

Graphics in HTML and CSS



STANLEY WAS DEEPLY DISAPPOINTED
WHEN, HIGH IN THE TIBETAN MOUNTAINS,
HE FINALLY FOUND HIS TRUE SELF.

Agenda

- Lines and Borders
- Images

Horizontal Rule Element

- A horizontal rule element separates areas of a page with a line across the page
- In HTML5 it indicates a thematic break
- It is coded as a void tag: **<hr />**

```
<p>  
  Our expert designers are creative and eager to work with you.  
  Take advantage of the power of Web 2.0!  
</p>  
<hr />  
<div>Copyright &copy; 2012 Terry</div>
```



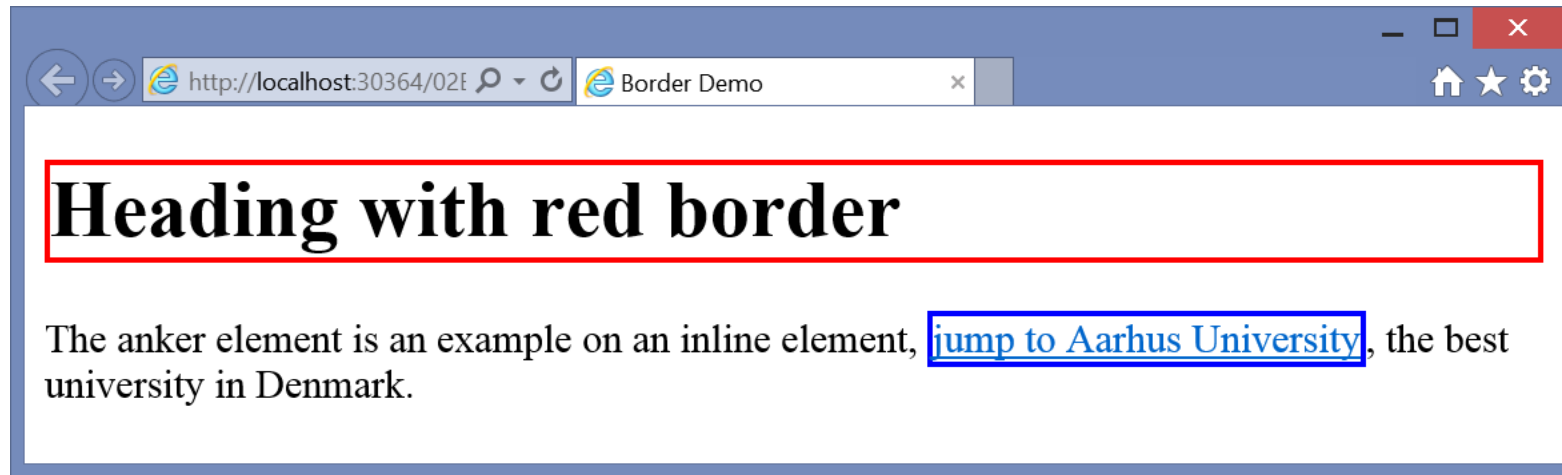
CSS border

- Configures a border around a HTML element
- By default the border has a width set to 0 and does not display
- You can set:
 - border-width: 2px (or thin, medium or thick)
 - border-color: *any valid color*
 - border-style: solid, dashed, dotted, double ... or none
 - border-radius: 5px (1-4 values in px, em or %)
 - Border: 1px solid #00f0f0
- And you can set the individual border sides



Block / Inline Elements

- Block display element
 - default width of element content extends to browser margin (or specified width)
 - E.g.: **h2 { border: 2px solid #ff0000;**
- Inline display element
 - Border closely outlines the element content
 - E.g.: **a { border: 2px solid #0000ff; }**



Individual Border Sides

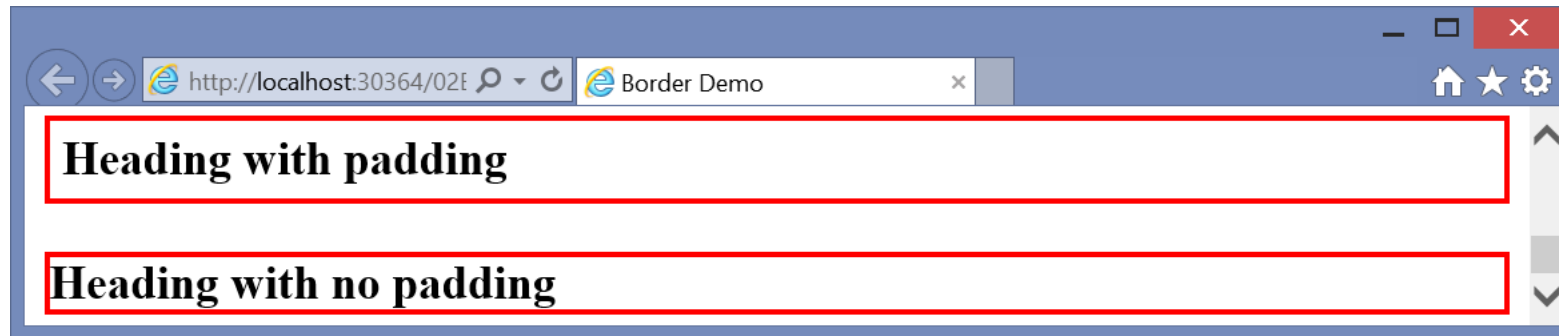
- Use CSS to configure a line on one or more sides of an element
 - border-bottom
 - border-left
 - border-right
 - border-top
- E.g.:
h2 { border-bottom: 0.1em solid #d26416; }



Padding

- The CSS padding Property configures empty space between the content of the HTML element and the border.
 - Set to 0px by default
 - E.g.:

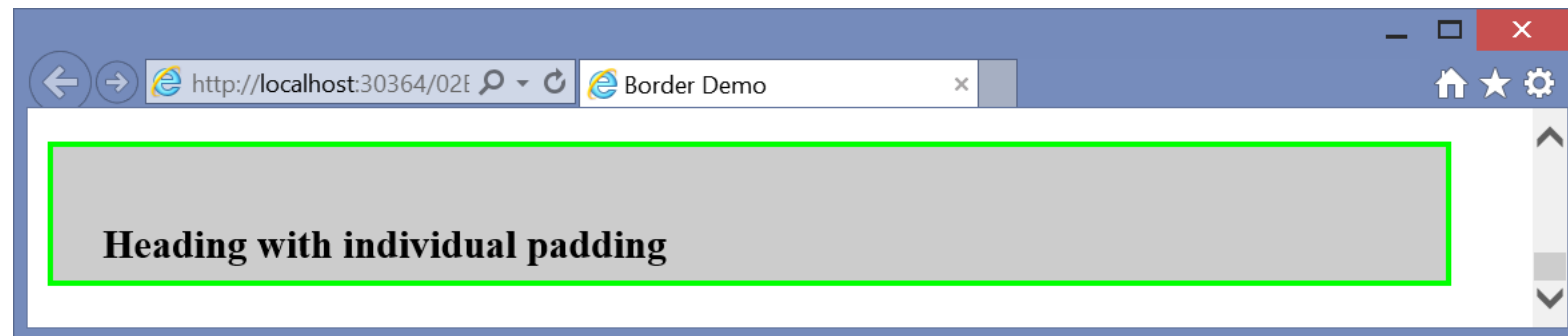
```
h3 {  
    border: 2px solid #ff0000;  
    padding: 5px;  
}
```



Padding on Specific Sides

- Use CSS to configure padding on one or more sides of an element:
 - padding-top: 30px
 - padding-right: 10px
 - padding-bottom: 5px
 - padding-left: 20px
- Or **use Shorthand notations**
 - padding: 10px 5px (first: top and bottom, second left and right)
 - padding: 30px 10px 5px 20px (top, right, bottom, and left)

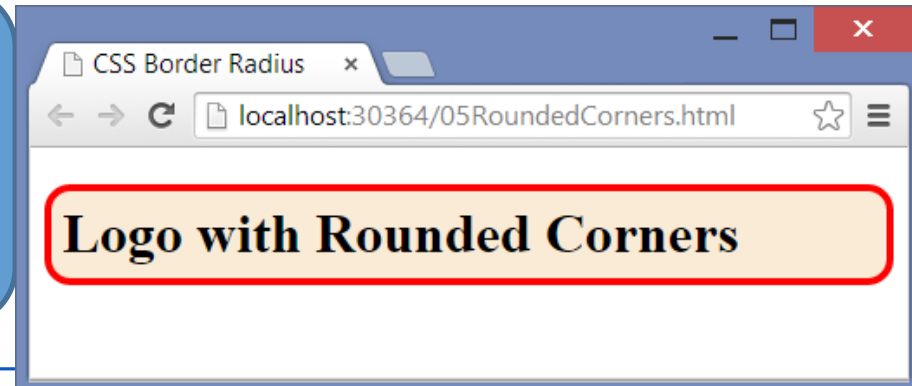
```
h4 {  
    border: 2px solid #00ff00;  
    width: 90%;  
    background-color: #cccccc;  
    padding: 30px 10px 5px 20px;  
}
```



CSS3 Rounded Corners

- border-radius property
 - Configures the horizontal radius and vertical radius of the corner
 - Numeric value(s) with unit (pixel, em or percentage)
- Browser vendor proprietary properties:
 - ~~webkit-border-radius (for Safari & Chrome)~~
 - ~~moz-border-radius (for Firefox)~~
 - border-radius (W3C syntax)
- Example:

```
h1 { -webkit-border-radius: 15px;  
      -moz-border-radius: 15px;  
      border-radius: 15px;  
}
```



CSS3 box-shadow Property

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

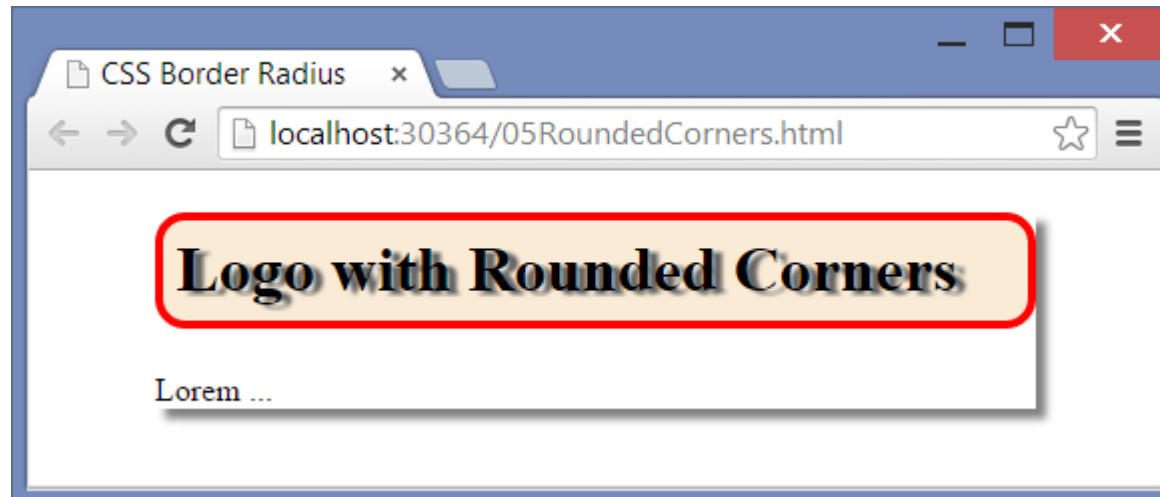
```
#wrapper {box-shadow: 5px 5px 5px #828282;}
```



CSS3 text-shadow Property

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

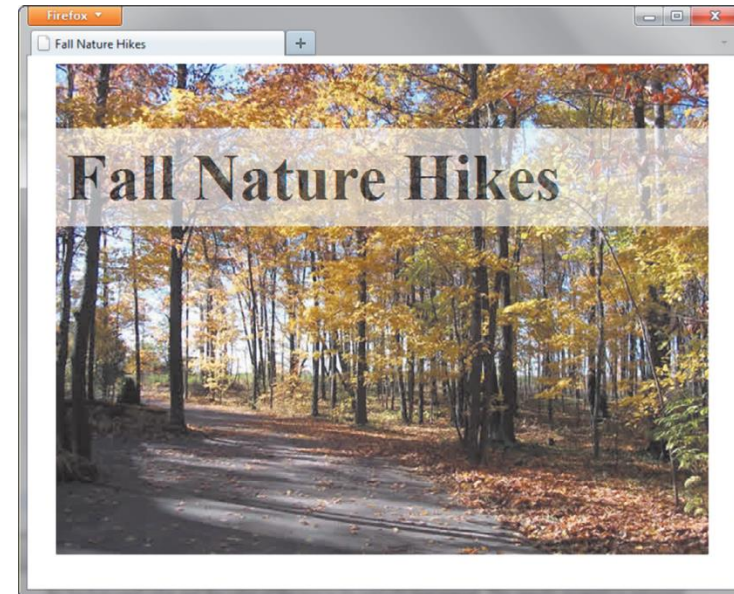
```
h1 {  
    text-shadow: 5px 2px 2px #666;
```



CSS3 opacity Property

- Configure the opacity of the background color
- Opacity range:
 - 0 Completely Transparent
 - 1 Completely Opaque
- Example:

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



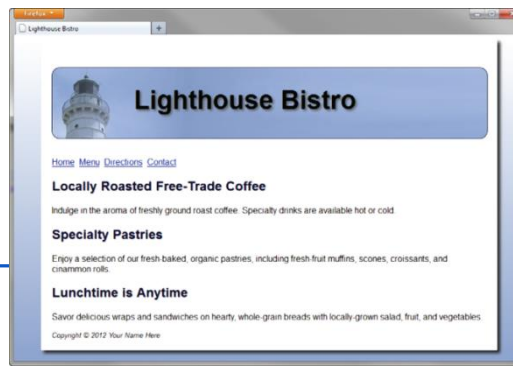
CSS3 Gradients

- Gradient: a smooth blending of shades from one color to another
- CSS3 defines two types of gradients:
 - **Linear Gradients (goes down/up/left/right/diagonally)**
 - **Radial Gradients (defined by their center)**
- Example - a linear gradient from top to bottom:

```
background: -webkit-linear-gradient(red, green); /* For Safari 5.1 to 6.0 */  
background: -o-linear-gradient(red, green); /* For Opera 11.1 to 12.0 */  
background: -moz-linear-gradient(red, green); /* For Firefox 3.6 to 15 */  
background: linear-gradient(red, green); /* Standard syntax */
```

- Other examples:

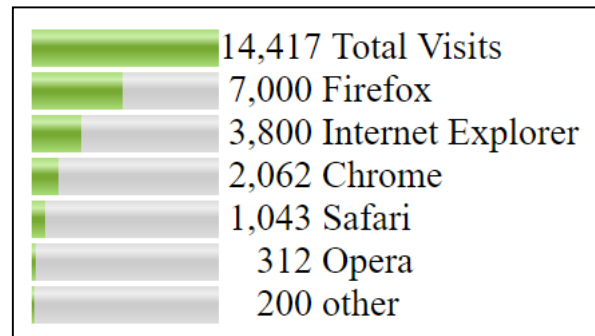
http://www.w3schools.com/css/css3_gradients.asp



HTML5 Meter Element

- Displays a visual gauge of a numeric value within a known range
 - Represents an element whose range is known, meaning it has definite minimum and maximum values

```
<meter value="14417" min="0" max="14417">14417</meter>14,417 Total Visits<br>
<meter value="7000" min="0" max="14417">7000</meter> 7,000 Firefox<br>
<meter value="3800" min="0" max="14417">3800</meter> 3,800 Internet Explorer<br>
<meter value="2062" min="0" max="14417">2062</meter> 2,062 Chrome<br>
<meter value="1043" min="0" max="14417">1043</meter> 1,043 Safari<br>
<meter value="312" min="0" max="14417">312</meter> &nbsp;&nbsp;&nbsp; 312 Opera<br>
<meter value="200" min="0" max="14417">200</meter> &nbsp;&nbsp;&nbsp;&nbsp;&nbsp; 200 other<br>
```

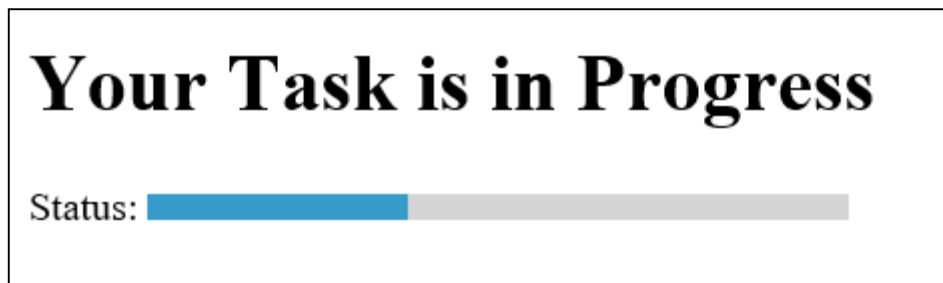


HTML5 Progress Element

- Displays a bar that depicts a numeric value within a specified range
- The meter element has six attributes:
 - Value
 - Max
 - Min
 - High
 - Low
 - Optimum

```
<h1>Your Task is in Progress</h1>
<p>
  Status: <progress max="100" value="37">
    <span>37</span>%
  </progress>
</p>
```

Edge



Chrome



IMAGES

Img - HTML Image Element

- Configures graphics on a web page

```

```

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

Often set in css

The srcset Attribute

- To support responsive images the html standard have added the srcset attribute

```

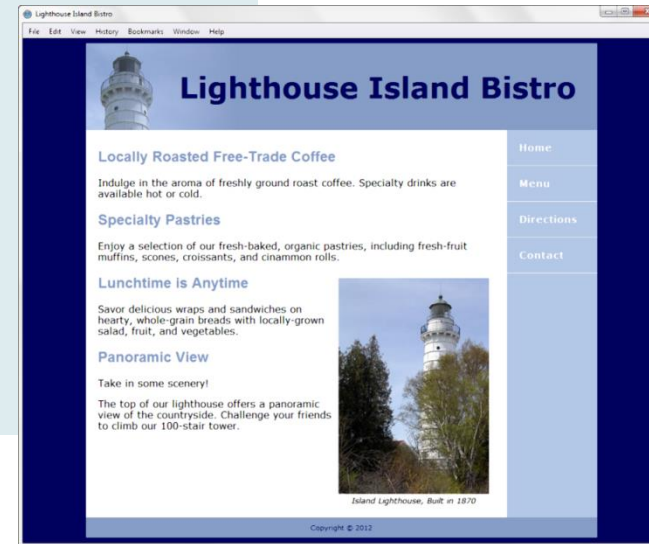
```

- On browsers without srcset support, the value of the src attribute will be used as the image source (defaultImage)
- On regular resolution displays, the 1x variant of the srcset will be used (image-1x)
- On displays with 2 device pixels per CSS pixel, the 2x variant of the srcset will be used (image-2x)
- Similarly, there is a 3x image, and a 4x image
- And you might have a 1.5x version too

Figure and Figcaption Elements

- Figure Element:
 - contains a unit of content that is self-contained, such as an image, along with one optional figcaption element

```
<figure>  
    
  <figcaption>  
    Island Lighthouse, Built in 1870  
  </figcaption>  
</figure>
```



Responsive Images with picture

- The picture element is a container which provides multiples sources to its contained img element
 - to allow authors to declaratively control or give hints to the user agent about which image resource to use, based on the screen pixel density, viewport size, image format, and other factors

```
<picture>  
  <source media="(min-width: 800px)" srcset="head.jpg, head-2x.jpg 2x">  
  <source media="(min-width: 450px)" srcset="head-small.jpg, head-small-2x.jpg 2x">  
    
</picture>
```

HTML5.1



Types of Graphics

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

GIF

- 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

The image shows two side-by-side rectangular boxes with a dark blue, textured background. The left box contains the text 'GIF saved with Transparency' in white. The right box contains the text 'GIF saved without Transparency' in white. The right box is slightly offset to the right and has a solid teal background, while the left box has the same textured background as the overall image.

GIF saved with
Transparency

GIF saved without
Transparency

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

Accessibility & Images

- Recommended:
 - If your site navigation uses image links for the main navigation, provide simple text links at the bottom of the page
- Required:
 - Configure the alt attribute
 - Alternate text content to convey the meaning/intent of the image
 - NOT the file name of the image
 - Use alt="" for purely decorative images

Image Links

- To create an image hyperlink use an anchor element to contain an image element:

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



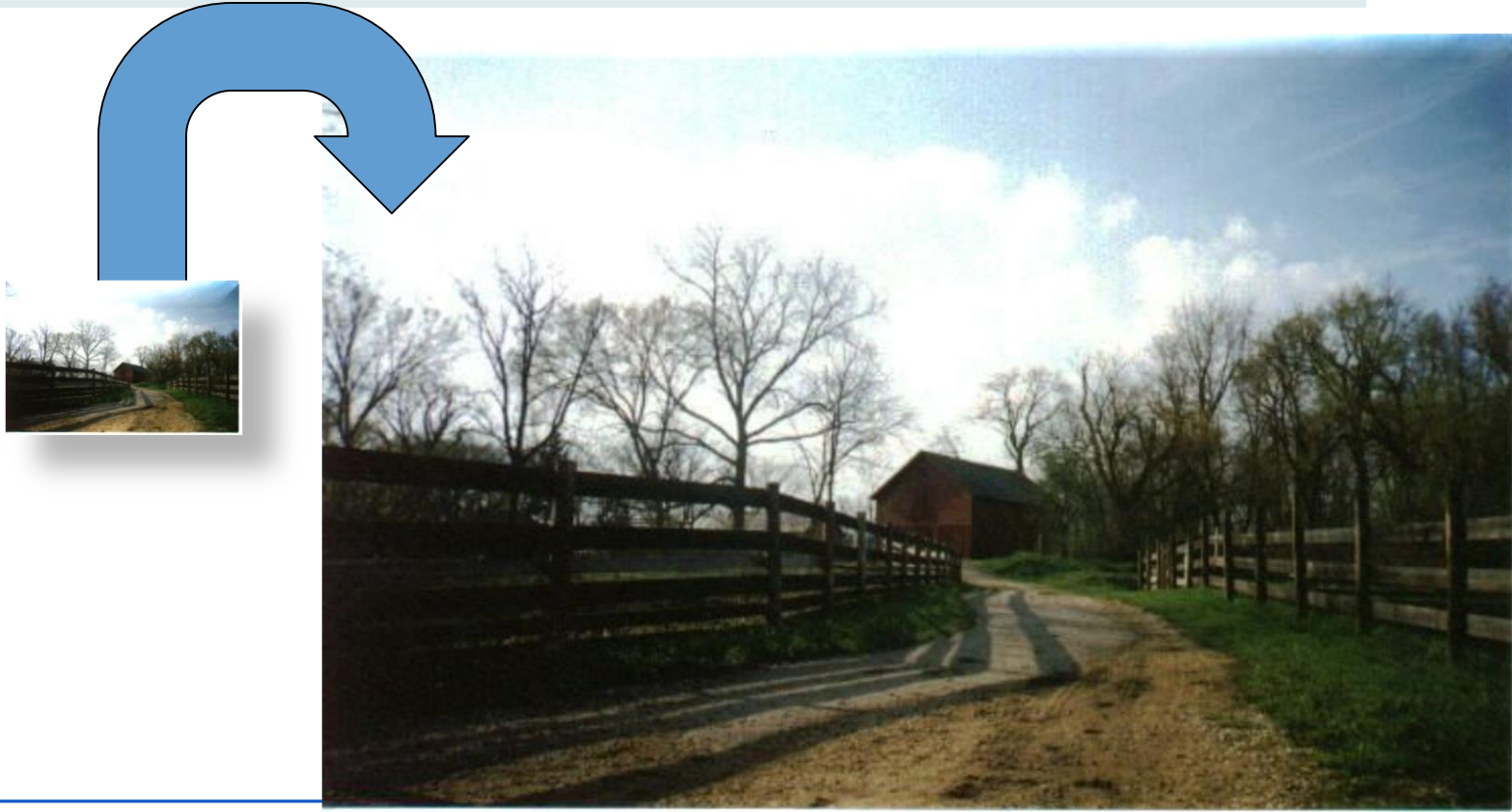
Home

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

Thumbnail Image

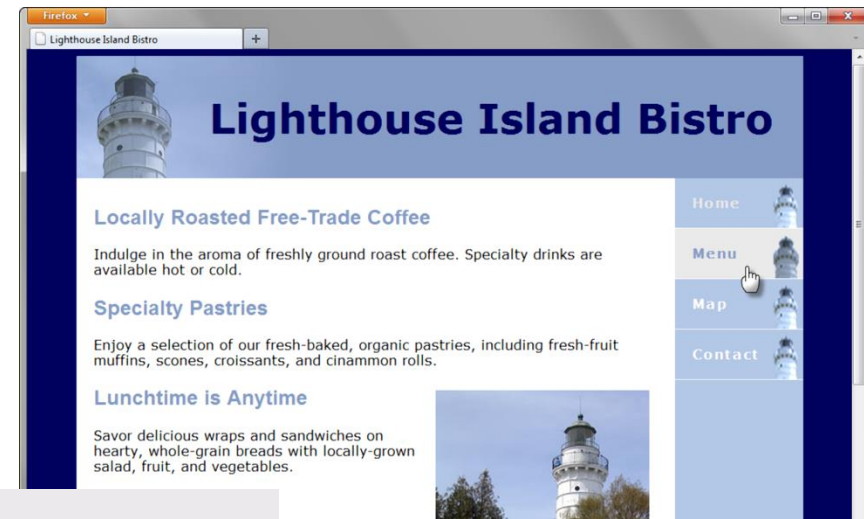
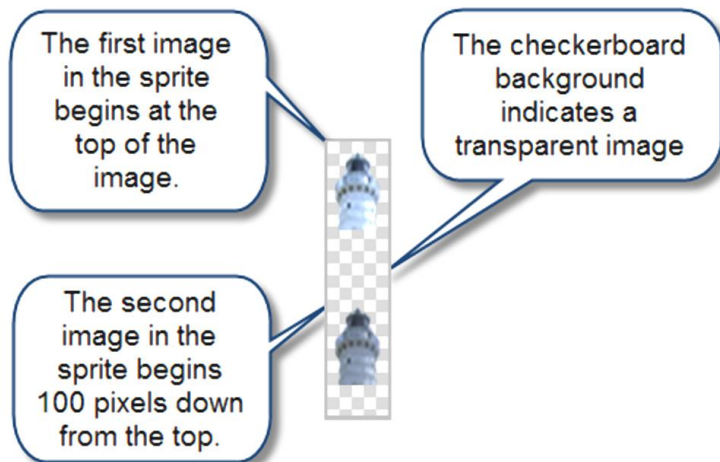
- A small image configured to link to a larger version of that image.

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



CSS Sprites

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



```
#home {  
  left: 0px;  
  width: 46px;  
  background: url('images/img_navsprites_hover.gif') 0 0;  
}
```

```
#home a:hover {  
  background: url('images/img_navsprites_hover.gif') 0 -100px;  
}
```

Image Optimization

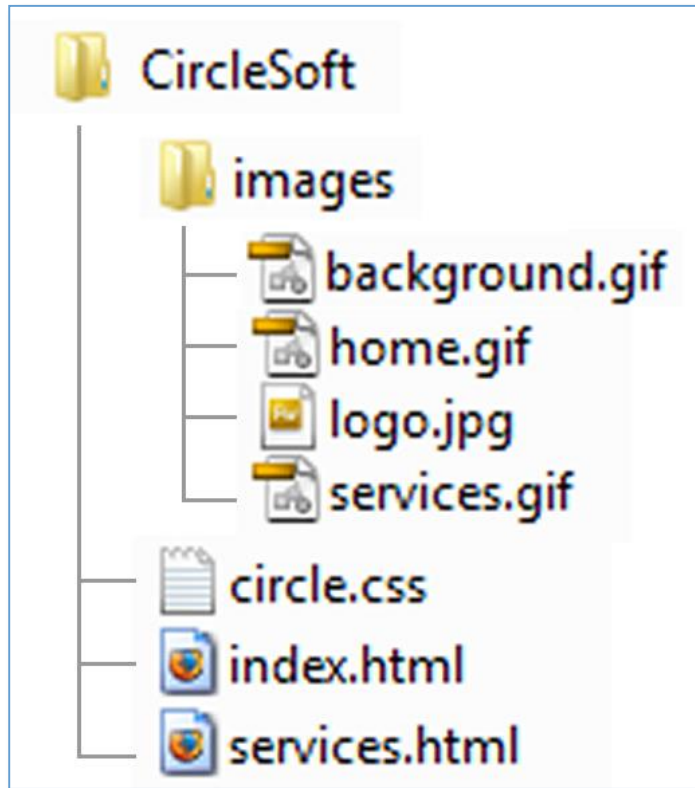
- The process of creating an image with the lowest file size that still renders a good quality image
 - **Balancing image quality and file size**
- Image Optimization
 - Reduce the file size of the image
 - Reduce the dimensions of the image to the actual width and height of the image on the web page
- Image Editing Tools:
 - GIMP (free!)
 - Adobe Photoshop
 - Paint.Net <http://www.getpaint.net/> (free!)
 - <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
 - dogbday.gif may be just about right

Organizing Your Site



- Place images in their own folder
- Code the path to the file in the src attribute.

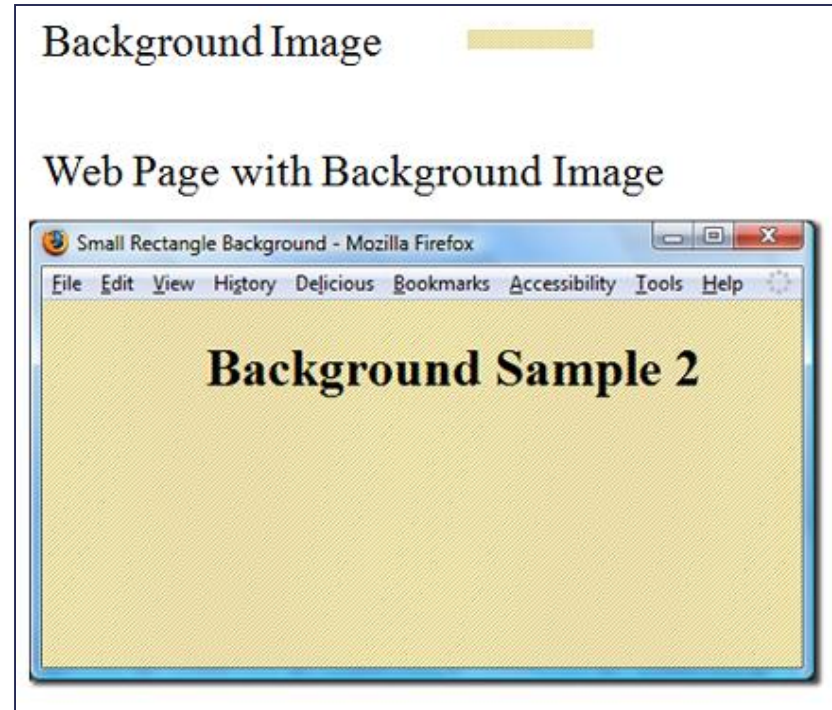
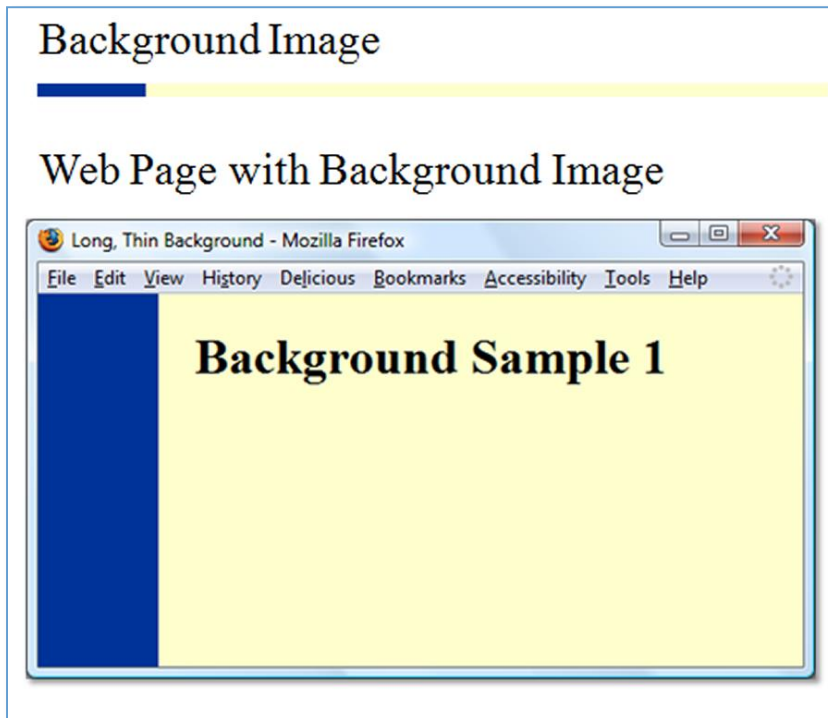
```

```

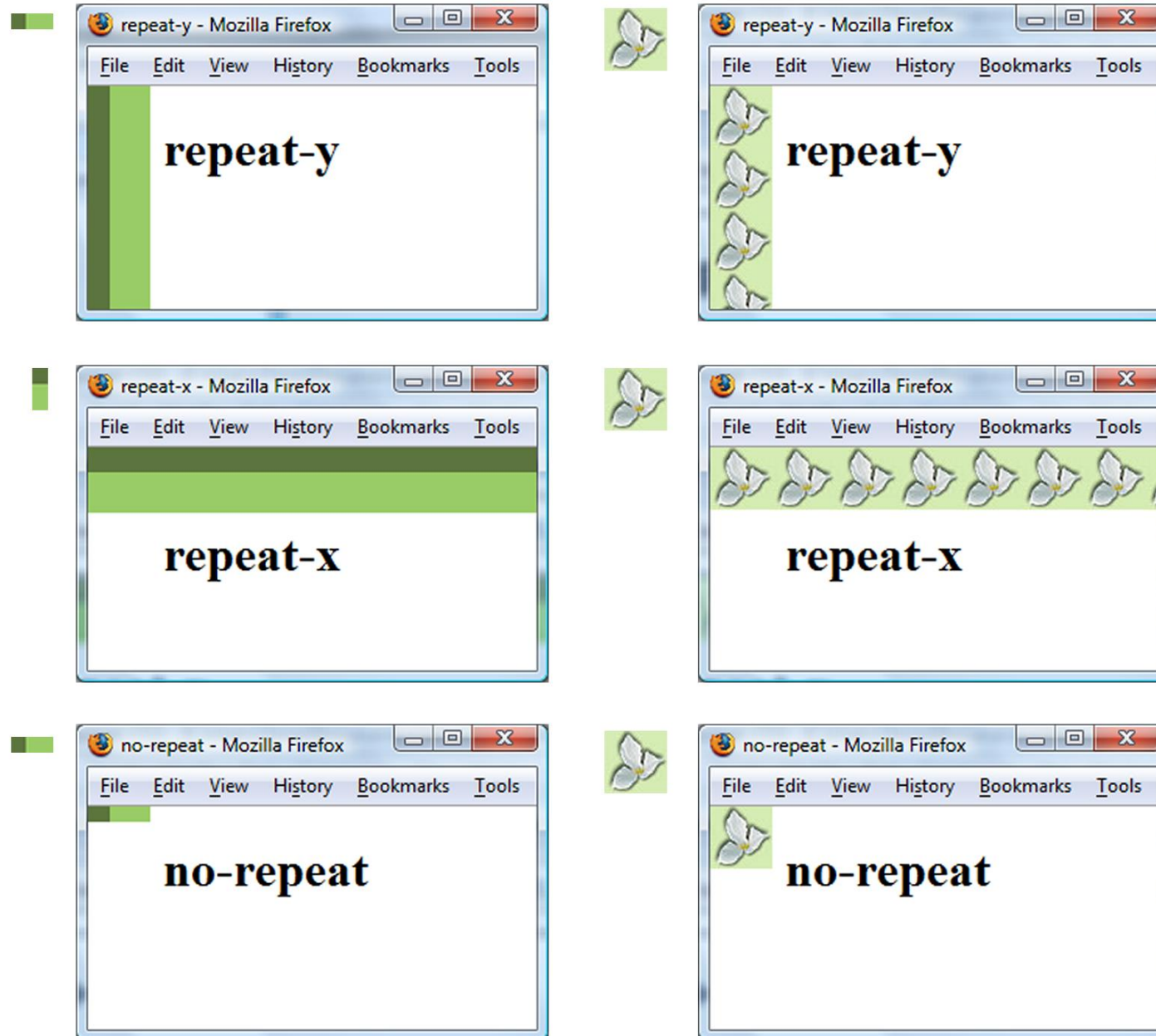

CSS background-image

- Configures a background-image
- By default, background images repeat

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




CSS background-repeat Property



Using background-repeat

trilliumbullet.gif: 

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

 **New Media and Web Design**

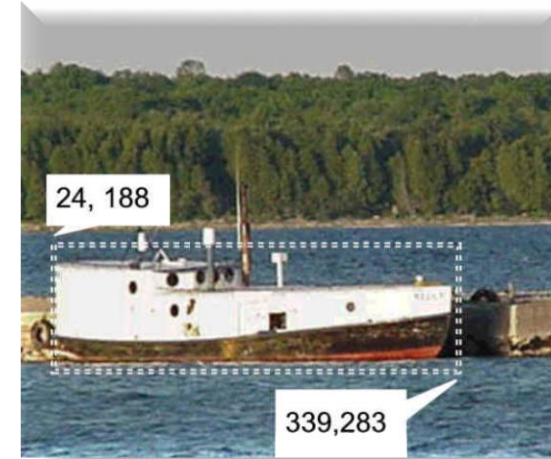
CSS3 Multiple Background Images

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



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.doorcountyvacations.com"  
        shape="rect"  
        coords="24, 188, 339, 283" alt="Door County  
Fishing">  
</map>  

```

Favorites Icon

- A square image associated with a Web page
- Usually named: favicon.ico and placed in the root dir
- May display in the browser address bar, tab, or favorites/bookmarks list
- Configure with a link tag:

```
<link rel="icon" href="favicon.ico" type="shortcut icon">
```



Guidelines for Using Images

- Reuse images
- Consider image file size with image quality
- Consider image load time
- Use appropriate resolution
- Specify dimensions
- Be aware of brightness and contrast

Images and Accessibility

- **Don't rely on color alone**
 - Some visitors may have color perception deficiencies
 - Use high contrast between background and text color
- **Provide a text equivalent for non-text elements**
 - Use the alt attribute on your image elements
- **If your site navigation uses image links, provide simple text links at the bottom of the page**

References & Links

- **"Web Development and Design Foundations with HTML5"** by Terry Felke-Morris
- W3schools
<http://www.w3schools.com>
- Check
<http://caniuse.com>