Supplement VI.B: Cascading Style Sheets (CSS)

For Introduction to Java Programming By Y. Daniel Liang

Cascading Style Sheets (CSS) is a simple mechanism for adding styles (e.g., fonts, colors, spacing, margins, etc) to Web pages. CSS enables you to separate the contents of a Web page from its presentation and therefore makes Web pages easy to maintain and modify. You can use style sheets to specify the appearance of a Web page. Style sheets can be used to completely replace the

to casefont>, ,
<frameset>, <center>, <strike>, and <u>, <cite>, <code>,
<cem>, , <var>, <address>, , and <i> tags and the
size and width attributes in the <hr> and tags. This
supplement covers the following topics:

- Inline style
- Document style sheet
- External style sheet
- Cascading order
- Fonts
- Text alignments, indents, and decorations
- Padding, border, and margin
- Dimensions and line spacing
- CSS selectors
- CSS pseudo-classes
- <u>span</u> and <u>div</u> Elements
- CSS Lists
- The <u>float</u> property
- The <u>display</u> property
- Relative and absolute positions
- Replacing frames using CSS
- Creating a horizontal menu
- CSS Media Types

1 Introduction

<Side Remark: cascading>

Cascading Style Sheets (CSS) specify properties for tags. For example, you can specify a style sheet on a paragraph tag $\langle p \rangle$ to tell a browser how to render a paragraph with specified color, font, width, etc. Style sheets are *cascading* because they can be defined at three levels: *inline*, *document*, and *external*. Inline style sheets can override document and external style sheets, and document style sheets can override external style sheets. So, the style on a tag is determined through a cascade of style sheets.

2 Inline Styles

You can directly insert styles into an XHTML tag using the XHTML <u>style</u> attribute. This is called *inline styles*. Listing 1 shows an example inline styles. Listing 1 is rendered as shown in Figure 1.

```
Listing 1 CssInlineStyleDemo.css (Inline Style Demo)
***PD: Please add line numbers (including space lines) in
the following code***
***Layout: Please layout exactly. Don't skip the space. This
is true for all source code in the book. Thanks, A.
<Side Remark line 1: XHMTL strict>
<Side Remark line 4: comment>
<Side Remark line 11: h1 style>
<Side Remark line 13: p style>
<Side Remark line 14: em style>
        <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
        "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
        <!-- CssInlineStyleDemo.html -->
        <html>
        <head>
         <title>Inline Style Demo</title>
        </head>
        <body>
        <h1 style = "font-family: Times New Roman, sans-serif; font-size: 20pt;
          <mark>color: green"</mark>>Inline Style Demo</hl>
        Welcome to
          <em style = "color: black; background-color: yellow">CSS</em>
         Welcome to HTML
        </body>
        </html>
```



Figure 1

The styled page in Listing 1 is rendered by a Web browser.

Line 1 tells the browser which type of file this is. In this case, it is XHTML 1.1.

The style for the h1 tag in lines 11-12 specifies that the content for this $h\overline{1}$ tag will be rendered using the Times New Roman font with a 20pt (20 point) font size and color green. If the Web browser does not support Times New Roman, the generic sans-serif font will be used as an alternative.

The style for the p tag in lines 13-14 specifies that the content for this p tag will be rendered using the red color.

The style for the em tag in line 14 specifies that the content for this em tag will be rendered using the black color and yellow background color.

Inline style sheets specify the properties for one time application of a single tag. The color for the p tag in line 13 is specified, but no color is specified for the p tag in line 15. Therefore, the default color is applied to the tag p tag in line 15.

<Side Remark: inline style syntax> The syntax for inline style sheets is:

style = "property1: value1, value1a; property2: value2; ... "

For example,

style = "font-family: Times New Roman, sans-serif; font-size: 20pt; <mark>color: green"</mark>

The property (e.g., color, background-color, font-family, font-size) specifies an attribute for laying out the element. The property-value gives the attribute value. A style may have multiple properties separated by semicolons (;). A property may specify multiple values separated by a [©] Copyright Y. Daniel Liang, 2005

comma $(\underline{,})$. The browser attempts to use the value in the order they appear in the rule declaration. If a value is not supported by the browser, the next value will be considered.

3 Document Style Sheets

You can specify a style for a tag in a document style sheet so that the style can apply to the tag throughout the document. The document style sheet must be placed inside the <u>head</u> element. Listing 2 shows an example of using the document style sheet. Listing 2 is rendered as shown in Figure 2.

```
Listing 2 CssDocumentStyleDemo.html (Document Style Sheet Example)
***PD: Please add line numbers (including space lines) in
the following code***
***Layout: Please layout exactly. Don't skip the space. This
is true for all source code in the book. Thanks, A.
<Side Remark line 1: DOCTYPE>
<Side Remark line 8: style element>
<Side Remark line 9: h1 style>
<Side Remark line 11: p style>
<Side Remark line 12: em style>
        <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
        "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
        <!-- CssDocumentStyleDemo.html -->
        <html>
        <head>
        <title>Document Style Demo</title>
        <style type = "text/css">
        h1 {font-family: "Times New Roman", sans-serif; font-size: 20pt;
          color: green}
        p {color: red}
        em {color: black; background-color: yellow }
         </style>
        </head>
         <body>
         <h1>My First Styled Page</h1>
        Welcome to <em>CSS</em>
          Welcome to HTML
         </body>
        </html>
```



The styled page in Listing 2 is rendered by a Web browser.

Line 8
 <style type = "text/css">
tells the browser this is a style sheet.

Lines 9-10

h1 {font-family: "Times New Roman", sans-serif; font-size: 20pt; color: green}

specifies a style for the <u>h1</u> element. All <u>h1</u> elements will be rendered using the Times New Roman font with a 20pt (20 point) font size and color green. If the Web browser does not support Times New Roman, the generic sans-serif font will be used as an alternative.

Line 11

p {color: red}

specifies a style for the \underline{p} element. All \underline{p} elements will be rendered red color.

Line 12

em {color: black; background-color: yellow}

specifies a style for the <u>em</u> element. All <u>em</u> elements will be rendered in foreground color black on yellow background.

<Side Remark: document style sheet syntax>

A document style sheet is made up of CSS rules. Each rule is written as

selector {property1: value1, value1a; property2: value2; ...}

For example,

hl {font-family: "Times New Roman", sans-serif; font-size: 20pt; color: green}

The selector $(\underline{h1}, \underline{p}, and \underline{em} in the example)$ tells the browser which element the style is applied to. Unlike the

inline style sheet, the properties and values are enclosed inside the braces in the document style sheet.

4 External Style Sheets

You may create a style sheet in a separate file so it can be shared by multiple Web pages. Listing 3 is a style sheet stored in a separate file named CssExternalStyleSheet.css. By convention, file name extension for CSS files are .css. Lines 1-2 are comments. Comments may be placed in any type of CSS code (i.e., embedded or external). A CSS comment starts with /* and end with */. Lines 3-6 define the styles for the h1, p, and em elements.

Listing 4 shows an example that uses the external style sheet in Listing 3. Listing 4 is rendered as shown in Figure 2, since Listing 4 and Listing 2 use the same style sheet.

```
Listing 4 CssExternalStyleDemo.html (Linking External Style Sheet)
***PD: Please add line numbers (including space lines) in
the following code***
***Layout: Please layout exactly. Don't skip the space. This
is true for all source code in the book. Thanks, A.
<Side Remark line 1: DOCTYPE>
<Side Remark line 8: external style>
        <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
         "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
        <!-- cssExternalStyleDemo.html -->
        <html>
        <head>
        <title>My first styled page</title>
        <link rel = "stylesheet" type = "text/css"</pre>
               href = "CssExternalStyleSheet.css" />
        </head>
```

<body>

<hl>External Style Demo</hl> Welcome to CSS Welcome to HTML </body> </html>

Lines 8-9

<link rel = "stylesheet" type = "text/css"</pre> <mark>href = "cssExternalStyleSheet.css" /></mark>

links the external style sheet CssExternalStyleSheet.css in the XHTML file so that the styles specified in the style sheet are applied to this page.

TIP:

<Side Remark: validating CSS>

The W3C provides a free service for validating whether the external CSS file conforms to the CSS standard. To use the service, go to jigsaw.w3.org/css-validator.

5 Cascading Order

Style information can be declared in many ways. A Web page may contain inline styles, document styles, and external styles. Even multiple external styles can be referenced in a single Web page. Different style sheets may cause conflict. The browser "cascades" all style sheets into a "virtual" style sheet in the following precedence (from highest to lowest):

- 1. Inline style (inserted directly a tag)
- 2. Document style (declared in the <head> section)
- 3. External style
- 4. Browser default

Styles defined for the parent elements are inherited by child elements. Style defined in the child elements take precedence over styles defined in the parent elements. Listing 5 shows an example that demonstrates how style sheets are cascaded. Listing 5 is rendered as shown in Figure 3.

```
Listing 5 CssCascadingStyleDemo.html (Cascading Style Sheets)
***PD: Please add line numbers (including space lines) in
the following code***
***Layout: Please layout exactly. Don't skip the space. This
is true for all source code in the book. Thanks, A.
<Side Remark line 1: DOCTYPE>
<Side Remark line 8: external style>
<Side Remark line 10: document style>
<Side Remark line 18: inline style>
© Copyright Y. Daniel Liang, 2005
                                                               7
```

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
 "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<!-- CssCascadingStyleDemo.html -->
<html>
 <head>
 <title>My first styled page</title>
   <mark><link rel = "stylesheet" type = "text/css"</mark>
      href = "CssExternalStyleSheet.css" />
  <style type = "text/css">
     p {color: blue; font-size: 16pt}
  <mark></style></mark>
 </head>
 <body>
 <h1>My First Styled Page</h1>
  Welcome to <em>CSS</em>
  Welcome to HTML
</body>
</html>
My first styled page - Microsoft Internet Explorer
                                               _ 🗆 🗙
 <u>File E</u>dit <u>V</u>iew F<u>a</u>vorites <u>T</u>ools <u>H</u>elp
                                                  🌀 Back 🔻 🕥 👻 👔 🚮 🔎 Search   Favorites 🚱 🙈 🔹 🔌
 Address 🕘 C:\book\CssCascadingStyleDemo.html 🛛 🚽 🄂 Go 🛛 Links 🎽 🕏 🖛
 My First Styled Page
 Welcome to CSS
 Welcome to HTML
 🗐 Done
                                  🔝 My Computer
```

The mixed styles in Listing 5 is rendered by a Web browser.

The style for the <h1> tag in line 16 is defined in the external style sheet. The style for the tag in line 17 is defined in the external style sheet as $p \{color: red\}$

and in the document style sheet as p {color: blue; font-size: 16pt}

So they are cascaded into p {color: blue; font-size: 16pt}

The style for the tag in line 18 is defined in the external style sheet, in the document style, and in the inline style. They are cascaded into
p {color: blue; font-size: 12pt}

The <u></u> tag in line 17 is embedded in the <u></u> tag. So, the $^{\odot}$ Copyright Y. Daniel Liang, 2005 8

style properties for the tag are inherited by this tag. The cascaded style for is

em {color: black; background-color: yellow; color: blue; font-size: 12pt}

6 Fonts

<<u>Side Remark: font properties</u>> You can use properties <u>font-family</u>, <u>font-size</u>, <u>font-weight</u>, and <u>font-style</u> to specify a font name, size, weight, and style.

<**Side Remark:** generic family name> There are a lot of fonts out there, but not all the

computers support these fonts. However, all the browsers support the generic fonts:

 $\frac{\text{serif, sans-serif, monospace, cursive, fantasy}}{\text{You may use these generic fonts as an alternative if a font is not supported in a system. For example, the following rule tells the browser to use the <u>Courie New</u> font for the <u>p</u> element. If the font is not supported, use the generic <u>monospace</u> font.$

p {font-family: "Courier New", monospace}

<Side Remark: font size>

Two types of measurements, *absolute* and *relative*, can be used to specify a font size. Absolute measurements are fixed on browsers and cannot be resized by the user. Relative measurements vary on browsers. Using a relative font size gives the user flexibility to choose display size.

<Side Remark: absolute measurement>

The units for absolute measurements are \underline{px} (pixel), \underline{in} (inches), \underline{cm} (centimeters), \underline{mm} (millimeters), \underline{pt} (points; 1 pt = 1/72 in), and pc (picas; 1 pc = 12 pt).

<Side Remark: relative measurement>

You can use relative values (<u>xx-small</u>, <u>x-small</u>, <u>small</u>, <u>smaller</u>, <u>medium</u>, <u>large</u>, <u>larger</u>, <u>x-large</u>, and <u>xx-large</u>) to specify the font size. The actual size is determined by the browser's default font size, which can be set by a browser user. Other relative measurements are represented in percentages of <u>em</u> and <u>ex</u>. <u>em</u> is the height of the uppercase letter M in a given font. <u>ex</u> is the height of lowercase x in a give font.

TIP

<side remark: relative measurements preferred>
Since the relative measurements give user more
flexibility than the absolute measurements, the relative
measurements are preferred. Font size in relative

measurement can be resized in a browser, but cannot be size if absolute measurement is used.

CAUTION

<side remark: mixed measurements>

Listing 6 mixes various measurements. It uses \underline{em} , \underline{ex} , and \underline{in} . These measurements may be different on different system. It is better to consistently use one measurement for one page.

<Side Remark: font-style>

The <u>font-style</u> property can be used to specify whether the font is italic. Three possible values are <u>normal</u>, <u>italic</u>, and <u>oblique</u>.

<Side Remark: font-weight>

The <u>font-weight</u> property can be used to specify whether the font is bold. Three possible values are <u>bolder</u>, <u>bold</u>, and <u>lighter</u>.

<Side Remark: font-variant>

The <u>font-variant</u> property can be used to specify the font is in normal or small-caps.

<Side Remark: shorthand font property>

You can use the shorthand <u>font</u> property to set all the properties for a font in one declaration in the order of font-style, font-variant, font-weight, font-size, and fontfamily. For example, the following statement

p {font: italic small-caps bold 1em "Courier New" monospace}

declares that the <u>p</u> element is displayed in italic, smallcaps, bold, size of lem, Courier New (primary font), and monospace (secondary font).

Listing 6 gives an example that demonstrates the font properties, as shown in Figure 3. The font size for <u>h3</u>, <u>h4</u>, and <u>h5</u> are specified using relative measurements in lines 9-14. The font size for <u>i</u> and <u>em</u> are specified using absolute measurements in lines 15-16. If you change the default font size in the browser, the <u>h3</u>, <u>h4</u>, and <u>h5</u> element size changes, but the <u>i</u> and <u>em</u> font size does not change. Line 19 uses the <u>font</u> property to specify font-style, font-variant, font-weight, font-size, and font-family in one declaration.

Listing 6 cssFontDemo.html (Font Sizes) ***PD: Please add line numbers (including space lines) in the following code*** ***Layout: Please layout exactly. Don't skip the space. This is true for all source code in the book. Thanks, A.

```
<Side Remark line 9: relative em size>
<Side Remark line 12: relative ex size>
<Side Remark line 13: absolute size>
         <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
          "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
         <!-- cssFontDemo.html -->
         <html>
          <head>
          <title>Using Style Class</title>
            <style type = "text/css">
             h3 {font-family: Courier, monospace; font-size: 2em,
                  font-weight: bold; color: navy}
              h4 {font-family: "Times New Roman", sans-serif;
                 font-size: 1.5em; font-style: italic; color: blue}
             h5 {font-family: Arial, sans-serif; font-size: lem;
                  font-variant: small-caps; color: green}
              i {font-size: 0.5cm; color: blue}
              em {font-size: 0.25in; color: orange}
             p {font: italic small-caps bold 1em "Courier New" monospace}
            </style>
          </head>
          <body>
             <h3>Font Size Demo h3</h3>
             <h4>Font Size Demo h4</h4>
            <h5>Font Size Demo h5</h5>
             small-caps is used here
             <i>relative font size can be changed by a browser.</i>
             <em>absolute font size cannot be changed by a browser.</em>
           </body>
         </html>
```



Listing 6 demonstrates font properties.

7 Text Alignments, Indents, and Decorations

<Side Remark: text properties>

You can use properties <u>text-align</u>, <u>text-indent</u>, and <u>text-decoration</u> to specify a text alignment, indent, and decoration.

<Side Remark: text-align>

The <u>text-align</u> property can be used to specify whether the text is left-aligned, centered, or right-aligned using the property values <u>left</u>, <u>center</u>, and <u>right</u>.

<Side Remark: text-indent>

The <u>text-indent</u> property indents the first line of text in the element by the specified amount.

<Side Remark: text-decoration>

The <u>text-decoration</u> property specifies whether a text is underlined, overlined, blink, or line-through using the values <u>underline</u>, <u>overline</u>, <u>blink</u>, and <u>line-through</u>. Note that blink is not supported by Internet Explorer.

Listing 7 gives an example that demonstrates text alignment, indent, and decoration, as shown in Figure 5. The <u>h3</u> element is right-aligned and underlined (line 9). The <u>h4</u> element is centered and overlined (line 10). The <u>h5</u> element is right-aligned with line-through (line 11). The <u>p</u> element is indented 2em with blink (line 12).

```
Listing 7 cssTextPropertyDemo.html (Text Property Demo)

****PD: Please add line numbers (including space lines) in

the following code***

***Layout: Please layout exactly. Don't skip the space. This

is true for all source code in the book. Thanks, A.

<Side Remark line 9: right, underline>

<Side Remark line 10: center, overline>

<Side Remark line 11: left, line-through>

<Side Remark line 12: indent, blink>

<IDOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
```

"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

```
<!-- cssTextPropertyDemo.html -->
<html>
    <html>
        <head>
        <title>Text Property Demo</title>
        <style type = "text/css">
        h3 {text-align: right; text-decoration: underline}
        h4 {text-align: center; text-decoration: overline}
        h5 {text-align: left; text-decoration: line-through}
        p {text-indent: 2em; text-decoration: blink}
        </style>
        </head>
```

<body>

```
<h3>Text Property Demo h3</h3>
<h4>Text Property Demo h4</h4>
<h5>Text Property Demo h5</h5>
You can use properties text-align, text-indent, and
text-decoration to specify a text alignment, indent, and
decoration.
</body>
</html>
```



Listing 7 demonstrates text properties.

8 Padding, Border, and Margin

<Side Remark: text properties>

You can specify the width of four sides of the padding, border, and margin for each element, as shown in Figure 6.



Figure 6

Each element has padding, border, and margin.

<Side Remark: padding properties> <Side Remark: margin properties>

The properties for padding are <u>padding-bottom</u>, <u>padding-left</u>, <u>padding-right</u>, and <u>padding-top</u>. The properties for margin are <u>margin-bottom</u>, <u>margin-left</u>, <u>margin-right</u>, and <u>margintop</u>. You can use the shorthand properties <u>padding</u> and <u>margin</u> to set all of the padding and margin properties. For example, the following statement

p {padding-bottom: 0.2em; padding-top: 0.2em}

declares the \underline{p} element with bottom padding 0.2em and top padding 0.2em.

The following statement b {margin-left: 0.3em; margin-right: 0.3em}

declares the <u>b</u> element with left margin 0.3em and right margin 0.3em.

The following statement h1 {padding: 0.2em 0.2em 0.2em; margin: 0.3em 0.3em 0.3em 0.3em}

declares the <u>h1</u> element with padding 0.2em on all four sides and margin 0.3em on all four sides.

<Side Remark: relative width values>

You can use relative measurements (e.g., \underline{em} , \underline{ex}) and absolute measurements (e.g., \underline{cm} , \underline{mm}) to specify the width of padding, border, and margin. You may also use the relative values thin, medium, and thick to specify the width.

<Side Remark: border properties>

You can specify the width of a border using the properties <u>border-bottom-width</u>, <u>border-left-width</u>, <u>border-right-width</u>, and <u>border-top-width</u>. Additionally, you can specify the color and style for a border using the properties: <u>borderbottom-color</u>, <u>border-left-color</u>, <u>border-right-color</u>, <u>bordertop-color</u>, <u>border-bottom-style</u>, <u>border-left-style</u>, <u>borderright-style</u>, and <u>border-top-style</u>. The values for the style are <u>dotted</u>, <u>dashed</u>, <u>solid</u>, <u>double</u>, <u>groove</u>, <u>ridge</u>, <u>inset</u>, and <u>outset</u>. The default value is <u>solid</u>.

<Side Remark: shorthand border properties>

You can use shorthand properties <u>border-left</u>, <u>border-right</u>, <u>border-top</u>, <u>border-bottom</u> to specify the side width, style, and color in one declaration. You can also use the shorthand property <u>border</u> to specify <u>border-width</u>, <u>border-style</u>, and <u>border-color</u>. For example, the following statement

p {border-left: 0.2em dotted red}

declares the \underline{p} element with red dotted border width 0.2em on left side.

For example, the following statement
 p {border: thin dotted red}

declares the \underline{p} element with thin dotted red border on all four sides.

Listing 8 gives an example that demonstrates padding, border, and margin, as shown in Figure 7. The h3 element

(lines 9-10) is surrounded by 0.2em padding, 0.1em margin, with dashed blue border. The <u>h4</u> element's top and bottom padding is 0.2em, with double green border (lines 11-12). The <u>h5</u> element's left and right margin is 0.5em, with solid border (lines 13-14). The <u>p</u> element's border is 0.1em, with dotted red border (line 15).

```
Listing 8 cssPaddingBorderMarginDemo.html (Padding, Border, and Margin Demo)
***PD: Please add line numbers (including space lines) in
the following code***
***Layout: Please layout exactly. Don't skip the space. This
is true for all source code in the book. Thanks, A.
<Side Remark line 9: padding>
<Side Remark line 10: margin, border>
<Side Remark line 11: left, line-through>
<Side Remark line 15: border>
        <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
         "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
        <!-- cssPaddingBorderMarginDemo.html -->
        <html>
         <head>
         <title>Padding, Border, and Margin Demo</title>
         <style type = "text/css">
           h3 {<mark>padding: 0.2em, 0.2em, 0.2em, 0.2em,</mark>
                margin: 0.1em, 0.1em, 0.1em, 0.1em; border: dashed blue
            h4 {padding-bottom: 0.2em; padding-top: 0.2em;
                border: double green}
           h5 {margin-left-width: lem; margin-right-width: 0.5em;
             border: solid}
          p {<mark>border: 0.1em 1em 1em 0.1em dotted red</mark>}
          </style>
         </head>
         <body>
          <h3>Padding, Border, and Margin Demo h3</h3>
           <h4>Padding, Border, and Margin Demo h4</h4>
            <h5>Padding, Border, and Margin Demo h5</h5>
           You can specify padding, border, and margin properties on
             any elements.
          </body>
```

</html>

🗿 Padding, Border, and Margin Demo - Microsoft Internet Explorer 📃 🔲 🗙
<u>Fi</u> le <u>E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp
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Address 🖗 C:\book\cssPaddingBorderMarginDemo.html 🛛 🔽 Go 🛛 Links » 党 🔻
Padding, Border, and Margin Demo h3
L
Padding, Border, and Margin Demo n4
Padding, Border, and Margin Demo h5
You can specify padding, border, and margin properties on
any elements
Dona Il My Computer

Listing 8 demonstrates padding, border, and margin.

9 Dimensions and Line Spacing

<Side Remark: width> <Side Remark: height>

You can specify the width and height of an element using the width and height properties, as shown in Figure 8.



Figure 8

You can specify the width and height of an element.

You can also specify the space between two lines using the line-height property.

Listing 9 gives an example that demonstrates element dimensions and line spacing, as shown in Figure 9. The h3 element has a dashed blue border with height 6em and width 12em (line 9). The p element has a solid red border with height 2em, width 5em, and line-spacing 1.5em (lines 10-11).

```
Listing 9 cssDimensionSpacingDemo.html (Element Dimensions and Line Spacing)
***PD: Please add line numbers (including space lines) in
the following code***
***Layout: Please layout exactly. Don't skip the space. This
is true for all source code in the book. Thanks, A.
<Side Remark line 9: element dimension>
<Side Remark line 11: line spacing>
       <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
```

```
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
```

```
<!-- cssDimensionSpacingDemo.html -->
           <html>
           <head>
            <title>Element Dimensions and Line Spacing</title>
           <style type = "text/css">
              h3 {border: dashed blue; height: 6em; width: 12em}
               p {border: 0.1em 1em 1em 0.1em solid red;
                    height: 2em; width: 5em; line-height: 1.5em}
             </style>
           </head>
           <body>
             <h3>Element Dimensions and Line Spacing</h3>
             It a small world after all
            </body>
           </html>
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Listing 9 demonstrates element dimensions and line spacing.

10 CSS Selectors

The selectors in the style sheets in the preceding sections are single elements. CSS enables you to specify selectors in many ways. This section introduces universal selectors, class selectors, specific class selectors, ID selectors, descendant selectors, and grouping selectors.

<Side Remark: universal selector *>

The universal selector, denoted by *, specifies that a style is applied to all the elements in the document. For example,

* {background-color: white}

specifies that the background for all elements is white.

<Side Remark: class selector *>

You can define a style class and apply it to any type of elements, as shown in line 9 in Listing 9. Line 9 declares a style class named *highlight*, which sets the background to yellow. Style class declarations are preceded by a period. The style class <u>highlight</u> is applied to the <u>p</u> element in line 16.

<Side Remark: specific class selector *>

A style class can be declared to apply to a *specific type* of element, as shown in line 10 in Listing 9. Line 10 declares a style class named *redhighlight*, which sets the background to red. This style class is only applicable for the \underline{em} element. The style class <u>highlight</u> is applied to the \underline{em} element in line 18.

Listing 10 is displayed as shown in Figure 9.

```
Listing 10 cssClassSelectorDemo.html (Using Style Class)
***PD: Please add line numbers (including space lines) in
the following code***
***Layout: Please layout exactly. Don't skip the space. This
is true for all source code in the book. Thanks, A.
<Side Remark line 7: style class>
```

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

```
<em class = "redhighlight">any type of element</em>.
</body>
```

</html>

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Class Selector Demo
Class Selector Demo
Class Selector Demo
Class Selector Demo Learn how to use a style class. Style class can be applied to <i>any type of element</i> :

Figure 9

Listing 10 demonstrates using class selectors.

<Side Remark: id selector>

An *ID selector* defines a style class using an ID. For example, the following code defines a style using an ID named unique.

#unique {background-color: yellow}

The following code applies the ID selector in the h3 element:

<h3 id = "unique"> Unique Selector Demo</h3>

<Side Remark: descendant selector>

A descendant selector specifies a selector that is applied to a child of an element. For example, the following code defines a descendant style for the <u>li</u> element. All child elements of li are displayed in color red.

li * {color: red}

The following code is an example that uses the descendant selector:

Java
 CSS

You may specify a child element in the descendant selector. For example, the following style applies to the \underline{em} element under \underline{li} .

li em {color: red}

<Side Remark: grouping selectors>
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If multiple selectors have the same style, they can be grouped. For example, the following code groups the style for the elements h1, h2, and h3.

h1, h2, h3 {background-color: yellow}

11 CSS Pseudo-Classes

CSS pseudo-classes are used to add special effects to some selectors. The syntax for pseudo-classes is:

selector:pseudo-class {property1: value1; ...; propertyn: valuen}

<Side Remark: anchor pseudo-classes>

You can use the pseudo-classes <u>link</u>, <u>visited</u>, <u>hover</u>, and <u>active</u> to specify desired effects on the anchor hyperlink tag, as shown in Listing 11. The hyperlink is displayed in green and bold before it is visited (line 9). After it is visited, it is displayed in blue and bold (line 10). When you move the mouse over the link, the link appears in red and bold (line 11). After it is selected, it is displayed in navy and bold (line 12).

```
Listing 11 cssPseudoClassDemo.html (Using Pseudo Class)

***PD: Please add line numbers (including space lines) in

the following code***

***Layout: Please layout exactly. Don't skip the space. This

is true for all source code in the book. Thanks, A.

<Side Remark line 9: pseudo class <u>link</u>>

<Side Remark line 10: pseudo class <u>visited</u>>

<Side Remark line 11: pseudo class <u>hover</u>>

<Side Remark line 12: pseudo class active>
```

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

```
<!-- cssPseudoClassDemo.html -->
<html>
    <html>
        <title>Using CSS Pseudo Classes</title>
        <title>Using CSS Pseudo Classes</title>
        <title>Using CSS Pseudo Classes</title>
        <title>Usited type = "text/css">
            a:link {color: green; font-weight: bold} /* unvisited link */
            a:visited {color: blue; font-weight: bold} /* visited link */
            a:hover {color: red; font-weight: bold} /* mouse over link */
            a:active {color: navy; font-weight: bold} /* selected link */
            c/style>
            </head>
        </body>
        <head>
        </body>
        <body>
        <head>
        </body>
        <body>
        <head>
        </body>
        <body>
        <head>
        </body>
        <body>
        <body>
```



Figure 10

Listing 11 demonstrates using pseudo classes.

Pseudo-classes can be combined with CSS classes. For example, the following declaration combines CSS class <u>a.red</u> with pseudo-class visited.

<u>a.red:visited {color: red}</u>

It can be used as follows:

A hyperlink

12 span and div Elements

Sometimes you want to apply styles on the content which is not appropriate using any HTML tags, because HTML tags (e.g., <u>h1</u>, <u>p</u>, <u>em</u>, <u>i</u>, etc) have their inherent styles. You can use <u>span</u> and <u>div</u>, which do not have inherent styles. For example,

red
<div style = "color: red; font-size: lem">red</div>

 and <div> are almost identical except that each
element in the <div> tag is displayed on its own line.

Listing 12 displays the and <div> elements, as shown in Figure 11. Two elements are given in lines 11-12 and they are displayed on the same line. Two <div> elements are given in lines 13-14 and they are displayed on their separate lines.

Listing 12 cssSpanDivDemo.html (Using and <div>) ***PD: Please add line numbers (including space lines) in the following code***

```
***Layout: Please layout exactly. Don't skip the space. This
is true for all source code in the book. Thanks, A.
<Side Remark line 11: <span>>
<Side Remark line 12: <span>>
<Side Remark line 13: <div>>
<Side Remark line 14: <div>>
         <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"</pre>
          "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
         <!-- cssSpanDivDemo.html -->
          <html>
           <head>
           <title>Using &lt;span&gt; and &lt;div&gt; Elements</title>
          </head>
          <body>
          <span style = "color: red">red</span>
            <span style = "color: green">green</span>
          <div style = "color: red; font-size: 2em">red</div>
            <div style = "color: green; font-size: 2em">green</div>
           </body>
         </html>
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Listing 12 demonstrates using <u></u> and <u><div></u>.

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13 CSS Lists

You can use lists in HTML. CSS lists provide more features than HTML lists. CSS lists enable you to place the list-item marker, change between different list-item markers, or set an image as the list-item marker.

<Side Remark: list-style-image>

You can use the <u>list-style-image</u> property to specify an image marker. For example, the following code displays a list with three different image markers, as shown below:

	
<li style="<mark>list-style-image: url('image/usIcon.gif')</mark>">US	US
<li style="<mark>list-style-image: url('image/caIcon.gif')</mark>">Canada	<u>+</u> 0 1
<li style="list-style-image: url('image/chinaIcon.gif')">China	🖛 Canada
	🎽 China

The image is specified using the syntax url('filename').

<Side Remark: list-style-position>

You can use the <u>list-style-position</u> property to specify where the list-item marker is placed. The values are <u>inside</u> and <u>outside</u> (default). For example, the following code displays a list with three different image markers and the first and the third are placed inside and the second is placed outside as shown below:

	
style = "list-style-image: url('image/usIcon.gif');	
<mark>list-style-position: inside</mark> ">US	=05
<li style="list-style-image: url('image/calcon.gif');</td><td>🍁 Canada</td></tr><tr><td><mark>list-style-position: outside</mark>">Canada	
<li style="list-style-image: url('image/chinaIcon.gif');</td><td>China</td></tr><tr><td><mark>list-style-position: inside</mark>">China	

<Side Remark: list-style-type>

You can use the <u>list-style-type</u> property to specify the type of the list-item marker. The values are <u>none</u>, <u>disc</u> (default), <u>circle</u>, <u>square</u>, <u>decimal</u>, <u>lower-roman</u>, <u>upper-</u> <u>roman</u>, <u>lower-alpha</u>, and <u>upper-alpha</u>.

<Side Remark: list-style shorthand>

You can also use the shorthand <u>list-style</u> property to specify <u>list-style-type</u>, <u>list-style-position</u>, and <u>list-style-image</u> in one declaration.

```
Listing 13 demonstrates using CSS list properties, as shown in Figure 12.
```

```
<style type ="text/css">
    #upperroman {list-style-type: upper-roman;
    background-color: cyan}
```

```
#upperalpha {list-style-type: upper-alpha;
             <mark>color: red</mark>}
            #decimal {list-style-type: decimal; list-style-position: inside}
             #mylist {
list-style: square inside url("image/usIcon.gif")
}
          </style>
         </head>
        <body>
         id = "upperroman"</mark>>
          US
            Canada
           China
          US
           Canada
           China
          id = "decimal"</mark>>
           US
            Canada
            China
          New York
           >Denver
            Atlanta
          </body>
        </html>
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 III. China
  A. US
  B. Canada
  C. China
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Listing 13 demonstrates using CSS lists.

14 The float Property

You can the <u>float</u> property to specify where an image or a text will appear in another element. The possible values are <u>left</u>, <u>right</u>, and <u>none</u> (default).

Listing 14 gives an example that floats an image to the right and floats the first letter of a paragraph to the left, as shown in Figure 13. The style

"float: right"

in line 12 specifies that the image is floated to the right. The style

"float: left; font-size: 500%; line-height: 80%"

in lines 14-15 specifies that the letter T is floated to the left with 500% font size and 80% font height.

Listing 14 cssFloatDemo.html (Using float Property) ***PD: Please add line numbers (including space lines) in the following code*** ***Layout: Please layout exactly. Don't skip the space. This is true for all source code in the book. Thanks, A. <Side Remark line 12: float right> <Side Remark line 14: float left>

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

<!-- cssFloatDemo.html --> <html> <head> <title>Using the float Property</title> </head> <body> <h3>The Maple Leaf flag</h3> <div><img style = "float: right" src = "image/ca.gif"</pre> width = "90" height = "60" /></div> The Canadian National Flag was adopted by the Canadian Parliament on October 22, 1964 and was proclaimed into law by Her Majesty Queen Elizabeth II (the Queen of Canada) on February 15, 1965. The Canadian Flag (colloquially known as The Maple Leaf Flag) is a red flag of the proportions two by length and one by width, containing in its center a white square, with a single red stylized eleven-point mapleleaf centered in the white square. </body> </html>



Figure 13

Listing 14 demonstrates using the <u>float</u> property.

<Side Remark: clear property>

You can also use the <u>clear</u> property to specify the side (<u>left</u>, <u>right</u>, <u>both</u>, <u>none</u>) where a float element is not allowed. For example, if you replace the tag in line 14 with

The floating image is not allowed on the left, as shown in Figure 14.



Figure 14

Image is not allowed to float on the left.

15 The display Property

You can the <u>display</u> property to specify how and if an element is displayed. Three frequently used values are <u>none</u> <u>block</u> (default), and <u>inline</u>. The <u>none</u> value indicates that the element will not be displayed. The <u>block</u> value indicates that the element will be displayed as a block-level element, with a line break before and after the element. The <u>inline</u> value indicates that the element will be displayed as an inline element, with no line break before or after the element. Listing 15 gives an example that uses the <u>display</u>

property to display a list horizontally, as shown in Figure 15.

```
Listing 15 cssDisplayPropertyDemo.html (Using float Property)
***PD: Please add line numbers (including space lines) in
the following code***
***Layout: Please layout exactly. Don't skip the space. This
is true for all source code in the book. Thanks, A.
<Side Remark line 8: display inline>
<Side Remark line 14: float left>
```

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<!-- cssDisplayPropertyDemo.html -->
<html>
<head>
<title>Using the display Property</title>
  <style>
 li {<mark>display: inline</mark>; padding: lem; color: red}
  </style>
</head>
<body>
    <div>
    <mark>Georgia</mark>
   <mark>Oklahoma</mark>
    <mark>Indiana</mark>
    </div>
 </body>
</html>
```



Listing 15 demonstrates using the <u>display</u> property.

<<u>Side Remark: clear property></u> The style for the <u>li</u> selector is specified as

li {display: inline; padding: 1em; color: red}

So the list items are displayed consecutively without line breaks.

16 Relative and Absolute Positions

The CSS position properties can be used to position an $^{\odot}$ Copyright Y. Daniel Liang, 2005

element. You can position an element relative (left, right, top, and bottom) to its normal position or position an element using an absolute value. Listing 16 gives an example that demonstrates several useful position properties. The example is displayed in Figure 16.

```
Listing 16 cssPositionDemo.html (Using Position Properties)
***PD: Please add line numbers (including space lines) in
the following code***
***Layout: Please layout exactly. Don't skip the space. This
is true for all source code in the book. Thanks, A.
<Side Remark line 10: absolute position>
<Side Remark line 16: relative position>
<Side Remark line 19: relative position>
<Side Remark line 26: relative position>
<Side Remark line 38: overflow>
        <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
         "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
         <!-- cssPositionDemo.html -->
        <html>
         <head>
          <title>CSS Position Demo</title>
         </head>
         <body>
         <div style = "position: absolute; left: 24em; top: 16em">
           This line is placed using absolute position</div>
          <div style = "border: solid; margin-top: lem; padding: lem">
             <div style = "color: red">This line is in normal position
          </div>
           <div style = "position: relative; left: lem; color: green">
           This line is lem left of its normal position
            </div>
            <div style = "position: relative; right: lem; color: blue">
           This line is lem right of its normal position
            </div>
          </div>
         <div style = "border: solid; margin-top: lem; padding: lem">
            <div style = "color: red">This line is in normal position
            <span style = "<mark>position: relative; top: -lem;</mark> color: green">
             This line is lem higher than its normal position
              </span>
           </div>
           <div style = "color: red">This line is in normal position
          <span style = "<mark>position: relative; top: 1em;</mark> color: green">
             This line is lem lower than its normal position
         </span>
             </div>
          </div>
         <div style = "border: solid; margin-top: lem; padding: lem;</pre>
           width: 20em; height: 5em; <mark>overflow: scroll</mark>">
```

```
The overflow property decides what to do if the content
inside an element exceeds the given width and height properties.
</div>
</body>
</html>
```



Listing 15 demonstrates using the position properties.

Line 10

position: absolute; left: 24em; top: 16em; specifies absolute position for the text. The text is placed at 24em from the left border and 16em from the top border.

Line 16

position: absolute; left: 24em; top: 16em; specifies that the element is 1em left relative to the normal position.

Line 19

position: relative; right: lem; specifies that the element is lem right relative to the normal position.

Line 26

position: relative; top: -lem; specifies that the element is lem higher than the normal position.

Line 31

position: relative; top: 1em; specifies that the element is 1em lower than the normal position.

Line 38

overflow: scroll uses the <u>overflow</u> property. This property specifies what to © Copyright Y. Daniel Liang, 2005 29 do if the content inside an element exceeds the given width and height.

<Side Remark: z-index property>

You can use the <u>z-index</u> property to place an element in the front or back of another element. Listing 17 demonstrates how to place a text before and behind an image, as shown in Figure 17. Line 12

<u>z-index: -1</u>

specifies that the image is placed behind the text.

Line 17

z-index: 1

specifies that the image is placed before the text.

```
Listing 17 cssZIndexDemo.html (Using Z-Index)

***PD: Please add line numbers (including space lines) in

the following code***

***Layout: Please layout exactly. Don't skip the space. This

is true for all source code in the book. Thanks, A.

<Side Remark line 12: behind text>

<Side Remark line 17: before text>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
```

```
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
```

```
<!-- cssZIndexDemo.html -->
<html>
    <head>
    <title>Using the z-index Property</title>
    </head>
    </body>
    <span><img style = "position: absolute; left: 2em;
        top: 2em; z-index: -1" src = "image/ca.gif"
        width = "90" height = "60" />
        The Canadian National Flag</span>
```

 The Canadian National Flag </body>

</html>



The $\underline{z-index}$ property can be used to place text in front of image.

17 Replacing Frames Using CSS

You can use HTML frames to divide a page into header, left, and right panes. But it is easier and more convenient to create frames using CSS. Listing 18 gives an example that creates a frame with header pane, left pane, center pane, and bottom pane, as shown in Figure 18.

```
Listing 18 cssFrameDemo.html (Creating Frames Using CSS)
***PD: Please add line numbers (including space lines) in
the following code***
***Layout: Please layout exactly. Don't skip the space. This
is true for all source code in the book. Thanks, A.
<Side Remark line 8: declare header id>
<Side Remark line 10: declare left id>
<Side Remark line 13: declare center id>
<Side Remark line 15: declare bottom id>
<Side Remark line 18: declare active id>
<Side Remark line 19: style for <a>>
<Side Remark line 25: header pane>
<Side Remark line 36: left pane>
<Side Remark line 38: use active id>
<Side Remark line 45: center pane>
<Side Remark line 56: bottom pane>
        <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
        "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
        <!-- cssFrameDemo.html -->
        <html>
        <head>
          <title>Creating Frames Using CSS</title>
        <style type = "text/css">
          #header {text-align: center; padding-bottom: 0.5em;
                 border-bottom: 0.2em solid red}
             #left {list-style-type: none; padding: 0;
             margin: 0; position: relative; top: lem; left: lem;
               width: 15%}
            #center {position: relative; left: 10em; top: -5em; width: 70%;
                 border: lpx red solid}
```

```
#bottom {position: relative; top: -4em; padding: 0.1em;
    text-align: right; color: white; background-color: gray;
          clear: left}
  #active {color: red; border: red lpx solid}
   a {text-decoration: none}
 </style>
</head>
<body>
<!-- header pane -->
 <div id = <mark>"header"</mark>>
<div>
  Y. Daniel Liang</div>
 <div>
   Department of Computer Science</div>
 <div>
    Armstrong Atlantic State University</div>
</div>
 <!-- left pane -->
 <div>
  "left"</mark> style = "line-height: 1.5em">
    <a href = "vita.html">Vita</a> 
        <a id = "active" href = "courses.html">Courses</a>
        <a href = "books.html">Books</a> 
        <a href = "journals.html">Journals</a> 
 </div>
<!-- center pane -->
 <div id = <mark>"center"</mark>>
 <h3 style = "background-color: red; color: white;
      text-align: center">Course</h3>
 <div style = "padding: 0.2em">
   CSCI 1301 Introduction to Java Programming<br />
  CSCI 1302 Advanced Java Programming<br />
    CSCI 3720 Introduction to Database Systems
    </div>
 </div>
<!-- bottom pane -->
<div id = <mark>"bottom"</mark>>
 Copyright <mark>&copy;</mark>1997-2007 by Y. Daniel Liang</div>
 </body>
</html>
```

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Courses Books Journals	CSCI 1301 Introduction to Java Programming CSCI 1302 Advanced Java Programming CSCI 3720 Introduction to Database Systems
	Copyright ©1997-2007 by Y. Daniel Liang ▼

Figure 18

You can emulate HTML frames using CSS.

The example declares id selectors <u>header</u>, <u>left</u>, <u>center</u>, and <u>bottom</u> to specify the position and size for header, left, center, and bottom panes in lines 8-17. The left pane displays four hyperlinks.

The user can select contents from the left pane. Initially, the course hyperlink is selected with an active id (declared in line 18) to denote the border and color for a selected link (line 38). You can write the page for displaying vita, books, and journals in the same way.

18 Creating a Horizontal Menu

The preceding example creates the vertical menus on the left pane. It is easy to create horizontal menus using CSS. Listing 19 gives an example that creates horizontal menus, as shown in Figure 19.

```
Listing 19 cssHorizontalMenuDemo.html (Creating Horizontal Menus)
***PD: Please add line numbers (including space lines) in
the following code***
***Layout: Please layout exactly. Don't skip the space. This
is true for all source code in the book. Thanks, A.
<Side Remark line 9: horizontal tabs>
<Side Remark line 12: display continuously>
        <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
         "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
        <!-- cssHorizontalMenuDemo.html -->
        <html>
        <head>
         <title>Creating Horizontal Menus</title>
        <style type = "text/css">
          #header {text-align: center; padding-bottom: 0.5em}
        #tabs {width: 80%; margin-bottom: lem; list-style-type: none;
            border-bottom: 0.2em solid red}
```

li {<mark>display: inline</mark>; margin: 1em} #center {width: 70%; text-align: center; border: lpx red solid} #bottom {padding: 0.1em; width: 80%; margin-top: 1em; text-align: right; color: white; background-color: gray; clear: left} #active {color: red; border: red lpx solid} a {text-decoration: none} </style> </head> <body> <!-- header pane --> <div id = "header"> <div> Y. Daniel Liang</div> <div> Department of Computer Science</div> <div> Armstrong Atlantic State University</div> </div> <!-- left pane --> <div style = "text-align: center"> Vita Courses Books Journals </div> <!-- center pane --> <div style = "text-align: center"> <div id = "center"> <h3 style = "background-color: red; color: white; text-align: center">Course</h3> <div style = "padding: 0.2em"> CSCI 1301 Introduction to Java Programming
 CSCI 1302 Advanced Java Programming
 CSCI 3720 Introduction to Database Systems </div> </div> </div> <!-- bottom pane --> <div style = "text-align: center"> <div id = "bottom"> Copyright ©1997-2007 by Y. Daniel Liang </div> </div> </body> </html>



Figure 19

You can create horizontal menus using CSS.

The <u>tabs</u> id (lines 9-10) declares a list and the <u>li</u> selector (line 11)

<u>li {display: inline; margin: 1em}</u>

specifies that the list items are displayed in the same line.

The user can select contents from the horizontal menu. Initially, the course hyperlink is selected with an active id (declared in line 17) to denote the border and color for a selected link (line 37). You can write the page for displaying vita, books, and journals in the same way.

19 CSS Media Types

A document usually needs a larger font size than on paper. When you print a Web document, often the fonts are too large. The media types can be used to fix this problem. You can specify different styles for different media using the <u>@media</u> rule. For example, the following code in Listing 20 tells the browser to display the document in a 14 pixels Verdana font on the screen (lines 8-10) and print the document in a 10 pixels Times font (lines 12-14).

<style>
 @media screen {
 body {font-size: 14px; font-family: Verdana}
 }
 @media print {
 body {font-size: 10px; font-family: "Times New Roman"}
 }
 </style>
 </style>
 </head>
 </body>
 </body>
 </body>
 </html>

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