WEB DEVELOPMENT & DESIGN FOUNDATIONS WITH HTML5
7TH EDITION

Chapter 4
Key Concepts
HORIZONTAL RULE ELEMENT

- Configures a horizontal line

<hr>

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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**
CSS BORDERS: BLOCK / INLINE ELEMENTS

- **Block display element**
  - default width of element content extends to browser margin (or specified width)

- **Inline display element**
  - Border closely outlines the element content

```css
h2 { border: 2px solid #ff0000; }
a { border: 2px solid #ff0000; }
```
<table>
<thead>
<tr>
<th>Firefox</th>
<th>Internet Explorer</th>
</tr>
</thead>
<tbody>
<tr>
<td>default</td>
<td>default</td>
</tr>
<tr>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>double</td>
<td>double</td>
</tr>
<tr>
<td>groove</td>
<td>groove</td>
</tr>
<tr>
<td>ridge</td>
<td>ridge</td>
</tr>
<tr>
<td>solid</td>
<td>solid</td>
</tr>
<tr>
<td>dashed</td>
<td>dashed</td>
</tr>
<tr>
<td>dotted</td>
<td>dotted</td>
</tr>
</tbody>
</table>
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
CSS PADDING PROPERTY

- Configures empty space between the content of the HTML element and the border

- Set to 0px by default

```css
h2 { border: 2px solid #ff0000;
    padding: 5px;
}
```

No padding property configured:

```
Heading with Border
```

```
Heading with Border
```
CONFIGURE PADDING ON SPECIFIC SIDES OF AN ELEMENT

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

```css
h2 { border: 2px solid #ff0000;
    background-color: #cccccc;
    padding-left: 5px;
    padding-bottom: 10px;
    padding-top: 10px; }
```
CSS Padding Property Shorthand: Two Values

- Two numeric values or percentages
  - first value configures top and bottom padding
  - the second value configures left and right padding

```css
h2 { border: 2px solid #ff0000;
    background-color: #cccccc;
    padding: 20px 10px;
}
```
CSS PADDING PROPERTY SHORTHAND: FOUR VALUES

- Four numeric values or percentages
  - Configure top, right, bottom, and left padding

```css
h2 { border: 2px solid #ff0000;
    width: 250px;
    background-color: #cccccc;
    padding: 30px 10px 5px 20px;
}
```
HANDS-ON PRACTICE

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CHECKPOINT 4.1

1. Is it reasonable to try to code a web page that looks exactly the same on every browser and every platform? Explain your answer.

2. When a web page containing the style rules below is rendered in a browser, the border does not display. Describe what is incorrect with the following code:

   ```
   h2 { background-color: #ff0000
        border-top: thin solid #000000
   }
   ```

3. True or False? CSS can be used to configure visual elements such as rectangular shapes and lines on web pages.
TYPES OF GRAPHICS

- Graphic types commonly used on web pages:
  - GIF
  - JPG
  - PNG
- 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 most 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
HTML IMAGE ELEMENT

- Configures graphics on a web page

```html
<img src="dog.jpg" alt="Dog at computer" height="100" width="100">
```

- **src Attribute**
  - File name of the graphic

- **alt Attribute**
  - Configures alternate text 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
    ▶ 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 hyperlink use an anchor element to contain an image element

```html
<a href="index.html"><img src="home.gif" height="19" width="85" alt="Home"></a>
```

- Browsers automatically add a border to image links.
- Configure CSS to eliminate the border
  ```css
  img { border-style: none; }
  ```
A small image configured to link to a larger version of that image.

```
<a href="big.jpg"><img src="small.jpg" alt="country road" width="200" height="100"></a>
```
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.
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
  - *dogbday.gif* may be just about right
• Place images in their own folder

• Code the path to the file in the src attribute

```html
<img src="images/home.gif" alt="Home" height="100" width="200">
```
HTML5 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.

```html
<figure>
  <img src="lighthouseisland.jpg" width="250" height="355" alt="Lighthouse Island">
  <figcaption>
    Island Lighthouse, Built in 1870
  </figcaption>
</figure>
```
HTML5 METER ELEMENT

Displays a visual gauge of a numeric value within a known range

```html
<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; 312 Opera<br/>
<meter value="200" min="0" max="14417">200</meter> &nbsp;&nbsp; 200 other<br/>
```
HTML5 PROGRESS ELEMENT

Displays a bar that depicts a numeric value within a specified range

<progress value="5000" max="10000">5000</progress>
Progress Towards Our Goal
CSS BACKGROUND-IMAGE PROPERTY

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

body { background-image: url(background1.gif); }
CSS BACKGROUND-REPEAT PROPERTY

- **repeat-y**
- **repeat-x**
- **no-repeat**
USING BACKGROUND-REPEAT

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;
}
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); }
CHECKPOINT 4.2

1. Describe the CSS to configure a graphic named circle.jpg to display once in the background of all <h1> elements. Code sample CSS to demonstrate this.

2. Describe the CSS that configures a file named bg.gif to repeat vertically down the background of a web page. Code sample CSS to demonstrate this.

3. Explain how the browser will render the web page if you use CSS to configure both a background image and a background color.
MORE ABOUT IMAGES

- Image Map
- Favorites Icon
- Sources for Graphics
- Guidelines for Using Images
- Accessibility & Visual Elements
- **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

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

<img src="fishingboat.jpg" usemap="#boat" alt="Door County Fishing" width="416" height="350">
```
FAVORITES ICON - FAVICON

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

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

- Create them yourself using a graphics application:
  - GIMP
  - Adobe Photoshop
  - Adobe Fireworks
  - Google’s Picasa (http://picasa.google.com/)
- Download graphics from a free site
- Purchase/download professional-quality graphics
- Purchase a graphics collection on a CD
- Take digital photographs
- Scan your photographs
- Scan your drawings
- Hire a graphic designer to create graphics
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.
CHECKPOINT 4.3

Search for a site that uses image links to provide navigation. List the URL of the page.

What colors are used on the image links?

If the image links contain text, is there good contrast between the background color and letters on the image links?

Would the page be accessible to a visitor who is sight-challenged?

How have accessibility issues been addressed?

Is the alt attribute used to describe the image link?

Is there a row of text links in the footer section of the page?

Answer the questions above and discuss your findings.
CSS3 ROUNDED CORNERS

- border-radius property
  - Configures the horizontal radius and vertical radius of the corner
  - Numeric value(s) with unit (pixel or em) or percentage

Example

```css
h1 { border-radius: 15px; }
```
EXAMPLES OF ROUNDED CORNERS

- One value for border-radius configures all four corners
  Example:
  ```css
  border-radius: 15px;
  ```

- Four values for border-radius configure each corner separately
  Ordered by top left, top right, bottom right, bottom left
  Example:
  ```css
  border-radius: 15px 30px 100px 5px;
  ```
CSS3 BOX-SHADOW PROPERTY

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

- Example:

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

Optional keyword: inset
CSS3 OPACITY PROPERTY

- Configure the opacity of the element
- Opacity range:
  - 0 Completely Transparent
  - 1 Completely Opaque
- horizontal offset,
  vertical offset, blur radius,
  and valid color value
- Example:
  ```css
  h1{ background-color: #FFFFFF;
      opacity: 0.6; }
  ```
RGBA COLOR

Four values are required:

- 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:

```css
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;
}
```