Tutorial 2 – Developing a Web Site

Quick review

❑ **Four basic HTML tags**

❑ **Block-level elements**
- contain content viewed as distinct block within webpage
- when rendered visually, start on a new line
- example?

❑ **In-line elements**
- marks a section of text within a block-level element
- example?

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Working with Web Site Structures

❑ A well-designed structure ensures users
  o navigate the site
  o not get lost or miss important information
❑ A **storyboard** is a diagram of a Web site's structure
  o shows all pages in a site
  o indicates how the pages are linked together
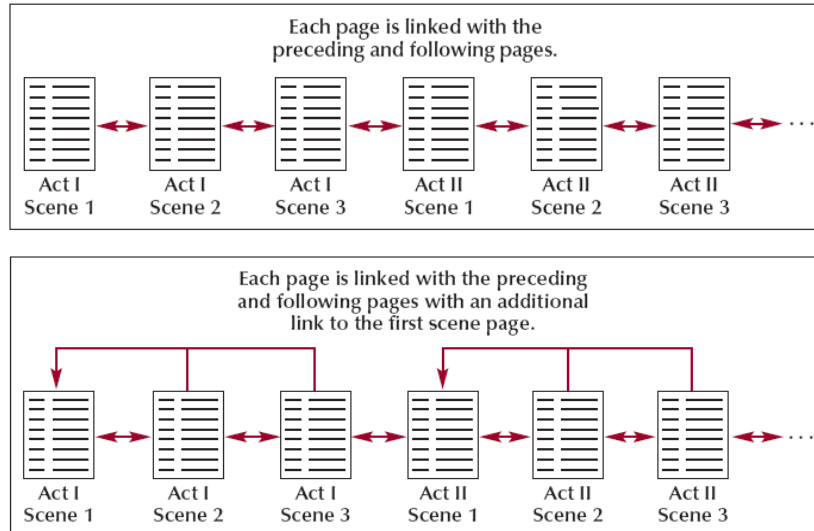 o defines a structure works best for the type of information of the site

Linear Structures

❑ each page is linked with the page follows and the page precedes it in a chain
❑ works best for Web pages with a clearly defined order
❑ commonly, each page contains an additional link back to an opening page

Linear Structures

Each page is linked with the preceding and following pages.

| Act I Scene 1 | Act I Scene 2 | Act I Scene 3 | Act II Scene 1 | Act II Scene 2 | Act II Scene 3 | . . . |

Each page is linked with the preceding and following pages with an additional link to the first scene page.

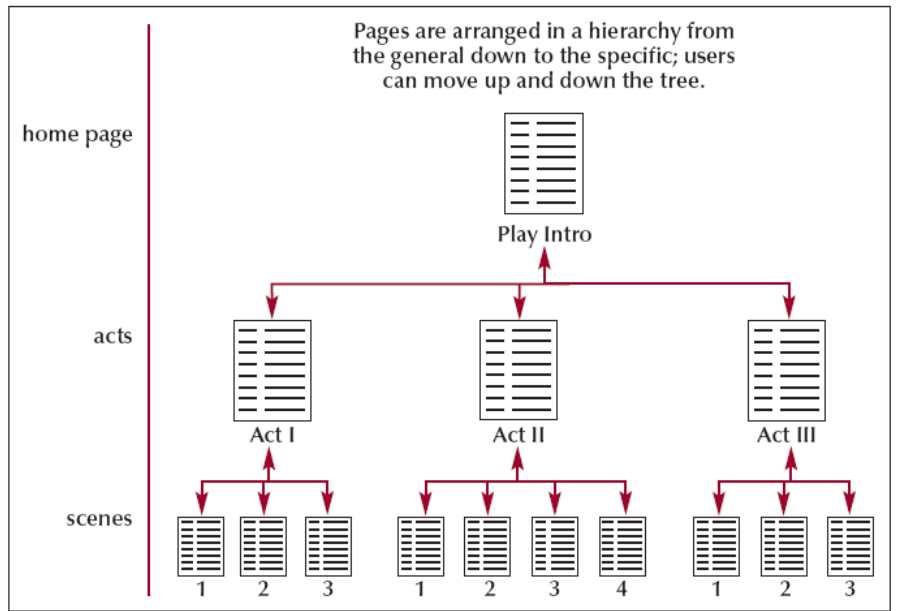| Act I Scene 1 | Act I Scene 2 | Act I Scene 3 | Act II Scene 1 | Act II Scene 2 | Act II Scene 3 | . . . |

Hierarchical Structures

- ❑ pages are linked going from the **home page** down to more specific pages
- ❑ users easily move from *general* to *specific* and back
- ❑ a user can move quickly to a specific page without moving through each page in order

Hierarchical Structures

Pages are arranged in a hierarchy from the general down to the specific; users can move up and down the tree.

home page — Play Intro

acts — Act I, Act II, Act III

scenes — 1 2 3 | 1 2 3 4 | 1 2 3
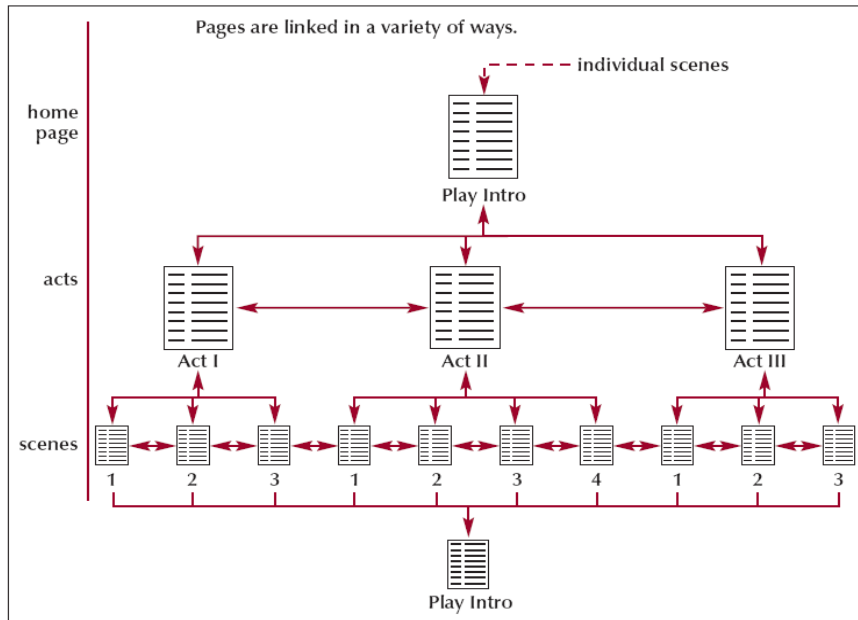
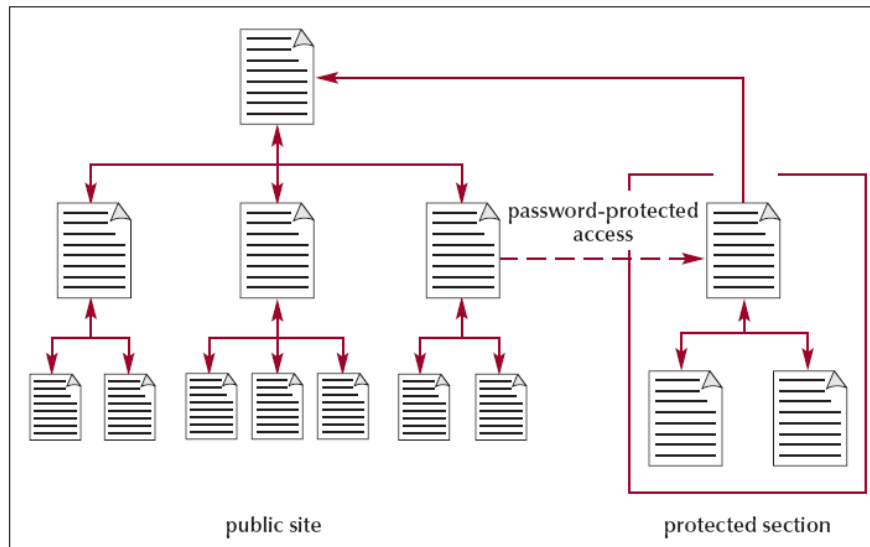# Mixed Structures

❑ overall form **hierarchical**, allowing the user to move from general to specific

❑ in the same time, links allow users to move through the site in a **linear** fashion

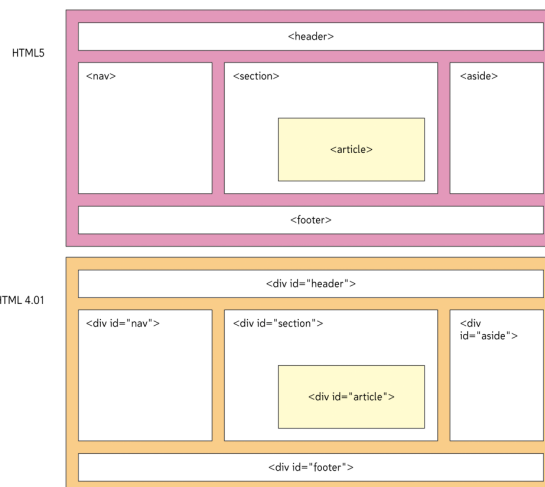# Mixed Structures

Protected Structures

Structural Elements in HTML5

- ❑ To mark the page header, use the <header> element
- ❑ To mark the page footer, use the <footer> element
- ❑ To mark a main section of page content, use the <section> element
- ❑ To mark a sidebar, use the <aside> element
- ❑ To mark an article, use the <article> element
- ❑ To mark an navigation list, use the <nav> element

Marking a Section with the <div> Element

HTML5

<header>		
<nav>	<section>	<aside>
	<article>	
<footer>		

HTML 4.01

<div id="header">		
<div id="nav">	<div id="section">	<div id="aside">
	<div id="article">	
<div id="footer">		

Creating a Hypertext Link
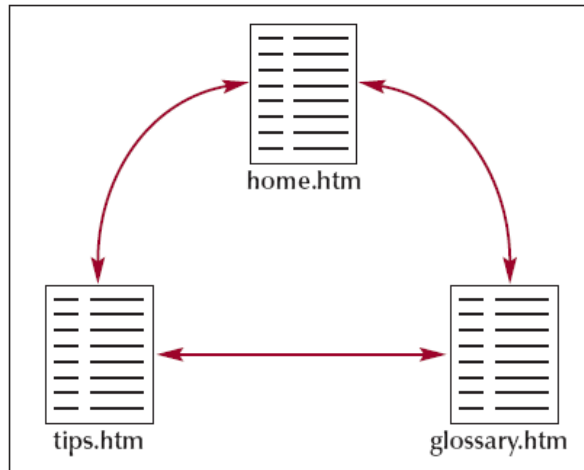
Hyperlinks

❑ Hyperlink

"A clickable HTML element that will direct the web browser to display a different Web page or a different location on the current Web page."

❑ Three type of HTML links

o Relative URL
  ❑ links to a Web page on the same Web server
  ❑ only need relative directory for the linked file
o Absolute URL
  ❑ links to a Web page on a different Web server
  ❑ a complete URL should be used
    e.g., http://web.cs.gc.cuny.edu/~jchu/math279/
o Name *id*
  ❑ links to a different location on the same **Web page**

Hyperlink Components

- ❑ use anchor tags **<a>…**, and *href* attribute
  - o *href* = "a link destination"
- ❑ link label
  - o visible link on a Web page
  - o can be text or image
- ❑ link destination
  - o the target destination
  - o other web pages, or files (e.g., ppt, pdf files)
- ❑ example   link destination

  ** Tips **

  link label, visible on a Web page

More on Hypertext Link

- ❑ filenames are case sensitive on some operating systems, including the UNIX and Macintosh
- ❑ current standard is to use lowercase filenames and avoid special characters such as blanks and slashes
- ❑ keep filenames short to avoid typing errors

Exercise

❑ download *CAMShots.zip*

❑ modify *hometxt.htm, tipstxt.htm* and *glosstxt.htm* by adding your name and today's date info in the comment section of each document

❑ RENAME these documents to *home.htm, tips.htm* and *glossary.htm* respectively

❑ in *home.htm*, add navigation list and hyperlinks as shown in following slide

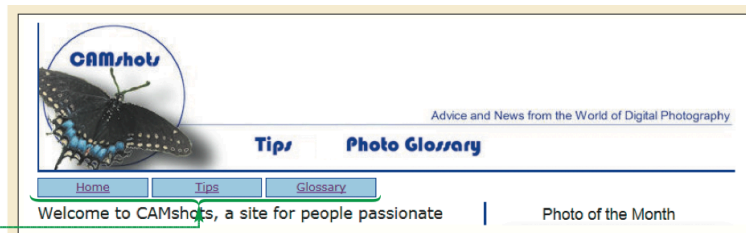# Exercise (cont.)

```
<nav>
    <ul>
        <li><a href="home.htm">Home</a></li>
        <li><a href="tips.htm">Tips</a></li>
        <li><a href="glossary.htm">Glossary</a></li>
    </ul>
</nav>
```


hypertext links underlined by default

Using id Attribute

- id attribute assigns a *name* (or an *ID*) to an element
- with the ID, an element can be referred to easily
- syntax

  <element id="name"> content </element>

  <element id="name" />

  e.g.,

  <h1 id="mainhead"> Dave's Devil Sticks</h1>

  <h2 id="A"> A </h2>
- Note:
  - id names must be unique
  - id names are case sensitive

Creating *hyperlinks* to locations in same document

- use id attribute to identify the destination of the hyperlinks
- syntax

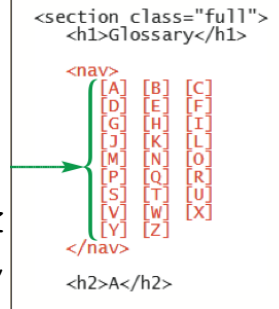 content

  e.g., A
- note
  - a link's content is not limited to text
  - generally, a link should not contain any block-level elements

Exercise

```
<section class="full">
    <h1>Glossary</h1>

<nav>
    [A]  [B]  [C]
    [D]  [E]  [F]
    [G]  [H]  [I]
    [J]  [K]  [L]
    [M]  [N]  [O]
    [P]  [Q]  [R]
    [S]  [T]  [U]
    [V]  [W]  [X]
    [Y]  [Z]
</nav>

<h2>A</h2>
```

- In glossary.htm
  - add navigation list for letters A to Z
  - add hyperlinks for letters A, B, C, D, E, F on top of the page
  - add id names to H2 elements of the glossary entries A, B, C, D, E, F
  - E.g.

    [A]

    [B]

    [C]

    <h2 id="A"> A </h2>

    <h2 id="B"> B </h2>

    <h2 id="c"> C </h2>

Creating *hyperlinks* between documents

- use id attribute to identify the destination of the hyperlinks
- create a hyperlink specific location in another file with syntax

  content
  - *reference* is the file name of destination HTML or XHTML file
  - *id* is the id name of an element in the destination file
  - e.g

    Exposure

Exercise (in glossary.htm)

```
<dt id="aperture"><b>Aperture</b></dt>
……
<dt id="exposure"><b>Exposure</b></dt>
……
<dt id="f-stop"><b>F-stop</b></dt>
……
<dt id="flash_mode"><b>Flash Mode</b></dt>
……
<dt id="focal_length"><b>Focal Length</b></dt>
```

Exercise (in home.htm)

```
                <i>Pear Lake Reflection</i></blockquote>
<ul>
    <li>Camera:
               
        Nikon D50</li>
    <li><a href="glossary.htm#f-stop">F-stop</a>:
                  
        f/7.1</li>
    <li><a href="glossary.htm#exposure">Exposure</a>:
              
        1/200 sec.</li>
    <li><a href="glossary.htm#focal_length">Focal Length</a>:
         
        18mm</li>
    <li><a href="glossary.htm#aperture">Aperture</a>:
               
        3.6</li>
    <li><a href="glossary.htm#flash_mode">Flash Mode</a>:
           No flash</li>
</ul>
```
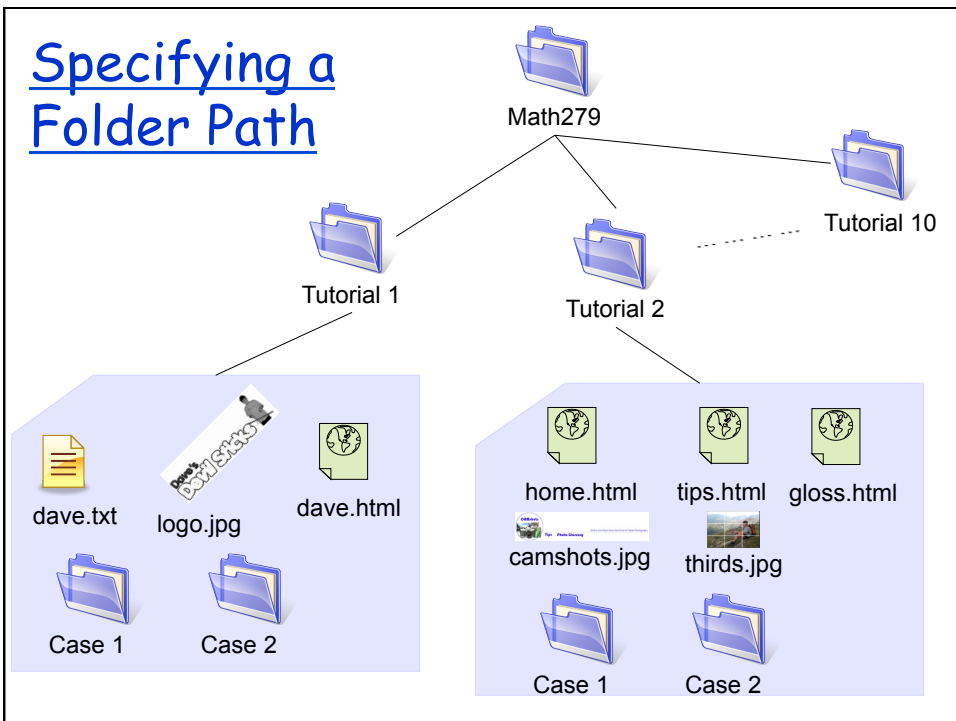
document file

element id

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Homework

- ❑ Finish reading Tutorial 2
- ❑ Finish exercises shown in
  - o Figure 2-9 (page 68-69)
  - o Figure 2-15 to 2-20 (page 75 – 77)
  - o Figure 2-21 to 2-23 (page 79-80)
  - o Figure2-34 to 2-35 (page 91-92)
  - o Figure 2-40 (page 97)
  - o Figure 2-42 (page 100)

Specifying a Folder Path

Specifying a Folder Path (cont.)

❑ to create a link to a file located in a different folder than the current document, specify the file's location, or **path**

❑ an **absolute path** specifies a file's precise location within a computer's entire folder structure
  o e.g., "C:\Fall13\Math279\Tutorial2\tips.htm"

❑ a **relative path** specifies a file's location in relation to the location of the current document
  o e.g.,
    "Tutorial2/tips.htm"
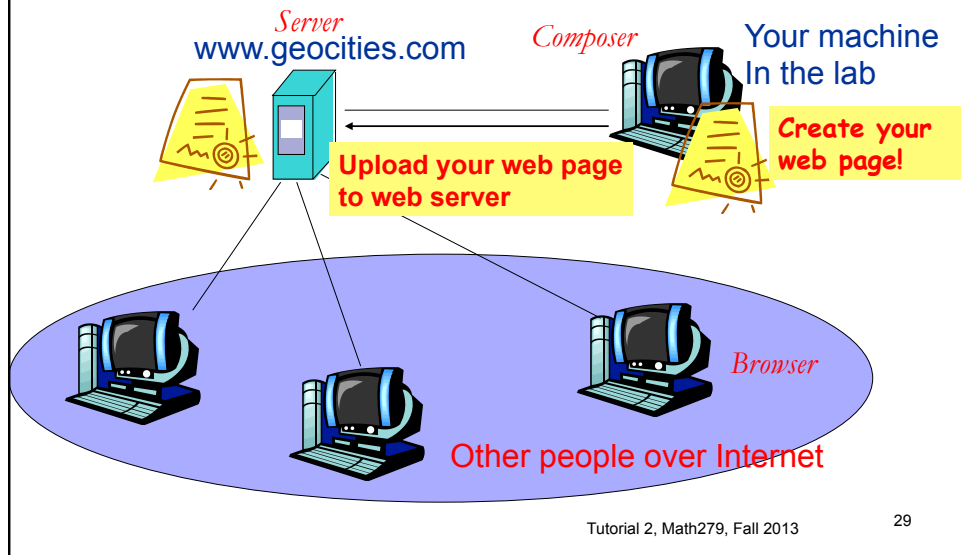   "../Tutorial1/logo.jpg"
    "thirds.jpg"

Specifying a Folder Path (cont.)

❑ to go one level up of the folder tree, start **relative path** with a double period, a forward slash, and then provide the name of the file
  ../logo.jpg

❑ to specify a different folder on the same level, known as a **sibling folder**, move up the folder tree using the double period and then down the tree using the name of the **sibling folder**
  ../Tutorial1/logo.jpg

❑ You should almost always use **relative paths** in your links

How does WWW work?

Server
www.geocities.com

Composer

Your machine
In the lab

**Create your
web page!**

**Upload your web page
to web server**

Browser

Other people over Internet

How does WWW work?

www.geocities.com

Your machine
In the lab

Send request

**Browse
http://www.geocities.com/math279**
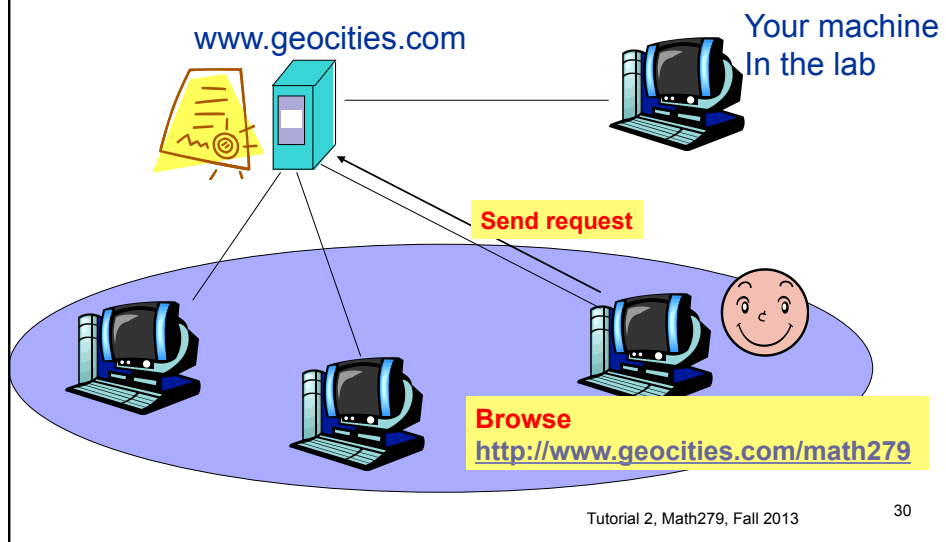
URL (Uniform Resource Locators)

- Composer, browser, server can be at different machines over the Internet
- URL – specify web pages (i.e., HTML files) or images (i.e., image files)
  - o server name
    - http://www.jjay.cuny.edu/Math279/math279.html
    - http://www.geocities.com/math279
  - o path name (find html or image files on server)
    - http://www.jjay.cuny.com/Math279/math279.html
    - http://www.geocities.com/tom/index.html
    - http://www.geocities.com/tom/mycat.jpg

Linking to a web site

- add a hyperlink to a Web page on *other* Web server
- use Absolute (i.e. complete) URL for the link destination
- Example

```
<a href = "http://www.jjay.cuny.edu/"> John Jay
College of Criminal Justice</a>
<a href = "http://www.camshots.com/"> Camshots
Inc.</a>
<a href = "http://www.camshots.com/articles/
glossary.htm#aperture"> Aperture</a>
```

Exercise (in tips.htm)

```
<dt>&#9758; <a href="http://www.apogeephoto.com">Apogee Photo</a></dt>
        ……
<dt>&#9758; <a href="http://outdoorphotographer.com">Outdoor Photographer</a></dt>
        ……
<dt>&#9758; <a href="http://www.pcphotomag.com">PCPhoto</a></dt>
        ……
<dt>&#9758; <a href="http://www.popphoto.com">Popular Photography and Imaging</a></dt>
```

More hyperlinks

❑ link to an email address
  o `<a href="mailto:fancy000@yahoo.com">Contact Me! </a>`

❑ create clickable image
  o `<a href = "thirds.jpg"><img scr = "thirds.jpg" width="30" height = "40" alt = "Thirds"></a>`

URL in <IMG>

❑ Insert an image in your web page
  <IMG src="*URL*" width="…" height="…" alt="…">
❑ Use full URL
  <img src="http://www-net.cs.umass.edu/~jiping/pet_pictures/goldenbaby.jpg">
❑ Use relative URL
  <img src="goldenbaby.jpg">

URL in <IMG> (cont.)

Suppose your web page (html file) is at http://www.geocities.com/tom/index.html

<img src="goldenbaby.jpg"> is equivalent to
<img src="http://www.geocities.com/tom/goldenbaby.jpg">

REMEMBER: upload your image file to the web server!

Working with image maps

❑ turn an image (website's logo) into a
hypertext link pointing to a web page

❑ image maps: divide an image into different
zones, or *hotspots*, each linked to a different
destination

home.htm   tips.htm   glossary.htm
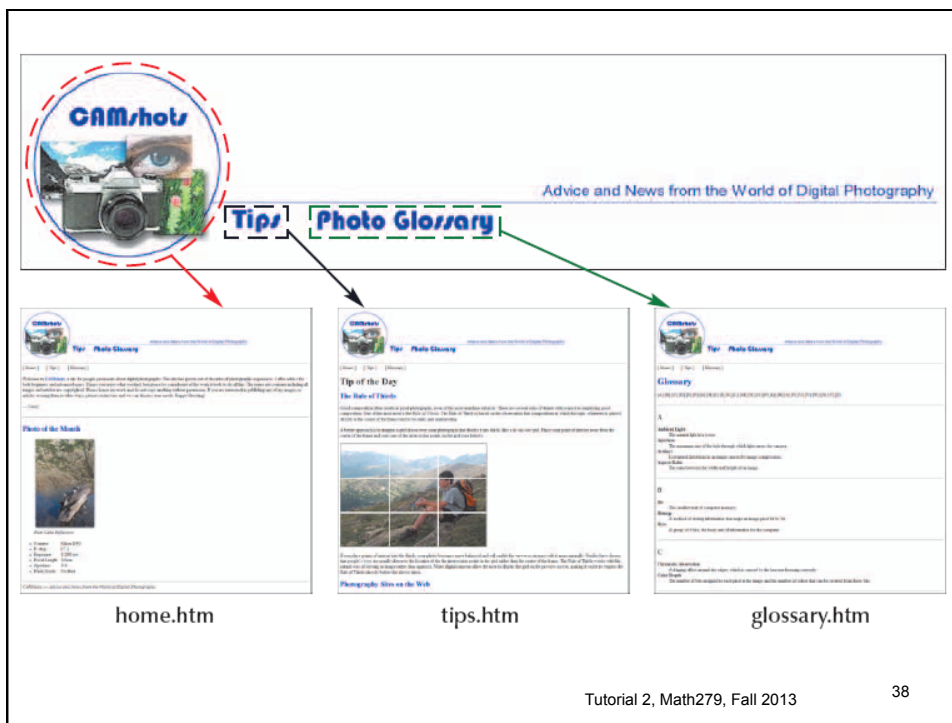
Defining hotspots

❏ to define hotspots, need to create an **image map** that matches a specified region of the inline image to a specific destination
❏ define a hotspot using two properties:
  o shape
  o location in the image
❏ syntax of hotspot element:

```
<area shape="shape" coords="coordinates"
          href="url" alt="text" />
```

Creating a *rectangular* hotspot

❏ shape: "rect"
❏ two points define a **rectangular hotspot**:
  o the upper-left corner
  o the lower-right corner
❏ e.g.

```
<area shape="rect" coords="384,61,499,271"
   href="water.htm">
```

  o coordinates: are entered as a series of four numbers separated by commas
  o *first two numbers*: location of upper-left corner
  o *second two numbers*: location of the lower-right corner
  o the hotspot is a hypertext link to *water.htm*

Creating a *circular* hotspot

- ❑ shape: "circle"
- ❑ two values define a circle hotspot
  - o location of its center
  - o radius
- ❑ e.g.
  - `<area shape="circle" coords="307,137,66" href="karts.htm">`
  - o first two numbers (307, 137): coordinates of center
  - o last number (66): radius in pixels
  - o the hotspot is a hypertext link to karts.htm

Creating a *polygonal* hotspot

- ❑ shape: "poly" or "polygon"
- ❑ need the coordinates for *each vertex* in the shape
- ❑ e.g.,
  - `<area shape="polygon" coords="13,60,13,270,370,270,370,225,230,225,230,60" href="rides.htm">`
  - o each pair of numbers is the coordinates for one vertex in the shape
  - o the hotspot is a hypertext link to rides.htm

Creating a default hotspot

❑ shape: "default"
❑ any spot in the image that is not covered by another hotspot are set with the *default* hotspot link
❑ e.g.,

<area shape="default" coords="0, 0, *x, y*" ... />

x is the width and *y* is the height of the inline image

Creating image maps

❑ <map> ... </map> tags: define image map
  o used directly beneath <img> tag, on which the image map applies
❑ id, and name attributes
  o have identical value
  o must be used with <map> tag
❑ e.g.:

```
<img src="camshots.jpg" alt="CAMshots"/>
<map id="logomap" name="logomap">
    <area shape="circle" coords="82,78,80" href="home.htm"
                alt="Home" />
    ......
</map>
```

Linking image map to an image

- ❑ usemap attribute
  - o used with <img> tag
  - o with value *"#image_map_id"*
- ❑ style attribute
  - o used with <img> tag
  - o set border-width to 0 to remove image border
- ❑ e.g.,

  <img src="camshots.jpg" alt="CAMshots" usemap="#logomap"
  style="border-width:0"/>

Exercise: Putting things together

- ❑ in home.htm add the following code

```
<body>
  <div>
    <img src="camshots.jpg" alt="CAMshots" usemap="#logomap"
                                   style="border-width:0"/>
  <map id="logomap" name="logomap">
      <area shape="circle" coords="82,78,80" href="home.htm"
                                alt="Home" />
      <area shape="rect" coords="235,120,310,150" href="tips.htm"
                                alt="Tips" />
      <area shape="rect" coords="340,120,510,150"

      href="glossary.htm"  alt="Glossary" />
  </map>
  </div>
......
```

Exercise (cont.)

❑ in tips.htm and glossary.htm add the following code as well (you may use "copy" and "paste" from home.htm)

```
<body>
  <div>
    <img src="camshots.jpg" alt="CAMshots" usemap="#logomap"/>
                                       style="border-width:0"/>
  <map id="logomap" name="logomap">
      <area shape="circle" coords="82,78,80" href="home.htm"
                                       alt="Home" />
      <area shape="rect" coords="168,110,225,145" href="tips.htm"
                                       alt="Tips" />
      <area shape="rect" coords="240,110,402,145"

      href="glossary.htm"  alt="Glossary" />
  </map>
  </div>
```

Target attribute for hyperlinks

❑ specifies a window in which link destination should be displayed

❑ opens the link in a new window, new tab, or in the same window

❑ values for target attribute:

  o _self or _top: (the default) opens link in the current browser window or tab

  o _blank or new: opens link in a new, unnamed window or tab

  o e.g.
    `<a href="gloss.htm#f-stop" target="_blank">F-stop</a>`
    `<a href="gloss.htm#aperture" target="_self">Aperture</a>`

Working with metadata

- Web authors hope sites appear more prominently in search engines
- **metadata**: information about the site
- use meta element in *head* section of the document
  <meta name="text" content="text" />
- in recent years, search engines become more sophisticated in evaluating Web sites, meta element has decreased in importance

Meta Name	Example	Description
author	`<meta name="author" content="Gerry Hayward" />`	Supplies the name of the document author
classification	`<meta name="classification" content="photography" />`	Classifies the document
copyright	`<meta name="copyright" content="© 2011 CAMshots" />`	Provides a copyright statement
description	`<meta name="description" content="Digital photography and advice" />`	Provides a description of the document
generator	`<meta name="generator" content="Dreamweaver" />`	Indicates the name of the program that created the HTML code for the document
keywords	`<meta name="keywords" content="photography,cameras, digital" />`	Provides a list of keywords describing the document
owner	`<meta name="owner" content="CAMshots" />`	Indicates the owner of the document
rating	`<meta name="rating" content="general" />`	Provides a rating of the document in terms of its suitability for minors
reply-to	`<meta name="reply-to" content="ghayward@camshots.com (G. Hayward)" />`	Supplies a contact e-mail address and name for the document

Working with metadata (cont.)

❑ http-equiv attribute: add information and commands to the communication stream

    o force Web browser to refresh the Web page at timed intervals

        `<meta http-equiv="refresh" content="60" />`

    o redirect the browser from the current document to a new document

        `<meta http-equiv="refresh" content="5;url=www.camshots.com" />`

    o specify the character set

        `<meta http-equiv="Content-Type" content="text/html;charset=ISO-8859-1" />`

Homework

❑ Finish reading Tutorial 2
❑ Review assignment: Figure 2-49, page 125-127
❑ Case Problem 1: page 127-128
❑ Case Problem 3: page 130-132
❑ (extra credit) Case Problem 4: page 132-133