

BASICS OF WEB DESIGN

Chapter 5
Web Graphics Styling Basics
Key Concepts

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Learning Outcomes

- Describe types of graphics used on the Web
- Apply the image element to add graphics to web pages
- Configure images as backgrounds on web pages
- Configure images as hyperlinks
- Configure multiple background images with CSS3
- Configure list markers with CSS
- Configure an image map

Types of Graphics

- Graphic types commonly used on web pages:
 - GIF
 - JPG
 - PNG

GIF

GIF saved with Transparency

GIF saved without Transparency

Background color configured to be transparent

Background color – no transparency

- Graphics Interchange Format
- Best used for line art and logos
- Maximum of 256 colors
- One color can be configured as transparent
- Can be animated
- Uses lossless compression
- Can be interlaced

JPEG

- Joint Photographic Experts Group
- Best used for photographs
- Up to 16.7 million colors
- Use lossy compression
- Cannot be animated
- Cannot be made transparent
- Progressive JPEG – similar to interlaced display



PNG

- Portable Network Graphic
- Support millions of colors
- Support multiple levels of transparency
*(but browsers do not --
so limit to one transparent color for Web display)*
- Support interlacing
- Use lossless compression
- Combines the best of GIF & JPEG
- Browser support is growing

Web Graphics

Image Type	File Extension	Com- pression	Trans- parency	Animation	Colors	Progressive Display
Graphic Interchange Format (GIF)	.gif	Lossless	Yes	Yes	256	Inter-lacing
Joint Photographic Experts Group (JPEG)	.jpg or .jpeg	Lossy	No	No	Millions	Progressive
Portable Network Graphic (PNG)	.png	Lossless	Yes (multiple levels)	No	Millions	Inter-lacing

Image Optimization

- The process of creating an image with the lowest file size that still renders a good quality image—**balancing image quality and file size.**
- Photographs taken with digital cameras are not usually optimized for the Web
- Use a graphics application to:
 - Reduce image dimensions
 - Reduce size of the image file



Optimize An Image for the Web

○ Image Optimization

- Reduce the file size of the image
- Reduce the dimensions of the image to the actual width and height of the image on the web page.

○ Image Editing Tools:

- GIMP (free!)
- Adobe Fireworks
- Adobe Photoshop
- <http://pixlr.com/editor> (free!)

Choosing Names for Image Files

- Use all lowercase letters
- Do not use punctuation symbols and spaces
- Do not change the file extensions
(should be .gif, .jpg, .jpeg, or .png)
- Keep your file names short but descriptive
 - i1.gif is probably too short
 - myimagewithmydogonmybirthday.gif is too long
 - dogbdy.gif may be just about right

The Image Element

- Configures graphics on a web page

```

```

- **src Attribute**
 - File name of the graphic
- **alt Attribute**
 - Configures alternate text content (description)
- **height Attribute**
 - Height of the graphic in pixels
- **width Attribute**
 - Width of the graphic in pixels

Accessibility & Images

○ Required:

- Configure the alt attribute
 - Alternate text content to convey the meaning/intent of the image
 - If the image contains a text message, then the text should typically be the value of the alt attribute
 - NOT the file name of the image
 - Use alt="" for purely decorative images

○ Recommended:

- If your site navigation uses image links for the main navigation, provide simple text links at the bottom of the page.

Image Links

- To create an image link use an anchor element to contain an image element

```
<a href="index.html"></a>
```



Home

- Browsers automatically add a border to image links.
- Configure CSS to eliminate the border
`img {border-style: none; }`

Thumbnail Image

A small image configured to link to a larger version of that image.

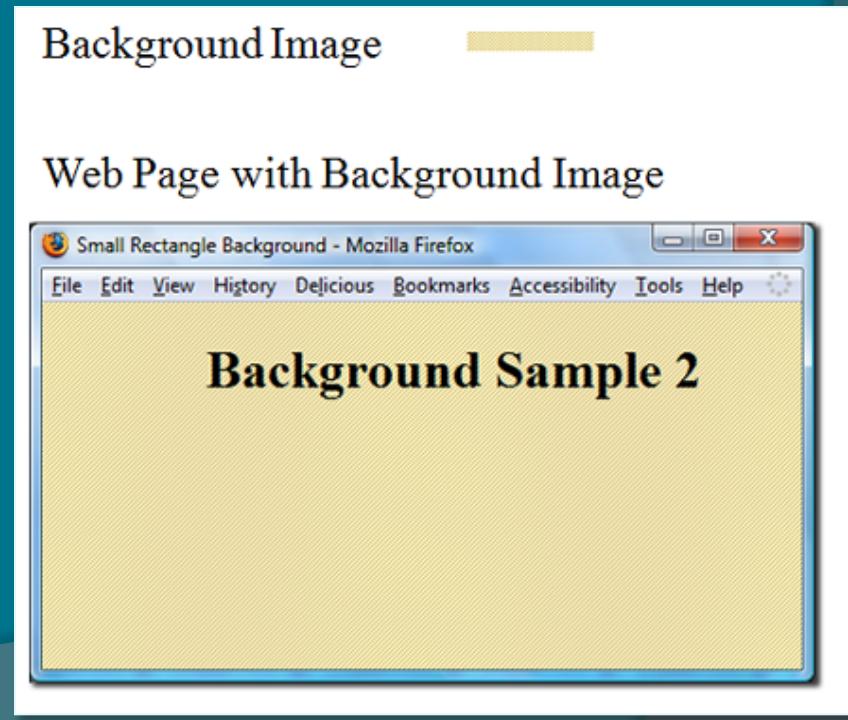
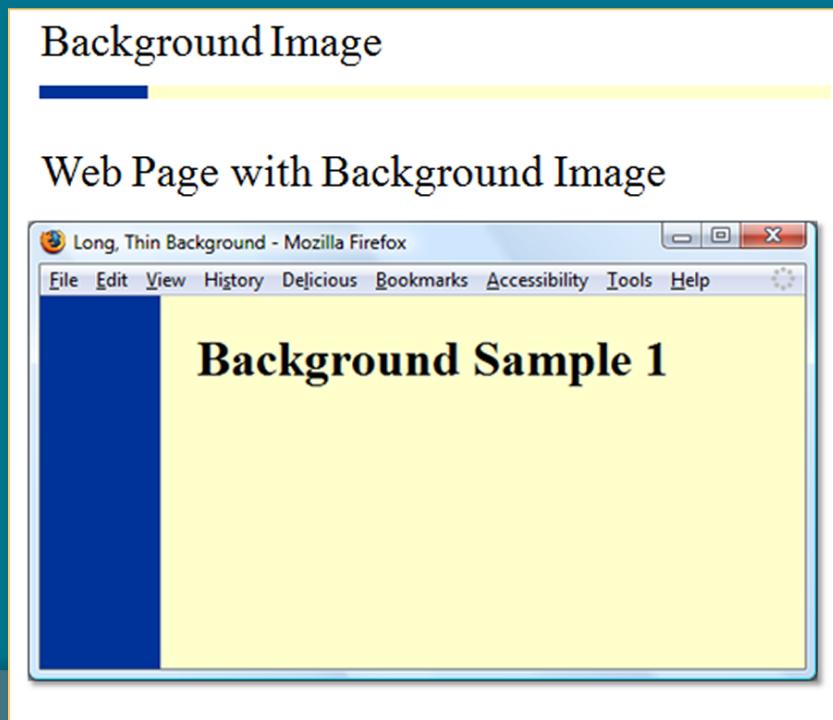
```
<a href="big.jpg"></a>
```



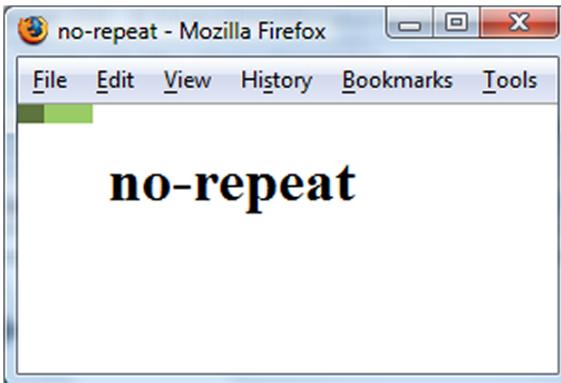
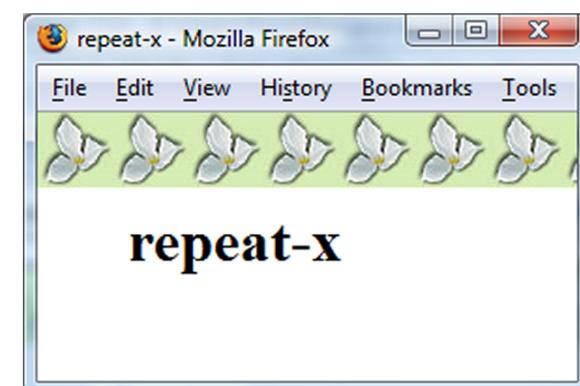
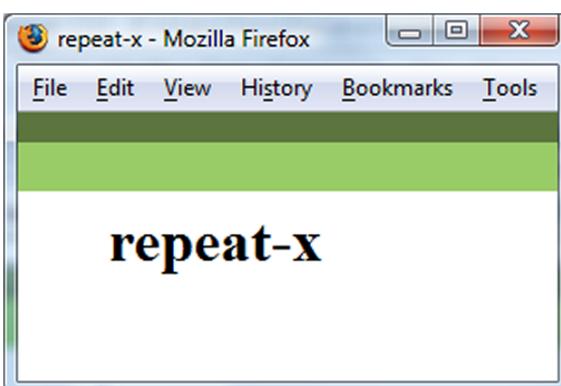
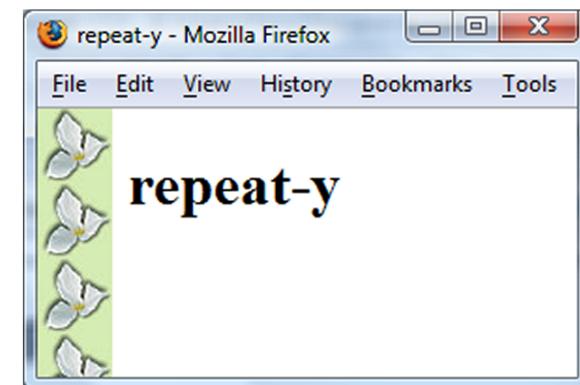
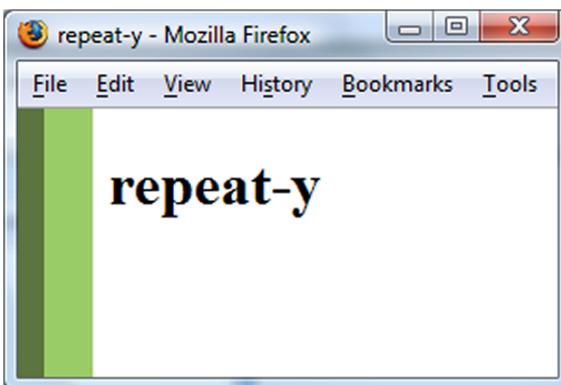
CSS background-image Property

- Configures a background-image
- By default, background images tile (repeat)

```
body { background-image: url(background1.gif); }
```



CSS background-repeat Property



Using background-repeat

trilliumbullet.gif:



```
h2 { background-color: #d5edb3;  
    color: #5c743d;  
    padding-left: 30px;  
    background-image: url(trilliumbullet.gif);  
    background-repeat: no-repeat;  
}
```



New Media and Web Design

CSS3

Multiple Background Images

```
body { background-color: #f4ffe4;  
       color: #333333;  
       background-image: url(trilliumgradient.png);  
       background: url(trilliumfoot.gif)  
           no-repeat bottom right,  
           url(trilliumgradient.png); }
```



Favorites Icon



- Small icon that displays in the address bar or tab bar of some browsers
- Also called a favicon

```
<link rel="icon" href="favicon.ico" type="image/x-icon">
```

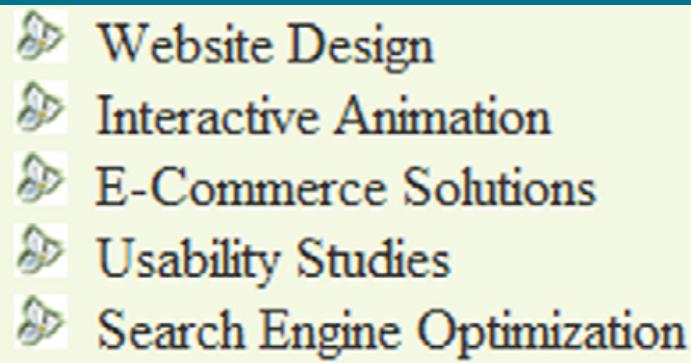
Configure List Markers with CSS

○ CSS Properties

- list-style-type
- list-style-image
- list-style position

Example:

```
ul {list-style-image: url(trillium.gif); }
```



Summary

- This chapter introduced the HTML techniques and technologies used to place images on web pages.
- Issues related to accessibility and copyright were also discussed.
- The number one reason for visitors to leave web pages is too long of a download time. When using images, be careful to minimize this issue.

Learning Outcomes

- Describe types of graphics used on the Web
- Optimize a photo for the Web
- Apply the image element to add graphics to web pages
- Configure images as backgrounds on web pages
- Configure images as hyperlinks
- Configure list markers with CSS
- Configure multiple background images
- with CSS3

Web Graphics

Image Type	File Extension	Com-pression	Trans-parency	Anima-tion	Colors	Progressive Display
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- Photographs taken with digital cameras are not usually optimized for the Web
- Use a graphics application to:
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 - Reduce size of the image file



Choosing Names for Image Files

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(should be .gif, .jpg, .jpeg, or .png)
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```

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- **height Attribute**
 - Height of the graphic in pixels
- **width Attribute**
 - Width of the graphic in pixels

 Alignment

Vertical Alignment



align="top"



default alignment



align="middle"

Horizontal Alignment

The XHTML tag for this star image is coded with align="right". This causes the text to be placed to the left and wrap around the image. If the text continues, it will wrap under the image.



The XHTML tag for this star image is coded with align="left". This causes the text to be placed to the right and wrap around the image. If the text continues, it will wrap under the image.



Note: In Chapter 7 you'll learn to use CSS to configure alignment.

More Attributes



The XHTML tag for this coffee cup image is coded with align="left". This causes the text to be placed to the right and wrap around the image. If text continues it will wrap around the image.



The XHTML tag for this coffee cup image is coded with align="left" and hspace="12". This causes the text to be placed a little further to the right and adds 12 pixels of space on either side of the image.



The XHTML tag for this coffee cup image is coded with align="left" and vspace="12". This causes the text to be placed to the right of the image and adds 12 pixels of space above and below the image.

- Adding Vertical Space
 - vspace Attribute

- Adding Horizontal Space
 - hspace Attribute

Note: A more modern approach is to use the CSS padding property – see Chapter 7

Accessibility & Images

○ Required:

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 - Alternate text content to convey the meaning/intent of the image
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 - NOT the file name of the image
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Image Links

- To create an image link use an anchor element to contain an image element

```
<a href="index.html"></a>
```



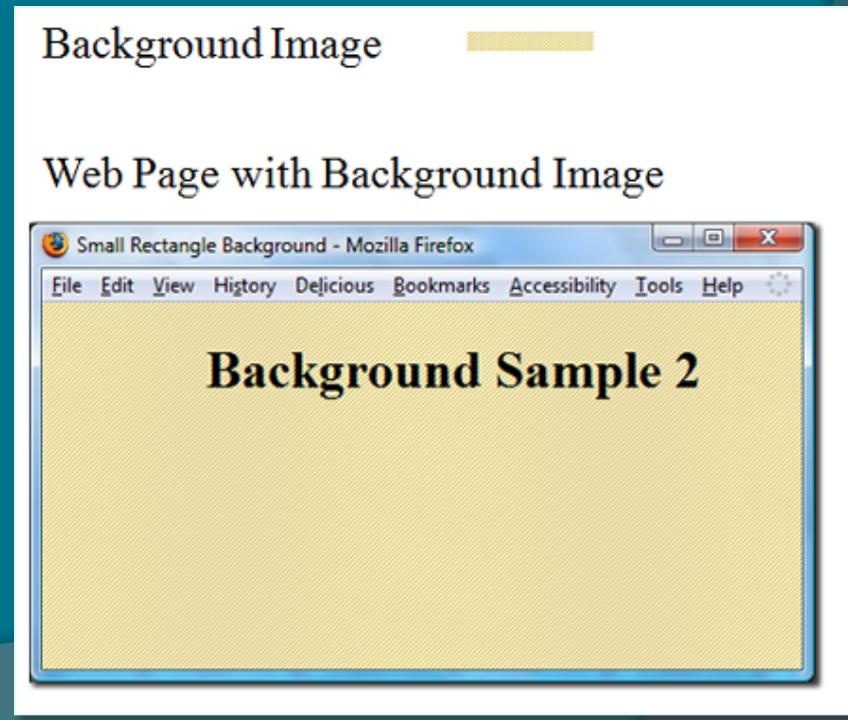
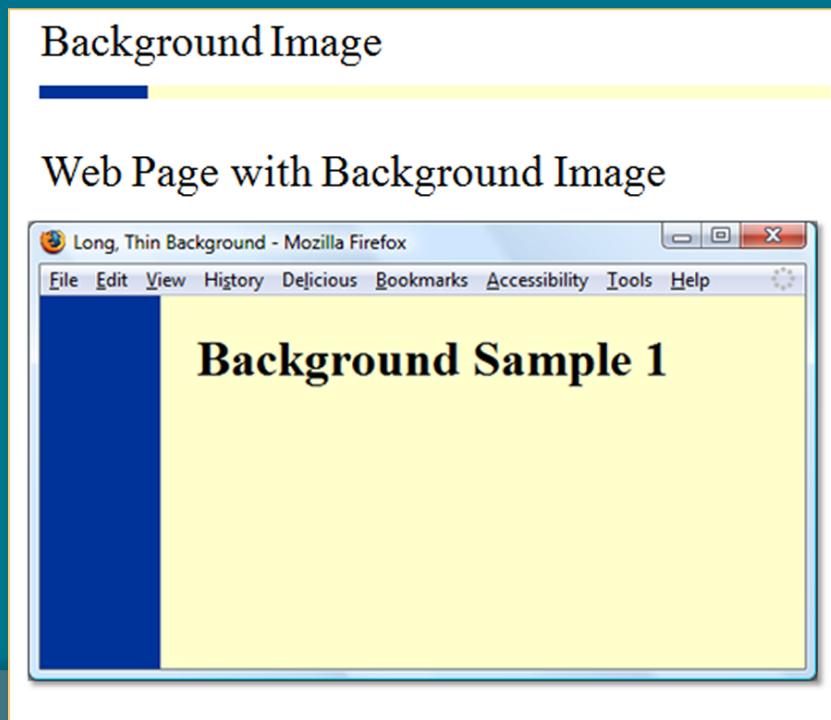
Home

- Browsers automatically add a border to image links.
- Configure CSS to eliminate the border
`img {border:0 }`

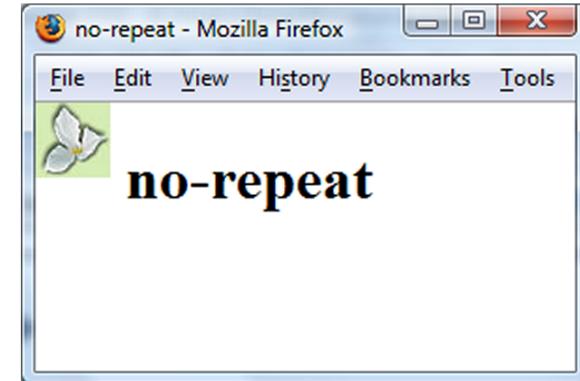
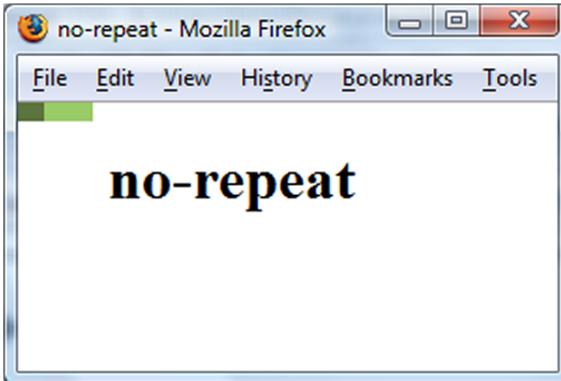
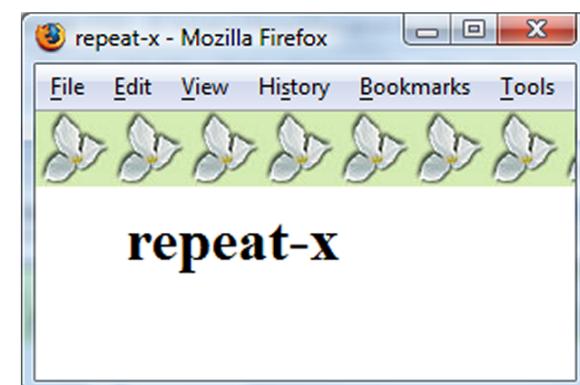
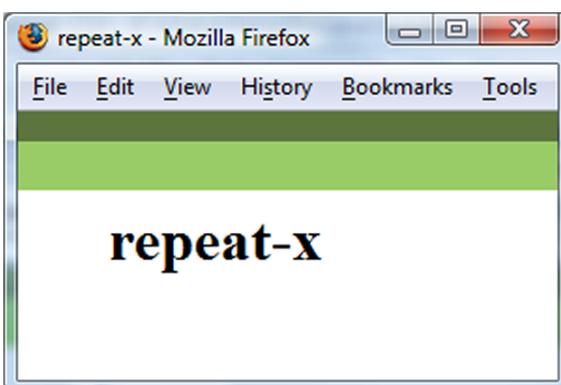
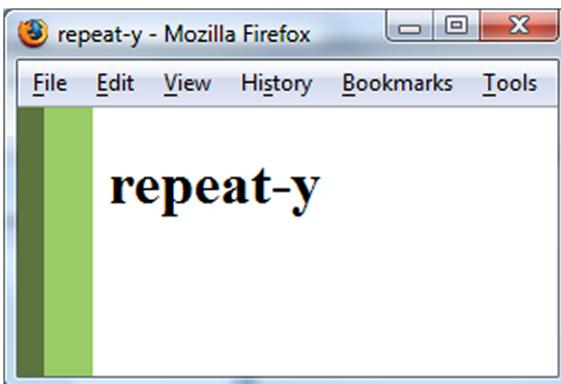
CSS background-image Property

- Configures a background-image
- By default, background images tile (repeat)

```
body { background-image: url(background1.gif); }
```



CSS background-repeat Property



Using background-repeat

trilliumbullet.gif: 

```
h2 { background-color: #d5edb3;  
    color: #5c743d;  
    font-family: Georgia, "Times New Roman", serif;  
    padding-left: 30px;  
    background-image: url(trilliumbullet.gif);  
    background-repeat: no-repeat;  
}
```



New Media and Web Design

CSS3

Multiple Background Images

```
body { background-color: #f4ffe4;  
       color: #333333;  
       background-image: url(trilliumgradient.png);  
       background: url(trilliumfoot.gif)  
           no-repeat bottom right,  
           url(trilliumgradient.png); }
```



Favorites Icon



- Small icon that displays in the address bar or tab bar of some browsers
- Also called a favicon

```
<link rel="icon" href="favicon.ico" type="image/x-icon" />
```

Configure List Markers with CSS

○ CSS Properties

- list-style-type
- list-style-image
- list-style position

Example:

```
ul {list-style-image: url(trillium.gif); }
```

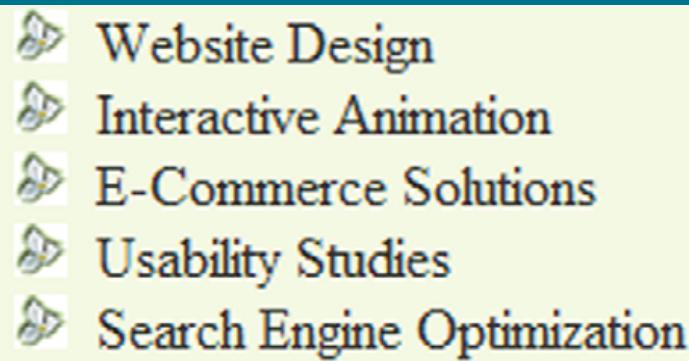
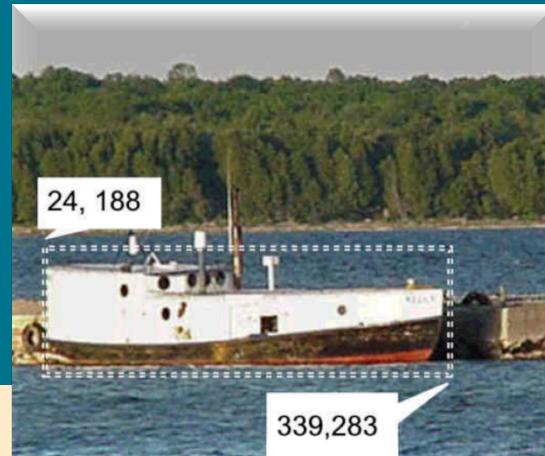


Image Map

- map element
 - Defines the map

- area element

- Defines a specific area on a map
- Can be set to a rectangle, circle, or polygon
 - href Attribute
 - shape Attribute
 - coords Attribute



```
<map name="boat" id="boat">
  <area href="http://www.doorcountycottages.com" shape="rect"
        coords="24, 188, 339, 283" alt="Door County Fishing">
</map>

```

Summary

- This chapter introduced the HTML techniques and technologies used to place images on web pages.
- Issues related to accessibility and copyright were also discussed.
- The number one reason for visitors to leave web pages is too long of a download time. When using images, be careful to minimize this issue.

BASICS OF WEB DESIGN

Chapter 6
More CSS Basics
Key Concepts

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Learning Outcomes

- Configure text typeface, size, weight, and style with CSS
- Align and indent text with CSS
- Describe and apply the CSS Box Model
- Configure width and height with CSS
- Configure margin, border, and padding with CSS
- Center web page content with CSS
- Apply shadows with CSS3
- Configure rounded corners with CSS3
- Configure background images with CSS3
- Configure opacity, RGBA color, HSLA color and gradients with CSS3

Configure Typeface with CSS

Font Family		
Category	Font Family Description	Font Typeface Examples
serif	Serif fonts have small embellishments on the end of letter strokes; often used for headings.	Times New Roman, Georgia, Palatino
sans-serif	Sans-serif fonts do not have serifs; often used for web page text.	Arial, Tahoma, Helvetica, Verdana
monospace	Fixed-width font; often used for code samples.	Courier New, Lucida Console
cursive	Hand-written style; use with caution; may be difficult to read on a web page.	<i>Lucida Handwriting, Brush Script, Comic Sans MS</i>
fantasy	Exaggerated style; use with caution; sometimes used for headings; may be difficult to read on a web page.	Jokerman, Impact, Papyrus

○ font-family property

- Configures the font typeface of the text
- Include a generic family name

```
p { font-family: Verdana, Arial, sans-serif; }
```

Configure Text Size, Weight, and Style with CSS

- font-size property
 - Configures the size of the text

```
p { font-size: 90%; }
```
- font-weight property
 - Configures the boldness of text

```
li {font-weight: bold; }
```
- font-style property
 - Configures the style of the text

```
#footer { font-style: italic; }
```
- line-height property
 - Modifies the height of a line of text

```
p { line-height: 120%; }
```

The font-size Property

Text Values	Em Units	Px Units	Pt Units	Percentage
xx-small	.5 em	8 px	6 pt	50%
x-small	.60 em	11 px	8 pt	60%
small	.75 em	13 px	10 pt	75%
medium	1 em	16 px	12 pt	100%
large	1.15 em	18 px	13.5 pt	110%
x-large	1.5 em	24 px	18 pt	150%
xx-large	2 em	30 px	24 pt	200%

- Accessibility Recommendation:
 - Use em or percentage font sizes – these can be easily enlarged in all browsers by users

Align and Indent Text with CSS

- **text-transform** property
 - Configures the capitalization of text

```
h1 { text-transform: uppercase; }
```

- **text-align** property
 - Configures the alignment of text

```
h1 { text-align: center; }
```

- **text-indent** property
 - Configures the indentation of the first line of text in an element

```
p { text-indent: 5em; }
```

Configure Width and Height with CSS

- **width property**
 - Configures the width of an element's content

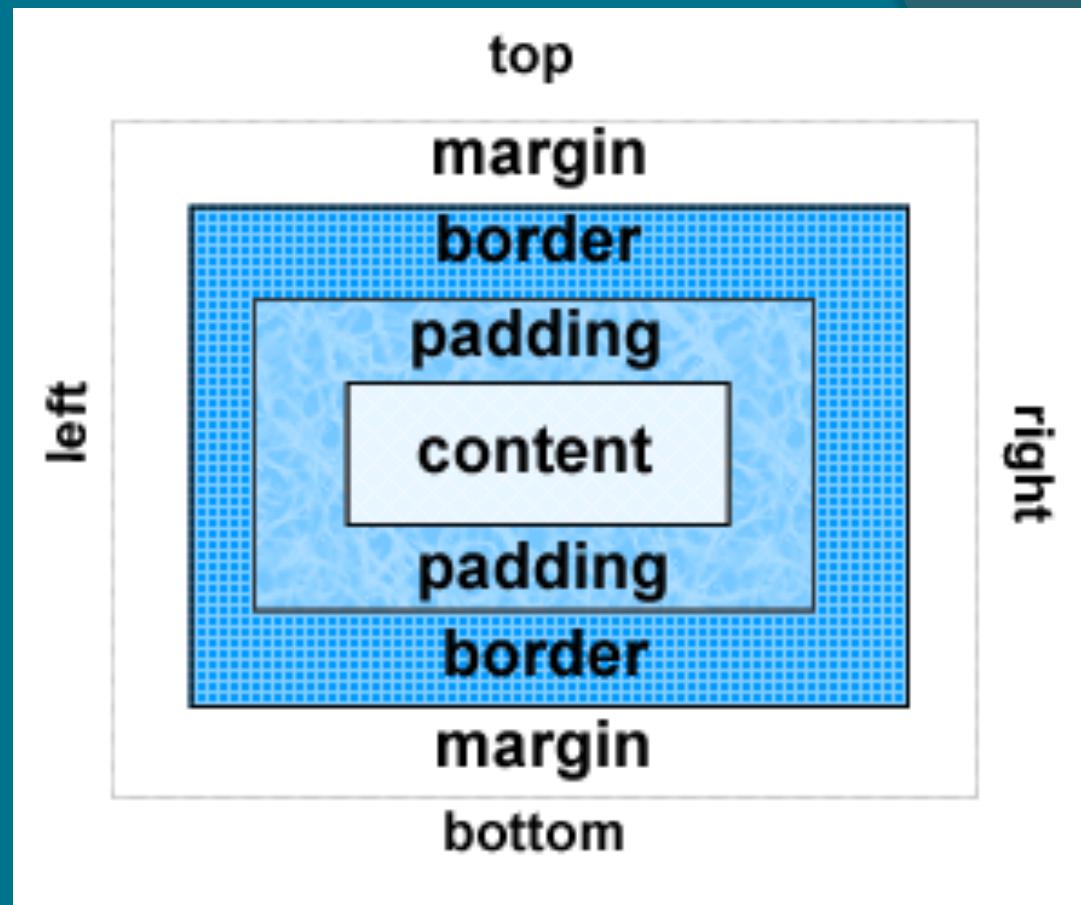
```
h1 { width: 80%; }
```

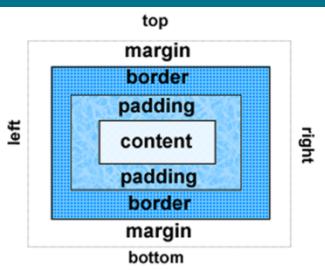
- **min-width property**
 - Configures minimum width of an element
- **max-width property**
 - Configures the maximum width of an element
- **height property**
 - Configures the height of an element

```
h1 { height: 100px; }
```

The Box Model

- Content
 - Text & web page elements in the container
- Padding
 - Area between the content and the border
- Border
 - Between the padding and the margin
- Margin
 - Determines the empty space between the element and adjacent elements





Configure Margin with CSS

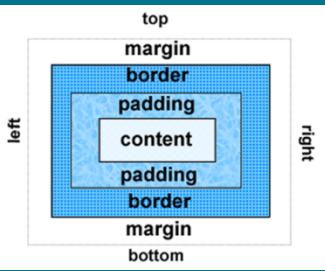
- The margin property
- Related properties:
 - margin-top, margin-right, margin-left, margin-bottom
- Configures empty space between the element and adjacent elements
- Syntax examples

```
h1 { margin: 0; }
```

```
h1 { margin: 20px 10px; }
```

```
h1 { margin: 10px 30px 20px; }
```

```
h1 { margin: 20px 30px 0 30px; }
```



Configure Padding with CSS

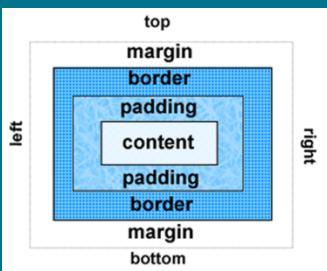
- The padding property
- Related properties:
 - padding-top, padding-right, padding-left, padding-bottom
- Configures empty space between the content of the HTML element (such as text) and the border
- Syntax examples

```
h1 { padding: 0; }
```

```
h1 { padding : 20px 10px; }
```

```
h1 { padding : 10px 30px 20px; }
```

```
h1 { padding : 20px 30px 0 30px; }
```



The CSS border Property

- Configures a border on the top, right, bottom, and left sides of an element
- Consists of
 - border-width
 - border-style
 - border-color

```
h2 { border: 2px solid #ff0000 }
```

Heading with Border

Browser Display Can Vary

CSS border-style Values

Firefox

default

inset

double

ridge

dashed

none

outset

groove

solid

dotted

Internet Explorer

default

inset

double

ridge

dashed

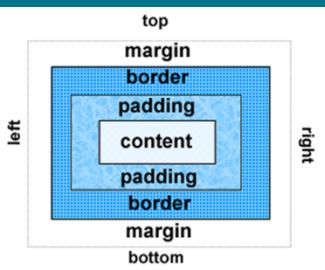
none

outset

groove

solid

dotted



Configuring Specific Sides of a Border

- Use CSS to configure a line on one or more sides of an element
 - border-bottom
 - border-left
 - border-right
 - border-top

```
h2 { border-bottom: 2px solid #ff0000 }
```

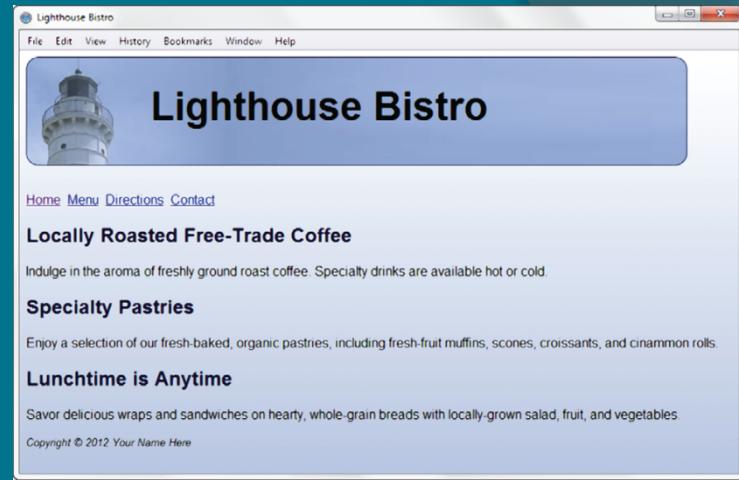
Heading with Border

CSS3 Rounded Corners

- border-radius property

- Example:

```
h1 { border: 1px solid #000033;  
     border-radius: 15px; }
```



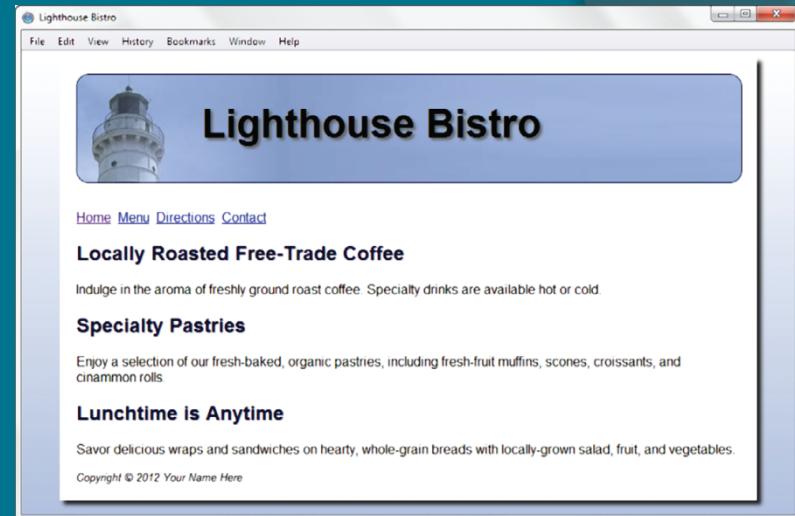
Centering Page Content with CSS

```
#container { margin-left: auto;  
            margin-right: auto;  
            width:80%; }
```



CSS3 box-shadow Property

- Configure the horizontal offset, vertical offset, blur radius, and valid color value



- Example:

```
#wrapper { box-shadow: 5px 5px 5px #828282; }
```

Note: Optional keyword: inset

CSS3 text-shadow Property

- Configure the horizontal offset, vertical offset, blur radius, and valid color value
- Example:

```
#wrapper { text-shadow: 3px 3px 3px #666; }
```



CSS3 Background Image Properties

- **background-clip**
 - confines the display of the background image
- **background-origin**
 - positions the background image relative to the content, padding or border
- **background-size**
 - can be used to resize or scale the background image

CSS3 opacity Property

- Configure the opacity of the background color
- Opacity range:
 - 0 Completely Transparent
 - 1 Completely Opaque
 - horizontal offset,
vertical offset, blur radius,
and valid color value
- Example:

```
h1 { background-color: #FFFFFF;  
     opacity: 0.6; }
```



RGBA Color

Four values are required:

#FFFFFF rgb(255, 255, 255)	#FFFFCC rgb(255, 255, 204)	#FFFF99 rgb(255, 255, 153)	#FFFF66 rgb(255, 255, 102)
#FFFF33 rgb(255, 255, 51)	#FFFF00 rgb(255, 255, 0)	#FFCCFF rgb(255, 204, 255)	#FFCCCC rgb(255, 204, 204)
#FFCC99 rgb(255, 204, 153)	#FFCC66 rgb(255, 204, 102)	#FFCC33 rgb(255, 204, 51)	#FFCC00 rgb(255, 204, 0)
#FF99FF rgb(255, 153, 255)	#FF99CC rgb(255, 153, 204)	#FF9999 rgb(255, 153, 153)	#FF9966 rgb(255, 153, 102)

- red color, green color, blue color, and alpha(transparency)
 - The values for red, green, and blue must be decimal values from 0 to 255.
 - The alpha value must be a number between 0 (transparent) and 1 (opaque).

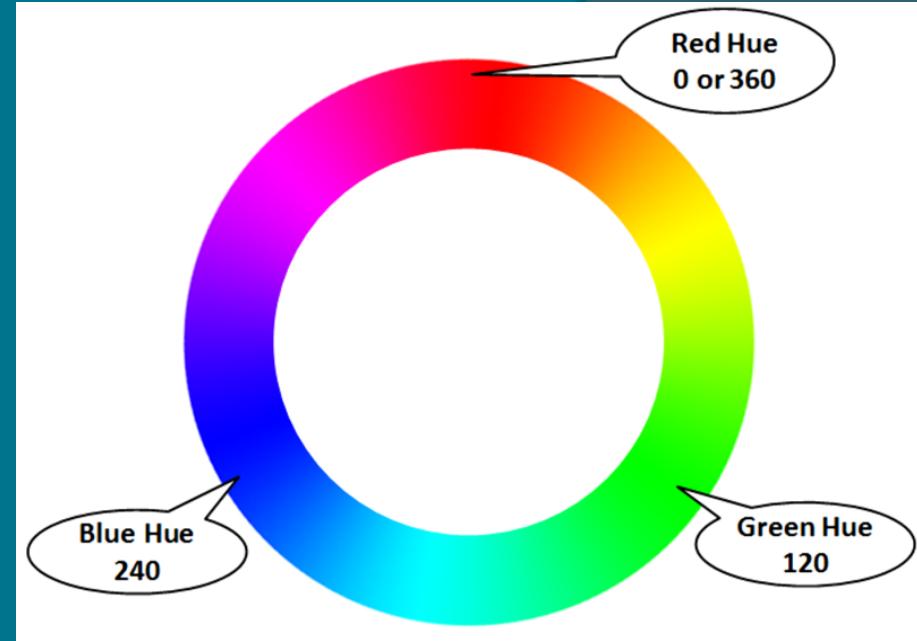
Example:

```
h1 { color: #ffffff;  
      color: rgba(255, 255, 255, 0.7);  
      font-size: 5em; padding-right: 10px;  
      text-align: right;  
      font-family: Verdana, Helvetica, sans-serif;
```



HSLA Color

hue, saturation,
light, alpha



- Hue is a value between 0 and 360
- Saturation: percent
- Lightness: percent
- Optional alpha: from 0 to 1

Red <code>hsla(360, 100%, 50%, 1.0);</code>
Green <code>hsla(120, 100%, 50%, 1.0);</code>
Blue <code>hsla(240, 100%, 50%, 1.0);</code>
Black <code>hsla(0, 0%, 0%, 1.0);</code>
Gray <code>hsla(0, 0%, 50%, 1.0);</code>
White <code>hsla(0, 0%, 100%, 1.0);</code>

CSS3 Gradients

- Gradient: a smooth blending of shades from one color to another
- Use the background-image property
 - linear-gradient()
 - radial-gradient()
- Example:

```
background-color: #8FA5CE;  
background-image: -webkit-linear-gradient(top, #FFFFFF, #8FA5CE);  
background-image: -moz-linear-gradient(top, #FFFFFF, #8FA5CE);  
filter: progid:DXImageTransform.Microsoft.gradient  
        (startColorstr=#FFFFFF, endColorstr=#FF8FA5CE);  
linear-gradient(#FFFFFF, #8FA5CE);
```

Summary

- This chapter expanded your CSS skillset.
- You configured text with CSS properties.
- You were introduced to the box model.
- You configured CSS properties related to the box model, such as margin, border, padding, and width.
- You centered a web page using CSS.
- You explored new CSS3 properties including: border-radius, box-shadow, text-shadow, opacity.

BASICS OF WEB DESIGN

Chapter 7
Page Layout Basics
Key Concepts

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Learning Outcomes

- ◎ Configure float
- ◎ Configure fixed positioning
- ◎ Configure relative positioning
- ◎ Configure absolute positioning
- ◎ Create two-column page layouts
- ◎ Configure vertical navigation in an unordered list
- ◎ Configure horizontal navigation in an unordered list.
- ◎ Add interactivity to hyperlinks with CSS pseudo-classes
- ◎ Configure CSS sprites

Normal Flow

- Browser display of elements in the order they are coded in the Web page document

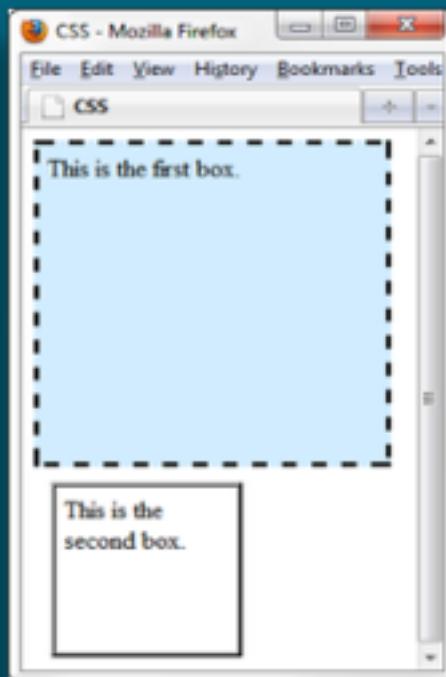


Figure 7.1

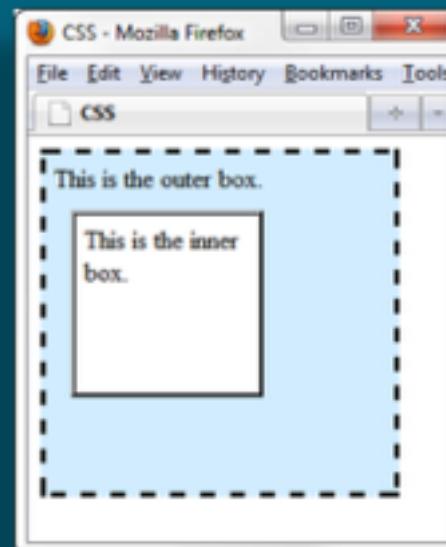


Figure 7.2



```
h1 { background-color: #A8C682;  
    padding: 5px;  
    color: #000000; }  
  
p { font-family: Arial, sans-serif; }  
  
#yls { float: right;  
      margin: 0 0 5px 5px;  
      border: solid; }
```

float Property

Elements that seem to “float” on the right or left side of either the browser window or another element are often configured using the CSS float property.

The h2 text is displayed in normal flow.



clear Property

- Useful to “clear” or terminate a float
- Values are left, right, and both



clear: left; was applied to the h2. Now the h2 text displays AFTER the floated image.

The background does not extend as far as you'd expect.



overflow Property

- Configures the display of elements on a web page.
- Useful to “clear” or terminate a float before the end of a container element
- Values are auto, hidden, and scroll

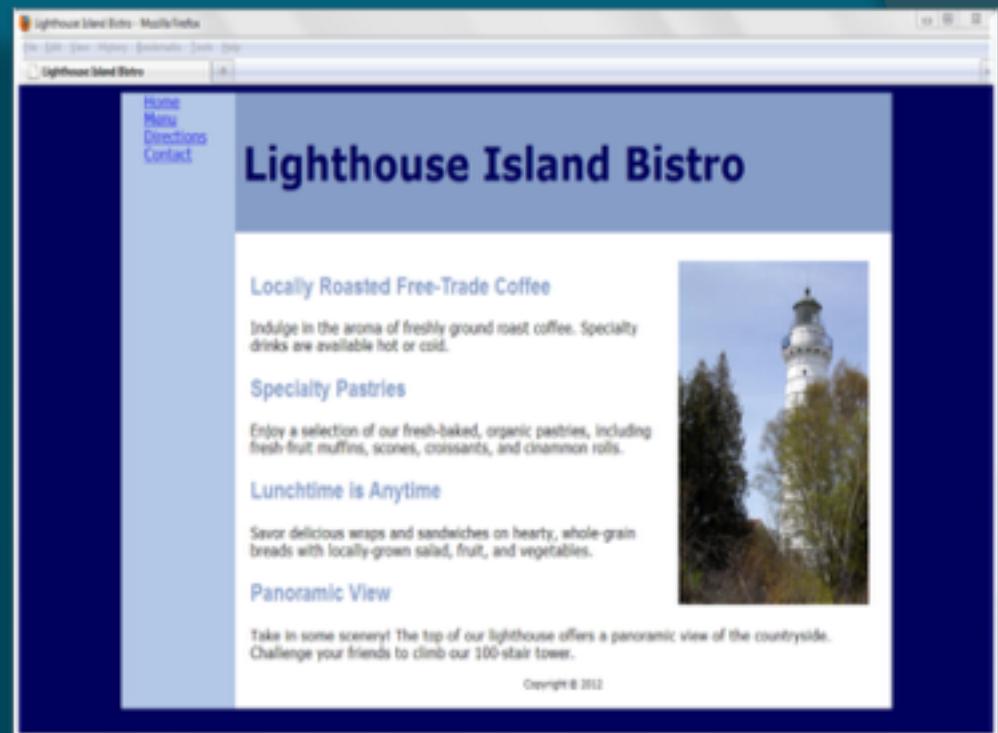
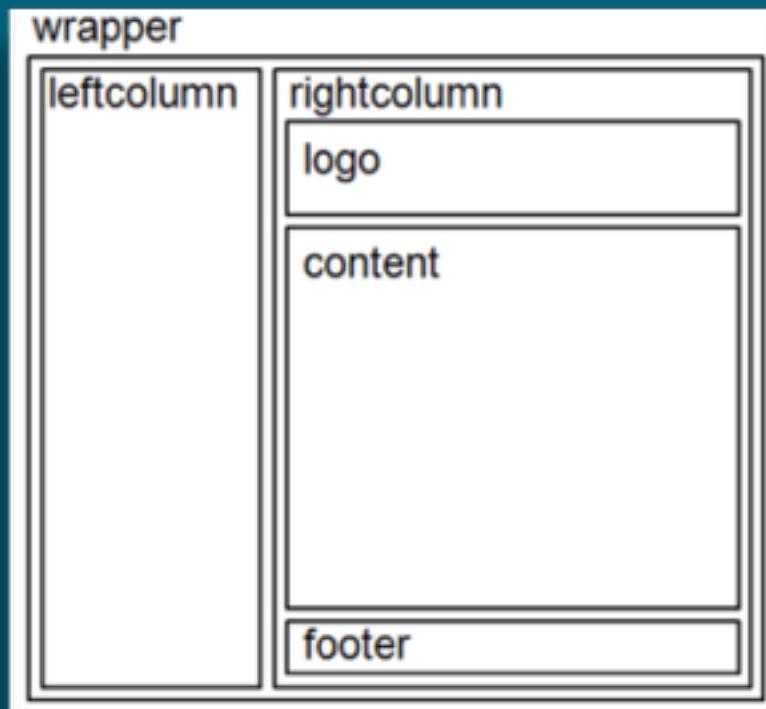


`overflow: auto;` was applied to the container `div`.

Now the background extends and the `h2` text displays AFTER the floated image.

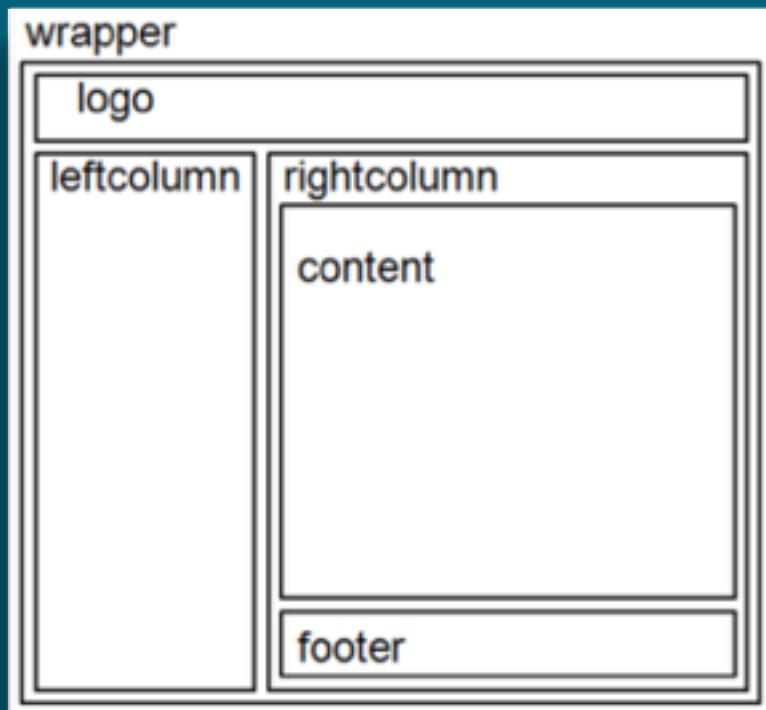
CSS Page Layout

Two Columns (left nav)



CSS Page Layout

Two Columns (top logo, left nav)



Vertical Navigation with an Unordered List

```
<nav>
```

```
<ul>
  <li><a href="index.html">Home</a></li>
  <li><a href="menu.html">Menu</a></li>
  <li><a href="directions.html">Directions</a></li>
  <li><a href="contact.html">Contact</a></li>
</ul>
```

```
</nav>
```

- CSS removes the list marker and underline:

```
nav ul { list-style-type: none; }
```

```
nav a { text-decoration: none; }
```

- [Home](#)
- [Menu](#)
- [Directions](#)
- [Contact](#)

Home
Menu
Directions
Contact

display Property

- ◎ Configures how and if an element is displayed
 - **display: none;**
 - The element will not be displayed.
 - **display: block;**
 - The element is rendered as a block element – even if it is actually an inline element, such as a hyperlink.
 - **display: inline;**
 - The element will be rendered as an inline element – even if it is actually a block element – such as a .

Horizontal Navigation with an Unordered List

HTML:



```
<nav>
<ul>
```

```
    <li><a href="index.html">Home</a></li>
```

```
    <li><a href="menu.html">Menu</a></li>
```

```
    <li><a href="directions.html">Directions</a></li>
```

```
    <li><a href="contact.html">Contact</a></li>
```

```
</ul>
```

```
</nav>
```

- CSS removes the list marker, removes the underline, adds padding, and configures the list items for inline display.

```
nav ul { list-style-type: none; }
```

```
nav a { text-decoration: none;
```

```
        padding-right: 10px; }
```

```
nav li { display: inline; }
```

CSS Pseudo-classes

- Pseudo-classes and the anchor element

- **:link** – default state for a hyperlink
- **:visited** – a hyperlink that has been visited
- **:focus** – triggered when the hyperlink has focus
- **:hover** – triggered when the mouse moves over the hyperlink
- **:active** – triggered when the hyperlink is being clicked

```
a:link {color:#000066;}  
a:visited {color:#003366;}  
a:focus {color:#FF0000;}  
a:hover {color:#0099CC;}  
a:active {color:#FF0000;}
```

Pseudo-classes

1. Text hyperlinks are underlined by default.



[Print This Page](#)

2. The `:hover` pseudo-class is triggered by the mouse. The browser no longer displays the underline below the hyperlink.



[Print This Page](#)

```
a:link { color: #ff0000; }  
a:hover { text-decoration: none;  
          color: #000066; }
```

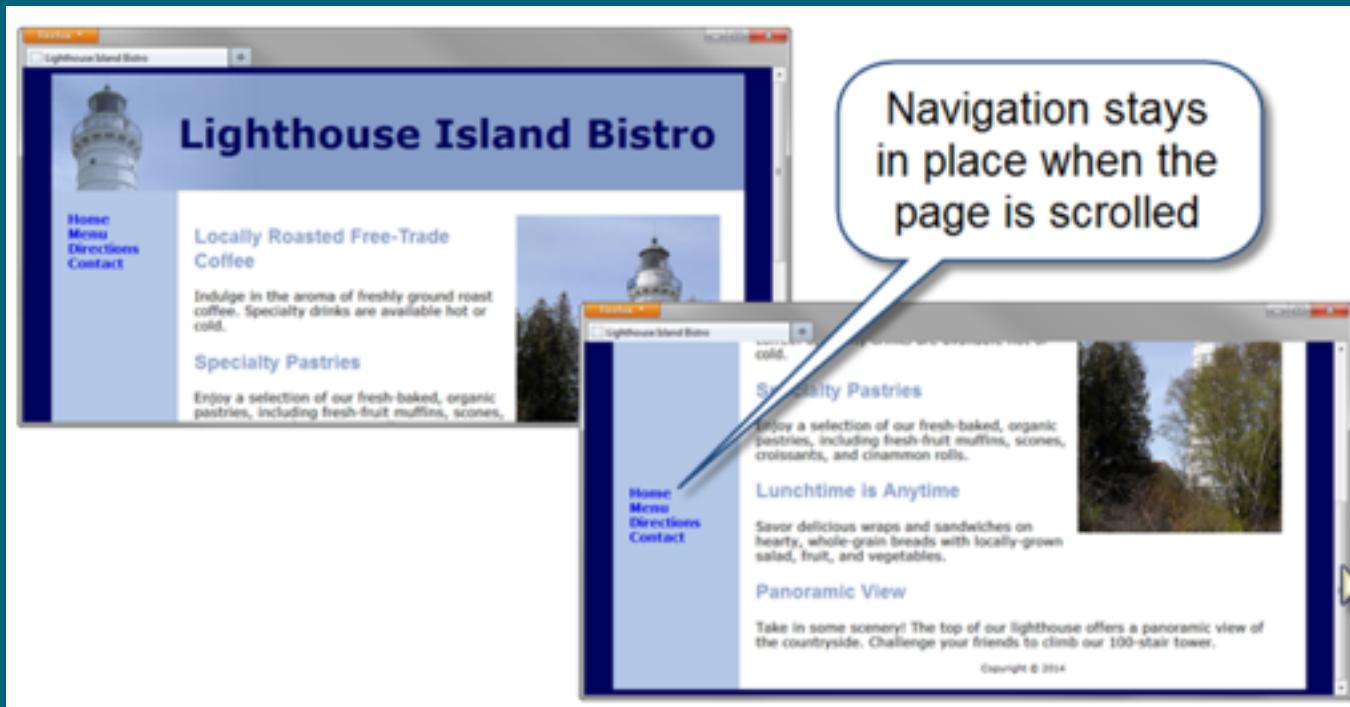
Position Property

Value	Purpose
static	Default value; the element is rendered in normal flow
fixed	Configures the location of an element within the browser viewport; the element does not move when the page is scrolled
relative	Configures the location of an element relative to where it would otherwise render in normal flow
absolute	Configures the location of an element outside of normal flow precisely in its container element

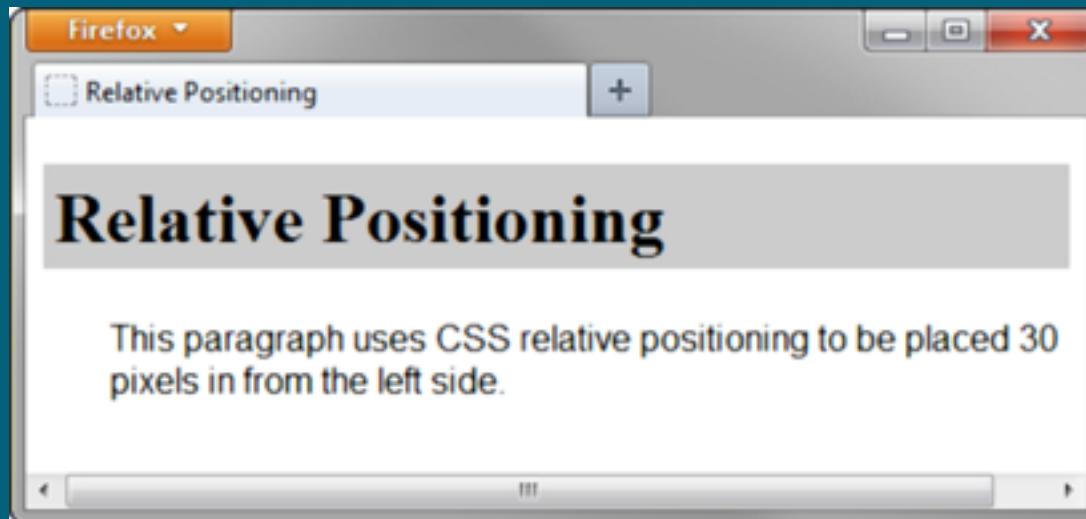
Table 7.3 The position Property

Fixed Positioning

- nav { position: fixed; }



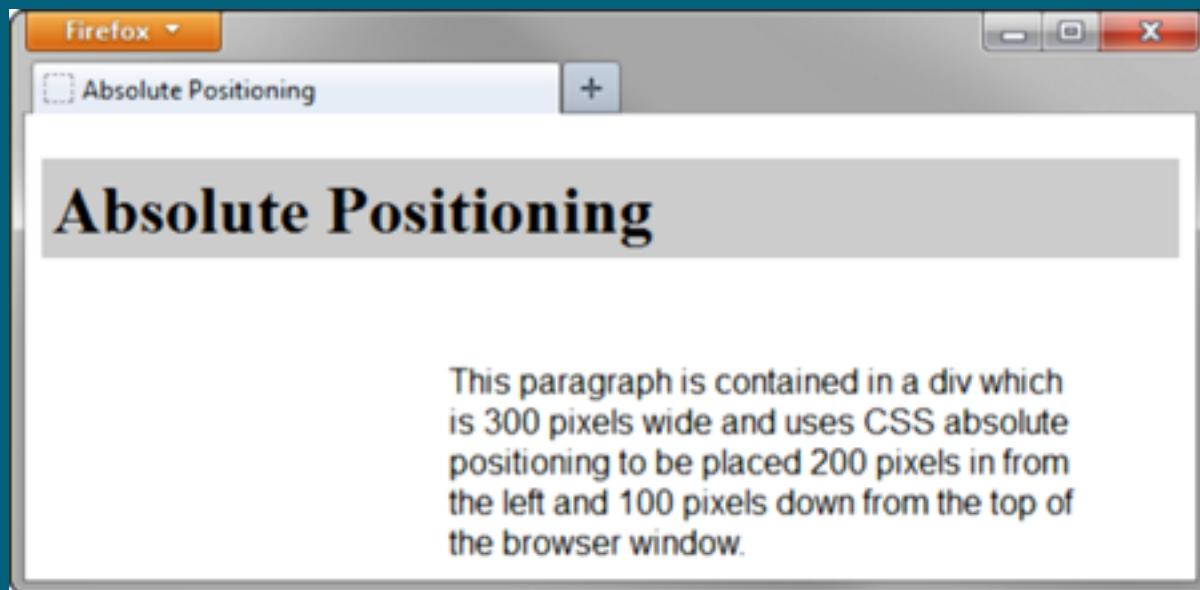
Relative Positioning



```
p { position: relative;  
  left: 30px;  
  font-family: Arial, sans-serif; }
```

Changes the location of an element in relation to where it would otherwise appear in normal flow

Absolute Positioning



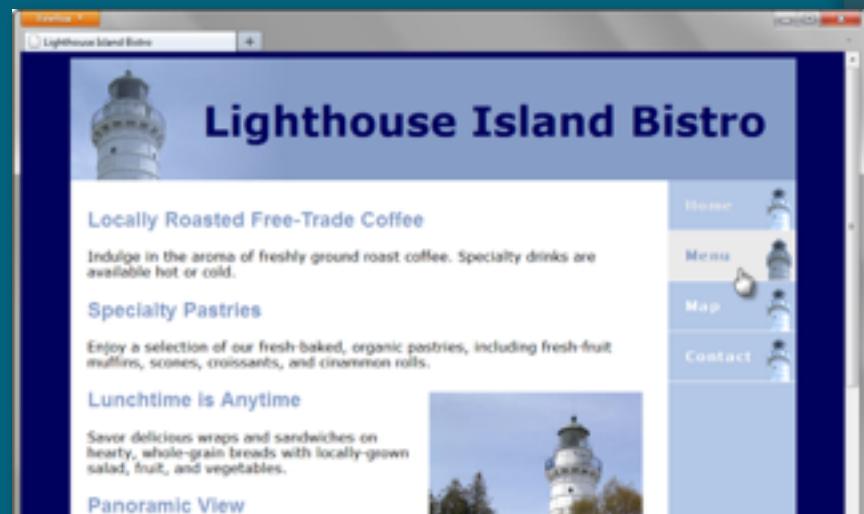
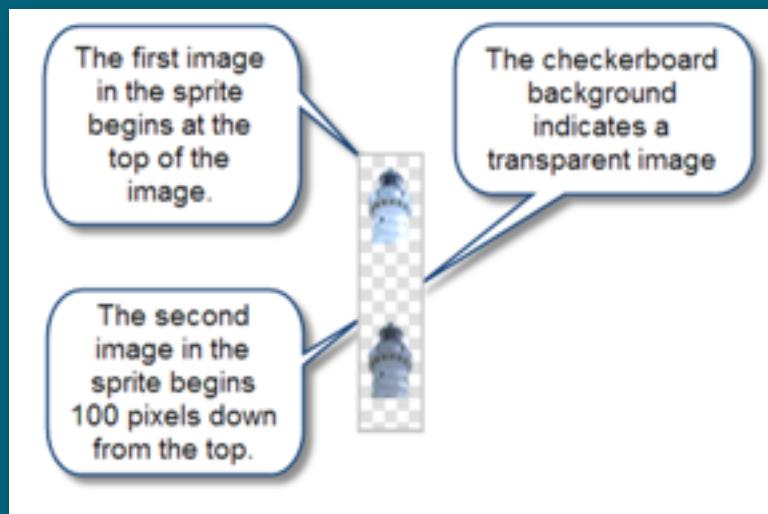
```
p { position: absolute;  
  left: 200px;  
  top: 100px;  
  font-family: Arial, sans-serif;  
  width: 300px; }
```

Precisely specifies the location of an element outside of normal flow in relation to its first parent non-static element

CSS Sprites

Sprite

- an image file that contains multiple small graphics
- advantage: saves download time



CSS Debugging Tips

- Manually check syntax errors
- Use W3C CSS Validator to check syntax errors
 - <http://jigsaw.w3.org/css-validator/>
- Configure temporary background colors
- Configure temporary borders
- Use CSS comments to find the unexpected
/* the browser ignores this code */
- Don't expect your pages to look exactly the same in all browsers!
- Be patient!

Summary

- ④ This chapter expanded your CSS skillset.
- ④ You configured web pages with floating elements with CSS.
- ④ You were introduced to fixed, relative, and absolute positioning.
- ④ You configured web pages with two-column page layouts
- ④ You used unordered lists to provide structure for navigation hyperlinks.
- ④ You added interactivity to hyperlinks with CSS pseudo-classes.
- ④ You configured a CSS sprite image.