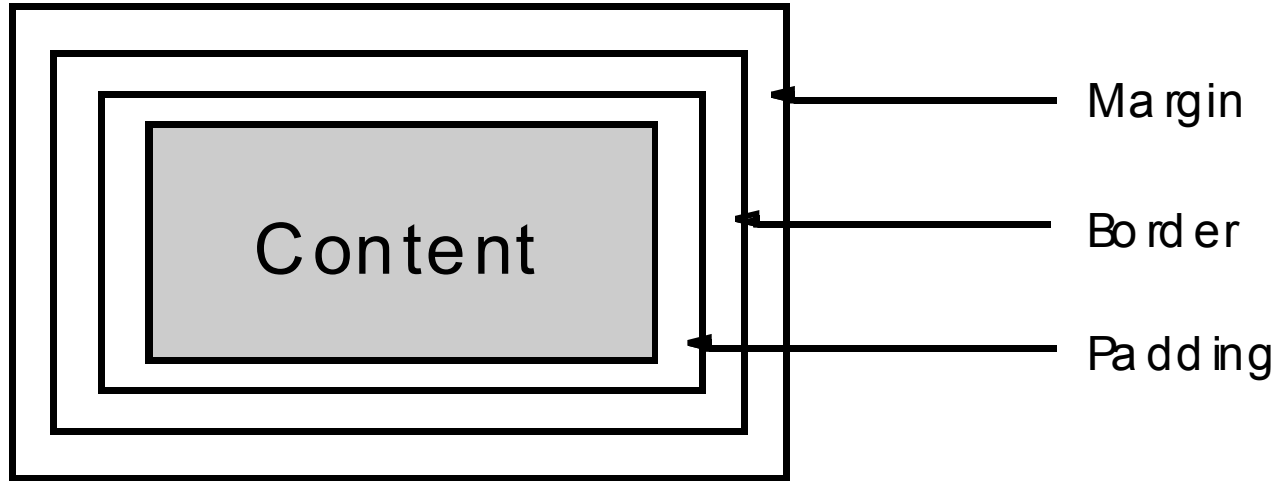
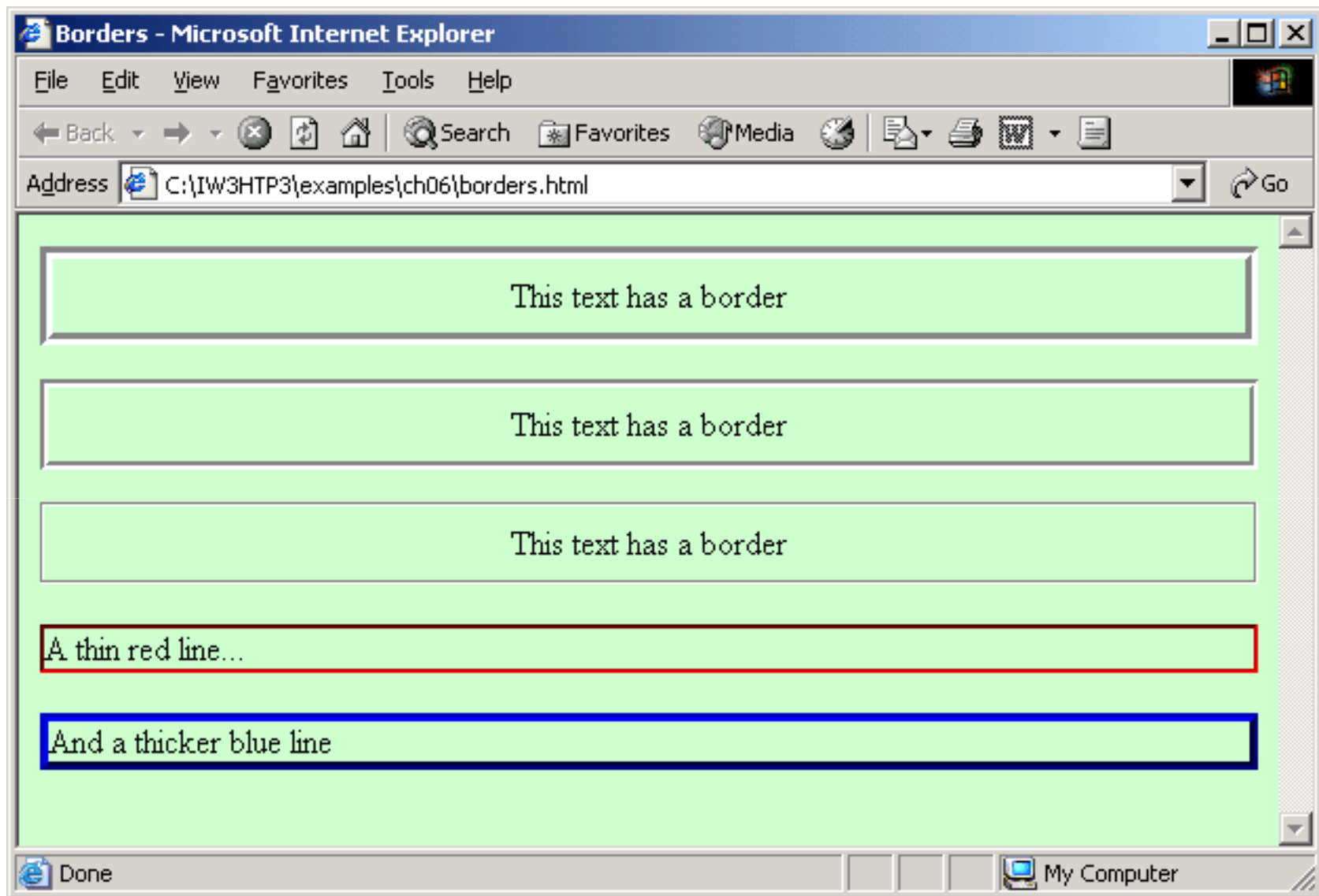


Fig. 6.13 Box model for block-level elements.

```
1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
3   "http://www.w3.org/TR/xhtml11/DTD/xhtml11.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
```

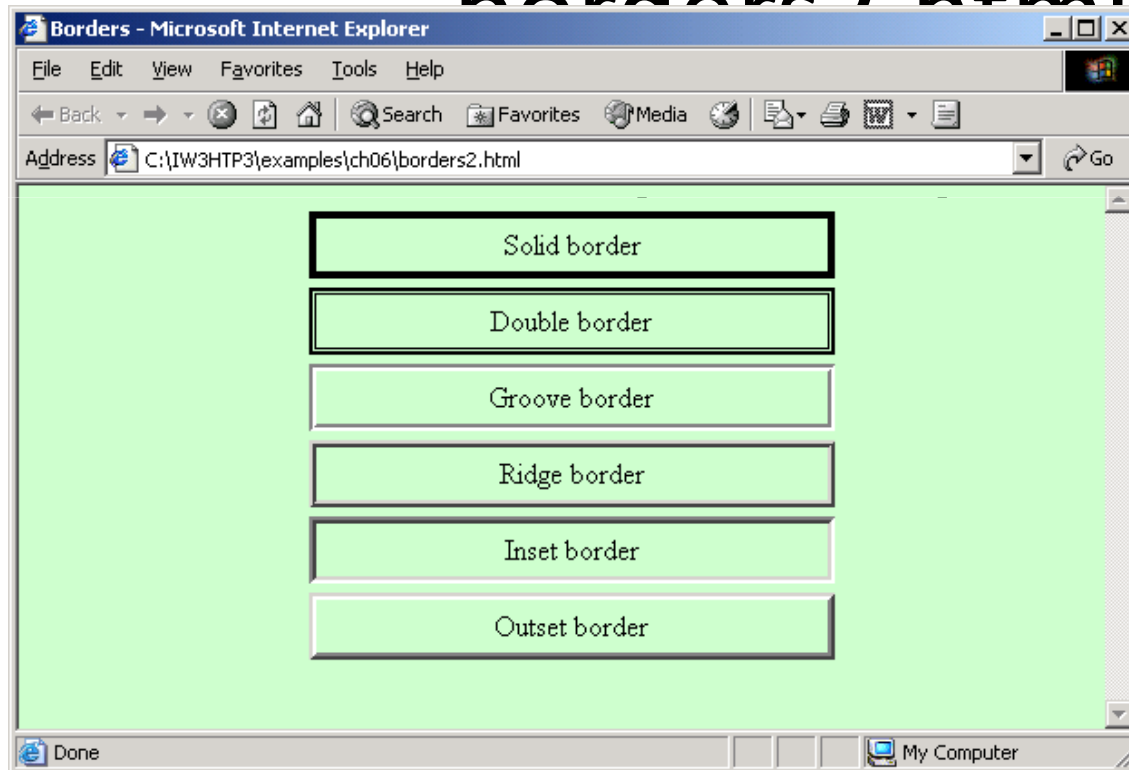


```
26     .groove { border-style: groove }
27
28     .inset { border-style: inset }
29
30     .outset { border-style: outset }
31
32     .red { border-color: red }
33
34     .blue { border-color: blue }
35
36 </style>
37 </head>
38
39 <body>
40
41     <div class = "thick groove">This text has a border</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>
```



```
1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
3   "http://www.w3.org/TR/xhtml11/DTD/xhtml11.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     </style>
23 </head>
24
25 <body>
```

```
26
27 <div style = "border-style: solid">Solid border</div>
28 <div style = "border-style: double">Double border</div>
29 <div style = "border-style: groove">Groove border</div>
30 <div style = "border-style: ridge">Ridge border</div>
31 <div style = "border-style: inset">Inset border</div>
32 <div style = "border-style: outset">Outset border</div>
33
34 </body>
35 </html>
```



6.11 User Style Sheets

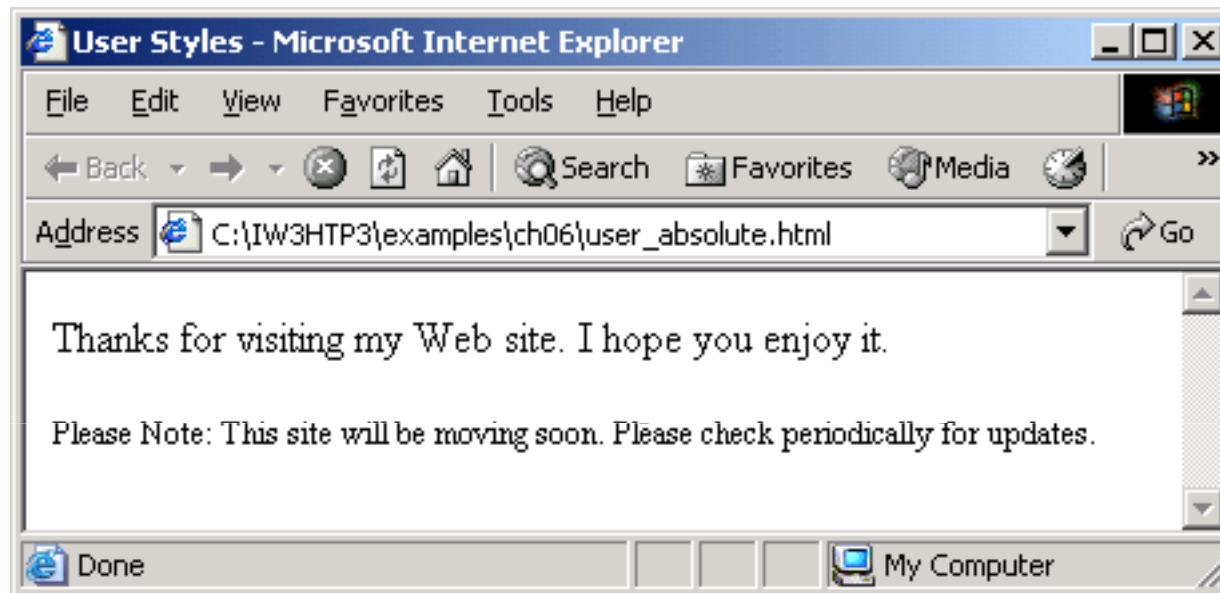
- Format pages based on preferences

```
1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
3   "http://www.w3.org/TR/xhtml11/DTD/xhtml11.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>



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

userstyles.css

1 of 1

6.11 User Style Sheets

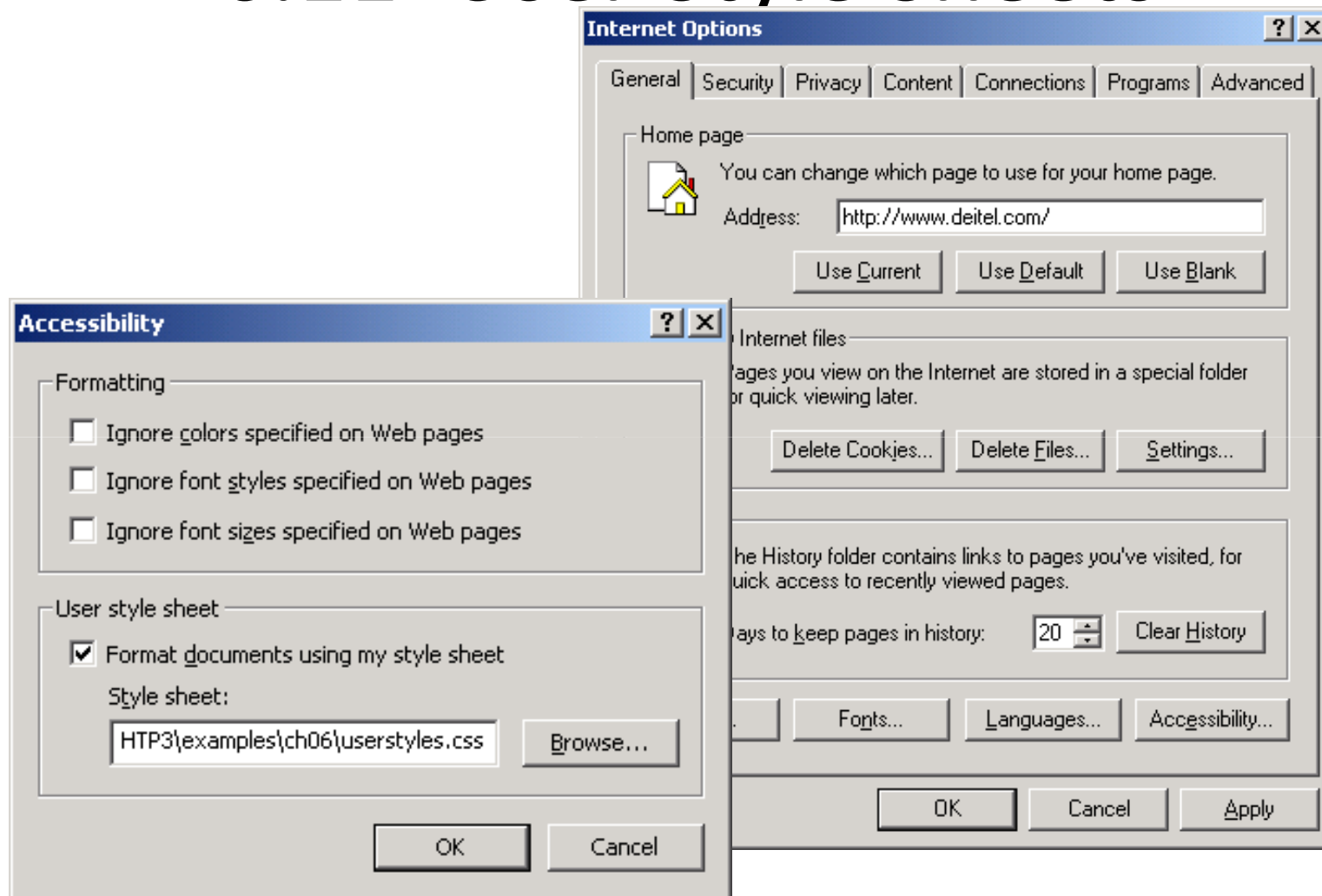


Fig. 6.18 User style sheet in Internet Explorer 6.

6.11 User Style Sheets

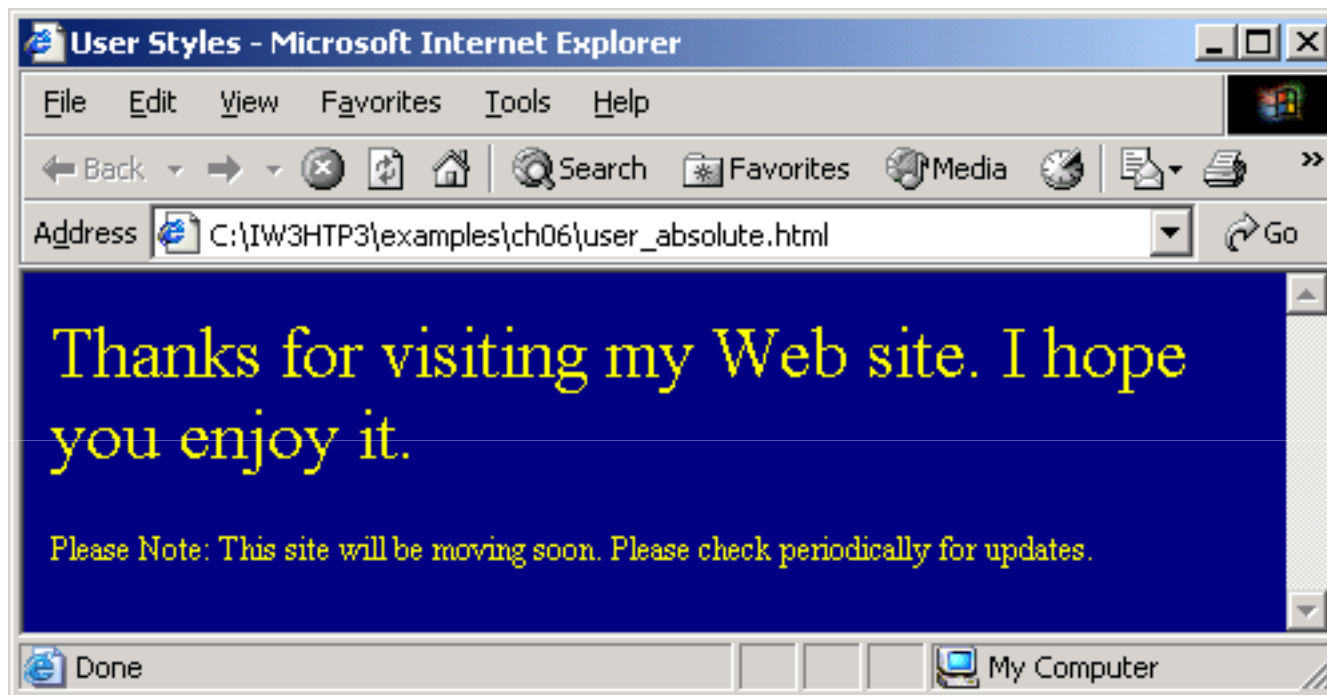


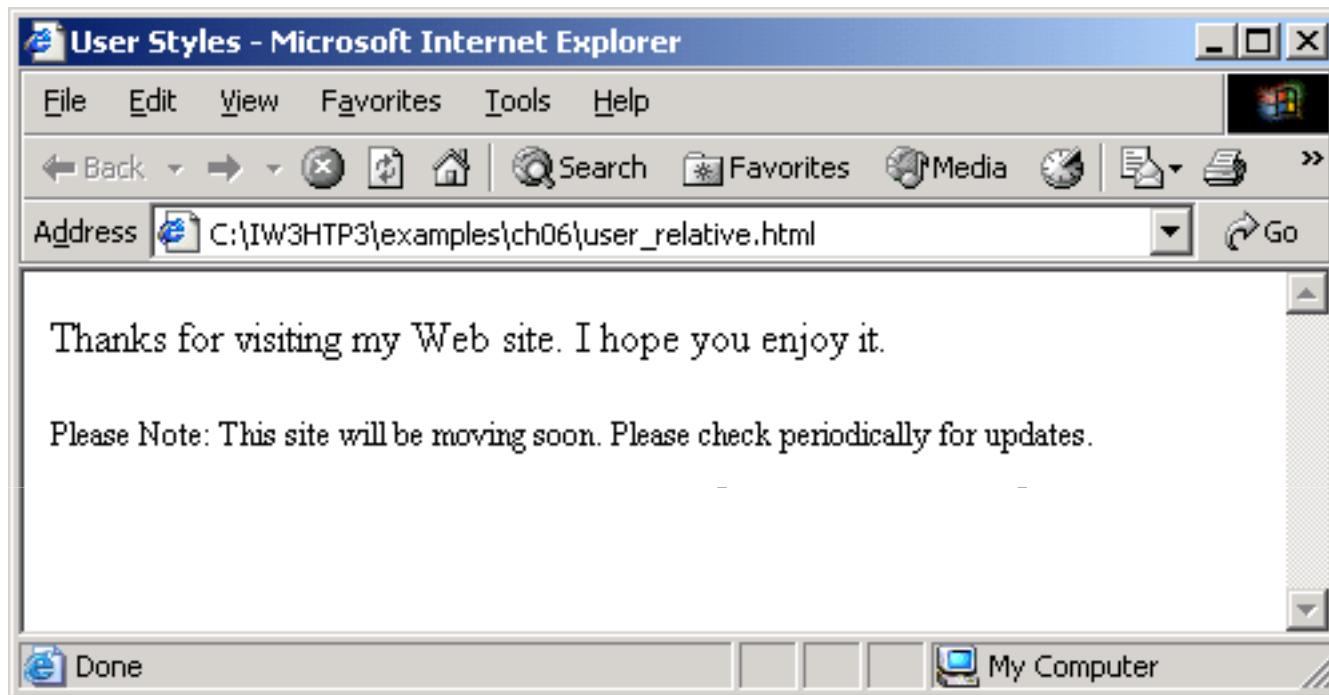
Fig. 6.19 User style sheet applied with pt measurement.

```
1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
3   "http://www.w3.org/TR/xhtml11/DTD/xhtml11.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>



6.11 User Style Sheets

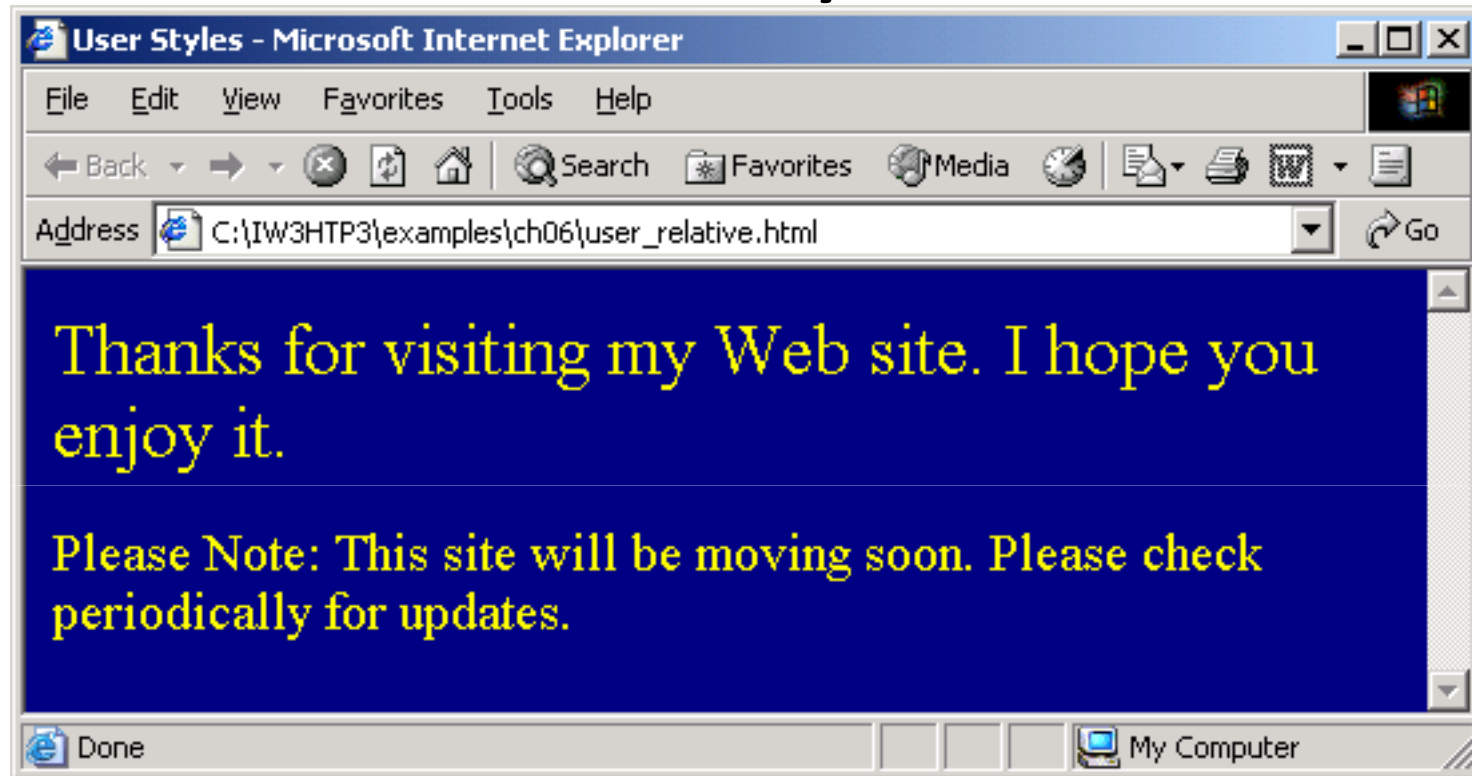


Fig. 6.21 User style sheet applied with em measurement.

6.12 Web Resources

- www.w3.org/TR/css3-roadmap
- www.ddj.com/webreview/style
- tech.irt.org/articles/css.htm