Web Programming

Lecture 2 – Cascading Style Sheets

Introduction

• HTML (and XHTML) concern themselves primarily with content, not presentation concerns.

• Many tags have built-in default values for certain formatting concerns, e.g., `<h2>` has a default setting for font size.

• Style concerns is handled much better by Cascading Style Sheets.
Levels of Style Sheets

There are three different levels of style sheets:

- **Inline**
  - these have style information contained within the block tag.
  
  ```html
  <p style="font-size: 1em; color: fuchsia">Aren't style sheets wonderful?</p>
  ```

- **Document** - style information is embedded within the block tag `<style>`

- **External** – style information is contained in a separate file.

Inline Style Specifications

- Inline style specifications are written as values of the style attribute for the tag in which they appear:
  ```
  style = "property1: value1;
  property2: value2, ...
  ```
Document-Level Styles

• The style information is embedded within a block tag:
  <style type = "text/css">

• Comments are enclosed between /* and */:
  <style type = "text/css">
    /* Style for initial paragraph */
    /* Style for other paragraphs */
  </style>

Style Specification Formats

• Each style rule has two parts:
  – A selector, which indicates the tag or tags affected by the rule
  – A list of property/value pairs
• General syntax:

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

• If the property has more than one value, it is usually separates by blank space (or sometimes commas).
Selector Forms

• Selectors can take a variety of forms
  – Selectors can be simple, such as a single element name or can apply only when certain combinations of tags are used.
  – Selectors can be classes defined by the user.

Simple Selector Forms

• The simplest selector is for a single element, such as h1:
  
  h1 { font-size: 1.5em; }

• It can also apply to more than one element if necessary:
  
  h2, h3 { font-size: 1.25em; }

• Selector can also specify styles that apply only to elements in certain positions.
  
  body b i { font-family: Courier; }

• If italics were outside boldface, this would not be applied
Class Selectors

• Users can define classes that enable different occurrences of the same tags to be formatted differently:
  
  p.normal { font-size: 100%;}
  p.narrow {font-size: 80%;}

• It could be used to distinguish between these two paragraphs:
  
  <p class="normal">This is a test of the emergency styling system.</p>

  <p class = "narrow">If this were a real emergency, you would be in big trouble!</p>

Generic Selectors

• Sometimes it is convenient to have a class of style specifications that applied to more than one kind of tag. These are called generic classes.

• You declare it by writing:
  
  .navbar {
    background-color: #881010;
    font-family:
      verdana,arial,sans-serif;
    font-size: small; }

  You can use it by writing:
  
  <p class= "navbar">Some stuff</p>
id Selectors

- An id selector applies a style to one specific element. The general form is:
  
  \#specific-id \{property-value list\}

- Example
  
  \#specific14 \{font-size: 110%\}

- Usage
  
  \<h2 id = "specific14"> 1.4 Calico Cats</h2>\n
Pseudo Classes

- Pseudo classes are styles that apply when certain events take place.
- There is not always support for pseudo classes in all browsers.
Pseudo-Classes: An Example

<!DOCTYPE html>

<!-- pseudo.html
Illustrates the :hover and :focus pseudo classes
-->

<html lang = "en">
<head> <title> Checkboxes </title> </head>
<meta charset="utf-8">
<style type = "text/css">
input:hover {color: red;}
input:focus {color: green;}
</style>
<body>
<form action = "">
<p>
Your name:
<input type = "text" />
</p>
</form>
</body>
</html>
Property Value Forms

- The original standard for Cascading Style Sheets (CSS1) includes 60 different properties in seven categories:
  1. Fonts
  2. Lists
  3. Text Alignment
  4. Margins
  5. Colors
  6. Backgrounds
  7. Border

Keyword Property Values

- Keyword property values are used when there is a limited number of possible values and they are defined.
- Examples of this include small, medium and large.
- Keyword property values are case-insensitive.
Numerical Property Values

- Number values are used when there aren't meaningful units that can be attached to a number property value.
- A number property value can be:
  - integer
  - string of digits with a decimal point
  - can be preceded by a + or – sign.

Length Property Values

- Length property values are numbers followed by a 2-letter abbreviation for a unit of length (without a space in-between).
- The units of length are:
  - px pixels - in inches
  - pt points - cm centimeters
  - pc picas - mm millimeters
- There are also two relative lengths
  - em (height of an "m")
  - ex (height of an "x")
Percentage Property Values

• Percentage property values consist of a number immediately followed by a "%".
• The size of a percentage of the previously used size (whatever that may be).

URL Property Values

• URL property values are different from references to URLs.
• URL values consist of the word url immediately followed by a URL within parentheses.
• Example
  url(tetons.jpg)
Color Property Values

• Colors can be specified in three different ways:
  – Color Name (e.g., \texttt{white})
  – rgb form (e.g., \texttt{rgb(255, 255, 255)})
  – Six-digit hexadecimal number (e.g., \#FFFFFF)
• These all represent the same color, i.e., white.

Inherited Property Values

• The CSS2 standard specifies that some property values can be inherited by elements within elements with specified values.
  • \texttt{Background-color} cannot be inherited but \texttt{font-size} can be.
  • This is not well-supported at the present.
Font Properties

• Fonts have several properties that may be specified:
  – Font Families
  – Font Sizes
  – Font Styles
  – Font Weights
  – Font Shorthands
  – Text Decoration

Font Families

• `font-family` is used to specify a list of fonts.
• The first font on the list supported by the browser is the one used to display the text.

  `font-family: Arial, Helvetica, Futura, sans-serif`

• If the font's name contains one (or more) blank spaces, place it in single quotes (double quotes are sometimes used to specify the entire style).

  `font-family: "Times New Roman"`
Generic Fonts

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>serif</td>
<td>Times New Roman, Garamond</td>
</tr>
<tr>
<td>sans-serif</td>
<td>MS Ariel, Helvetica</td>
</tr>
<tr>
<td>cursive</td>
<td>Caflisch Script, Zapf-Chancery</td>
</tr>
<tr>
<td>fantasy</td>
<td>Critter, Cottonwood</td>
</tr>
<tr>
<td>monospace</td>
<td>Courier, Prestige</td>
</tr>
</tbody>
</table>

Font Sizes

- Font size can be specified in points
  ```html
  font-size: 10pt
  ```
- Font size can also be specified using predefined names
  ```html
  xx-small  large
  x-small   x-large
  medium    xx-large
  ```
- Absolute sizing gives complete size control to the web designer but is problematic when accessibility is considered.
Font Styles

• The most commonly used font style is italics
  \texttt{font-style: italics}
• Oblique is also used on occasion, but it is not as widely supported as italics; consequently, some browsers display oblique text in italics.

Font Weights

• \texttt{font-weight} is most commonly used to specify boldface type.
• There are four named values:
  \texttt{normal} (default) \quad \texttt{bold}
  \texttt{lighter} (relative) \quad \texttt{bolder} (relative)
• Number values may be used.
  – Multiples of 100 from 100 to 900.
  – \texttt{normal} is 400.
  – \texttt{bold} is 700.
Font Shorthands

- Sometimes it's handy to be able to specify several font properties at once.
- This can be done by specifying font.
- Example
  ```css
  font: bold 1.1em 'Times New Roman' Palatino
  ```
- The order in which properties are specified is required: `font-style`, `font-weight`, `font-size` and `font-family`.
- Only font size and font family are required

fonts.html

```html
<!DOCTYPE html>
<!-- fonts.html
    An example to illustrate font properties
-->
<html lang="en">
<head> <title> Font properties </title>
<meta charset="utf-8">
<style type="text/css">
  p.major   {font-size: 1.1em;
              font-style: italic;
              font-family: 'Times New Roman'; }
  p.minor {font: 0.9em bold 'Courier New';}
  h2  {font-family: 'Times New Roman';
       font-size: 2em; font-weight: bold}
</style>
</head> <body>
</body>
</html>
```
If a job is worth doing, it's worth doing right.
Two wrongs don't make a right, but they certainly can get you in a lot of trouble.

Chapter 1 Introduction
1.1 The Basics of Computer Networks
fonts2.html

<!DOCTYPE html>

<!-- fonts2.html
   An example to illustrate font properties -->

<html lang = "en">
<head> <title> Font properties </title>
   <meta charset="utf-8">
   <link rel="stylesheet" type = "text/css" href = "styles.css">
</head>

<body>
   <p class = "big">
      If a job is worth doing, it's worth doing right.
   </p>

   <p class = "small">
      Two wrongs don't make a right, but they certainly can get you in a lot of trouble.
   </p>

   <h2>Chapter 1 Introduction</h2>
   <h3> 1.1 The Basics of Computer Networks</h3>
</body>
</html>
styles.css

/* styles.css - an external style sheet
   for use with fonts2.html
*/

p.major   {font-size: 1.1em;
        font-style: italic;
        font-family: 'Times New Roman';
     }

p.minor   {font: 0.9em bold 'Courier New';}

h2         {font-family: 'Times New Roman';
             font-size: 2em; font-weight: bold}

h3         {font-family: 'Courier New';
             font-size: 1.5;}

Text Decoration

- Text decoration refers to other features not otherwise specified.
- The values include line-through, underline and overline, and none (the default).
- underline is problematic because it can be confused with links.
decoration.html

<!DOCTYPE html>

<!-- decoration.html
An example that illustrates several of the possible text decoration values -->

<html lang = "en">
<head> 
<title> Text decoration </title>
<meta charset = "utf-8">
<style type = "text/css">
p.through   {text-decoration: line-through}
p.over     {text-decoration: overline}
p.under    {text-decoration: underline}
</style>
</head>

<body>
<p class = "through">
This illustrates line-through
</p>

<p class = "over">
This illustrates overline
</p>

<p class = "under">
This illustrates underline
</p>

</body>
</html>
This illustrates line-through
This illustrates overline
This illustrates underline

Text Spacing

- There are three properties that control the spacing of text within an HTML document:
  - Letter spacing
  - Word spacing
  - Leading
Letter spacing

- Letter spacing refers to the amount of space between letters within a word.
  - This spacing is referred to as tracking.
- Positive values increase spacing; negative values decrease spacing.
- Examples
  
  ```
  letter_spacing: 1px;       spreads the letters
  letter_spacing: -1px;     squeezes the letters
  letter_spacing: normal;   resets to the spacing of the parent element
  ```

Word spacing

- Word spacing controls the amount of spaces between words.
- As with letter spacing, a positive value increases spacing, a negative value decreases spacing and a normal value resets it to the word spacing property of the parent element.
Leading

• Leading is the space between lines of text.
• Leading can be controlled by the line-height
• The value of line-height can be a number (referring to the number of lines of spacing) or normal (resetting it the line-height property of the parent tag).

```html
text_space.html

<!DOCTYPE html>

<!-- test_space.html
  An example that illustrates text spacing properties -->

<html lang = "en">
<head> <title> Text spacing properties </title>
  <meta charset = "utf-8">
</head>
</html>
```
On the planes of hesitation

Bleach the bones of countless millions

Who at the dawn of victory
Sat down to wait and waiting died

If you think that CSS is simple,
You are quite mistaken

If you think that HTML5 is all old stuff,
You are quite mistaken

</body>
</html>
List Properties

• The two list properties that are most frequently specified are:
  – the shape of bullets (on unordered lists)
  – the sequencing values (on ordered lists).

list-style-type

• `list-style-type` determines the shape that is used as a bullet for unordered (or bulleted) lists.
• There are four values:
  – `disc` (filled-in circle)
  – `circle` (empty circle)
  – `square`
  – `none`
• The default value is `disc`. 
bullets1.html

```xml
<? xml version = "1.0" encoding "utf-8"?
<!DOCTYPE html PUBLIC "-//w3c//DTD XHTML 1.1//EN"
 "http://www.w3.org/TR/XHTML11.dtd"?

<!-- bullets1 -->
<html xmlns = "http://www.w3.org/1999/xhtml">
<head> 
title> Text decoration </title>
    <style type = "text/css">
    ul {list-style-type: square}
    </style>
</head>
<body>
<h3> Some Common Single-Engine Aircraft </h3>
<ul>
    <li> Cessna Skyhawk </li>
    <li> Beechcraft Bonanza </li>
    <li> Piper Cherokee </li>
</ul>
</body>
</html>
```

bullets1.html – as Displayed

Some Common Single-Engine Aircraft

- Cessna Skyhawk
- Beechcraft Bonanza
- Piper Cherokee
bullet2.html

<!DOCTYPE html>
<!-- bullets2  -->

<html lang = "en">
    <head> 
        <title> Text decoration </title>
        <meta charset = "utf-8">
        <style type = "text/css">
            li.disc { list-style-type: disc}
            li.square { list-style-type: square}
            li.circle { list-style-type: circle}
        </style>
    </head>

    <body>
        <h3> Some Common Single-Engine Aircraft </h3>
        <ul>
            <li class = "disc"> Cessna Skyhawk </li>
            <li class = "square"> Beechcraft Bonanza </li>
            <li class = "circle"> Piper Cherokee </li>
        </ul>
    </body>
</html>
Some Common Single-Engine Aircraft

- Cessna Skyhawk
- Beechcraft Bonanza
- Piper Cherokee
## Sequencing Values in Ordered Lists

<table>
<thead>
<tr>
<th>Property Values</th>
<th>Sequence Type</th>
<th>First Four Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>decimal</td>
<td>Arabic numerals</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>decimal-leading-zero</td>
<td>Arabic numerals beginning with 0</td>
<td>0, 1, 2, 3</td>
</tr>
<tr>
<td>upper-alpha</td>
<td>Uppercase letters</td>
<td>A, B, C, D</td>
</tr>
<tr>
<td>lower-alpha</td>
<td>Lowercase letter</td>
<td>a, b, c, d</td>
</tr>
<tr>
<td>upper-roman</td>
<td>Uppercase Roman numerals</td>
<td>I, II, III,IV</td>
</tr>
<tr>
<td>lower-roman</td>
<td>Lowercase Roman numerals</td>
<td>I, ii, iii, iv</td>
</tr>
<tr>
<td>lower-greek</td>
<td>Lowercase Greek letters</td>
<td>α, β, γ, δ</td>
</tr>
<tr>
<td>upper-latin</td>
<td>Same as upper-alpha</td>
<td>A, B, C, D</td>
</tr>
<tr>
<td>lower-latin</td>
<td>Same as lower-alpha</td>
<td>a, b, c, d</td>
</tr>
<tr>
<td>upper-roman</td>
<td>Uppercase Roman numerals</td>
<td>I, II, III,IV</td>
</tr>
<tr>
<td>lower-roman</td>
<td>Lowercase Roman numerals</td>
<td>I, ii, iii, iv</td>
</tr>
<tr>
<td>armenian</td>
<td>Traditional Armenian numbering</td>
<td>Ա, Բ, Գ, Դ</td>
</tr>
<tr>
<td>georgian</td>
<td>Traditional Georgian numbering</td>
<td>ა, ბ, ღ, დ</td>
</tr>
<tr>
<td>none</td>
<td>No bullet</td>
<td></td>
</tr>
</tbody>
</table>
An example to illustrate sequence type styles

<html lang="en">
    <head>
        <title>Sequence Types</title>
        <meta charset="utf-8">
        <style type="text/css">
            ol { list-style-type: upper-roman; }
            ol ol { list-style-type: upper-alpha; }
            ol ol ol { list-style-type: decimal; }
        </style>
    </head>
    <body>
        <h3>Aircraft Types</h3>
        <ol>
            <li>General Aviation (piston-driven engines)
                <ol>
                    <li>Single-Engine Aircraft
                        <ol>
                            <li>Tail wheel</li>
                            <li>Tricycle</li>
                        </ol>
                    </li>
                    <li>Dual-Engine Aircraft
                        <ol>
                            <li>Wing-mounted engines</li>
                            <li>Push-pull fuselage-mounted engines</li>
                        </ol>
                    </li>
                </ol>
            </li>
        </ol>
    </body>
</html>
<li> Commercial Aviation (jet engine)
  <ol>
    <li> Dual-Engine
      <ol>
        <li> Wing-Mounted engines </li>
        <li> Fuselage-mounted engines </li>
      </ol>
    </li>
    <li> Tri-Engine
      <ol>
        <li> Third engine in vertical stabilizer </li>
        <li> Third engine in fuselage </li>
      </ol>
    </li>
  </ol>
</li>
</ol>
</li>
</ol>
</body>
</html>

Indenting Text

• The **text-indent** property can be used to indent the first line of a paragraph.
Now is the time for all good Web programmers to begin using cascading style sheets for all presentation detail in their documents. No more deprecated tags and attributes, just nice, precise style sheets.
Alignment of Text

- The text-align property allows text to be left- or right-justified as well as centered or fully justified.
- Left-justified is the default:
- Examples
  ```
  p { text-align: right}
  p { text-align: left}
  p { text-align: center}
  p { text-align: justify}
  ```

**float** Property

- The **float** property is used to specify that text will flow around the image (or table or some other element).
- The default value is **none**.
- Other values are **left** and **right**.
<p>This is a picture of a Cessna 210. The 210 is the flagship single-engine Cessna aircraft. Although the 120 began as a four-place aircraft, it soon acquired a third row of seats, stretching it to a six-place plane. The 210 is classified as a high-performance airplane, which means its landing gear is retractable and its engine has more than 200 horsepower. In its first model year, which was 1960, the 210 was powered by a 260-horsepower fuel-injected six-cylinder engine that displaced 471 cubic inches. The 210 is the fastest single-engine airplane ever built by Cessna.</p>
This is a picture of a Cessna 210. The 210 is the flagship single-engine Cessna aircraft. Although the 120 began as a four-place aircraft, it soon acquired a third row of seats, stretching it to a six-place plane. The 210 is classified as a high-performance airplane, which means its landing gear is retractable and its engine has more than 200 horsepower. In its first model year, which was 1960, the 210 was powered by a 260-horsepower fuel-injected six-cylinder engine that displaced 471 cubic inches. The 210 is the fastest single-engine aircraft ever built by Cessna.

Color

- Color is not a simple issue, largely because of older browsers and older systems running those browsers.
- Colors may be displayed by browsers in ways that the designer did not intend.
- Some colors have names.
- All colors can be define by specifying the amount of red, green and blue as 2-digit hexadecimal value for each color.
Color Groups

• There are three separate collections of colors that go from more restrictive to least restrictive.
• They are:
  – Named colors
  – Web palette (Web-safe colors)
  – 24-bit colors

<table>
<thead>
<tr>
<th>Name</th>
<th>Hexadecimal code</th>
<th>Name</th>
<th>Hexadecimal code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aqua</td>
<td>#00FFFF</td>
<td>Navy</td>
<td>#00080</td>
</tr>
<tr>
<td>Black</td>
<td>#000000</td>
<td>Olive</td>
<td>#808000</td>
</tr>
<tr>
<td>Blue</td>
<td>#0000FF</td>
<td>Purple</td>
<td>#800080</td>
</tr>
<tr>
<td>Fuchsia</td>
<td>#FF00FF</td>
<td>Red</td>
<td>#FF0000</td>
</tr>
<tr>
<td>Gray (Grey)</td>
<td>#808080</td>
<td>Silver</td>
<td>#C0C0C0</td>
</tr>
<tr>
<td>Green</td>
<td>#008000</td>
<td>Teal</td>
<td>#008080</td>
</tr>
<tr>
<td>Lime</td>
<td>#00FF00</td>
<td>White</td>
<td>#FFFFFF</td>
</tr>
<tr>
<td>Maroon</td>
<td>#800000</td>
<td>Yellow</td>
<td>#FFFF00</td>
</tr>
</tbody>
</table>
Other Named Colors

- In addition to these 17, there are 130 other colors recognized by most modern browsers.
- They include:
  
  AliceBlue  Bisque  BurlyWood
  AntiqueWhite  Black  CadetBlue
  Aqua  BlanchedAlmond  Chartreuse
  Aquamarine  Blue  Chocolate
  Azure  BlueViolet  Coral
  Beige  Brown  CornflowerBlue

Web Palette

- The Web palette includes 216 colors, which were considered all displayable by Windows- and Macintosh-based browsers. For this reason, they are called **Web-safe colors**.
- Given that modern are no longer as restricted in the colors that they display, web-safe colors never became part of the standard for HTML or CSS.
- These colors restrict the hexadecimal values for red, green and blue to 00, 33, 66, 99, CC, and FF. This limits the increments for all three colors to 20%.
The Full Range of 16 millions Colors

• With six hexadecimal digits (two for red, 2 for yellow, 2 for blue), this leaves over 16 million colors that can be defined.
• This used to be problematic because not all of these colors could be accurately and consistently displayed in a browser window or on all monitors.
• This is no considered to be longer the case.

Color Properties

• The color property specifies the foreground color for an HTML element.
• The background-color property sets the background color for an element.
## colors.html

```html
<style type = "text/css">
th.red {color: red}
th.orange {color: orange}
</style>

... ...

<table border = "1 px">
  <tr>
    <th class = "red"> Apple </th>
    <th class = "orange"> Orange </th>
    <th class = "orange"> Screwdriver </th>
  </tr>
</table>
```

## colors.html – As Displayed

<table>
<thead>
<tr>
<th>Apple</th>
<th>Orange</th>
<th>Screwdriver</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
colors2.html

```html
<style type = "text/css">
p.redback {font-size: 1.5em; color: blue;
    background-color: red;}
</style>

<body>
<p class = "redback">
To really make it stand out, use a red background!
</p>
</body>
```

colors2.html – As Displayed

To really make it stand out, use a red background!
The Box Model

Borders

- Each element has a `border-style` property, which control whether the elements content has a border and what style that border has.
- CSS1 only requires a `border-style` of solid.
- CSS2 provides several styles, including `dotted`, `dashed` and `double`.
- The default value for border-style is `none`. 
border-width

- border-width specifies how thick the line must be.
- Values include thin, medium, thick of a length in pixels.
- medium is the default value.
- The four sides can have different values by specifying border-top-width, border-left-width, etc.

borders.html

```html
<!DOCTYPE html >
<!-- borders.html
    An example of a simple table with various borders
-->
<html lang = "en">
<head> <title> Font properties </title>
<meta charset = "utf-8" />
<style type = "text/css">
    table {border-top-width: medium;
        border-bottom-width: thick;
        border-right-width: thin;
        border-top-color: red;
        border-bottom-color: blue;
        border-left-color: green;
        border-top-style: dotted;
        border-top-style: dashed;
    }
```
<table>
<thead>
<tr>
<th></th>
<th>Apple</th>
<th>Orange</th>
<th>Screwdriver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Lunch</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

```html
<p {border-style: dashed; border-width: thin; border-color: green; }
</p>```
```html
<tr>
  <th> Dinner </th>
  <td> 0 </td>
  <td> 0 </td>
  <td> 1 </td>
</tr>

<p>
  Now is the time for all good Web programmer to learn to use style sheets.
</p>
```

**borders.html – As Displayed**

<table>
<thead>
<tr>
<th></th>
<th>Apple</th>
<th>Orange</th>
<th>Screwdriver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Lunch</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Dinner</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Now is the time for all good Web programmer to learn to use style sheets.
Margin and Padding

- Padding is the space between the content and its border.
- The margin is the space between the border and the adjacent element.
- Without a border, the margin and padding is the space between elements, although the elements may have different backgrounds.

Margin Properties

- The property `margin` is the margin spacing around the element.
- Individual sides of the margin can be specified using `margin-top`, `margin-bottom`, `margin-left` and `margin-right`.
- They are assigned length values.
Padding Properties

- The property `padding` is the margin spacing around the element.
- Individual sides of the padding can be specified using `padding-top`, `padding-bottom`, `padding-left` and `padding-right`.
- They are assigned length values.

```html
<!DOCTYPE html>
<!-- marpads.html
An example to illustrate margins and padding -->
<html lang = "en">
  <head> <title> Borders and Margins </title>
  <style type = "text/css">
    p.one {margin: 15px;
          padding: 15px;
          background-color:#C0C0C0;
          border-style: solid;
    }
  </style>
  <body> <p class = "one">This is an example of padding properties.</p> </body>
</html>
```
Here is the first line.

Now is the time for all good Web programmer to learn to use style sheets. [margin = 15 px, padding = 15 px]
<p class = "two">
    Now is the time for all good Web programmer to learn to use style sheets.<br />
    [margin = 5 px, padding = 25 px]
</p>

<p class = "three">
    Now is the time for all good Web programmer to learn to use style sheets.<br />
    [margin = 25 px, padding = 5 px]
</p>

<p class = "four">
    Now is the time for all good Web programmer to learn to use style sheets.<br />
    [margin = 25 px, no padding, no border]
</p>

<p class = "five">
    Now is the time for all good Web programmer to learn to use style sheets.<br />
    [padding = 25 px, no margin, no border]
</p>
Background Images

- The `background-image` property can be used to place an image in the background of an element.
- The other relevant properties are:
  - `background-repeat`, whose values may include `repeat` (the default), `repeat-x`, `repeat-y` and `no-repeat`
  - `background-position`, whose values can be top, `bottom`, `left`, `right` or `center`. If only one value is used, the other is assumed to be `center` (e.g., `top center` or `center left`)

back-image.html

```html
<!DOCTYPE html>

<!-- back-image.html
    An example to illustrate the background images -->

<html lang = "en">
<head> <title> Background images </title>
<meta charset = "utf-8">
<style type = "text/css">
  body {background-image: url(c210.jpg);
        background-size: 375px 300 px}
  p {margin-left: 30px; margin-right: 30px;
     margin-top: 50px; font-size: 1.1em;}
</style>
</head>
<body>
<p>
```
The Cessna 172 is the most common general aviation airplane in the world. It is an all-metal, single-engine piston, high-wing four-place monoplane. It has fixed-gear and is categorized as a non-high-performance aircraft. The current model is the 172R.

The wingspan of the 172R is 36'1". Its fuel capacity is 56 gallons in two tanks, one in each wing. The takeoff weight is 2,450 pounds. Its maximum usefl load is 837 pounds. The maximum speed of the 172R at sea level is 142 mph. The plane is powered by a 360 cubic inch gasoline engine that develops 160 horsepower. The climb rate of the 172R at sea level is 720 feet per minute.

<span> and <div> Tags

- These tags both allow text to have a different format than the text around it.
- `<span>` is meant to distinguish a word or a phrase.
- `<div>` is intended to distinguish one or more paragraphs.
- `<div>` can have formatting attributes of its own, unlike `<span>`, but this is discouraged in favor of style sheets.
span.html

<!DOCTYPE html>

<!-- span.html
   An example to illustrate the span tag
-->
<html lang = "en">
<head> <title> Background images </title>
<meta charset = "utf-8">
<style type = "text/css">
    .spanred {font-size: 2em;
    font-family: Ariel; color: red}

</style>
</head>

<body>
<p>
It sure is fun to be in <span class = "spanred"> total </span> control of text. 
</p>
</body>
</html>
The Cessna 172 is the most common general aviation airplane in the world. It is an all-metal, single-engine piston, high-wing four-place monoplane. It has fixed-gear and is categorized as a non-high-performance aircraft. The current model is the 172R.

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level is 142 mph. The plane is powered by a 360 cubic inch gasoline engine that develops 160 horsepower. The climb rate of the 172R at sea level is 720 feet per minute.

Now is the time for all good Web programmers to begin using cascading style sheets for all presentation detail in their documents. No more deprecated tags and attributes, just nice, precise style sheets.

Conflict Resolution

- Conflict can happen when there are two different values for the same property on the same element in a document.
- Order of precedence:
  - Inline style sheets take precedence over document and external style sheets
  - Document style sheets take precedence over external style sheets.
cascade.html

<!DOCTYPE html>
<html lang = "en">

<head>
<title> An example to illustrate the three levels </title>
<meta charset = "utf-8">
<link rel = "stylesheet"  type = "text/css"
href = "cstyle.css" />
<style type = "text/css">
p.docstyle {font-size: 1.2em;}
</style>
</head>

<body>
<p>
Now is the time
</p>
<p class = "docstyle" style = "font-size: 1.6em">
for all good men
</p>
<p class = "docstyle" style = "font-size: 1.6em">
to come to the aid of their country
</p>
</body>
cstyle.css

/* cstyle.css - an external style sheet
   for use with cascade.html
*/

p { font-size: 0.8em;}

How cascade.html Appears

Now is the time
for all good men
to come to the aid of their country