

Internet and New Media (INM)

Chapter 03 – CSS (Topic 5)

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5.1 Introduction

- Cascading Style Sheets (CSS)
- Used to specify the presentation of elements separately from the structure of the document
- CSS validator
jigsaw.w3.org/css-validator/

5.2 Inline Styles

- Inline style
- declare a style for an individual element by using the `style` attribute in the element's start tag
- Each CSS property is followed by a colon and the value of the attribute
- Multiple property declarations are separated by a semicolon

5.2 Inline Styles (Cont.)

- color property sets text color
- Color names and hexadecimal codes may be used as the value

Good Programming Practice 5.1

Inline styles do not truly separate presentation from content. To apply similar styles to multiple elements, use *embedded styles sheets* or *external style sheets*, introduced later in this chapter.

Fig. 5.1 | Using inline styles (Part 1 of 2).

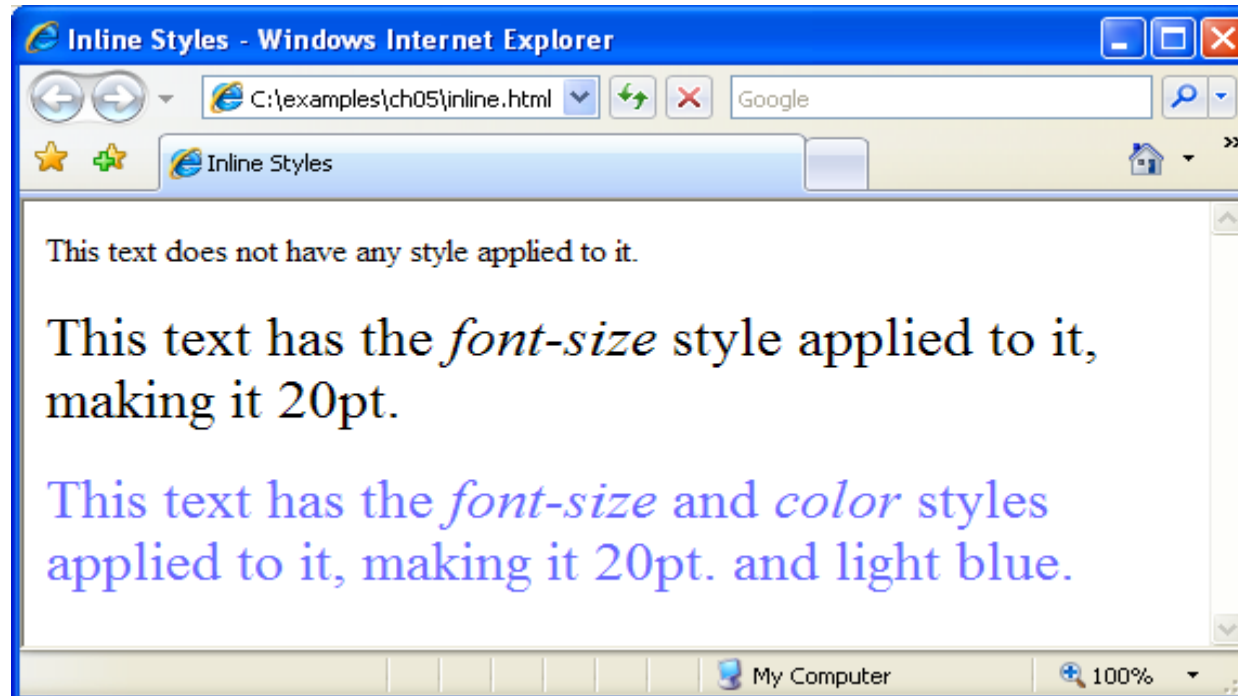
```
1 <?xml version = "1.0" encoding = "utf-8"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4
5 <!-- Fig. 5.1: inline.html -->
6 <!-- Using inline styles -->
7 <html xmlns = "http://www.w3.org/1999/xhtml">
8   <head>
9     <title>Inline styles</title>
10  </head>
11  <body>
12    <p>This text does not have any style applied to it.</p>
13
14    <!-- The style attribute allows you to declare -->
15    <!-- inline styles. Separate multiple style properties -->
16    <!-- with a semicolon. -->
17    <p style = "font-size: 20pt">This text has the
18      <em>font-size</em> style applied to it, making it 20pt.
19    </p>
20
21    <p style = "font-size: 20pt; color: #8888ff">
22      This text has the <em>font-size</em> and
23      <em>color</em> styles applied to it, making it
24      20pt. and light blue.</p>
25  </body>
26 </html>
```

Style attribute

Sets the paragraph's font size to 20pt

Sets the paragraph's color to light blue

Fig. 5.1 | Using inline styles (Part 2 of 2).



5.3 Embedded Style Sheets

- Styles that are placed in a `style` element use selectors to apply style elements throughout 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 in a style sheet begins and ends with a curly brace (`{` and `}`).

5.3 Embedded Style Sheets (Cont.)

- Style-class declarations are preceded by a period and are applied to elements of the specific class
- The class attribute applies a style class to an element
- 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 (;)

5.3 Embedded Style Sheets (Cont.)

- font-weight property specifies the “boldness” of text. Possible values are:
 - `bold`
 - `normal` (the default)
 - `bolder` (bolder than bold text)
 - `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

5.3 Embedded Style Sheets (Cont.)

- `background-color` attribute specifies the background color of the element
- `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
- `font-size` property specifies the size used to render the font

Fig. 5.2 | Embedded style sheets (Part 1 of 2).

```

1  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
2  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
3  <!-- Fig. 5.2: embedded.html -->
4  <!-- Embedded style sheets. -->
5  <html xmlns = "http://www.w3.org/1999/xhtml"
6  <head>
7  <title>Style Sheets</title>
8  <!-- this begins the style sheet section -->
9  <style type = "text/css">
10     em { font-weight: bold;
11         color: black }
12     h1 { font-family: tahoma, helvetica, sans-serif }
13     p { font-size: 12pt;
14        font-family: arial, sans-serif }
15     .special { color: #6600ff }
16 </style>
17 </head>
18 <body>
19 <!-- this class attribute applies the .special style -->
20 <h1 class = "special">Deitel & Associates, Inc.</h1>
21 <p>Deitel & Associates, Inc. is an international
22 recognized corporate training and publishing organization
23 specializing in programming languages, Internet/web
24 wide web technology and object technology education.
25 The company provides courses on Java, C++, Visual Basic,
26 C#, C, Internet and world wide web programming, Object
27 Technology, and more.</p>
28
29
30
31
    
```

Style sheet begins

Sets the MIME type to text/css

Sets the properties for all elements in the document within em tags

Sets the properties for all h1 elements in the document

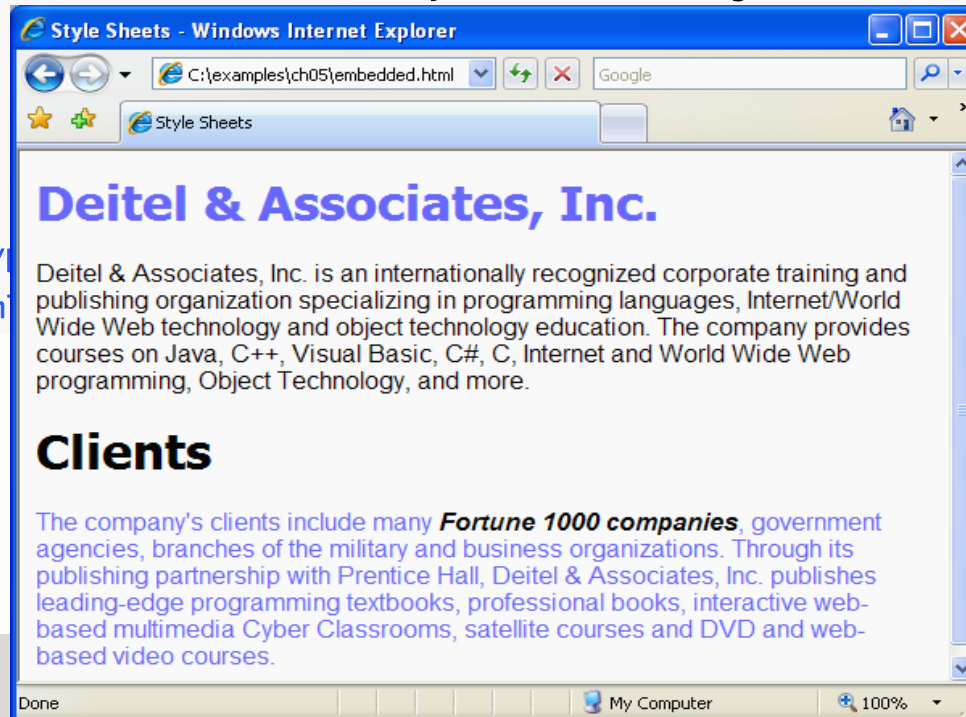
Sets the properties for all p elements in the document

Creates a special class

Style sheet ends

Fig. 5.2 | Embedded style sheets (Part 2 of 2).

```
32
33 <h1>Clients</h1>
34 <p class = "special"> The company's clients include m
35 <em>Fortune 1000 companies</em>, government agencies,
36 branches of the military and business organizations.
37
38
39
40
41
42 </
43 </html>
```



The special class is applied to this p element

5.4 Conflicting Styles

- Styles defined by the user take precedence over styles defined by the user agent
- Styles defined by authors take precedence over styles defined by the user
- Most styles are inherited from parent elements. Styles defined for children have higher specificity and take precedence over the styles of their parents
- Conflicts are resolved in favor of properties with a higher specificity

5.4 Conflicting Styles (Cont.)

- `text-decoration` property applies decorations to text in an element
 - `underline`
 - `overline`
 - `line-through`
 - `blink`

5.4 Conflicting Styles (Cont.)

- Pseudoclasses give the author access to content not specifically declared in the document
- Pseudoclasses are separated by a colon (with no surrounding spaces) from the name of the element to which they are applied
- hover pseudoclass is activated when the user moves the mouse cursor over an element

5.4 Conflicting Styles (Cont.)

- To apply rules to multiple elements, separate the elements with commas in the style sheet
- To apply rules to only a certain type of element that is a child of another type, separate the element names with spaces

5.4 Conflicting Styles (Cont.)

- Relative length measurements:
 - px (pixels – size varies depending on screen resolution)
 - em (usually the height of a font's uppercase M)
 - ex (usually the height of a font's lowercase x)
 - Percentages (of the font's default size)
- Absolute-length measurements (units that do not vary in size):
 - in (inches)
 - cm (centimeters)
 - mm (millimeters)
 - pt (points; 1 pt = 1/72 in)
 - pc (picas; 1 pc = 12 pt)

Fig. 5.3 | Inheritance in style sheets (Part 1 of 3).

```
1 <?xml version = "1.0" encoding = "utf-8"?>
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. 5.3: advanced.html -->
6 <!-- Inheritance in style sheets. -->
7 <html xmlns = "http://www.w3.org/1999/xhtml">
8   <head>
9     <title>More Styles</title>
10    <style type = "text/css">
11      body { font-family: arial, helvetica, sans-serif }
12      a.nodect { text-decoration: none }
13      a:hover { text-decoration: underline }
14      li em { font-weight: bold }
15      h1, em { text-decoration: underline }
16      ul { margin-left: 20px }
17      ul ul { font-size: .8em }
18    </style>
19  </head>
20  <body>
21    <h1>Shopping list for Monday:</h1>
22
```

Defines the class `nodect` that can only be used by anchor elements

Sets the properties for the `hover` pseudoclass for the `a` element, which is activated when the user moves the cursor over an anchor element

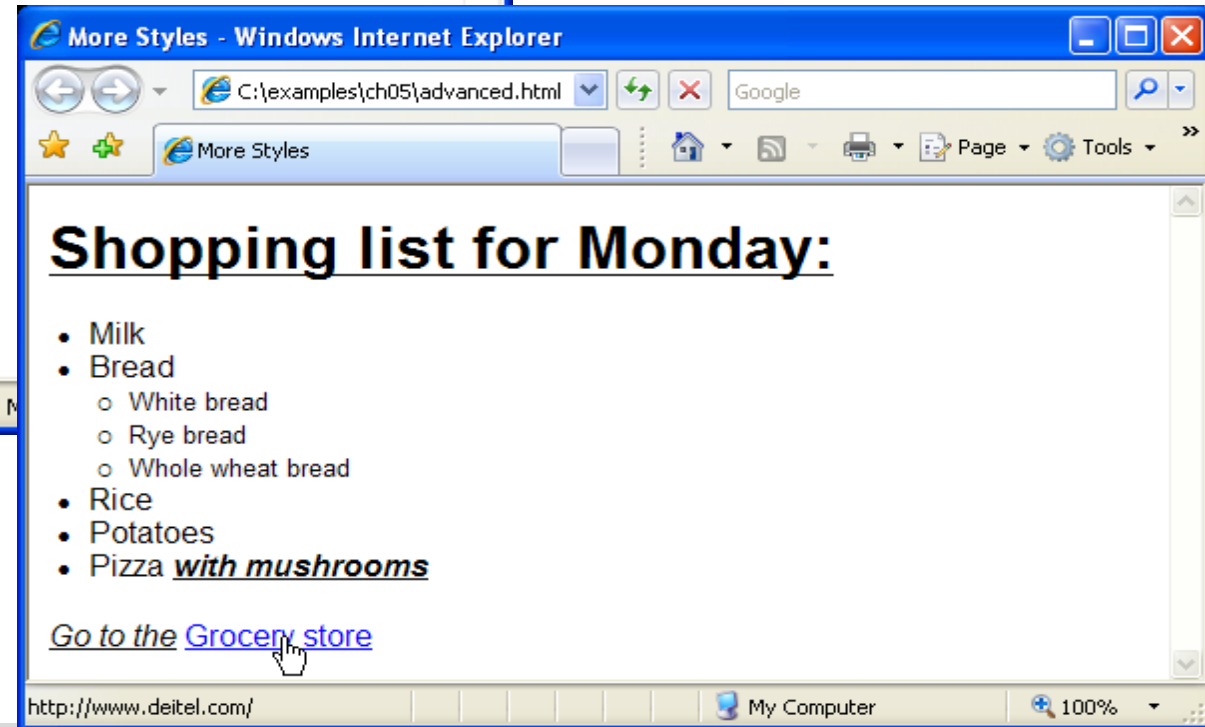
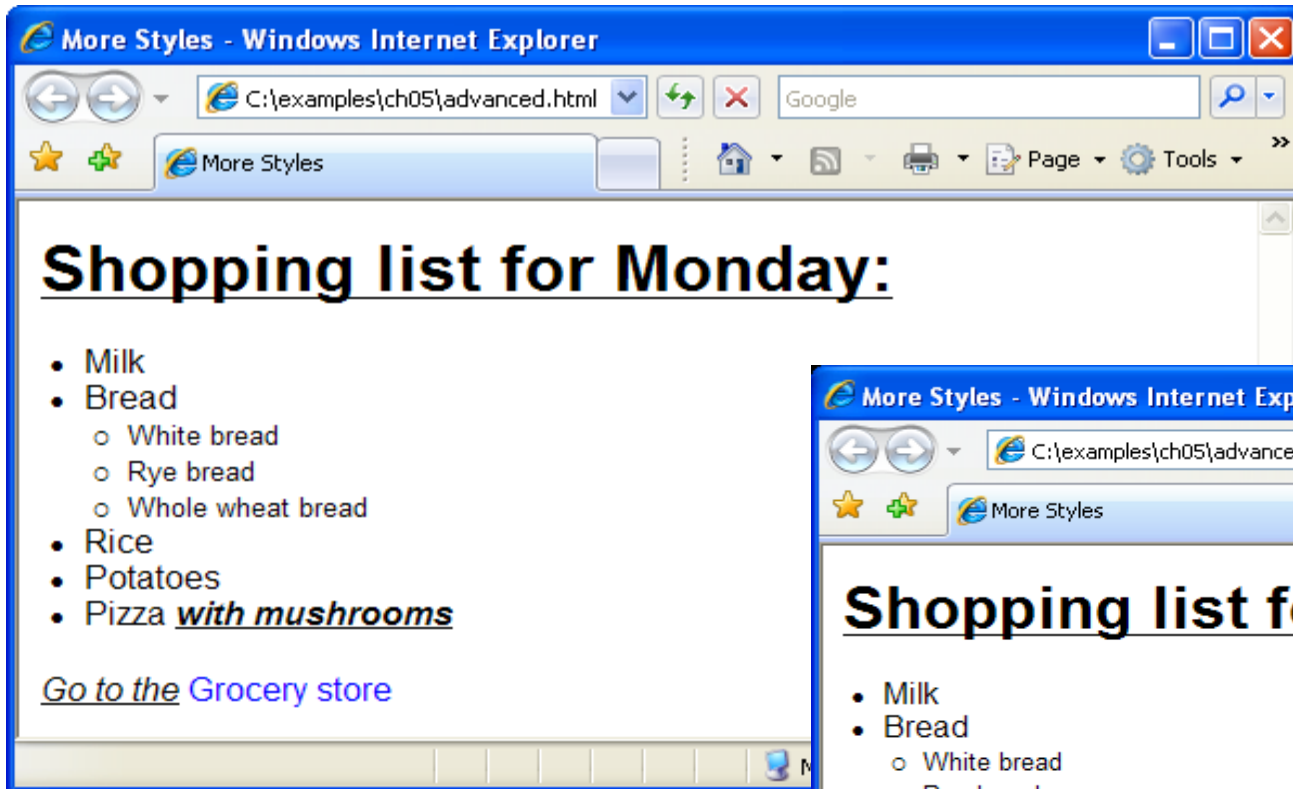
All `em` elements that are children of `li` elements set to bold

Applies underline style to all `h1` and `em` elements

Fig. 5.3 | Inheritance in style sheets (Part 2 of 3).

```
23     <ul>
24         <li>Milk</li>
25         <li>Bread
26             <ul>
27                 <li>white bread</li>
28                 <li>Rye bread</li>
29                 <li>whole wheat bread</li>
30             </ul>
31         </li>
32         <li>Rice</li>
33         <li>Potatoes</li>
34         <li>Pizza <em>with mushrooms</em></li>
35     </ul>
36
37     <p><em>Go to </em>
38         <a class = "nodec" href = "http://www.cuas.at">
39             CUAS</a>
40     </p>
41 </body>
42 </html>
```

Fig. 5.3 | Inheritance in style sheets (Part 3 of 3).



Portability Tip 5.1

To ensure that your style sheets work in various web browsers, test them on all the client Web browsers that will render documents using your styles, as well as using the W3C CSS Validator.

Common Programming Error 5.1

Including a space before or after the colon separating a pseudoclass from the name of the element to which it is applied is an error that prevents the pseudoclass from being applied properly.

Good Programming Practice 5.2

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).

5.5 Linking External Style Sheets

- External style sheets are separate documents that contain only CSS rules
- This helps to create a uniform look for a website
- separate pages can all use the same styles
- modifying a single style-sheet file makes changes to styles across an entire website

Software Engineering Observation 5.1

Always use an external style sheet when developing a website with multiple pages. External style sheets separate content from presentation, allowing for more consistent look-and-feel, more efficient development, and better performance.

5.5 Linking External Style Sheets (Cont.)

- link element
- Uses rel attribute to specify a relationship between two documents
- rel attribute declares the linked document to be a stylesheet for the document
- type attribute specifies the MIME type of the related document
- href attribute provides the URL for the document containing the style sheet

Fig. 5.4 | External style sheet.

```
1 /* Fig. 5.4: styles.css */
2 /* External stylesheet */
3
4 body { font-family: arial, helvetica, sans-serif }
5
6 a.nodect { text-decoration: none }
7
8 a:hover { text-decoration: underline }
9
10 li em { font-weight: bold }
11
12 h1, em { text-decoration: underline }
13
14 ul { margin-left: 20px }
15
16 ul ul { font-size: .8em; }
```

Fig. 5.5 | Linking an external style sheet (Part 1 of 2).

```
1 <?xml version = "1.0" encoding = "utf-8"?>
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. 5.6: external.html -->
6 <!-- Linking an external style sheet. -->
7 <html xmlns = "http://www.w3.org/1999/xhtml">
8   <head>
9     <title>Linking External Style Sheets</title>
10    <link rel = "stylesheet" type = "text/css"
11         href = "styles.css" />
12  </head>
13  <body>
14    <h1>Shopping list for <em>Monday</em>:</h1>
15
16    <ul>
17      <li>Milk</li>
18      <li>Bread
19        <ul>
20          <li>white bread</li>
21          <li>rye bread</li>
22          <li>whole wheat bread</li>
23        </ul>
24      </li>
25      <li>Rice</li>
26      <li>Potatoes</li>
27      <li>Pizza <em>with mushrooms</em></li>
28    </ul>
29
```

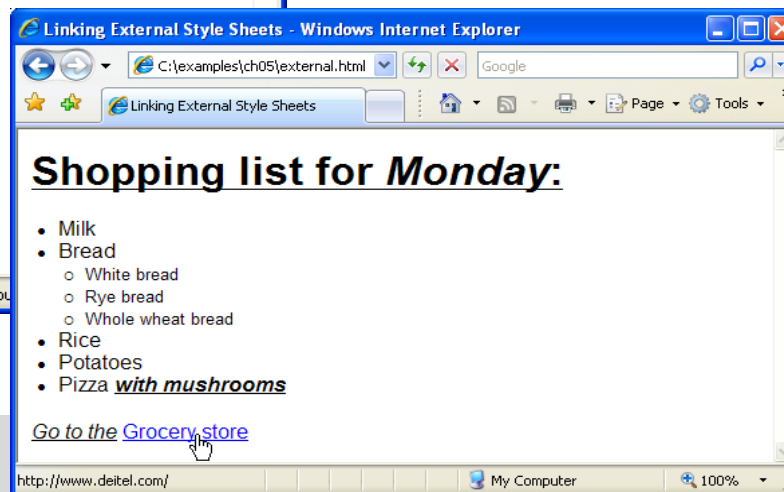
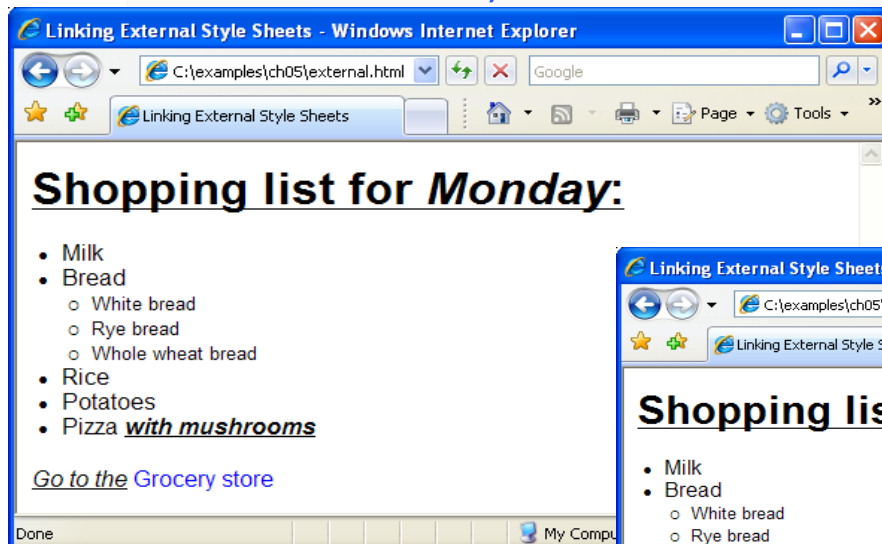
The linked document is declared to be the current one's stylesheet

The linked document's MIME type is text/css

The linked document's URL is styles.css

Fig. 5.5 | Linking an external style sheet (Part 2 of 2).

```
30 <p><em>Go to </em>  
31 <a class = "nodec" href = "http://www.cuas.at">  
32 CUAS</a>
```



Software Engineering Observation 5.2

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

Performance Tip 5.1

Reusing external style sheets reduces load time and bandwidth usage on a server, since the style sheet can be downloaded once, stored by the web browser, and applied to all pages on a website.

5.6 Positioning Elements

- CSS position property
- Allows absolute positioning, which provides greater control over where on a page elements reside
- Normally, elements are positioned on the page in the order that they appear in the XHTML document
- 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 margin of its parent element

5.6 Positioning Elements (Cont.)

- 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

Fig. 5.6 | Absolute positioning of elements (Part 1 of 2).

```

1 <?xml version = "1.0" encoding = "utf-8"?>
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. 5.6: positioning.html -->
6 <!-- Absolute positioning of elements. -->
7 <html xmlns = "http://www.w3.org/1999/xhtml">
8   <head>
9     <title>Absolute Positioning</title>
10    <style type = "text/css">
11      .bgimg { position: absolute;
12              top: 0px;
13              left: 0px;
14              z-index: 1 }
15      .fgimg { position: absolute;
16              top: 25px;
17              left: 100px;
18              z-index: 2 }
19      .text { position: absolute;
20             top: 25px;
21             left: 100px;
22             z-index: 3;
23             font-size: 20pt;
24             font-family: tahoma, geneva, sans-ser
25    </style>
26  </head>
27  <body>
28    <p><img src = "bgimg.gif" class = "bgimg"
29      alt = "First positioned image" /></p>
30

```

Class that sets an element's absolute position at the top left of the containing element

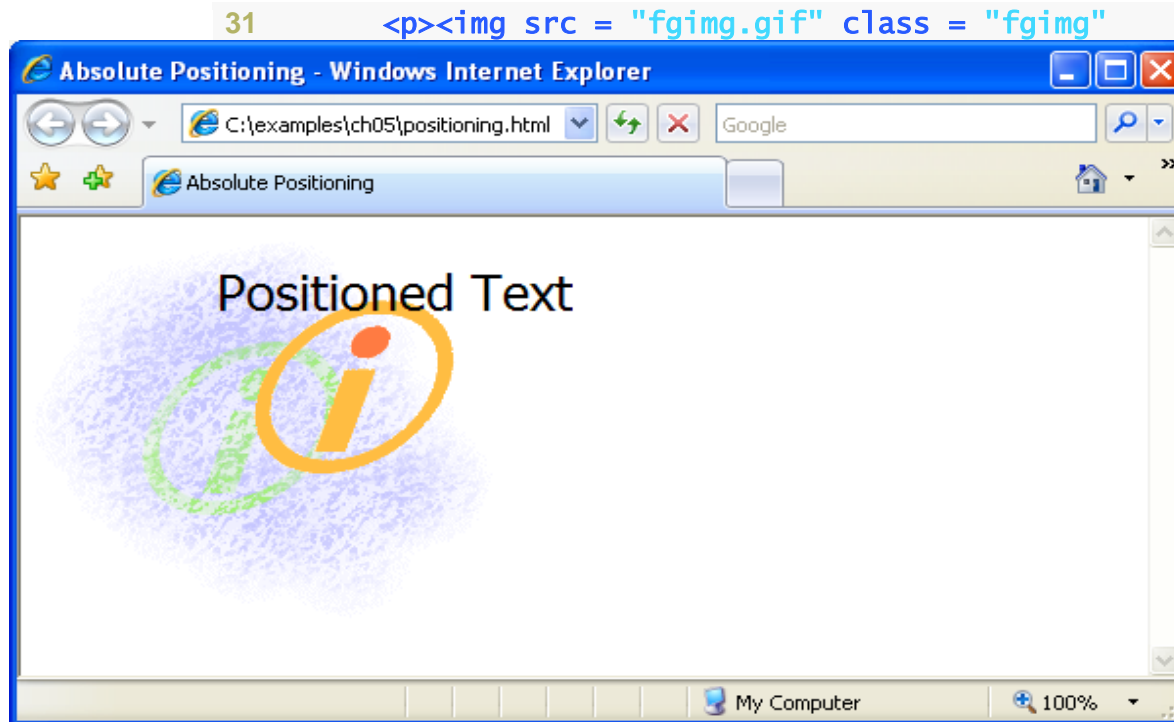
Lowest z-index, so this element is behind all the others

Set element's position 25px from the top and 100 from the left

This element will appear on top of the first one, since it has a higher z-index

This element will appear on top of all others, since it has the highest z-index

Fig. 5.6 | Absolute positioning of elements (Part 2 of 2).



5.6 Positioning Elements (Cont.)

- Relative positioning keeps elements in the general flow on the page and offsets them by the specified top, left, right or bottom value

5.6 Positioning Elements (Cont.)

- Inline-level elements
- Do not change the flow of the document
- Examples:
 - `img`
 - `a`
 - `em`
 - `strong`
 - `span`
 - Grouping element
 - Does not apply any formatting to its contents
 - Creates a container for CSS rules or `id` attributes to be applied to a section

5.6 Positioning Elements (Cont.)

- Block-level elements
- Displayed on their own line
- Have virtual boxes around them
- Examples:
 - p
 - all headings (h1 through h6)
 - div
 - A grouping element like span

Fig. 5.7 | Relative positioning of elements (Part 1 of 2).

```
1 <?xml version = "1.0" encoding = "utf-8"?>
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. 5.7: positioning2.html -->
6 <!-- Relative positioning of elements. -->
7 <html xmlns = "http://www.w3.org/1999/xhtml">
8   <head>
9     <title>Relative Positioning</title>
10    <style type = "text/css">
11      p      { font-size: 1.3em;
12              font-family: verdana, arial, sans-serif }
13      span   { color: red;
14              font-size: .6em;
15              height: 1em }
16      .super { position: relative;
17              top: -1ex }
18      .sub   { position: relative;
19              bottom: -1ex }
20      .shiftleft { position: relative;
21                  left: -1ex }
22      .shiftright { position: relative;
23                   right: -1ex }
24    </style>
25  </head>
26  <body>
27    <p>The text at the end of this sentence
28    <span class = "super">is in superscript</span>.</p>
29
```

Positions element 5 ex upwards

Positions element 1 ex downwards

Positions element 1 ex to the left

Positions element 1 ex to the right

Apply the super class to this span element

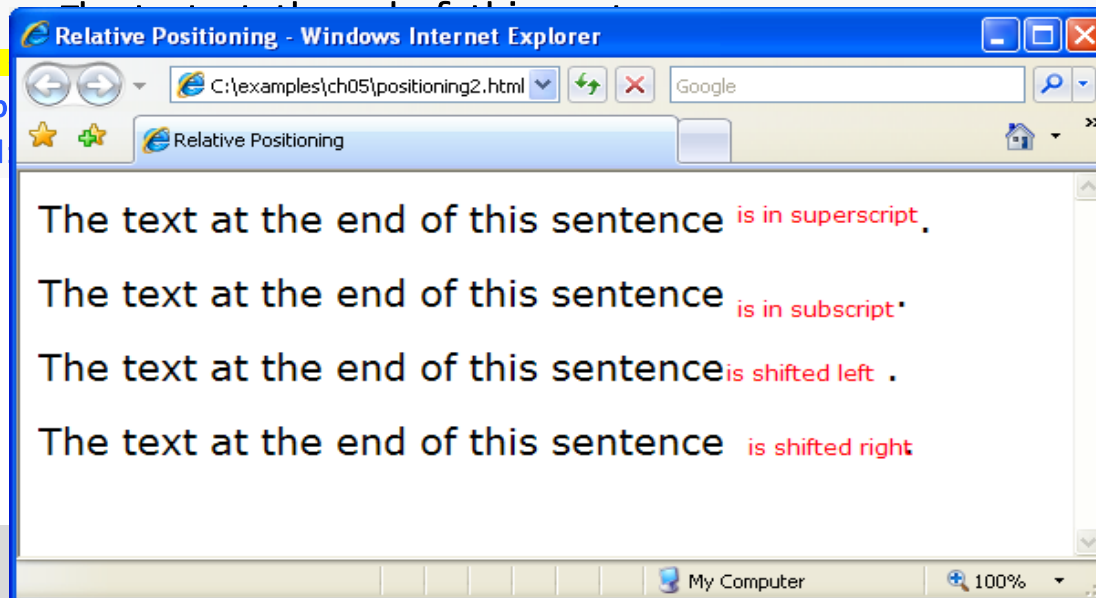
Fig. 5.7 | Relative positioning of elements (Part 2 of 2)

Apply the sub class to this span element

Apply the shiftleft class to this span element

Apply the shiftright class to this span element

```
30 <p>The text at the end of this sentence  
31 <span class = "sub">is in subscript</span>.</p>  
32  
33 <p>The text at the end of this sentence  
34 <span class = "shiftleft">is shifted left</span>.</p>  
35  
36  
37  
38 </b>  
39 </html>
```



Common Programming Error 5.2

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

5.7 Backgrounds

- CSS can control the backgrounds of block-level elements by adding:
 - Colors
 - Images

5.7 Backgrounds (Cont.)

- Property `background-image`
- Specifies the URL of the image, in the format `url(fileLocation)`
- 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

5.7 Backgrounds (Cont.)

- Property *background-image* specifies the URL of the image
- Use the format `url(fileLocation)`
- Property *background-position* places the image on the page
- Use the values *top*, *bottom*, *center*, *left* and *right* individually or in combination for vertical and horizontal positioning
- You can also position by specifying horizontal then vertical distances from the top-left corner of the screen

5.7 Backgrounds (Cont.)

- *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
- Setting to repeat (the default) tiles the image vertically and horizontally
- Setting to repeat-x tiles the image only horizontally
- Setting to repeat-y tile the image only vertically

5.7 Backgrounds (Cont.)

- 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

5.7 Backgrounds (Cont.)

- *text-indent* property indents the first line of text in the element by the specified amount
- *font-style* property allows you to set text to none, italic or oblique

Fig. 5.8 | Adding background images and indentation (Part 1 of 2).

```
1 <?xml version = "1.0" encoding = "utf-8"?>
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. 5.8: background.html -->
6 <!-- Adding background images and indentation. -->
7 <html xmlns = "http://www.w3.org/1999/xhtml">
8   <head>
9     <title>Background Images</title>
10    <style type = "text/css">
11      body { background-image: url(logo.gif);
12            background-position: bottom right;
13            background-repeat: no-repeat;
14            background-attachment: fixed;
15            background-color: #eeeeee }
16      p    { font-size: 18pt;
17            color: #1144AA;
18            text-indent: 1em;
19            font-family: arial, sans-serif; }
20      .dark { font-weight: bold }
21    </style>
22  </head>
```

Inserts the image at `logo.gif` as the background

Places the image at the bottom right of the page

Displays only one copy of the image

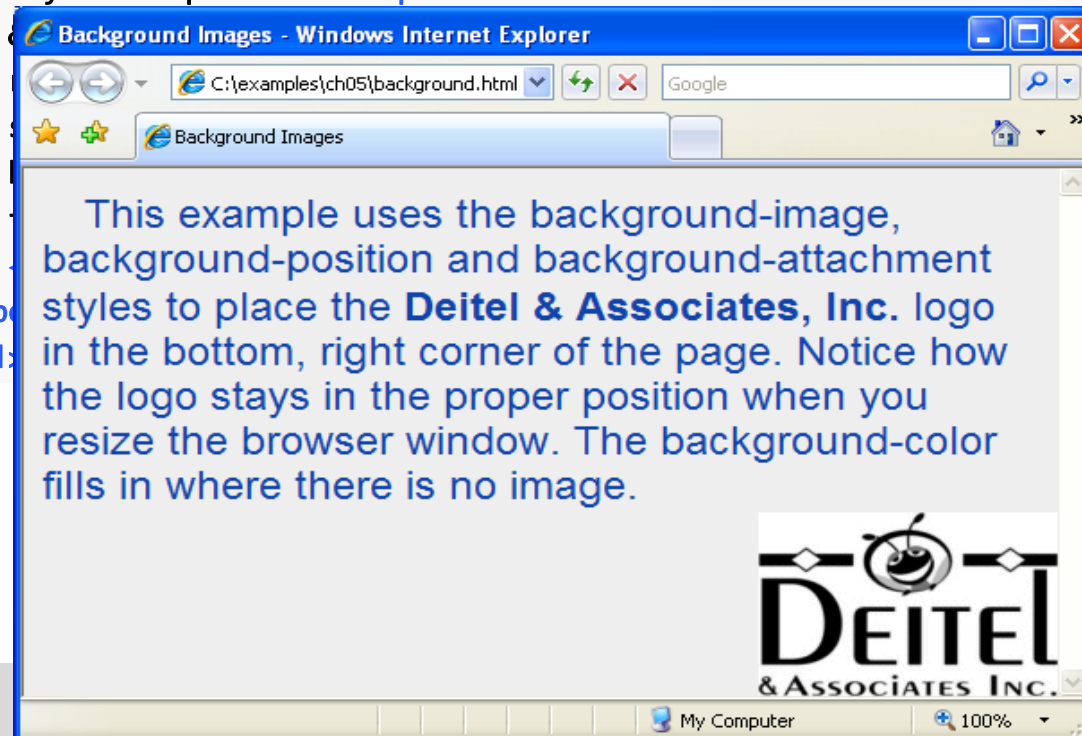
Keeps the image in place when the user scrolls in the browser window

Fills the remainder of the window with a light gray background

Indents the first line of text in the element by 1 em

Fig. 5.8 | Adding background images and indentation (Part 2 of 2).

```
23 <body>
24 <p>
25     This example uses the background-image,
26     background-position and background-attachment
27     styles to place the <span class = "dark">Deitel
28
29
30
31
32
33
34 </b
35 </html>
```



5.8 Element Dimensions

- Dimensions of elements on a page can be set with CSS by using properties `height` and `width`
- Their values can be relative or absolute
- Text in an element can be centered using `text-align: center`; other values for the `text-align` property are `left` and `right`

5.8 Element Dimensions (Cont.)

- Problem with setting both vertical and horizontal dimensions of an element
- Content might sometimes exceed the set boundaries, in which case the element must be made large enough for all the content to fit
- Can set the overflow property to `scroll`, which adds scroll bars if the text overflows the boundaries set for it

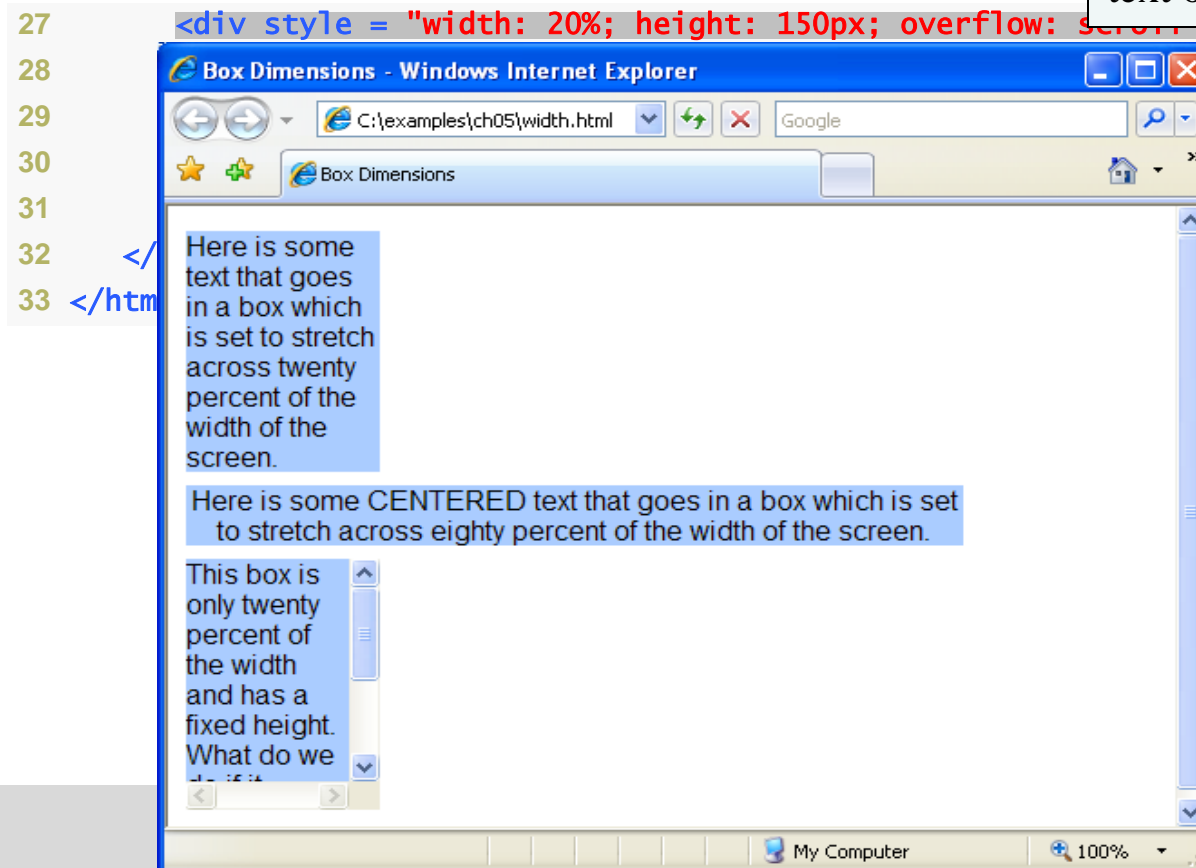
Fig. 5.9 | Element dimensions and text alignment (Part 1 of 2).

```
1 <?xml version = "1.0" encoding = "utf-8"?>
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. 5.9: width.html -->
6 <!-- Element dimensions and text alignment. -->
7 <html xmlns = "http://www.w3.org/1999/xhtml">
8   <head>
9     <title>Box Dimensions</title>
10    <style type = "text/css">
11      div { background-color: #aaccff;
12            margin-bottom: .5em;
13            font-family: arial, helvetica, sans-serif
14    </style>
15  </head>
16  <body>
17    <div style = "width: 20%">Here is some
18      text that goes in a box which is
19      set to stretch across twenty percent
20      of the width of the screen.</div>
21
22    <div style = "width: 80%; text-align: center">
23      Here is some CENTERED text that goes in a box
24      which is set to stretch across eighty percent of
25      the width of the screen.</div>
26
```

Sets the width of the element to 20% of the browser's screen's size

Sets the width of the element to 80% of the browser's screen's size and centers it

Fig. 5.9 | Element dimensions and text alignment (Part 2 of 2).



Sets the width of the element to 20% of the browser's screen's size, the height to 150 px, and allows the element to scroll if the text overflows the allotted size

5.9 Box Model and Text Flow

- Block-level XHTML elements have a virtual box drawn around them based on the box model
- When the browser renders using the box model, each element is surrounded by:
 - Padding
 - The padding property determines the distance between the content inside an element and the edge of the element
 - Padding be set for each side of the box by using `padding-top`, `padding-right`, `padding-left` and `padding-bottom`
 - Margin
 - Determines the distance between the element's edge and any outside text
 - Margins for individual sides of an element can be specified by using `margin-top`, `margin-right`, `margin-left` and `margin-bottom`
 - Border

5.9 Box Model and Text Flow (Cont.)

- The border is controlled using the properties:
 - `border-width`
 - May be set to any of the CSS lengths or to the predefined value of `thin`, `medium` or `thick`
 - `border-color`
 - Sets the color used for the border
 - `border-style`
 - Options are: `none`, `hidden`, `dotted`, `dashed`, `solid`, `double`, `groove`, `ridge`, `inset` and `outset`

5.9 Box Model and Text Flow (Cont.)

- class attribute
- allows more than one class to be assigned to an XHTML element by separating each class name from the next with a space

Fig. 5.10 | Box model for block-level elements.

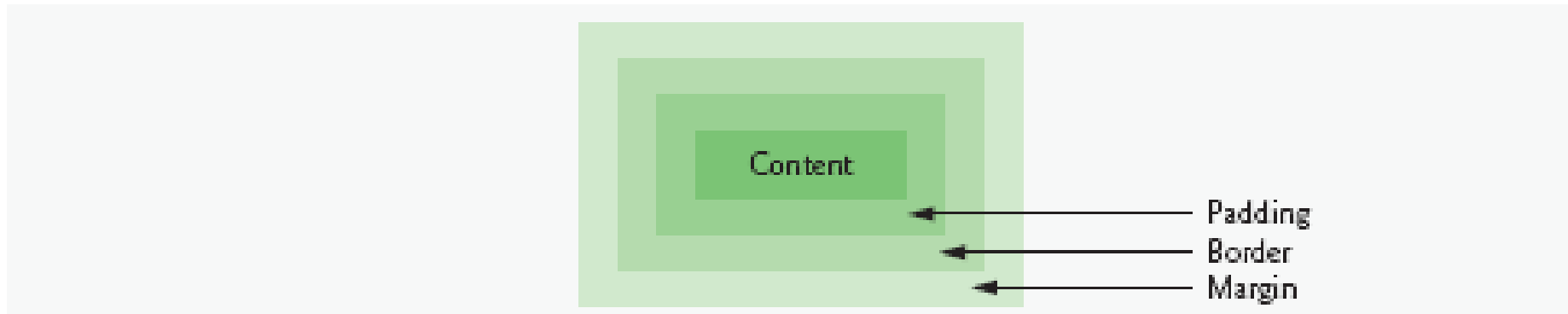


Fig. 5.11 | Borders of block-level elements (Part 1 of 2).

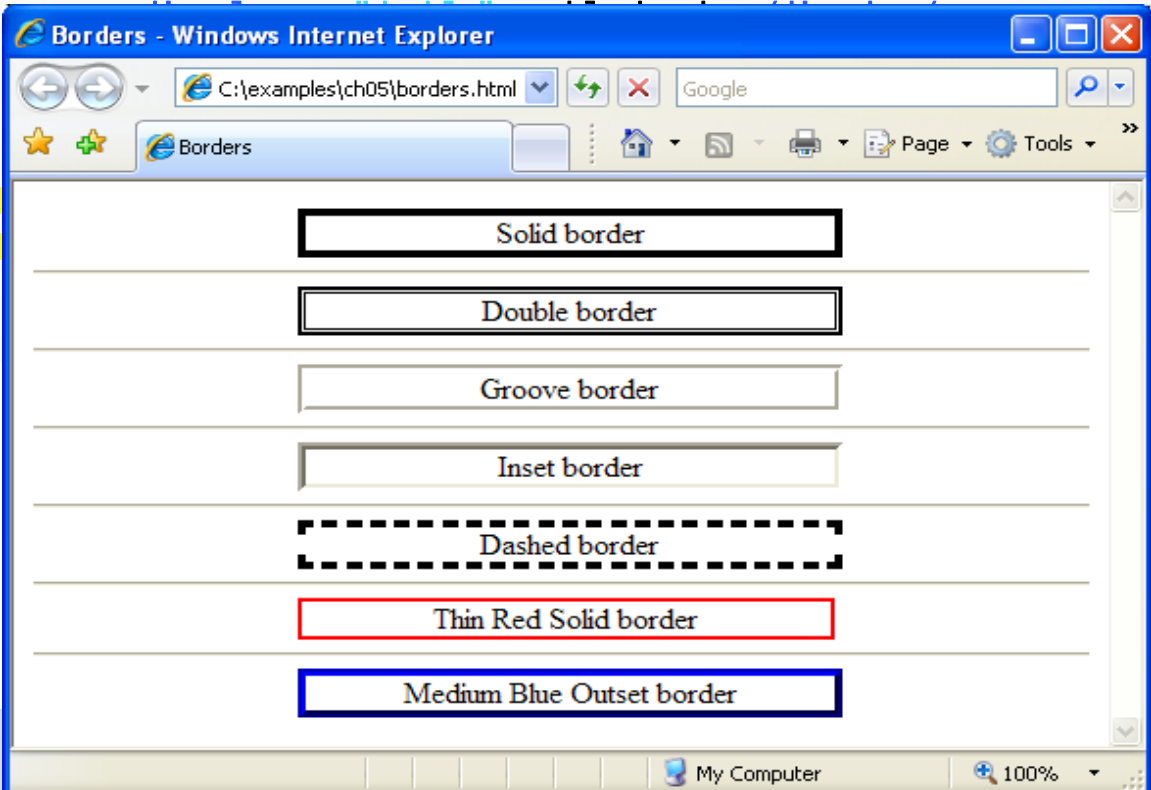
```
1 <?xml version = "1.0" encoding = "utf-8"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4
5 <!-- Fig. 5.11: borders.html -->
6 <!-- Borders of block-level elements. -->
7 <html xmlns = "http://www.w3.org/1999/xhtml">
8   <head>
9     <title>Borders</title>
10    <style type = "text/css">
11      div    { text-align: center;
12              width: 50%;
13              position: relative;
14              left: 25%;
15              border-width: 4px }
16    .medium { border-width: medium }
17    .thin   { border-width: thin }
18    .solid  { border-style: solid }
19    .double { border-style: double }
20    .groove { border-style: groove }
21    .inset  { border-style: inset }
22    .outset { border-style: outset }
23    .dashed { border-style: dashed }
24    .red    { border-color: red }
25    .blue   { border-color: blue }
26    </style>
27  </head>
```

Defines several border classes

Fig. 5.11 | Borders of block-level elements (Part 2 of 2).

Applies several classes to the same element

```
28 <body>
29   <div class = "solid">Solid border</div><hr />
30   <div class = "double">Double border</div><hr />
31   <div class = "groove">Groove border</div><hr />
32   <div class = "inset">Inset border</div><hr />
33   <div class = "dashed">Dashed border</div><hr />
34   <div class = "thinred">Thin Red Solid border</div><hr />
35   <div class = "mediumblue">Medium Blue Outset border</div><hr />
36   </body>
37
```



The screenshot shows a Windows Internet Explorer browser window titled "Borders - Windows Internet Explorer". The address bar shows the file path "C:\examples\ch05\borders.html". The browser displays a list of seven different border styles, each in a separate box:

- Solid border
- Double border
- Groove border
- Inset border
- Dashed border
- Thin Red Solid border
- Medium Blue Outset border

5.9 Box Model and Text Flow (Cont.)

- 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

Fig. 5.12 | Floating elements (Part 1 of 3).

```

1 <?xml version = "1.0" encoding = "utf-8"?>
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. 5.12: floating.html -->
6 <!-- Floating elements. -->
7 <html xmlns = "http://www.w3.org/1999/xhtml">
8   <head>
9     <title>Flowing Text Around Floating Elements</title>
10    <style type = "text/css">
11      div.heading { background-color: #bbddf;
12                   text-align: center;
13                   font-family: arial, helvetica, sans-s
14                   padding: .2em }
15      p           { text-align: justify;
16                   font-family: verdana, geneva, sans-serif;
17                   margin: .5em }
18      div.floated { background-color: #eeeeee;
19                   font-size: 1.5em;
20                   font-family: arial, helvetica, sans-serif;
21                   padding: .2em;
22                   margin-left: .5em;
23                   margin-bottom: .5em;
24                   float: right;
25                   text-align: right;
26                   width: 50% }
27      div.section { border: 1px solid #bbddf; }
28    </style>
29  </head>

```

Sets a spacing of .5 em from the outside of the border to all other content

Sets a spacing of .2 em from the inside of the border to the element's content

Define left and right margins

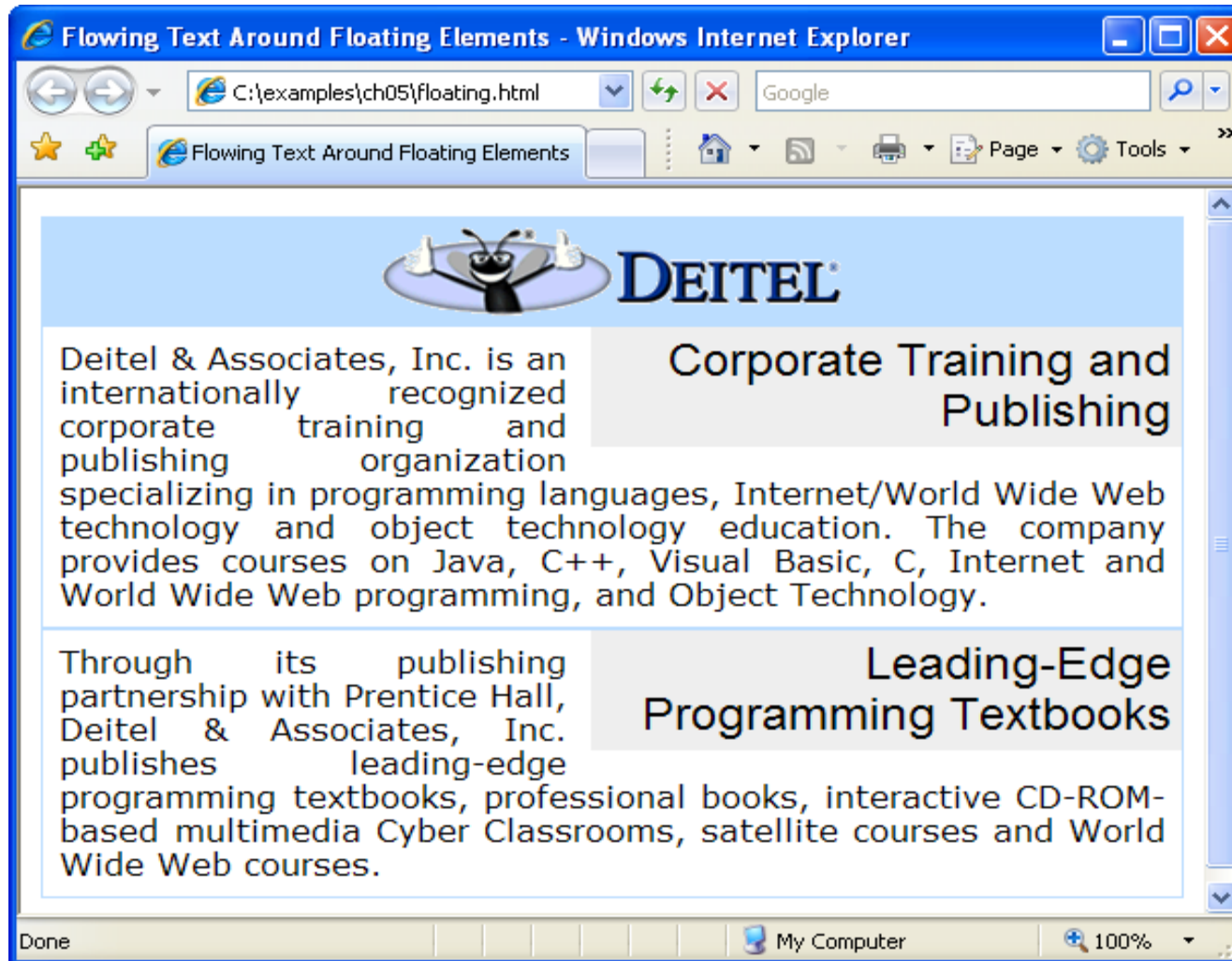
Moves element to the right, and lets other content flow around it

Defines the border for this div class

Fig. 5.12 | Floating elements (Part 2 of 3).

```
30 <body>
31   <div class = "heading"><img src = "deitel.png" alt = "deitel" />
32   </div>
33   <div class = "section">
34     <div class = "floated">Corporate Training and Publishing</div>
35     <p>Deitel & Associates, Inc. is an internationally
36     recognized corporate training and publishing organization
37     specializing in programming languages, Internet/world
38     wide web technology and object technology education.
39     The company provides courses on Java, C++, Visual Basic, C#,
40     C, Internet and web programming, Object
41     Technology, and more.</p>
42   </div>
43   <div class = "section">
44     <div class = "floated">Leading-Edge Programming Textbooks</div>
45     <p>Through its publishing
46     partnership with Prentice Hall, Deitel & Associates,
47     Inc. publishes leading-edge programming textbooks,
48     professional books, interactive CD-ROM-based multimedia
49     Cyber Classrooms, satellite courses and DVD and web-based
50     video courses.</p>
51   </div>
52 </body>
53 </html>
```


Fig. 5.12 | Floating elements (Part 3 of 3).



5.10 Media Types

- CSS media types
- allow a programmer to decide what a page should look like depending on the kind of media being used to display the page
- Most common media type for a web page is the screen media type, which is a standard computer screen

5.10 Media Types (Cont.)

- A block of styles that applies to all media types is declared by `@media all` and enclosed in curly braces
- To create a block of styles that apply to a single media type such as `print`, use `@media print` and enclose the style rules in curly braces

5.10 Media Types (Cont.)

- Other media types in CSS 2 include:
 - handheld
 - Designed for mobile Internet devices
 - braille
 - For machines that can read or print web pages in braille
 - aural
 - Allow the programmer to give a speech-synthesizing web browser more information about the content of the web page
 - print
 - Affects a web page's appearance when it is printed

- NOTE: for iPhones use CSS3 and “media queries”!!!

Fig. 5.13 | CSS media types (Part 1 of 2).

```
1 <?xml version = "1.0" encoding = "utf-8"?>
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. 5.13: mediatypes.html -->
6 <!-- CSS media types. -->
7 <html xmlns = "http://www.w3.org/1999/xhtml">
8   <head>
9     <title>Media Types</title>
10    <style type = "text/css">
11      @media all
12      {
13        body { background-color: #4488aa }
14        h1  { font-family: verdana, helvetica, sans-serif;
15              color: #aaffcc }
16        p   { font-size: 12pt;
17              color: white;
18              font-family: arial, sans-serif }
19      } /* end @media all declaration. */
20      @media print
21      {
22        body { background-color: white }
23        h1  { color: #008844}
24        p   { font-size: 14pt;
25              color: #4488aa;
26              font-family: "times new roman", times, serif }
27      } /* end @media print declaration. */
28    </style>
29  </head>
30  <body>
31    <h1>CSS Media Types Example</h1>
```

Sets properties for all media types

Sets properties for a page if it is being printed

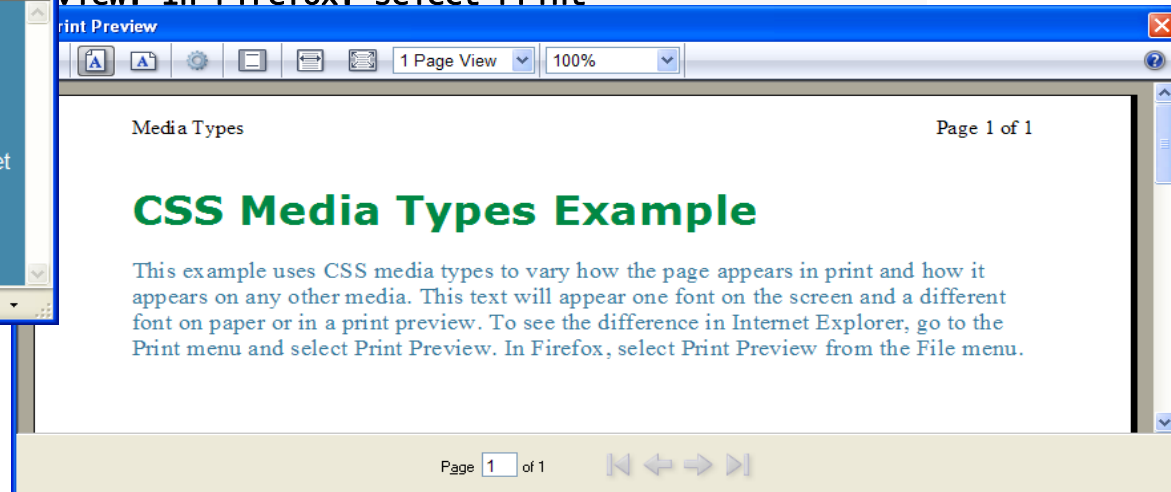
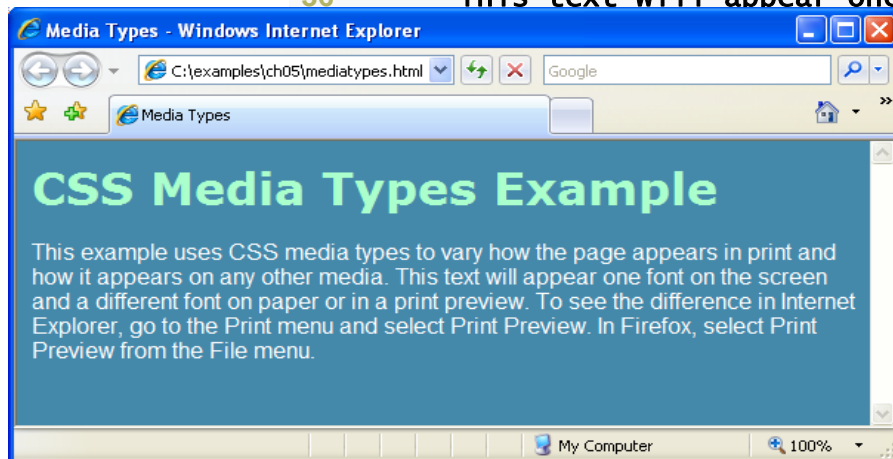
Fig. 5.13 | CSS media types (Part 2 of 2).

32
33
34
35
36

<p>

This example uses CSS media types to vary how the page appears in print and how it appears on any other media. This text will appear one font on the screen and a

different font in a print preview. To see the difference in Internet Explorer, go to the Print menu and select Print Preview. In Firefox, select Print



Look-and-Feel Observation 5.1

Pages with dark background colors and light text use a lot of ink and may be difficult to read when printed, especially on a black-and white-printer. Use the print media type to avoid this.

Look-and-Feel Observation 5.2

In general, sans-serif fonts look better on a screen, while serif fonts look better on paper. The print media type allows your web page to display sans-serif font on a screen and change to a serif font when it is printed.

5.11 Building a CSS Drop-Down Menu

- `:hover` pseudoclass
- used to apply styles to an element when the mouse cursor is over it
- `display` property
- allows a programmer to decide if an element is displayed as a block element, inline element, or is not rendered at all (none)

Fig. 5.14 | CSS drop-down menu (Part 1 of 2).

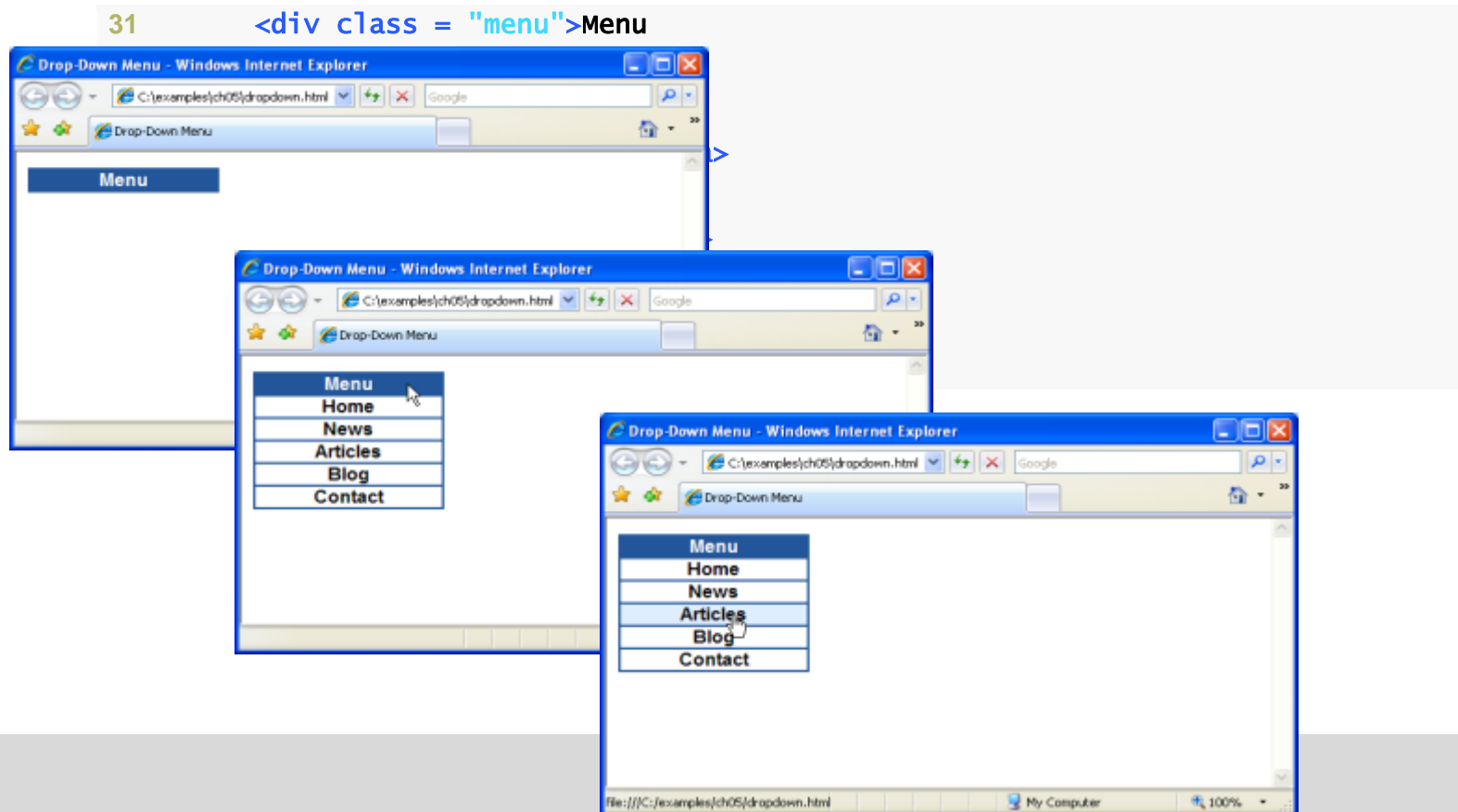
```
1 <?xml version = "1.0" encoding = "utf-8"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4
5 <!-- Fig. 5.14: dropdown.html -->
6 <!-- CSS drop-down menu. -->
7 <html xmlns = "http://www.w3.org/1999/xhtml">
8   <head>
9     <title>
10      Drop-Down Menu
11    </title>
12    <style type = "text/css">
13      body      { font-family: arial, sans-serif }
14      div.menu  { font-weight: bold;
15                color: white;
16                border: 2px solid #225599;
17                text-align: center;
18                width: 10em;
19                background-color: #225599 }
20      div.menu:hover a { display: block }
21      div.menu a      { display: none;
22                border-top: 2px solid #225599;
23                background-color: white;
24                width: 10em;
25                text-decoration: none;
26                color: black }
27      div.menu a:hover { background-color: #dfeeff }
28    </style>
29  </head>
30  <body>
```

Sets anchor elements in a menu div to be displayed as block-level when the menu is moused-over

Prevents the browser from rendering the links inside the menu div

Sets anchor elements in a menu div to have a light-blue background when they are moused-over

Fig. 5.14 | CSS drop-down menu (Part 2 of 2).



5.12 User Style Sheets

- Users can define their own user style sheets to format pages based on their preferences
- Absolute font size measurements override user style sheets, while relative font sizes will yield to a user-defined style
- User style sheets are not linked to a document; rather, they are set in the browser's options

Fig. 5.15 | pt measurement for text size.

```
1 <?xml version = "1.0" encoding = "utf-8"?>
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. 5.15: user_absolute.html -->
6 <!-- pt measurement for text size. -->
7 <html xmlns = "http://www.w3.org/1999/xhtml">
8   <head>
9     <title>User styles</title>
10    <style type = "text/css">
11      .note { font-size: 9pt }
12    </style>
13  </head>
```

A class defined by the author with absolute measurements: a font-size of 9 pt

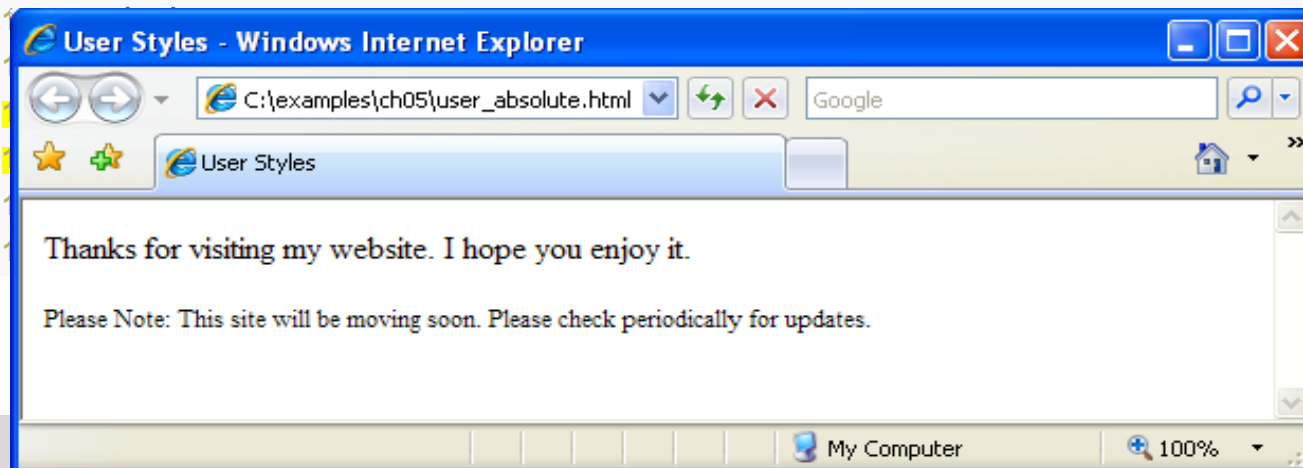


Fig. 5.16 | User style sheet.

← A different font-size of 20 pt is defined by the user for all body elements

```
1 /* Fig. 5.16: userstyles.css */  
2 /* A user stylesheet */  
3 body { font-size: 20pt;  
4         color: yellow;  
5         background-color: #000080 }
```

Fig. 5.17 | User style sheet in Internet Explorer 7.

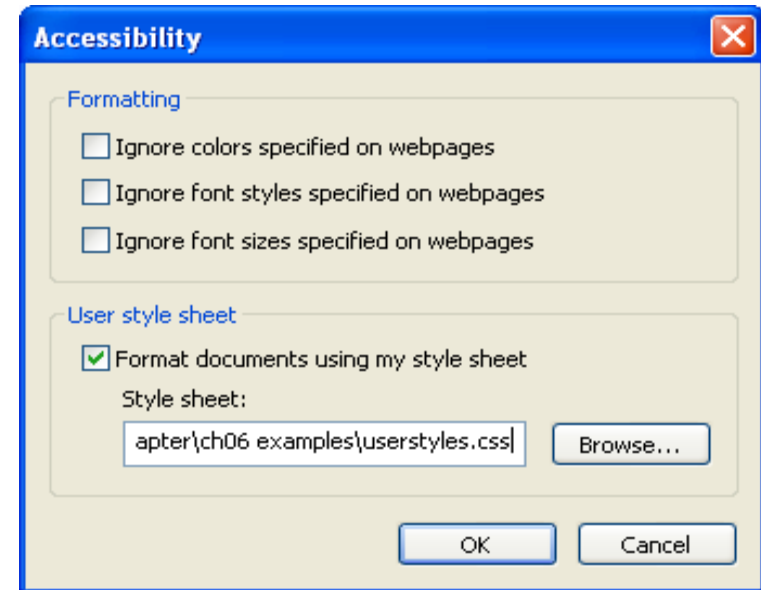
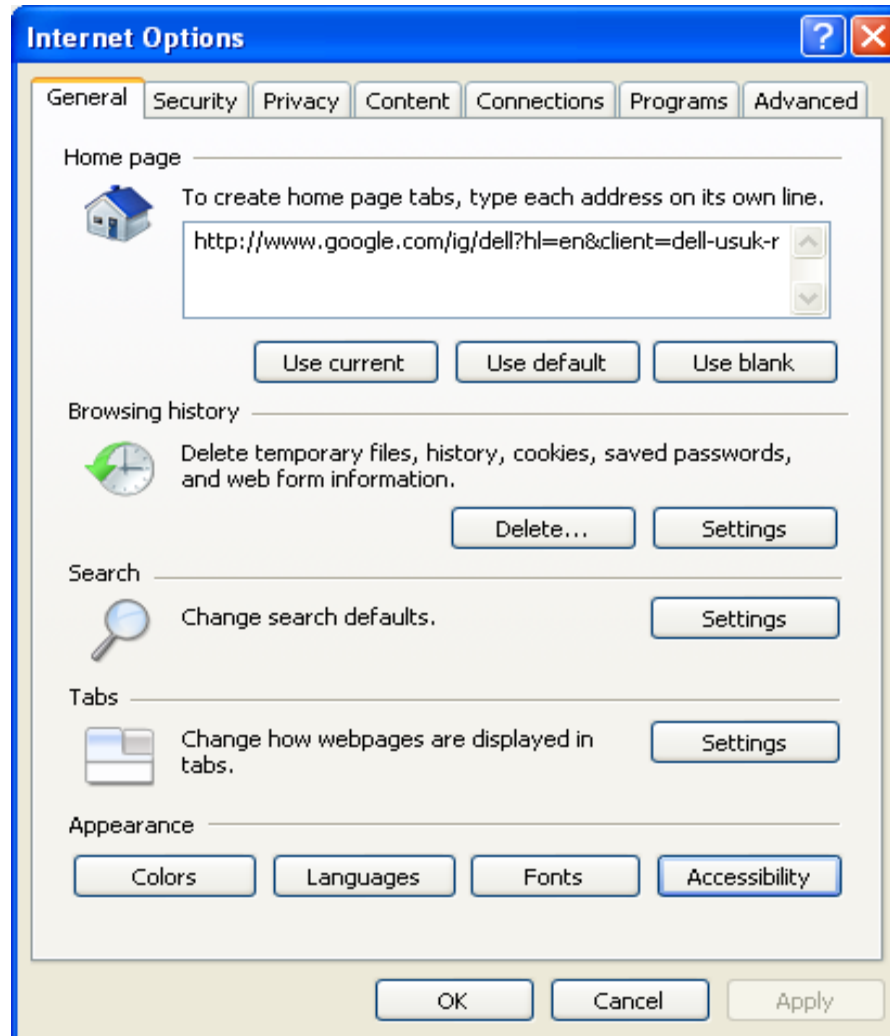


Fig. 5.18 | User style sheet applied with pt measurement.

The author's style has higher precedence than the user's, so the font is 9 pt

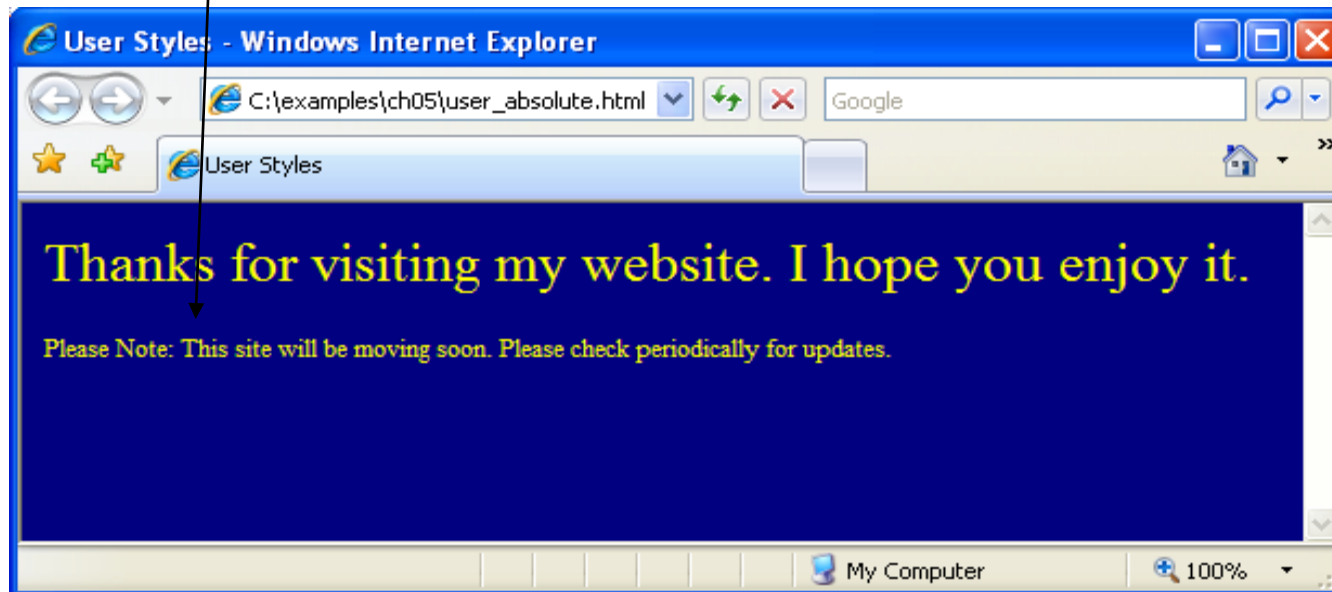


Fig. 5.19 | em measurement for text size.

```
1 <?xml version = "1.0" encoding = "utf-8"?>
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. 5.19: user_relative.html -->
6 <!-- em measurement for text size. -->
7 <html xmlns = "http://www.w3.org/1999/xhtml">
8   <head>
9     <title>User Styles</title>
10    <style type = "text/css">
11      .note { font-size: .75em }
12    </style>
13  </head>
14  <body>
15    <div style="border: 1px solid black; padding: 5px;">
16      m
17      Thanks for visiting my website. I hope you enjoy it.
18    </div>
19  </body>
20 </html>
```

A relative measurement of .75 em is used by the author for the font size

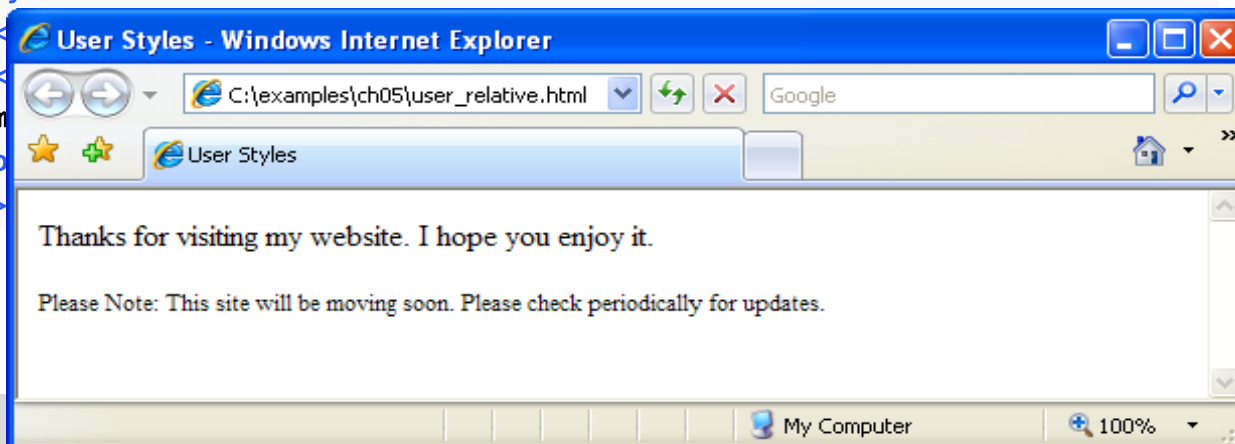
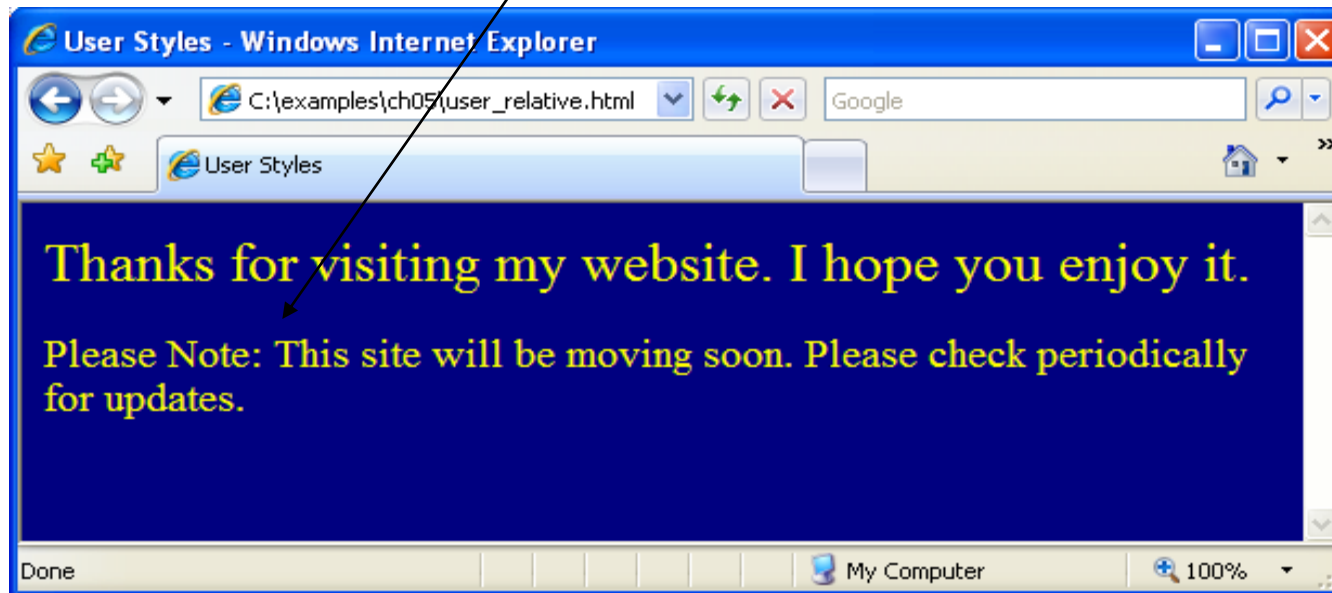


Fig. 5.20 | User style sheet applied with `em` measurement.

The user style sheet is considered, so the font-size is 15 pt (.75 em for 20 pt)



5.13 CSS 3

- While CSS 2 is the current W3C Recommendation, CSS 3 is in development, and some browsers are beginning to implement some of the new features that will be in the CSS 3 specification
- CSS 3 will introduce new features related to borders, backgrounds, text effects, layout, and more