Supplement: Cascading Style Sheets (CSS)

For Introduction to Java Programming
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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 <basefont>, <font>, <frameset>, <center>, <strike>, and <u>, <cite>, <code>, <em>, <strong>, <var>, <address>, <b>, and <i> tags and the size and width attributes in the <hr> and <table> 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
- span and div Elements
- CSS Lists
- The float property
- The display 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 <p> 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 style 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******

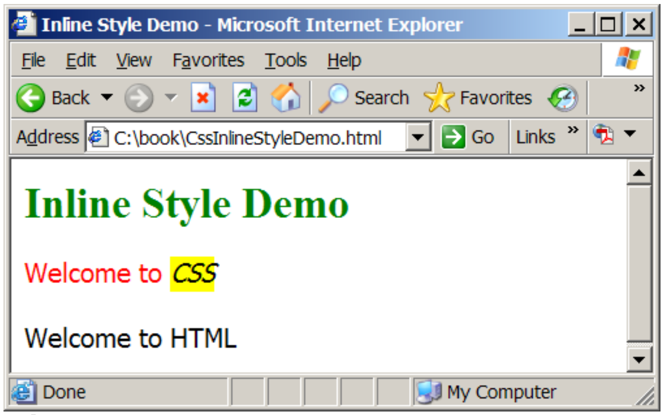
******Layout: Please layout exactly. Don’t skip the space. This is true for all source code in the book. Thanks, A.***

<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;
              color: green">Inline Style Demo</h1>
    <p style = "color: red">Welcome to
      <em style = "color: black; background-color: yellow">CSS</em></p>
    <p>Welcome to HTML</p>
  </body>
</html>
```


Inline Style Demo - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
Favorites
Address
Go
Links
Done
My Computer

C:\book\CssInlineStyleDemo.html

Inline Style Demo

Welcome to *CSS*

Welcome to 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 h1 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;
              color: green"
```

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 comma (,). 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 head 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>

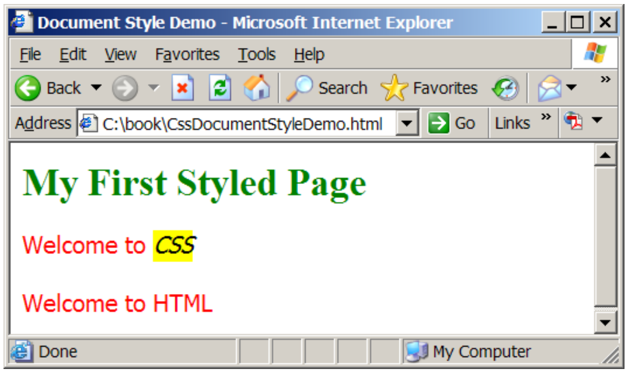
<Side Remark line 11: p style>

<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>
    <p>Welcome to <em>CSS</em></p>
    <p>Welcome to HTML</p>
  </body>
</html>
```



Document Style Demo - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
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Address
C:\book\CssDocumentStyleDemo.html
Go
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Done
My Computer

My First Styled Page

Welcome to *CSS*

Welcome to HTML

Figure 2

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 h1 element. All h1 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 p element. All p elements will be rendered red color.

Line 12

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

specifies a style for the em element. All em 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,

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

The *selector* (h1, p, and 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 3 CssExternalStyleSheet.css (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: comment>

<Side Remark line 2: h1 style>

<Side Remark line 4: p style>

<Side Remark line 5: em style>

```
/* Define styles for h1, p, and em */
h1 {font-family: "Times New Roman", sans-serif; font-size: 20pt;
   color: green}
p {color: red }
em {color: black; background-color: yellow}
```

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"
          href = "CssExternalStyleSheet.css" />
  </head>

  <body>
```

```
    <h1>External Style Demo</h1>
    <p>Welcome to <em>CSS</em></p>
    <p>Welcome to HTML</p>
  </body>
</html>
```

Lines 8-9

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

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>

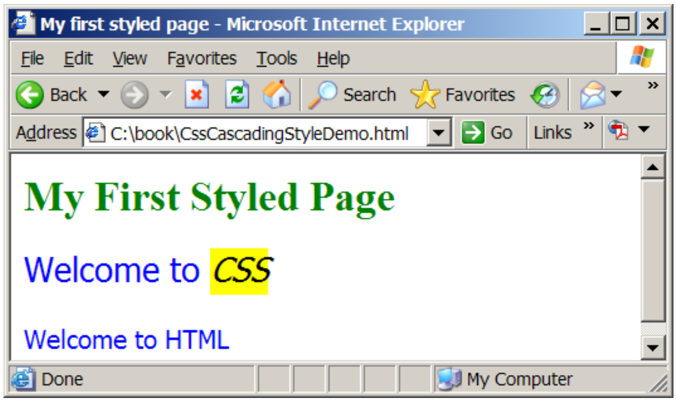
<Side Remark line 10: document style>

<Side Remark line 18: inline style>

```
<!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>
    <link rel = "stylesheet" type = "text/css"
          href = "CssExternalStyleSheet.css" />
    <style type = "text/css">
      p {color: blue; font-size: 16pt}
    </style>
  </head>

  <body>
    <h1>My First Styled Page</h1>
    <p>Welcome to <em>CSS</em></p>
    <p style = "font-size: 12pt">Welcome to HTML</p>
  </body>
</html>
```


My first styled page - Microsoft Internet Explorer
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Links
Done
My Computer

My First Styled Page

Welcome to CSS

Welcome to HTML

Figure 3

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 <p> 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 <p> 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 <em> tag in line 17 is embedded in the <p> tag. So, the style properties for the <p> tag are inherited by this <em> tag. The cascaded style for <em> is

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

6 Fonts

<Side Remark: font properties>

You can use properties font-family, font-size, font-weight, and font-style 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:

```
serif, sans-serif, monospace, cursive, fantasy
```

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 Courie New font for the p element. If the font is not supported, use the generic monospace 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 px (pixel), in (inches), cm (centimeters), mm (millimeters), pt (points; 1 pt = 1/72 in), and pc (picas; 1 pc = 12 pt).

<Side Remark: relative measurement>

You can use relative values (xx-small, x-small, small, smaller, medium, large, larger, x-large, and xx-large) 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 em and ex. em is the height of the uppercase letter M in a given font. ex 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 em, ex, and 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 font-style property can be used to specify whether the font is italic. Three possible values are normal, italic, and oblique.

<Side Remark: font-weight>

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

<Side Remark: font-variant>

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

<Side Remark: shorthand font property>

You can use the shorthand font 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 font-family. For example, the following statement

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

declares that the p element is displayed in italic, small-caps, bold, size of 1em, 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 h3, h4, and h5 are specified using relative measurements in lines 9-14. The font size for i and em are specified using absolute measurements in lines 15-16. If you change the default font size in the browser, the h3, h4, and h5 element size changes, but the i and em font size does not change. Line 19 uses the font 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******

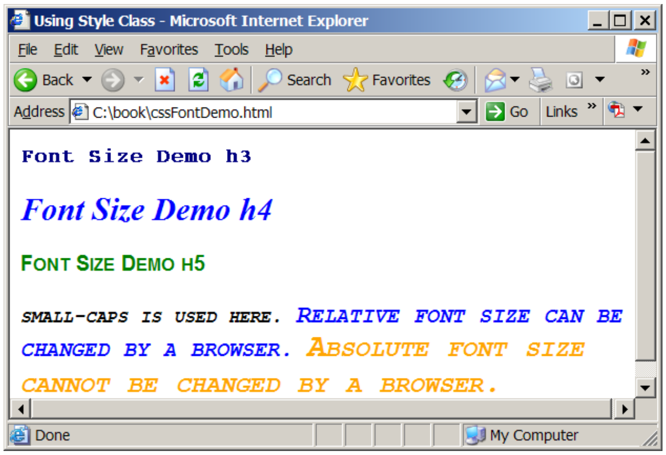
******Layout: Please layout exactly. Don't skip the space. This is true for all source code in the book. Thanks, A.***

<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: 1em;
     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>
  <p>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></p>
 </body>
</html>
```


Using Style Class - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
Favorites
Address
C:\book\cssFontDemo.html
Go
Links
Done
My Computer

Font Size Demo h3

Font Size Demo h4

FONT SIZE DEMO H5

SMALL-CAPS IS USED HERE. RELATIVE FONT SIZE CAN BE CHANGED BY A BROWSER. ABSOLUTE FONT SIZE CANNOT BE CHANGED BY A BROWSER.

Figure 4

Listing 6 demonstrates font properties.

7 Text Alignments, Indents, and Decorations

<Side Remark: text properties>
You can use properties text-align, text-indent, and text-decoration to specify a text alignment, indent, and decoration.

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

<Side Remark: text-indent>
The text-indent property indents the first line of text in the element by the specified amount.

<Side Remark: text-decoration>
The text-decoration property specifies whether a text is underlined, overlined, blink, or line-through using the values underline, overline, blink, and line-through. 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 h3 element is right-aligned and underlined (line 9). The h4 element is centered and overlined (line 10). The h5 element is right-aligned with line-through (line 11). The p 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>

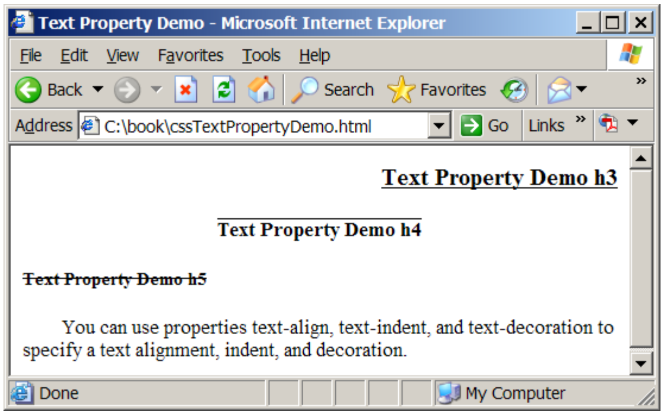
<Side Remark line 12: indent, blink>

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

<!-- cssTextPropertyDemo.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>
    <p>You can use properties text-align, text-indent, and
    text-decoration to specify a text alignment, indent, and
    decoration.</p>
  </body>
</html>
```


Text Property Demo - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address C:\book\cssTextPropertyDemo.html
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Text Property Demo h3

Text Property Demo h4

~~Text Property Demo h5~~

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

Figure 5

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.

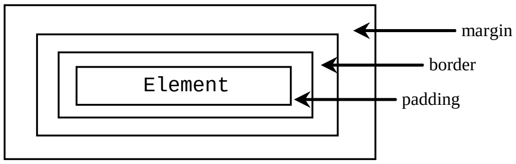


Figure 6

Each element has padding, border, and margin.

<Side Remark: padding properties>
<Side Remark: margin properties>
The properties for padding are padding-bottom, padding-left, padding-right, and padding-top. The properties for margin are margin-bottom, margin-left, margin-right, and margin-top. You can use the shorthand properties padding and margin 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 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 b element with left margin 0.3em and right margin 0.3em.

The following statement

```
h1 {padding: 0.2em 0.2em 0.2em 0.2em; margin: 0.3em 0.3em 0.3em 0.3em}
```

declares the h1 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., em, ex) and absolute measurements (e.g., cm, 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 border-bottom-width, border-left-width, border-right-width, and border-top-width. Additionally, you can specify the color and style for a border using the properties: border-bottom-color, border-left-color, border-right-color, border-top-color, border-bottom-style, border-left-style, border-right-style, and border-top-style. The values for the style are dotted, dashed, solid, double, groove, ridge, inset, and outset. The default value is solid.

<Side Remark: shorthand border properties>

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

```
p {border-left: 0.2em dotted red}
```

declares the p element with red dotted border width 0.2em on left side.

For example, the following statement

```
p {border: thin dotted red}
```

declares the 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 h4 element's top and bottom padding is 0.2em, with double green border (lines 11-12). The h5 element's left and right margin is 0.5em, with solid border (lines 13-14). The p 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.***

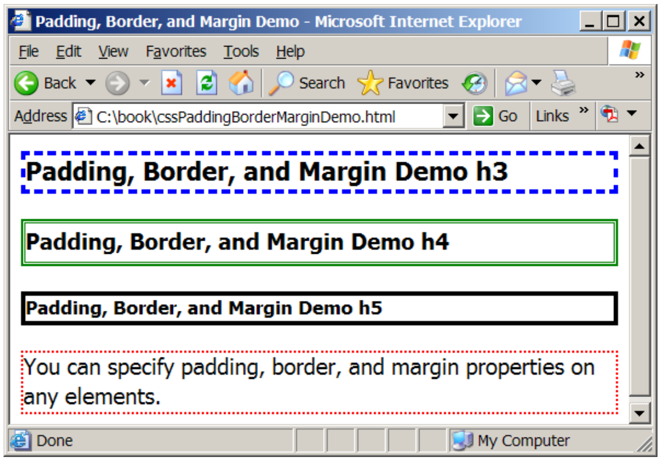
<Side Remark line 9: padding>

<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 {padding: 0.2em, 0.2em, 0.2em, 0.2em,
          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: 1em; margin-right-width: 0.5em;
          border: solid}
      p {border: 0.1em 1em 1em 0.1em dotted red}
    </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>
     <p>You can specify padding, border, and margin properties on
        any elements.</p>
  </body>
</html>
```


Padding, Border, and Margin Demo - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
Favorites
Address
C:\book\cssPaddingBorderMarginDemo.html
Go
Links
Done
My Computer

Padding, Border, and Margin Demo h3

Padding, Border, and Margin Demo h4

Padding, Border, and Margin Demo h5

You can specify padding, border, and margin properties on any elements.

Figure 7

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.

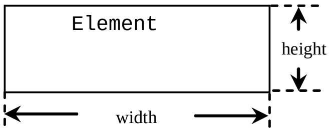


Figure 8

You can specify the width and height of an element.

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

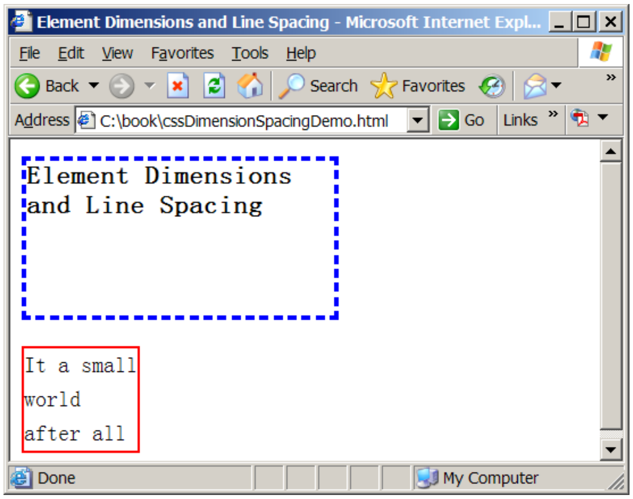
Listing 9 gives an example that demonstrates element dimensions and line spacing, as shown in Figure 9. The h3 element has a dashed blue border with height 6em and width 12em (line 9). The p element has a solid red border with height 2em, width 5em, and line-spacing 1.5em (lines 10-11).

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>
    <p>It a small world after all</p>
  </body>
</html>
```


Element Dimensions and Line Spacing - Microsoft Internet Expl...
File Edit View Favorites Tools Help
Back
Search
Favorites
Address C:\book\cssDimensionSpacingDemo.html
Go
Links
Done
My Computer

Element Dimensions and Line Spacing

It a small world after all

Figure 9

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 highlight is applied to the p 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 em element. The style class highlight is applied to the em element in line 18.

Listing 10 is displayed as shown in Figure 9.

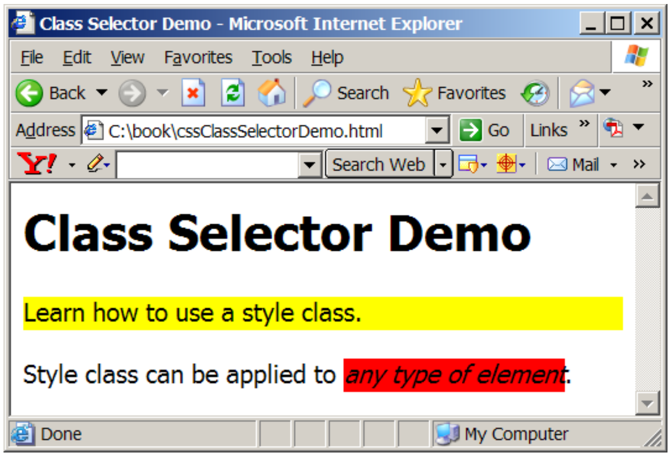
Listing 10 cssClassSelectorDemo.html (Using Style Class)

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">

<!-- cssClassSelectorDemo.html -->
<html>
  <head>
    <title>Class Selector Demo</title>
    <style type = "text/css">
      .highlight {background-color: yellow}
      em.redhighlight {background-color: red}
    </style>
  </head>

  <body>
    <h1>Class Selector Demo</h1>
    <p class = "highlight">Learn how to use a style class.</p>
    <p>Style class can be applied to
      <em class = "redhighlight">any type of element</em>.</p>
  </body>
</html>
```


Class Selector Demo - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
Favorites
Address C:\book\cssClassSelectorDemo.html
Go
Links
Search Web
Mail
Done
My Computer

Class Selector Demo

Learn how to use a style class.

Style class can be applied to any type of element.

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 li 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:

```
<ul>
  <li><em>Java</em></li>
  <li><em>CSS</em></li>
</ul>
```

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

```
li em {color: red}
```

<Side Remark: grouping selectors>

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:

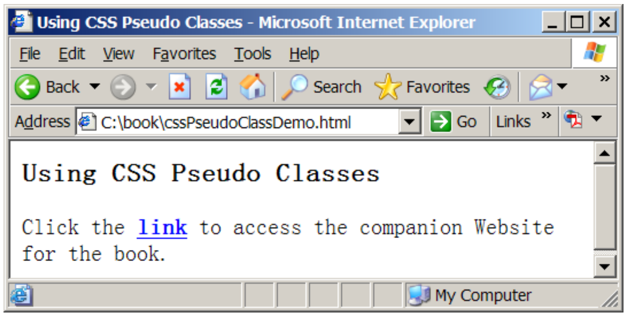
```
selector:pseudo-class {property1: value1; ...; propertyn: valuen}
```

<Side Remark: anchor pseudo-classes>
You can use the pseudo-classes link, visited, hover, and active 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 link>
<Side Remark line 10: pseudo class visited>
<Side Remark line 11: pseudo class hover>
<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>
  <head>
    <title>Using CSS Pseudo Classes</title>
    <style 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 */
    </style>
  </head>

  <body>
    <h3>Using CSS Pseudo Classes</h3>
    <p>Click the
      <a href = "http://www.cs.armstrong.edu/liang/intro6e">link</a>
      to access the companion Website for the book.</p>
  </body>
</html>
```


Using CSS Pseudo Classes - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address C:\book\cssPseudoClassDemo.html Go Links
My Computer

Using CSS Pseudo Classes

Click the link to access the companion Website for the book.

Figure 10

Listing 11 demonstrates using pseudo classes.

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

```
a.red:visited {color: red}
```

It can be used as follows:

```
<a class = "red" href = "somefile.html">A hyperlink</a>
```

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., h1, p, em, i, etc) have their inherent styles. You can use span and div, which do not have inherent styles. For example,

```
<span style = "color: red">red</span>
<div style = "color: red; font-size: 1em">red</div>
```

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

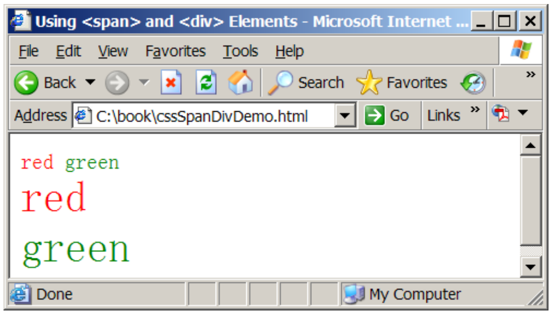
Listing 12 displays the <span> and <div> elements, as shown in Figure 11. Two <span> elements are given in lines 11-12 and they are displayed on the same line. Two <div> elements are given in lines 13-14 and they are displayed on their separate lines.

Listing 12 cssSpanDivDemo.html (Using <span> 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"
  "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>
```


Using <span> and <div> Elements - Microsoft Internet ...
File Edit View Favorites Tools Help
Back Search Favorites
Address
Go Links
Done
My Computer

C:\book\cssSpanDivDemo.html

red green
red
green

Figure 11

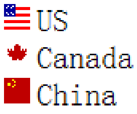
Listing 12 demonstrates using <span> and <div>.

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 list-style-image property to specify an image marker. For example, the following code displays a list with three different image markers, as shown below:

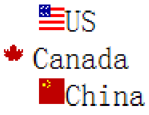
```
<ul>
<li style = "list-style-image: url('image/usIcon.gif')">US</li>
<li style = "list-style-image: url('image/caIcon.gif')">Canada</li>
<li style = "list-style-image: url('image/chinaIcon.gif')">China</li>
</ul>
```


US
Canada
China

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

<Side Remark: list-style-position>
You can use the list-style-position property to specify where the list-item marker is placed. The values are inside and outside (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:

```
<ul>
<li style = "list-style-image: url('image/usIcon.gif');
      list-style-position: inside">US</li>
<li style = "list-style-image: url('image/caIcon.gif');
      list-style-position: outside">Canada</li>
<li style = "list-style-image: url('image/chinaIcon.gif');
      list-style-position: inside">China</li>
</ul>
```


US
Canada
China

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

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

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

Listing 13 cssListDemo.html (Using CSS Lists)

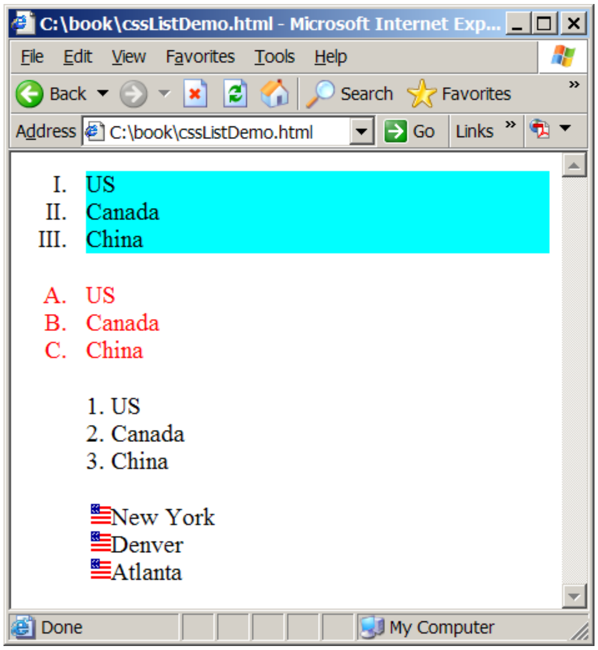
******PD: Please add line numbers (including space lines) in the following code******

******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: list style properties>

<Side Remark line 18: ID selector>

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

<!-- cssListDemo.html -->
<html>
  <head>
    <style type ="text/css">
      #upperroman {list-style-type: upper-roman;
        background-color: cyan}
      #upperalpha {list-style-type: upper-alpha;
        color: red}
      #decimal {list-style-type: decimal; list-style-position: inside}
      #mylist {list-style: square inside url("image/usIcon.gif")}
    </style>
  </head>

  <body>
    <ul id = "upperroman">
      <li>US</li>
      <li>Canada</li>
      <li>China</li>
    </ul>

    <ul id = "upperalpha">
      <li>US</li>
      <li>Canada</li>
      <li>China</li>
    </ul>

    <ul id = "decimal">
      <li>US</li>
      <li>Canada</li>
      <li>China</li>
    </ul>

    <ul id = "mylist">
      <li>New York</li>
      <li>Denver</li>
      <li>Atlanta</li>
    </ul>
  </body>
</html>
```


C:\book\cssListDemo.html - Microsoft Internet Exp...
File Edit View Favorites Tools Help
Back Search Favorites
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Done
My Computer

```
  I.  US
 II.  Canada
III.  China

  A.  US
  B.  Canada
  C.  China

      1. US
      2. Canada
      3. China

      New York
      Denver
      Atlanta
```

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Figure 12

Listing 13 demonstrates using CSS lists.

14 The float Property

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

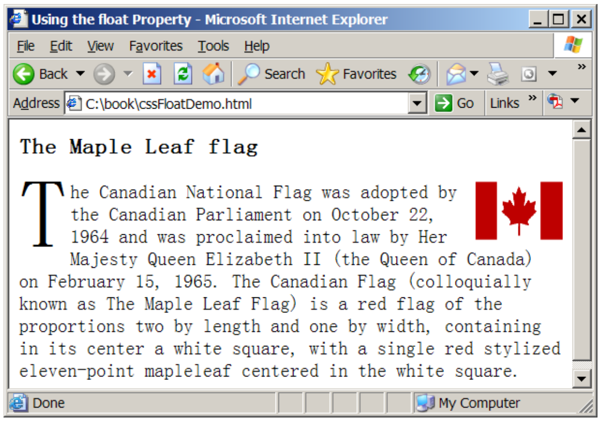
<Side Remark line 14: float left>

```
<!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"
            width = "90" height = "60" /></div>
    <p><span style = "float: left; font-size: 500%;
        line-height: 80%">T</span>he 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.</p>
  </body>
```

```
          </html>
```


Using the float Property - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address C:\book\cssFloatDemo.html
Go Links
Done
My Computer

The Maple Leaf flag

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.

Figure 13

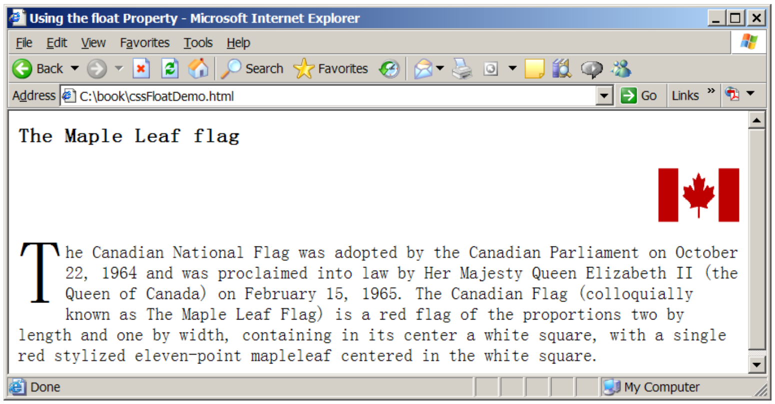
Listing 14 demonstrates using the float property.

<Side Remark: clear property>

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

```
          <p style = "clear: right">
```

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


Using the float Property - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address C:\book\cssFloatDemo.html
Go Links
Done
My Computer

The Maple Leaf flag

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.

Figure 14

Image is not allowed to float on the left.

15 The display Property

You can the display property to specify how and if an element is displayed. Three frequently used values are none block (default), and inline. The none value indicates that the element will not be displayed. The block value indicates that the element will be displayed as a block-level element, with a line break before and after the element. The inline 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 display 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******

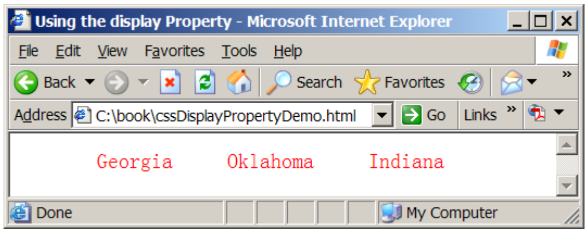
******Layout: Please layout exactly. Don’t skip the space. This is true for all source code in the book. Thanks, A.***

<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 {display: inline; padding: 1em; color: red}
    </style>
  </head>

  <body>
     <div>
       <ul>
         <li>Georgia</li>
         <li>Oklahoma</li>
         <li>Indiana</li>
       </ul>
     </div>
  </body>
</html>
```


Using the display Property - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
Favorites
Address
C:\book\cssDisplayPropertyDemo.html
Go
Links
Done
My Computer

Georgia Oklahoma Indiana

Figure 15

Listing 15 demonstrates using the display property.

<Side Remark: clear property>

The style for the li 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 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>

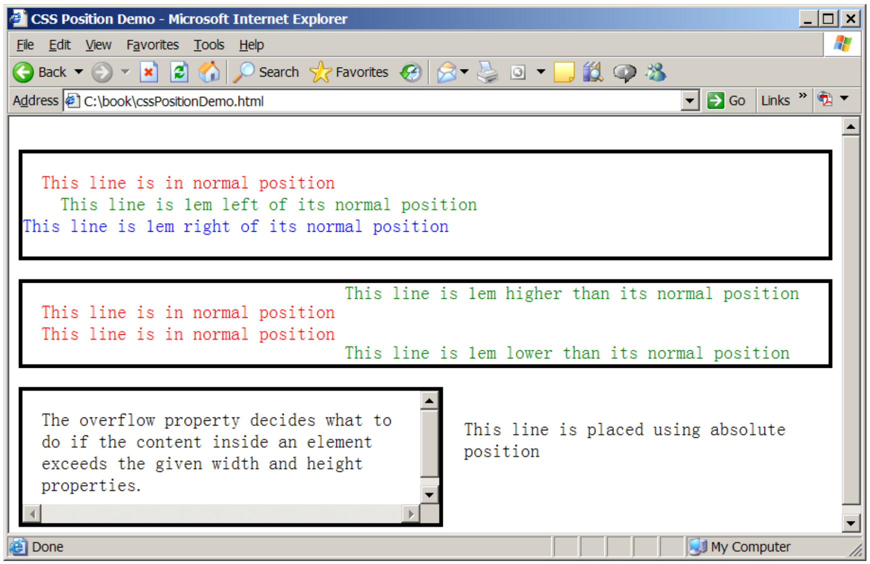
```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<!-- cssPositionDemo.html -->
<html>
  <head>
    <title>CSS Position Demo</title>
  </head>

  <body>
    <div style = "position: absolute; left: 24em; top: 16em">
      This line is placed using absolute position</div>

    <div style = "border: solid; margin-top: 1em; padding: 1em">
      <div style = "color: red">This line is in normal position
      </div>
      <div style = "position: relative; left: 1em; color: green">
        This line is 1em left of its normal position
      </div>
      <div style = "position: relative; right: 1em; color: blue">
        This line is 1em right of its normal position
      </div>
    </div>

    <div style = "border: solid; margin-top: 1em; padding: 1em">
      <div style = "color: red">This line is in normal position
        <span style = "position: relative; top: -1em; color: green">
          This line is 1em higher than its normal position
        </span>
      </div>
      <div style = "color: red">This line is in normal position
        <span style = "position: relative; top: 1em; color: green">
          This line is 1em lower than its normal position
        </span>
      </div>
    </div>

    <div style = "border: solid; margin-top: 1em; padding: 1em;
          width: 20em; height: 5em; overflow: scroll">
       The overflow property decides what to do if the content
       inside an element exceeds the given width and height properties.
    </div>
  </body>
</html>
```


CSS Position Demo - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
Favorites
Address
C:\book\cssPositionDemo.html
Go
Links
Done
My Computer

```
This line is in normal position
  This line is 1em left of its normal position
This line is 1em right of its normal position

                                This line is 1em higher than its normal position
This line is in normal position
This line is in normal position
                                This line is 1em lower than its normal position

The overflow property decides what to       This line is placed using absolute
do if the content inside an element         position
exceeds the given width and height
properties.
```

Figure 16

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: 1em;`

specifies that the element is 1em right relative to the normal position.

Line 26

`position: relative; top: -1em;`

specifies that the element is 1em 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 overflow property. This property specifies what to do if the content inside an element exceeds the given width and height.

<Side Remark: z-index property>

You can use the z-index 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

```
z-index: -1
```

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>

    <span><img style = "position: relative; left: 6em;
          top: 1em; z-index: 1" src = "image/ca.gif"
          width = "90" height = "60" />
        The Canadian National Flag</span>
  </body>
```

```
</html>
```

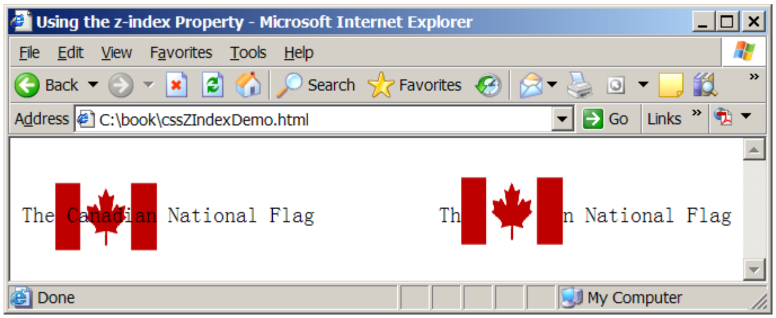

Using the z-index Property - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
Favorites
Address
C:\book\cssZIndexDemo.html
Go
Links
The Canadian National Flag
Th n National Flag
Done
My Computer

Figure 17

The 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>

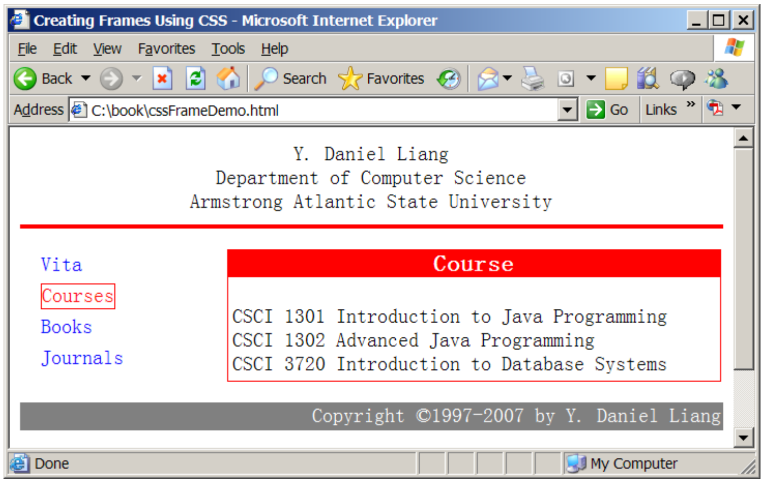
```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<!-- cssFrameDemo.html -->
<html>
  <head>
    <title>Creating Frames Using CSS</title>
    <style type = "text/css">
      #header {text-align: center; padding-bottom: 0.5em;
             border-bottom: 0.2em solid red}
      #left {list-style-type: none; padding: 0;
           margin: 0; position: relative; top: 1em; left: 1em;
           width: 15%}
      #center {position: relative; left: 10em; top: -5em; width: 70%;
             border: 1px 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 1px 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>
      <ul id = "left" style = "line-height: 1.5em">
            <li><a href = "vita.html">Vita</a> </li>
            <li><a id = "active" href = "courses.html">Courses</a></li>
            <li><a href = "books.html">Books</a> </li>
            <li><a href = "journals.html">Journals</a> </li>
      </ul>
    </div>

    <!-- center pane -->
    <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<br />
        CSCI 1302 Advanced Java Programming<br />
        CSCI 3720 Introduction to Database Systems
      </div>
    </div>

    <!-- bottom pane -->
    <div id = "bottom">
      Copyright &copy;1997-2007 by Y. Daniel Liang</div>
  </body>
</html>
```


Creating Frames Using CSS - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
Favorites
Address
C:\book\cssFrameDemo.html
Go
Links
Done
My Computer

Y. Daniel Liang
Department of Computer Science
Armstrong Atlantic State University

Vita
Courses
Books
Journals

Course

CSCI 1301 Introduction to Java Programming
CSCI 1302 Advanced Java Programming
CSCI 3720 Introduction to Database Systems

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Figure 18

You can emulate HTML frames using CSS.

The example declares id selectors header, left, center, and bottom 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: 1em; list-style-type: none;
```

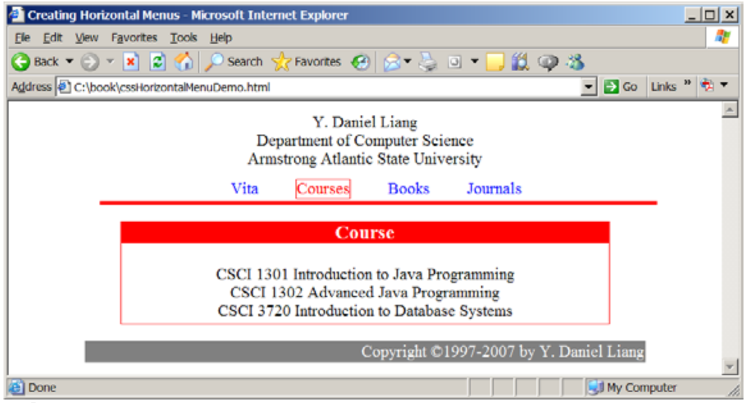
```
             border-bottom: 0.2em solid red}
      li {display: inline; margin: 1em}
      #center {width: 70%; text-align: center;
             border: 1px red solid}
      #bottom {padding: 0.1em; width: 80%; margin-top: 1em;
             text-align: right; color: white; background-color: gray;
             clear: left}
      #active {color: red; border: red 1px 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">
      <ul id = "tabs" style = "line-height: 1.5em">
            <li><a href = "vita.html">Vita</a> </li>
            <li><a id = "active" href = "courses.html">Courses</a></li>
            <li><a href = "books.html">Books</a> </li>
            <li><a href = "journals.html">Journals</a> </li>
      </ul>
    </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<br />
           CSCI 1302 Advanced Java Programming<br />
           CSCI 3720 Introduction to Database Systems
         </div>
      </div>
    </div>

    <!-- bottom pane -->
    <div style = "text-align: center">
      <div id = "bottom">
        Copyright &copy;1997-2007 by Y. Daniel Liang
      </div>
    </div>
  </body>
</html>
```


Creating Horizontal Menus - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address C:\book\cssHorizontalMenuDemo.html
Go Links
Done
My Computer

Y. Daniel Liang
Department of Computer Science
Armstrong Atlantic State University

Vita Courses Books Journals

Course

CSCI 1301 Introduction to Java Programming
CSCI 1302 Advanced Java Programming
CSCI 3720 Introduction to Database Systems

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Figure 19

You can create horizontal menus using CSS.

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

```
li {display: inline; margin: 1em}
```

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 @media 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).

Listing 20 cssMediaTypeDemo.html (Using CSS Media Types)

******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">
<!-- cssMediaTypeDemo.html -->
<html>
  <head>
```

```
    <title>Using &lt;span&gt; and &lt;div&gt; Elements</title>
    <style>
      @media screen {
        body {font-size: 14px; font-family: Verdana}
      }

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

  <body>
    <!-- body -->
  </body>
</html>
```