# ACS-1809-051
Web Design and Development

Chapter 8

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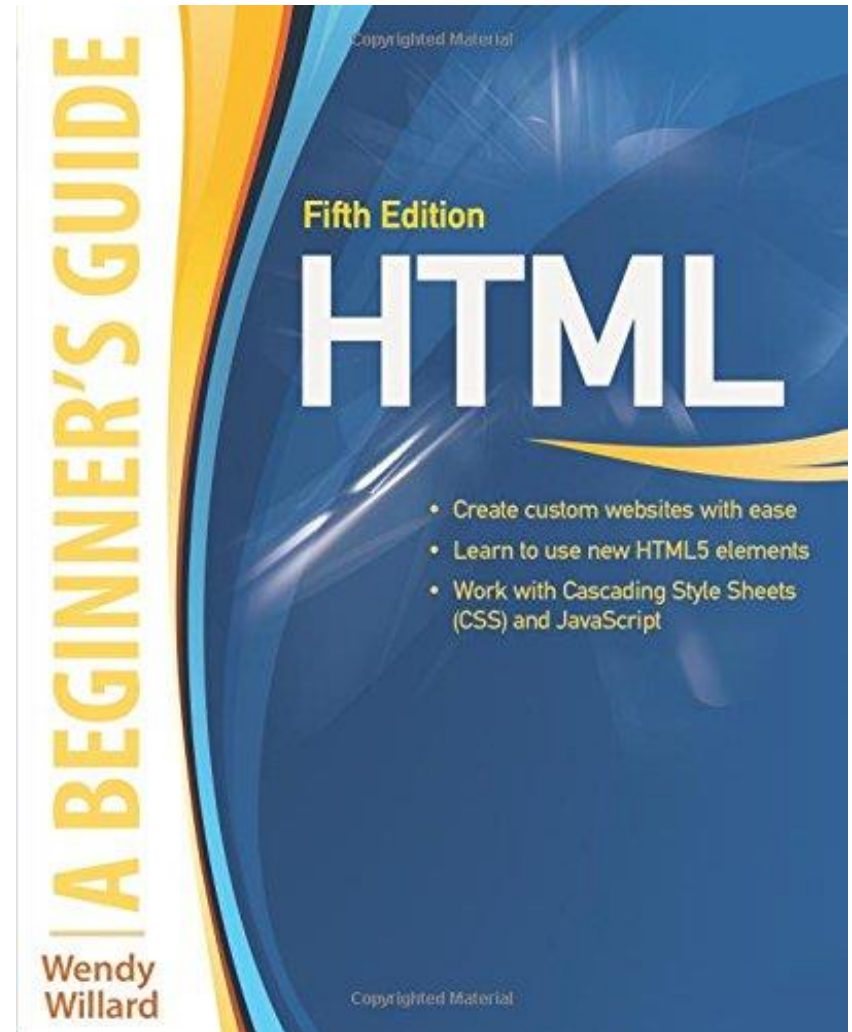
Working with Images

- Recognize Appropriate Web Image File Formats
- Use Images as Elements in the Foreground of a Web Page
- Specify the Height and Width of Images
- Provide Alternative Text and Titles for Images
- Link Images to Other Content on a Web Site
- Add Figure Captions
- Style Foreground Images
- Use Images as Elements in the Background of a Web Page

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Working with Images

- Why we need images for the web
  - "A picture is worth a thousand words"
- Find a free image online or purchase the right to use an image -- Stock Photography
  - Purchase CDs that contain photographs with a particular theme.
  - Go online and find images that are free to use.
  - Go online and purchase images from stock photography or clipart galleries.
  - Take a picture yourself or create an artwork!

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Types of Images

- Two main categories
  - Bitmap
    - Graphics constructed using tiny dots known as bits.
    - These types of images are more difficult to resize because you must change each individual dot
    - They have been around longer and enjoy more support from file formats
  - Vector
    - Graphics constructed based on mathematically calculated lines and curves that are easily changed and updated.
    - Images created with vectors tend to be smaller in file size
      - For that reason, they are gaining popularity on the Internet

Popular Web Image File Formats

- Terminology
  - Compression Methods
    - In order to obtain smaller file for web (and other Internet) use
      - Lossy
        - Lossy compression will have data removed permanently from the image to compress the file and make it smaller
      - Lossless
        - Lossless compression is the opposite of lossy, in that no data is lost when the file is compressed

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Popular Web Image File Formats

- Resolution
  - The standard file resolution for web graphics is 72 pixels per inch (ppi).
- Transparency
  - The characteristic of an image that allow you to see through parts of it
    - Some graphics editors show this transparency by displaying a gray and white checkerboard behind the image
    - When a web graphic contains transparency, the page's background color or background tile shows through in the transparent areas.

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Popular Web Image File Formats

- – Animation
  - Some web image file formats support animation
    - – This is implemented by using image files that contain two or more individual files called animation frames
      - ▪ These frames can be of bitmaps or vectors

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Important Factors

1. Image Size (Dimensions)
2. Image File Size
3. Image Quality

The required size of the image depends on the page design. For a given image size, the file size needs to be as small as possible while keeping an acceptable image quality

Image File Types

File type			
GIF	Used for flat color graphics (maximum of 256 colors)	Supports transparency and animation.	
JPEG	Photographic images (24bits = 16 million color)	Different compression ratio -- lossy	
PNG	New file format as an alternative to GIF	Selective color-modes Lossless compression Supports transparency but not animation (without extension)	

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Inserting An Image In the Page

<img src="photo.jpg" >

<Img : *opens the img tag.*

src : *An attribute (location of the image)*
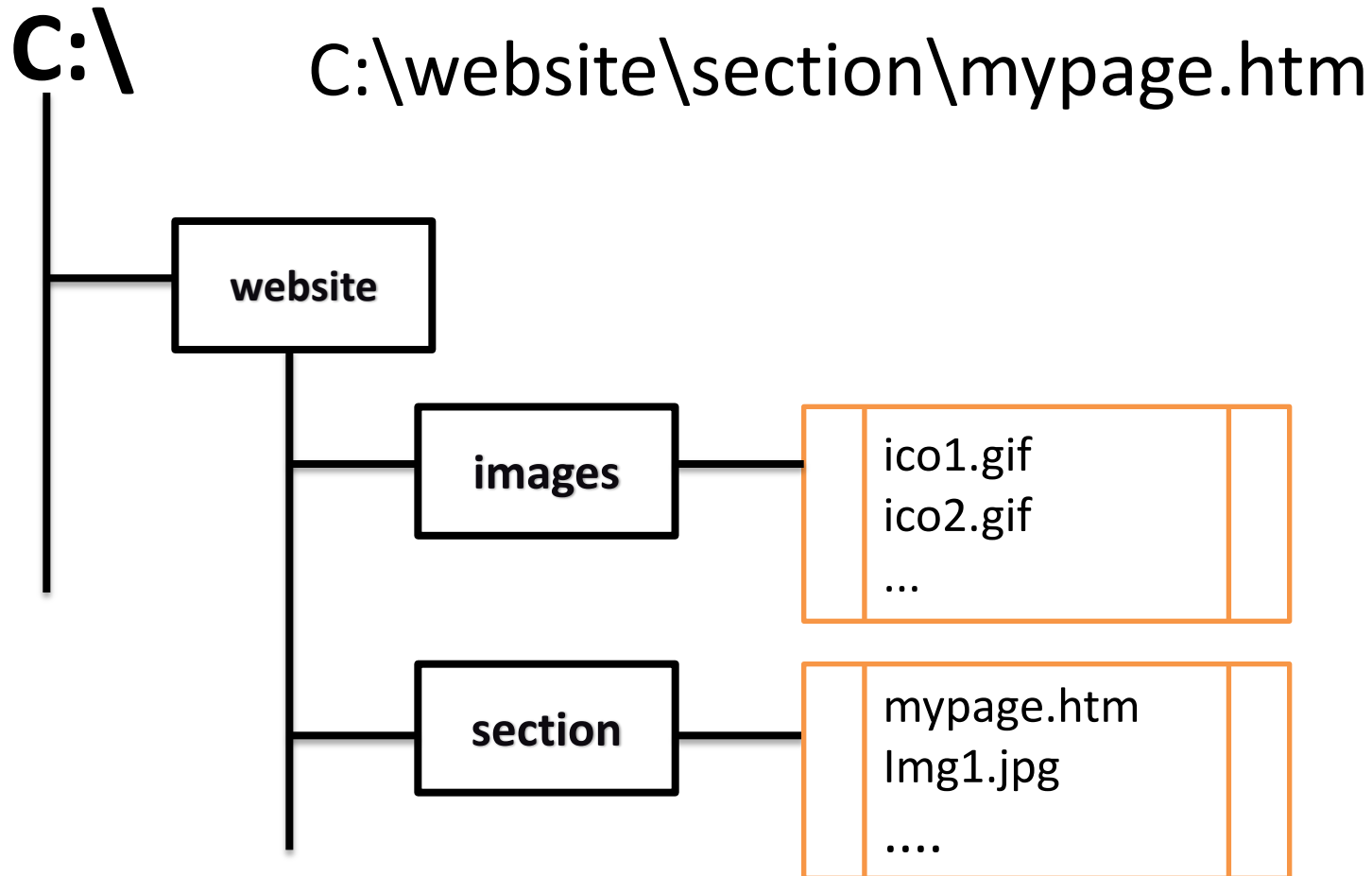
"photo.jpg": Value of the above attribute

> : *is used to close the tag.*

- The format of the image should be a web-friendly file format
  - GIF
  - JPEG
  - PNG

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Selecting the Image Source

- file *name* and *location* (the path to the folder that contains image or the web address)
  - `src="myphoto.jpg"` : file is in the same folder as the page.
  - `src="../myphoto.jpg"`: image file located one directory higher that the current directory
  - `src="http://www.mywebsite.com/img/myphoto.jpg"`: image file located in the given web address.

Example

C:

C:\website\section\mypage.htm

```
website
    images ──── ico1.gif
                ico2.gif
                ...
    section ──── mypage.htm
                 Img1.jpg
                 ....
```

```
<img src="Img1.jpg" >
<img src="../images/ico2.gif" >
```

Specify the Size of Image

<img src="photo.jpg" width="350" height="510" >

– Sizes are in pixels.

– Two reasons to specify the size

1. Telling the browser the size to speed up the loading process

2. Dimension of image as appears on the page (beware of the aspect ratio and image quality).

– How to determine the dimensions of an image

- In Windows
- Right-click on the graphic/image file and select "properties"
- Click the "Detail" tab and it tell you the dimension, height and width of the graphic/image file

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Alternative Text

- Image may not be displayed because
  - Images are not enabled in the browser
  - The browser is a text-only browser
  - The image has not been successfully loaded.
- That's why we need to provide a text to be displayed as an explanation for the image that cannot be seen for now.

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Display / Not Display

`<img src="https://mail.google.com/mail/help/images/logo2.gif" border=0 width=143 height=59 alt="Gmail">`

`alt` atribute

```
<img src="flag.gif" width="200" height="100"
    alt="vertical triband (red, white, red) with a red maple"  >
```

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`title` attribute

- Display a text in a box near the pointer when you move your pointer over the image

<img src="Flag.jpg" width="200" height="100" **title="Flag of Canada"** >

An Image As A Link

- Just like what we learned in the previous chapter
  - You can use text to label a link
- Here we can use an image to label a link

    <img src="photo3.jpg" width="400" height="300" alt="Sunset in La Jolla" title="Sunset in La Jolla" >

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Link Images To Other Content

- In previous slide we link the entire image to a page or location
- We can link only section or different sections of an image to different sections or a page, different pages or location
- We will create an *"image map"* to achieve that
  - Define sections on the image (called *"hot spot"*) and link each section to a different page or location.

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An image with hot spots

Source from http://en.wikipedia.org/wiki/Canada

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How to create an image map

<img src="Canada.png" alt="Clickable map" width="650" height="562" **usemap="#CMAP"**>

<map name="CMAP">

<area shape="rect" coords="249,318,287,445" alt="Manitoba" title="Manitoba" href="http://www.manitoba.ca">

</map>

Client-side image map

- All the information about hot spots and their locations is included in the HTML file in the user's computer.
- Use the hash mark to tell the browser this is a *client side* image map.
  - Actually the map is within the same page
    - Just like the anchor element
    - So the map element doesn't need to be right below the img element that refers to the map.

Find the coordinates of hot spots

- Use programs and tools to find the coordinates of points /create hot spots

Microsoft Paint

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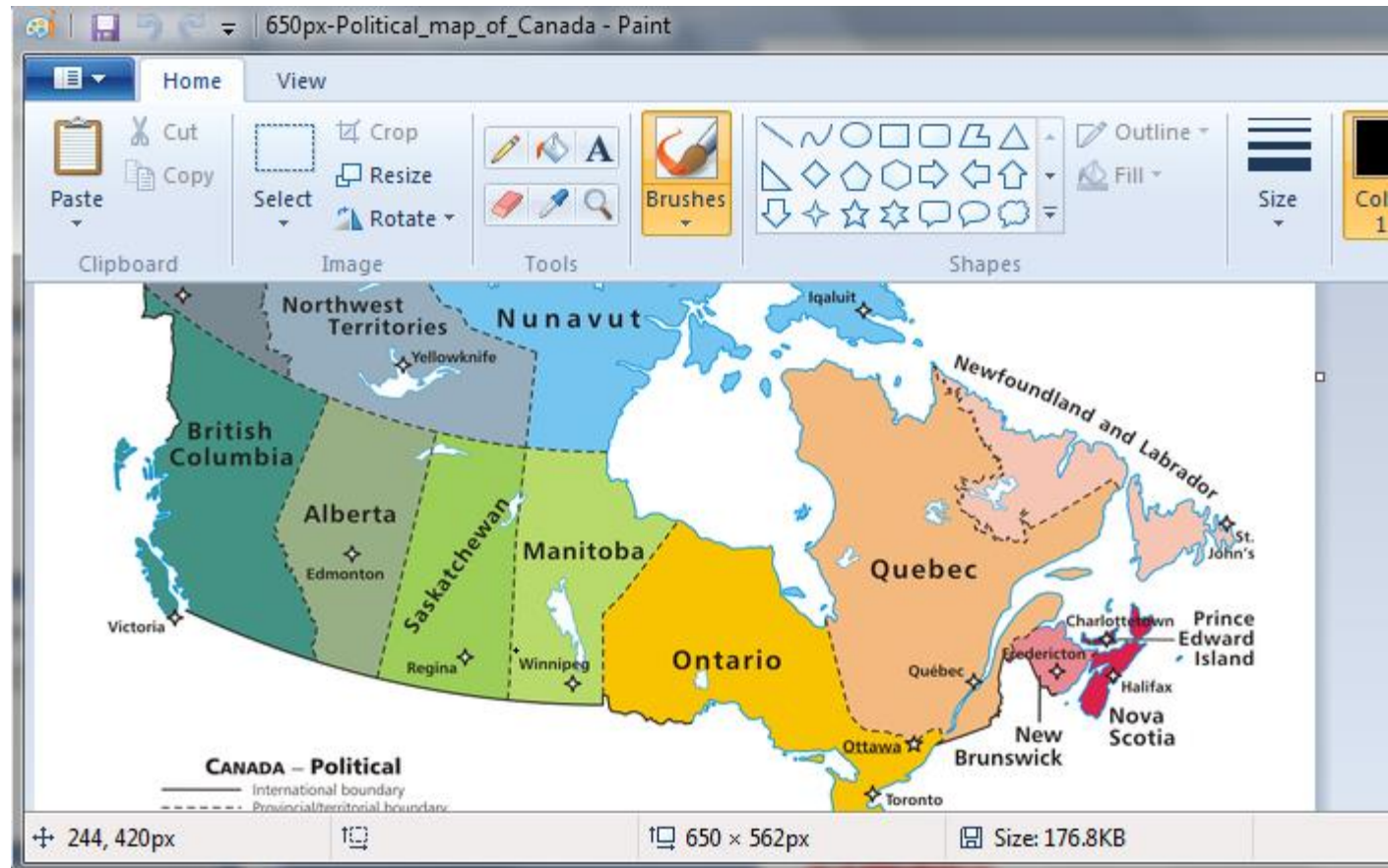
Attributes for the area tag

Attribute	Value	Description
shape	rect, poly, or circle	Defines the shape of the hot spot.
coords	rect: x1, y1, x2, y2 poly: x1, y1, x2, y2, x3, y3 circle: x, y, r	Defines the boundaries of hot spots. Rectangles: upper left and lower right points Polygons: each of their points Circles: center coordinates and radius.
href	Filename.html	link
alt	Text string	Alternative text

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Add Figure Captions

- We can use the *figure* and *figcaption* elements to semantically connect a figure caption to the actual image

    <figure>

      <img src="photo2.jpg" alt="Ocar in Seaworld">

      <figcaption>Shamu in Seaworld</figcaption>

    </figure>

  – Figcaption must be placed within figure element and both must have the opening tags and closing tags

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Summary of the `img` tag attributes

src =

width =

height =

alt =

title =

usemap =

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Use an image in the background

- *background-image* property.
- in style tag:

body {background-image: url("picture1.jpg");}

p {background-image: url("picture3.jpg");}

Using an image in the background benefits

- Creating a layered look by placing the foreground image on top of the background.

- Being able to fill the page entirely using the background image.

- Adding backgrounds to page elements as a way of separating those elements (*e.g* footer)
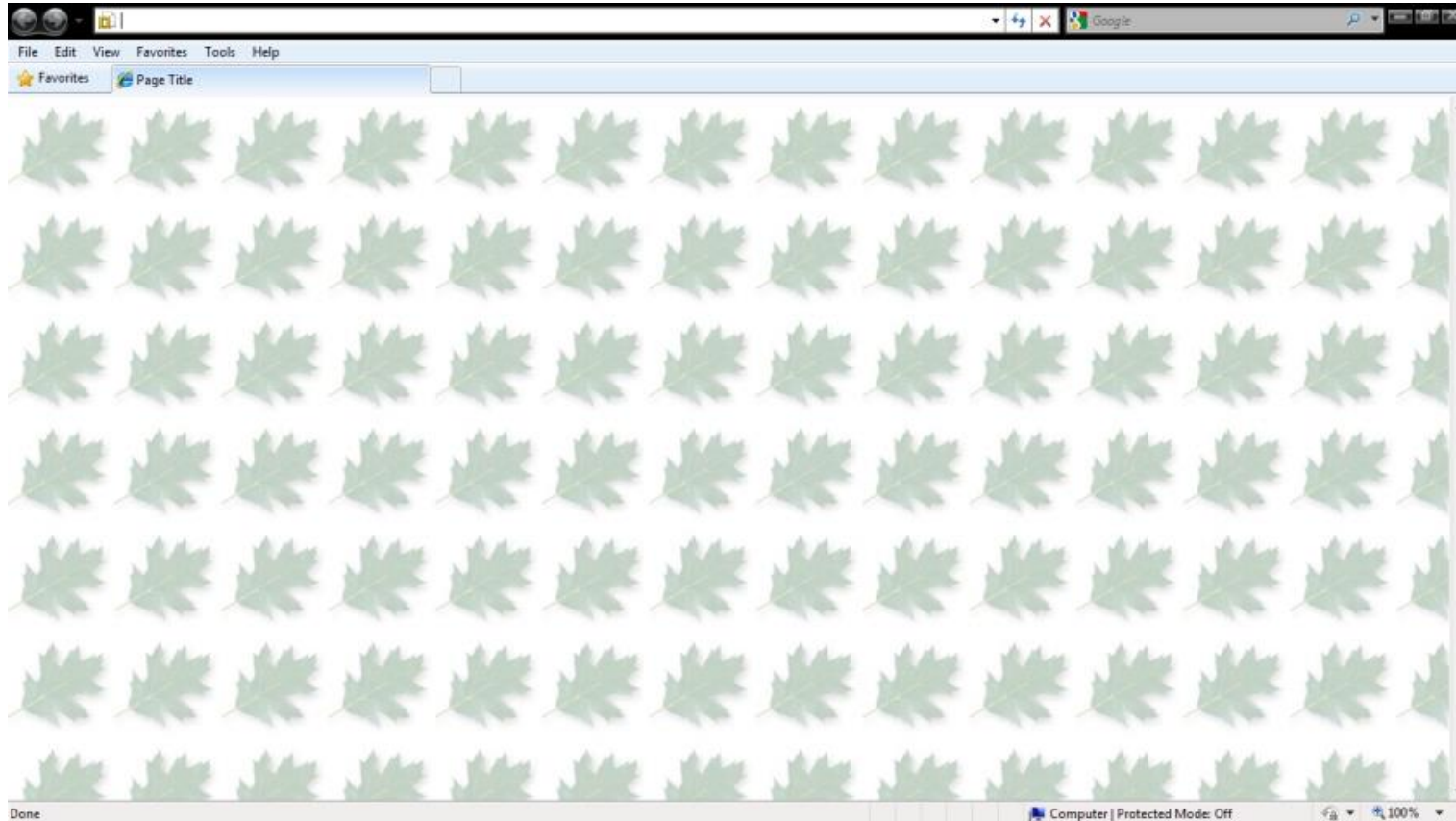
Notes about background image

- Background image *tile* by default (repeat itself as many times to cover the page)

- Only one image can be used as the background

- Carefully select your font colors to have enough contrast between the foreground text and the background.

- Use a small size image file for the background to speed up the page loading time.

Example

Green leaf image (Right) , 100x100 pixels (2.22 kB)
and the resulting background (bottom)

Notes about background image

- Test your background on different screen sizes (repeating pattern depends on how many of the background images can fit in the given screen size)

Using the page style sheet

- Allows the background image to be either "fixed", or move when page is scrolled (i.e., "scroll"). Furthermore, the image can be "single" (no-repeat) or "repeated".

- body { background-image : url("picture.jpg");

  background-attachment: fixed;

  background-repeat : no-repeat;

  }

Background-repeat property

- Values are:

  - **repeat** : Specifies the file should repeat both horizontally and vertically.

  - **repeat-x** : Specifies the file should repeat horizontally only.

  - **repeat-y** : Specifies the file should repeat vertically only.

  - **no-repeat** : Specifies the file should not repeat.

Style the Images

- Put borders

- Floating the image within text and alignment

- Margin and padding

- Centering

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Borders

- *Retired* method:

<img
   src="canadamap.jpg"
   alt="Clickable map"
   width="200"
   height="100"
   border="3">

Linked images have a border.
The value of the border is in pixels
Default: 1 for linked images and 0 for non-linked images

Adjust Image Borders With CSS

- img {border-width: 0;}

- img {border-color: #C00;}

  - Value for border-color

    - One value: same color for all the sides

    - Two values: The 1st one for top and bottom and the 2nd one for left and right

    - Three values: Top, left and right, and bottom

    - Four values: all four sides have different color

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Adjust Image Borders With CSS

- img {border-style: none;}
  - Available values:
    - None
    - Dotted
    - Dashed
    - Double
    - Solid
    - Groove
    - Ridge
    - Inset
    - Outset

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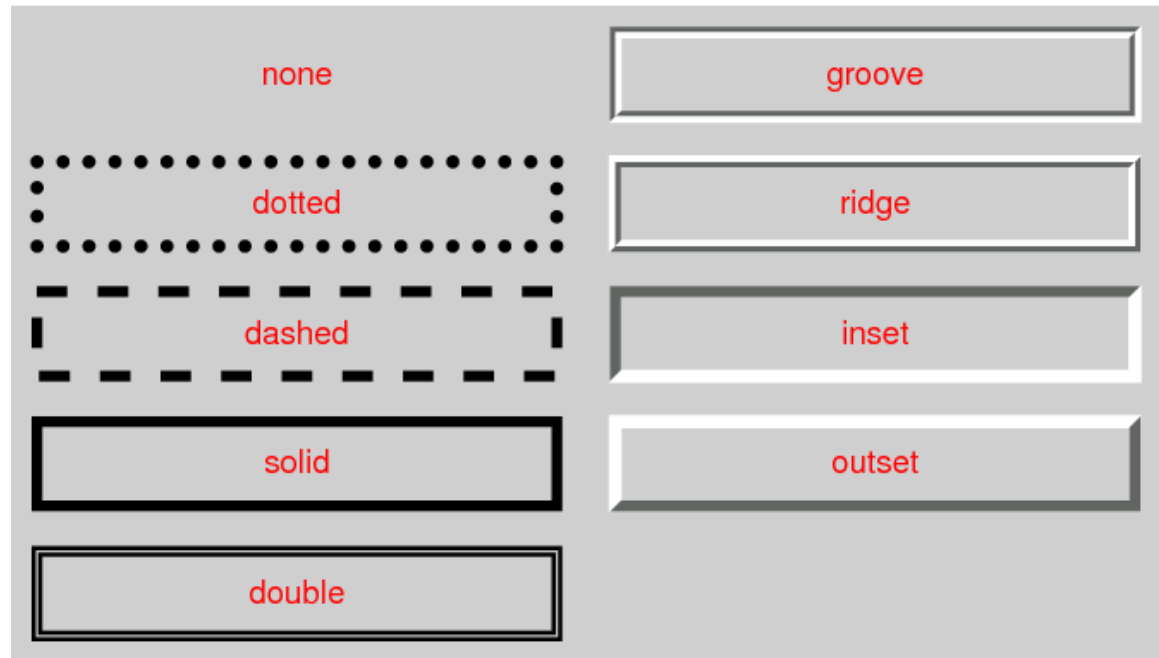
Adjust Image Borders With CSS

- These properties can be applied to a specific side of the border
  - Example

    img {border-right-style: none;}

    img {border-left-width: 3px;}

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Default: No floating

text... text... text... text... text... text... text

text... text... text... text... text... text...

text... text... text... text... text... text... Text

text ...

Floating an image within text

text… text… text… text… text… text… text

text… text… text… text…

text… text… text… text…

text… text… text… text…

text… text… text… text…

text… text… text… text…

text… text… text… text… text… text… Text

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Floats

- Floating the image

<img src="image.jpg" width="100" height="116" style="float: right;">

- Clearing floats

<p style="clear: right;" > text…text…text.. </p>

Floating groups of images

HTML code:

```
<div class="thumbnail">
<img src="Img1.gif"><br> <p> Caption1 </p>
</div>
<div class="thumbnail">
<img src="Img2.gif"><br> <p> Caption2 </p>
</div>
```

Style for the thumbnail block:

```
.thumbnail {float: left; padding: 15px}
```

Floating groups of images

15 pixels

Caption 1   **Caption 2**

Padding and Margins

- Add blank space around an image

  Example: Adding a small block of space on the left side only

  <img src="photo.jpg" width="200" height="200" style="margin-left: 25px;">

Centering

- There is no **center** property for images

- Instead:

    1. Display the image as a **block element**. (fill the entire available space)

    2. Make left and right margins exactly equal

Centering

Define the style first:

img.centered {display: block; margin-left: auto; margin-right: auto;}

Then call the style by class name:

<img src="photo.gif" class="centered">

Questions?

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