Tutorial 2

Developing a Basic Web Site

Objectives

- Learn how to storyboard various Web site structures
- Create links among documents in a Web site
- Understand relative and absolute folder paths
- Work with the base element
- Mark a location with the id attribute
- Create a link to an id
- Mark an image as a link

Objectives

- Create an image map from an inline image
- Remove an image border
- Understand URLs
- Link to a site on the Web
- Link to an FTP site
- Link to an e-mail address
- Work with hypertext attributes
- Work with metadata

Working with Web Site Structures

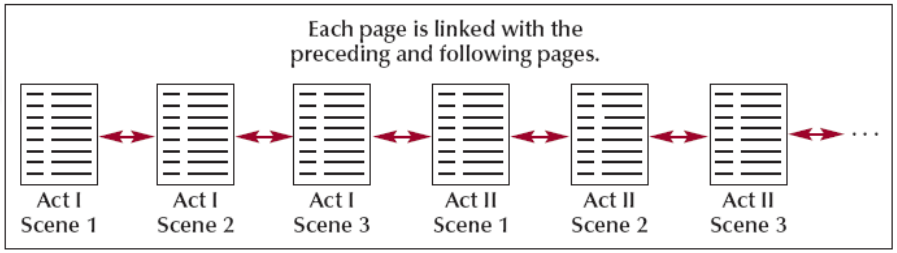
- A **storyboard** is a diagram of a Web site's structure, showing all the pages in the site and indicating how they are linked together
- It is important to **storyboard** your Web site before you start creating your pages in order to determine which structure works best for the type of information the site contains
- A well-designed structure can ensure that users will be able to navigate the site without getting lost or missing important information

Linear Structures

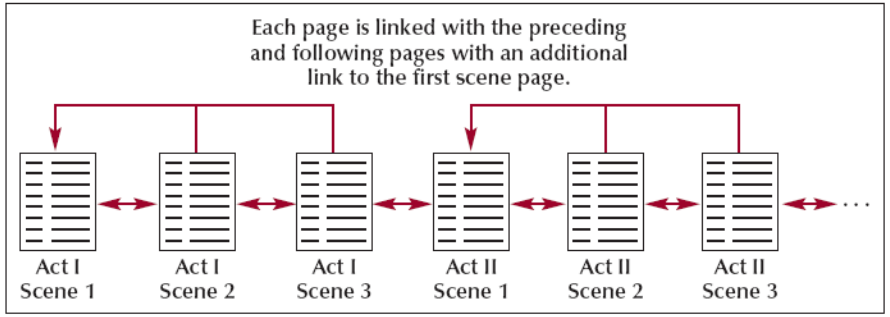
- In a **linear structure**, each page is linked with the pages that follow and precede it in an ordered chain
- **Linear structure** works best for Web pages with a clearly defined order
- In an **augmented linear structure**, each page contains an additional link back to an opening page

Linear Structures

A linear structure



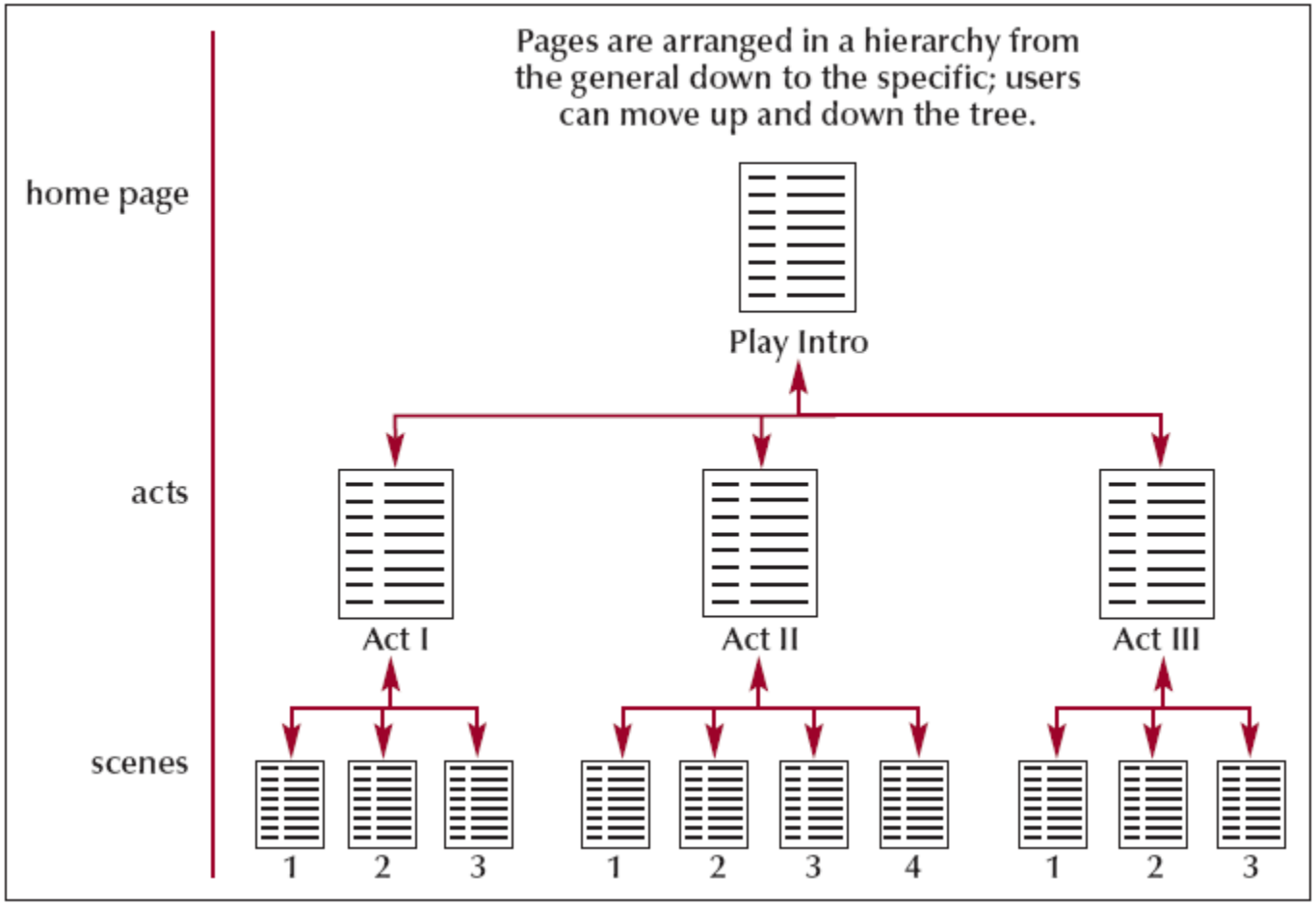
An augmented linear structure



Hierarchical Structures

- In the **hierarchical structure**, the pages are linked going from the home page down to more specific pages
- Users can easily move from general to specific and back again
- Within this structure, a user can move quickly to a specific scene within the page, bypassing the need to move through each scene in the play

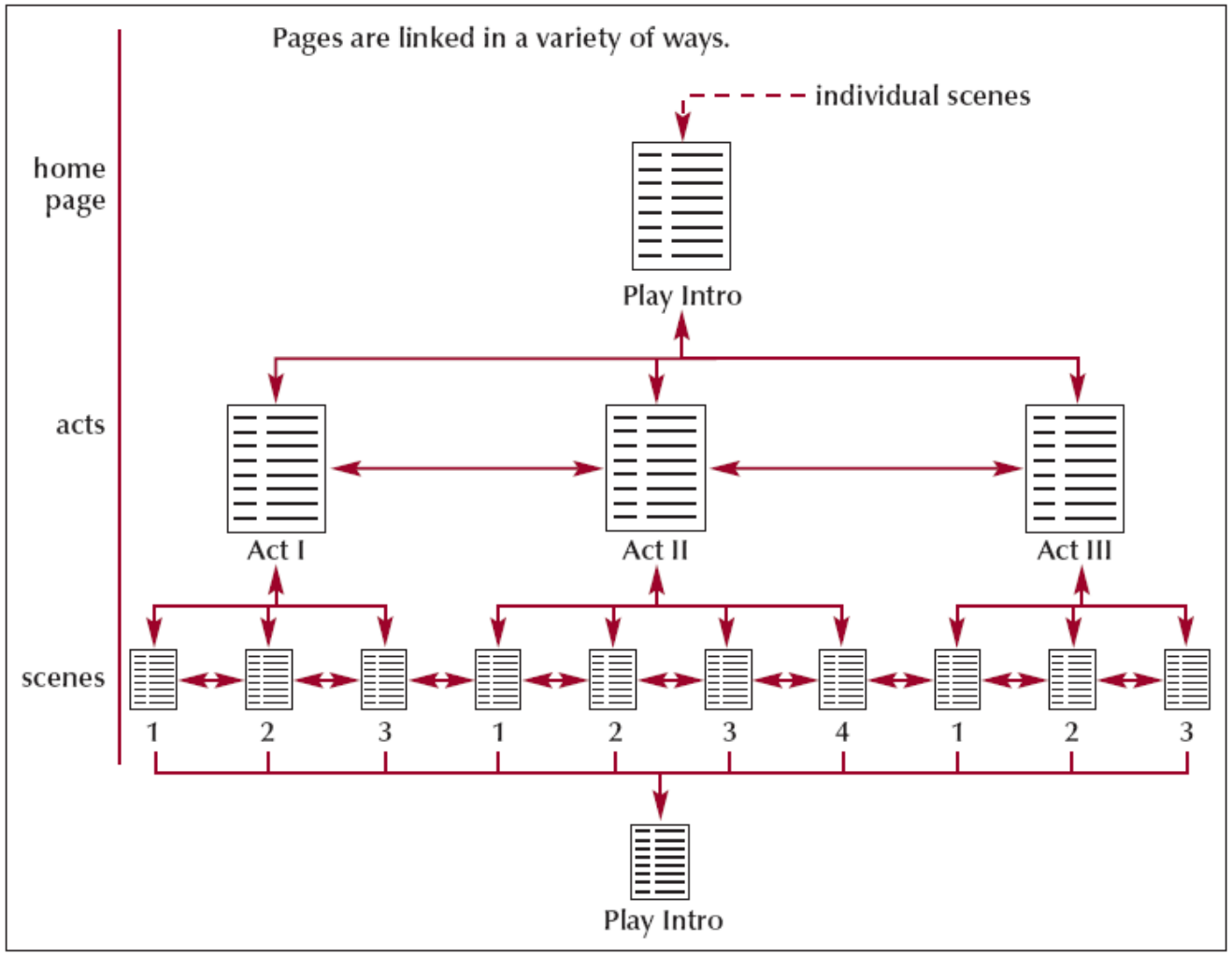
Hierarchical Structures



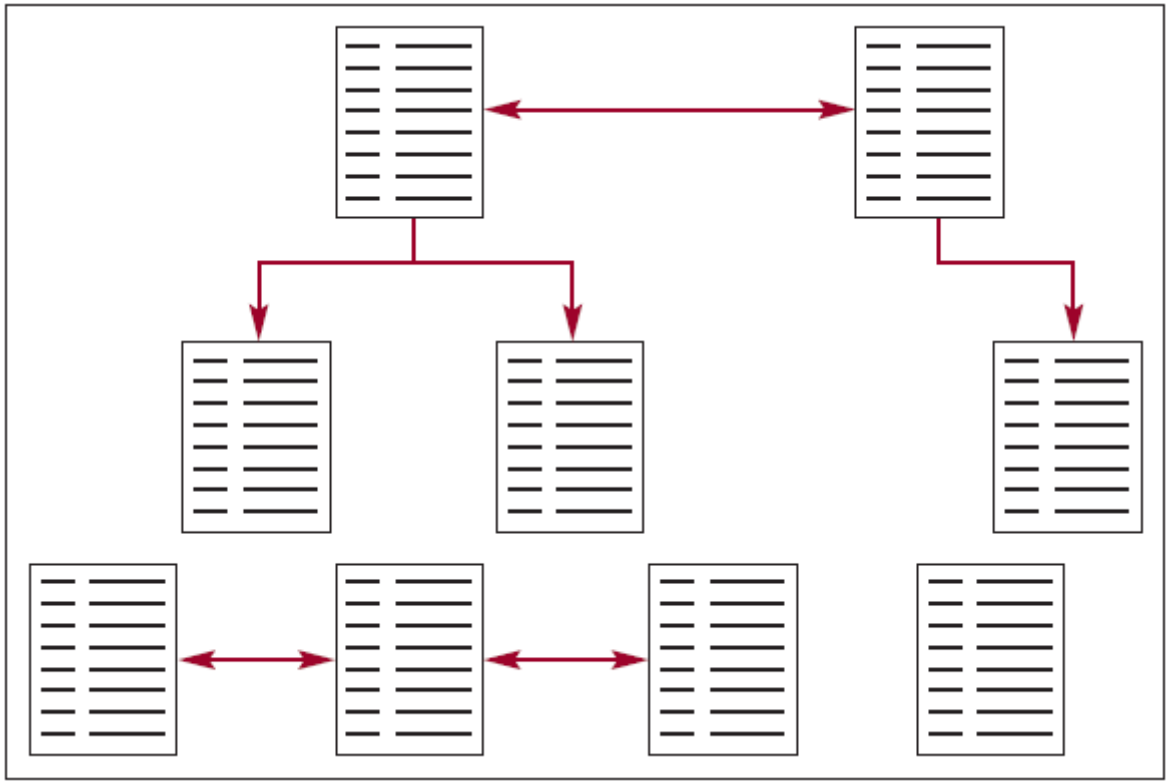
Mixed Structures

- As Web sites become larger and more complex, you often need to use a combination of several different structures
- The overall form can be **hierarchical**, allowing the user to move from general to specific; however, the links also allow users to move through the site in a **linear** fashion
- A **site index** is a page containing an outline of the entire site and its contents

Mixed Structures

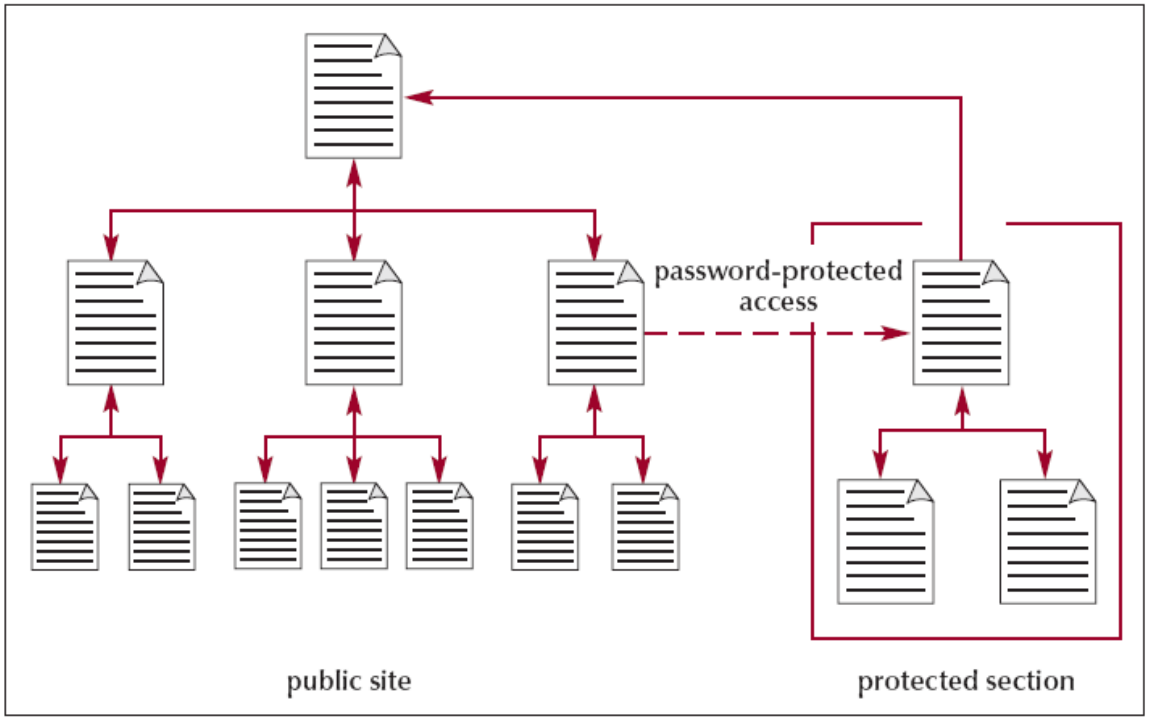


Web Site with No Coherent Structure

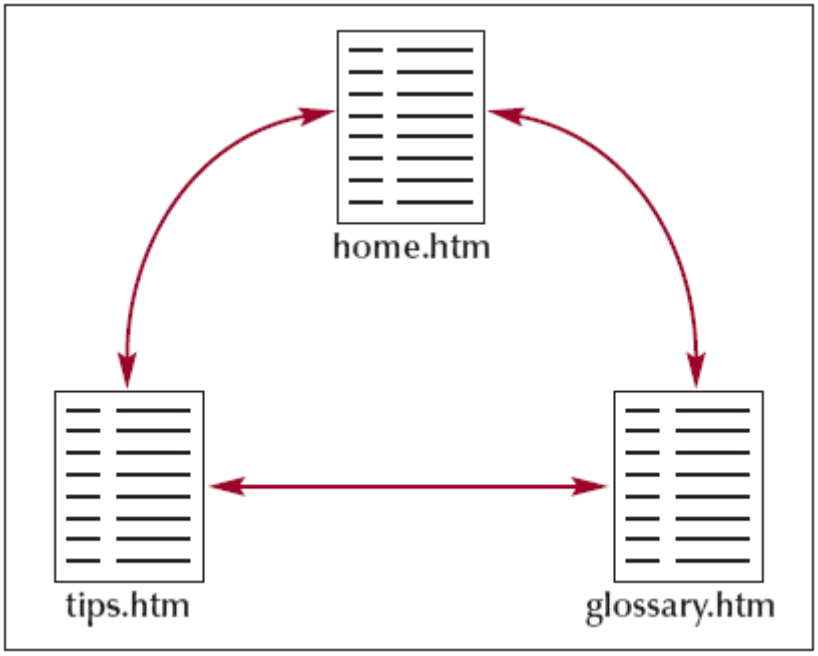


Protected Structures

- Sections of most commercial Web sites are off-limits except to subscribers and registered customers



Creating a Hypertext Link



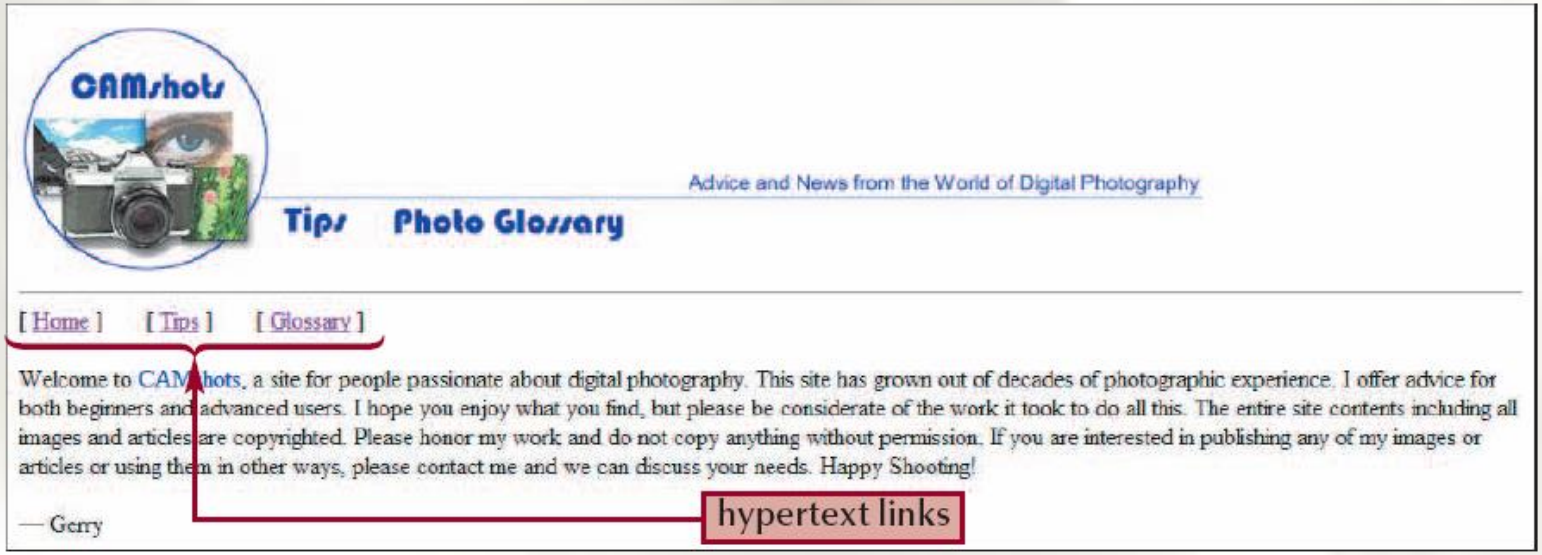
Creating a Hypertext Link

- To link to a page, you specify the name of the file using the href attribute of the <a> tag
- Filenames are case sensitive on some operating systems, including the UNIX and Macintosh, but not on others
- The current standard is to use lowercase filenames for all files on a Website and to avoid special characters such as blanks and slashes
- You should also keep filenames short to avoid typing errors

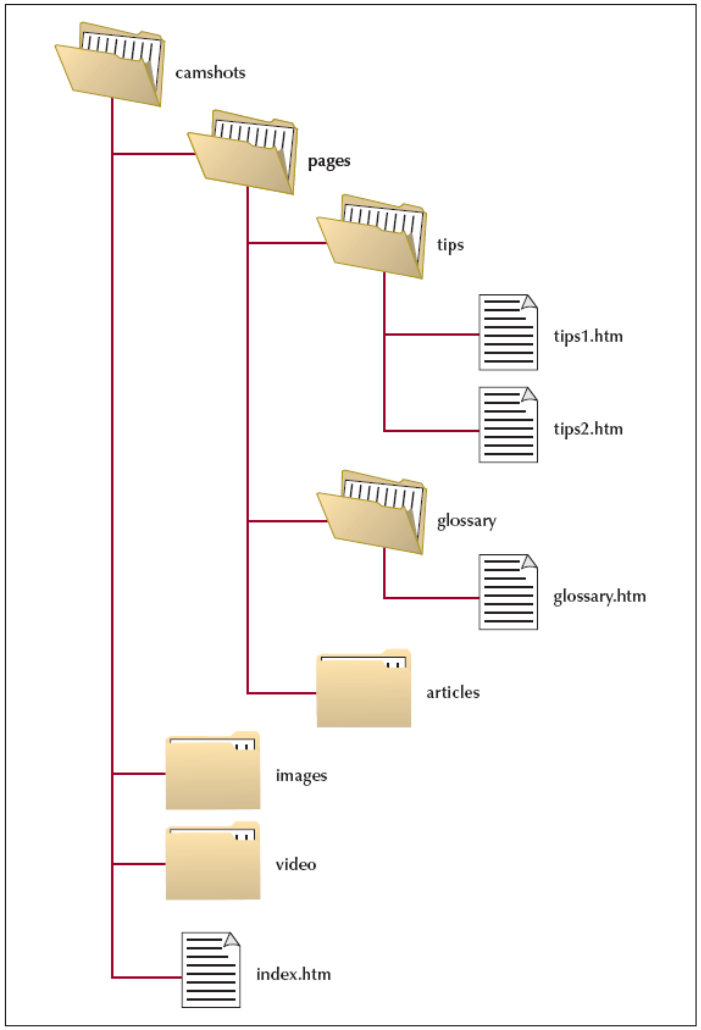
Creating a Hypertext Link

```
<body>
   <div>
      <img src="camshots.jpg" alt="CAMshots" />
   </div>
   <hr />

   <div>
      [ <a href="home.htm">Home</a> ]
           
      [ <a href="tips.htm">Tips</a>  ]
           
      [ <a href="glossary.htm">Glossary</a>  ]
   </div>
```



Specifying a Folder Path



Specifying a Folder Path

- To create a link to a file located in a different folder than the current document, you must specify the file's location, or **path**
- An **absolute path** specifies a file's precise location within a computer's entire folder structure
- A **relative path** specifies a file's location in relation to the location of the current document
- If the file is in the same location as the current document, you do not have to specify the folder name
- If the file is in a subfolder of the current document, you have to include the name of the subfolder

Specifying a Folder Path

- If you want to go one level up the folder tree, you start the **relative path** with a double period (..), a forward slash, and then provide the name of the file
- To specify a different folder on the same level, known as a **sibling folder**, you move up the folder tree using the double period (..) and then down the tree using the name of the **sibling folder**
- You should almost always use **relative paths** in your links

Specifying a Folder Path

Absolute Path	Interpretation
/camshots/pages/tips/tips1.htm	The tips1.htm file located in the pages/tips subfolder
/camshots/pages/tips/tips2.htm	The tips2.htm file located in the pages/tips subfolder
/camshots/pages/glossary/glossary.htm	The glossary.htm file located in the pages/glossary subfolder
/camshots/index.htm	The index.htm file located in the camshots folder

Relative Path from the /camshots/pages/tips Subfolder	Interpretation
tips1.htm	The tips1.htm file located in the current folder
tips2.htm	The tips2.htm file located in the current folder
../glossary/glossary.htm	The glossary.htm file located in the sibling glossary folder
../../index.htm	The index.htm file located in the parent camshots folder

Changing the Base

- The **base element** is useful when a document is moved to a new folder. Rather than rewriting all of the relative paths to reflect the document's new location, the base element can redirect browsers to the document's old location, allowing any relative paths to be resolved
- The **base element** is useful when you want to create a copy of a single page from a large Web site on another Web server

Using the id Attribute

- To jump to a specific location within a document, you first need to mark that location
- One way to identify elements in an HTML document is to use the **id attribute**
- **Id names** must be unique
- **Id names** are not case sensitive

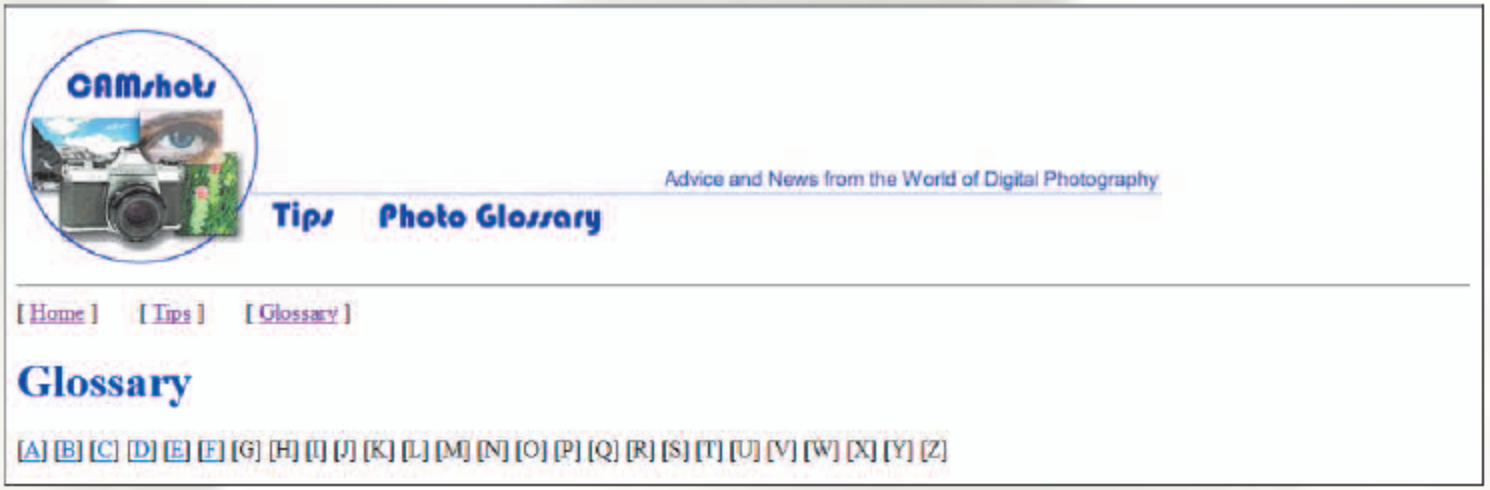
```
<hr />
<h2 id="A">A</h2>
<dl>
   <dt><b>Ambient Light</b></dt>
   <dd>The natural light in a scene.</dd>
   <dt><b>Aperture</b></dt>
   <dd>The maximum size of the hole through which light enters the camera.</dd>
   <dt><b>Artifact</b></dt>
   <dd>Unwanted distortions in an image caused by image compression.</dd>
   <dt><b>Aspect Ratio</b></dt>
   <dd>The ratio between the width and height of an image.</dd>
</dl>

<hr />
<h2 id="B">B</h2>
<dl>
   <dt><b>Bit</b></dt>
   <dd>The smallest unit of computer memory.</dd>
   <dt><b>Bitmap</b></dt>
   <dd>A method of storing information that maps an image pixel bit by bit.</dd>
   <dt><b>Byte</b></dt>
   <dd>A group of 8 bits, the basic unit of information for the computer.</dd>
</dl>
```

Linking to Locations within Documents

- To create a link within a document, you enclose the content that you want to format as a link in an <a> tag, and use the href attribute to identify the link target
- A link's content is not limited to text
- Generally, a link should not contain any block-level elements

Linking to Locations within Documents



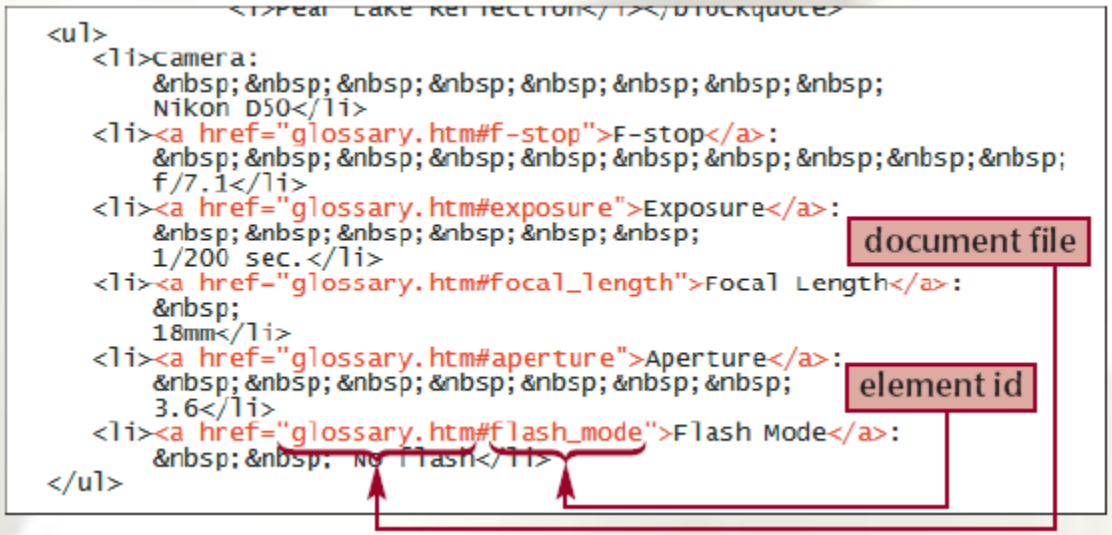
Creating Links between Documents

- To create a link to a specific location in another file, enter the code

```
<a href="reference#id">content</a>
```

where reference is a reference to an HTML or XHTML file and id is the id of an element marked within that file

Creating Links between Documents



Working with Linked Images and Image Maps

- A standard practice on the Web is to turn the Web site's logo into a hypertext link pointing to the home page

- HTML also allows you to divide an image into different zones, or **hotspots**, each linked to a different destination

Working with Linked Images and Image Maps

Working with Linked Images and Image Maps

- To define these hotspots, you create an **image map** that matches a specified region of the inline image to a specific destination
- To define these hotspots, you create an image map that matches a specified region of the inline image to a specific destination

Client-Side Image Maps

- A **client-side image map** is inserted in an image map into the HTML file
- The browser locally processes the image map
- Because all of the processing is done locally, you can easily test Web pages
- More responsive than server-side maps
- The browser's status bar displays the target of each hotspot
- Older browsers do not support client-side images

Defining Hotspots

- Define a hotspot using two properties:
  - Its location in the image
  - Its shape
- Syntax of the hotspot element:

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

Creating a Rectangular Hotspot

- Two points define a **rectangular hotspot**:
  - the upper-left corner
  - the lower-right corner
- A sample code for a **rectangular hotspot** is:

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

  - ***Coordinates*** are entered as a series of four numbers separated by commas
  - HTML expects that the first two numbers represent the coordinates for the upper-left corner of the rectangle, and the second two numbers indicate the location of the lower-right corner
  - The ***hotspot*** is a hypertext link to water.htm

Creating a Circular Hotspot

- A **circular hotspot** is defined by the location of its center and its radius
- A sample code for a **circular hotspot** is:

```
<area shape="circle" coords="307,137,66"
  href="karts.htm">
```

  - ***Coordinates*** are (307, 137), and it has a radius of 66 pixels
  - The ***hotspot*** is a hypertext link to karts.htm

Creating a Polygonal Hotspot

- To create a polygonal hotspot, you enter the coordinates for each vertex in the shape
- A sample code for a **polygonal hotspot** is:

```
<area shape="polygon"
  coords="13,60,13,270,370,270,370,225,230,225,
  230,60" href="rides.htm">
```

  - ***Coordinates*** are for each vertex in the shape
  - The ***hotspot*** is a hypertext link to rides.htm

Creating a Default Hotspot

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

  where x is the width of the inline image in pixels and y is the image's height
- Any spot that is not covered by another hotspot will activate the default hotspot link

Creating a Client-Side Image Map

Creating a Client-Side Image Map

- To create a client-side image map, insert the map element

```
<map name="map" id="map">
  hotspots
</map>
```

anywhere within the Web page body, where *map* is the name and id of the image map and *hotspots* is a list of hotspot areas defined within the image map.

- To add a hotspot to the image map, place the element

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

within the map element, where *shape* is the shape of the hotspot region, *coordinates* are the list of points that define the boundaries of the region, *reference* is the file or location that the hotspot is linked to, and *text* is alternate text displayed for nongraphical browsers.

- To define a rectangular-shaped hotspot, use the area element

```
<area shape="rect" coords="x1, y1, x2, y2" ... />
```

where x1, y1 are the coordinates of the upper-left corner of the rectangle and x2, y2 are the coordinates of the rectangle's lower-right corner.

- To define a circular hotspot, use

```
<area shape="circle" coords="x, y, r" ... />
```

where *x* and *y* are the coordinates of the center of the circle and *r* is the circle's radius.

- To define a polygonal hotspot, use

```
<area shape="poly" coords="x1, y1, x2, y2, x3, y3, ..." ... />
```

where (*x1*, *y1*), (*x2*, *y2*), (*x3*, *y3*), and so forth define the coordinates of each corner in the multisided shape.

- To define the default hotspot, use

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

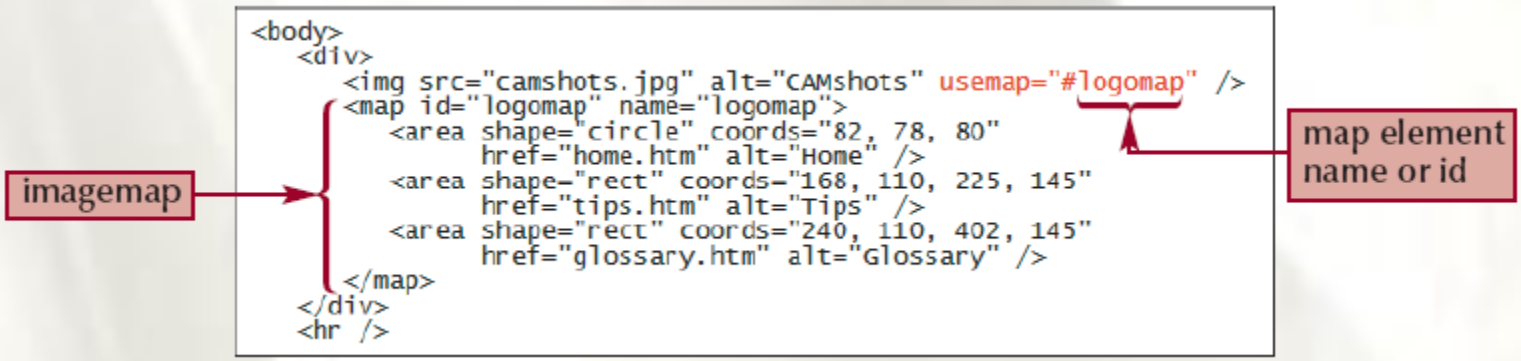
where *x* is the width of the inline image in pixels and *y* is the height in pixels.

- To apply an image map to an inline image, add the usemap attribute

```
<img src="file" alt="text" usemap="#map" />
```

to the img element, where *map* is the name or id of the map element.

Applying an Image Map



Server-Side Image Maps

- In a **server-side image map**, the image map is stored on the Web server
- Server-side image maps are supported by most graphical browsers
- Server-side image maps can be slow to operate
- The browser's status bar does not display the target of each hotspot

Introducing URLs

- To create a link to a resource on the Internet, you need to know its **URL**
- A **Uniform Resource Locator (URL)** specifies the precise location of a resource on the Internet
- A **protocol** is a set of rules defining how information is exchanged between two resources

Introducing URLs

- Your Web browser communicates with Web servers using the **Hypertext Transfer Protocol (HTTP)**
- The **URLs** for all Web pages must start with the scheme “http”
- Other Internet resources use different **protocols** and have different scheme names

Internet Protocols

Protocol	Used To
file	access documents stored locally on a user's computer
ftp	access documents stored on an FTP server
gopher	access documents stored on a gopher server
http	access Web pages stored on the World Wide Web
https	access Web pages over a secure encrypted connection
mailto	open a user's e-mail client and address a new message
news	connect to a Usenet newsgroup
telnet	open a telnet connection to a specific server
wais	connect to a Wide Area Information Server database

Linking to a Web Site

A sample URL for a Web page

Linking to a Web Site

- If a **URL** includes no path, then it indicates the topmost folder in the server's directory tree
- If a **URL** does not specify a filename, the server searches for the default home page
- The server name portion of the URL is also called the **domain name**
- The top level, called an **extension**, indicates the general audience supported by the Web server

```
<a href="http://www.apogeephoto.com">Apogee Photo</a>
```

Linking to a Web Site

```
<h2 style="color: blue">Photography Sites on the Web</h2>
<p>The Web is an excellent resource for articles on photography and digital cameras.
   Here are a few of my favorites.</p>
<dl>
   <dt>&#9758; <a href="http://www.apogeephoto.com">Apogee Photo</a></dt>
   <dd>An established online photography magazine with articles by top pros,
       discussion forums, workshops, and more.</dd>
   <dt>&#9758; <a href="http://www.outdoorphotographer.com">Outdoor Photographer</a></dt>
   <dd>The premier magazine for outdoor photography. The site includes extensive tips
       on photographing wildlife, action sports,
       scenic vistas, and travel sites.</dd>
   <dt>&#9758; <a href="http://www.pcphotomag.com">PCPhoto</a></dt>
   <dd>An excellent site for novices and professionals with informative reviews and
       buying guides for the latest equipment and software.</dd>
   <dt>&#9758; <a href="http://www.popphoto.com">Popular Photography and Imaging</a></dt>
   <dd>A useful and informative site with articles from the long-established
       magazine of professional and amateur photographers.</dd>
</dl>
```

Photography Sites on the Web

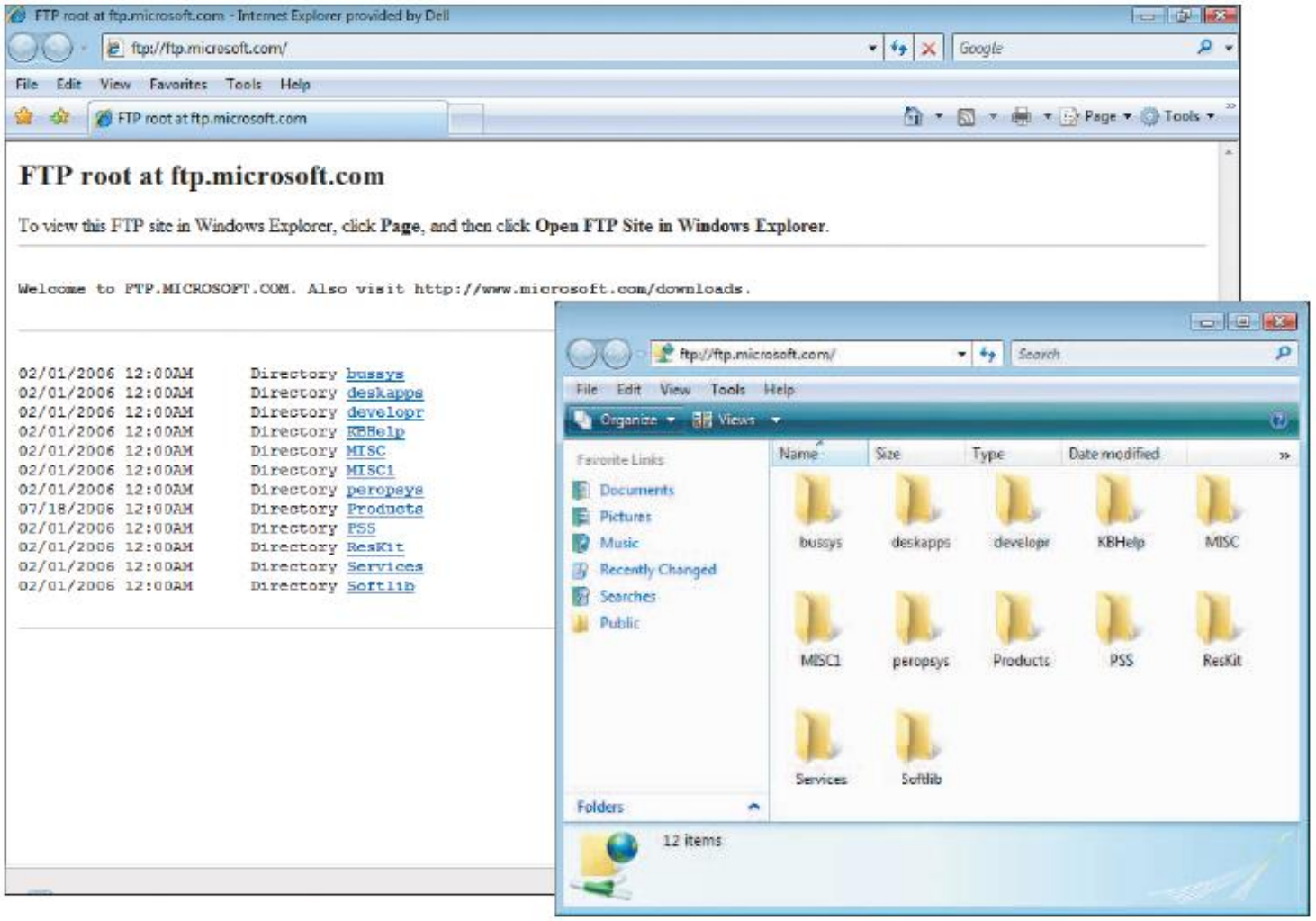
The Web is an excellent resource for articles on photography and digital cameras. Here are a few of my favorites.

- Apogee Photo
  An established online photography magazine with articles by top pros, discussion forums, workshops, and more.
- Outdoor Photographer
  The premier magazine for outdoor photography. The site includes extensive tips on photographing wildlife, action sports, scenic vistas, and travel sites.
- PCPhoto
  An excellent site for novices and professionals with informative reviews and buying guides for the latest equipment and software.
- Popular Photography and Imaging
  A useful and informative site with articles from the long-established magazine of professional and amateur photographers.

Linking to FTP Servers

- **FTP servers** are another method of storing and sharing files on the Internet
- FTP servers transfer information using a communications protocol called **File Transfer Protocol**, or **FTP** for short
- An FTP server requires each user to enter a password and a username to access its files

Linking to FTP Servers



Linking to a Local File

- On occasion, you may see the URL for a file stored locally on your computer or local area network
- If you are accessing a file from your own computer, the server name might be omitted and replaced by an extra slash (/)
- The file scheme here does not imply any particular communication protocol; instead the browser retrieves the document using whatever method is the local standard for the type of file specified in the URL

Linking to an E-Mail Address

- Many Web sites use e-mail to allow users to communicate with a site's owner, sales representative, or technical support staff
- You can turn an e-mail address into a hypertext link, so that when a user clicks on an address, the browser starts an e-mail program and automatically inserts the address into the "To" field of the new outgoing message

Linking to an E-Mail Address

- The mailto protocol also allows you to add information to the e-mail, including the subject line and the text of the message
  - `mailto:address?header1=value1&header2=value2& ...`
  - `mailto:ghayward@camshotscom?Subject=Test&Body=This%20is%20a%20test%20message`
- To preserve information about blank spaces, URLs use **escape characters**

Linking to an E-Mail Address

Escape Character Code	Character	Escape Character Code	Character
%20	space	%5B	[
%0D%0A	new line	%5D	]
%3C	<	%60	`
%3E	>	%3B	;
%23	#	%2F	/
%25	%	%3F	?
%7B	{	%3A	:
%7D	}	%40	@
%7C	|	%3D	=
%5C	\	%26	&
%5E	^	%24	$
%7E	~		

Linking to an E-Mail Address

- If you need to include an e-mail address in your Web page, you can take a few steps to reduce problems with spam:
  - Replace all e-mail addresses in your page with inline images of those addresses
  - Write a program in a language JavaScript to scramble any e-mail address in the HTML code
  - Replace the characters of the e-mail address with character codes
  - Replace characters with words in your Web page's text

Linking to an E-Mail Address

Linking to Various Interent Resources

- The URL for a Web page has the form
  `http://server/path/filename#id`
  where *server* is the name of the Web server, *path* is the path to a file on that server, *filename* is the name of the file, and if necessary *id* is the name of an id or anchor within the file.
- The URL for an FTP site has the form
  `ftp://server/path/filename`
  where *server* is the name of the FTP server, *path* is the folder path, and *filename* is the name of the file.
- The URL for an e-mail address has the form
  `mailto:address?header1=value1&header2=value2& ...`
  where *address* is the e-mail address; *header1*, *header2*, etc. are different e-mail headers; and *value1*, *value2*, and so on are the values of the headers.
- The URL to reference a local file has the form
  `file://server/path/filename`
  where *server* is the name of the local server or computer, *path* is the path to the file on that server, and *filename* is the name of the file. If you are accessing a file on your own computer, the server name is replaced by a third slash (/).

Working with Hypertext Attributes

- HTML provides several attributes to control the behavior and appearance of your links
- You can force a document to appear in a secondary window or tab by adding the **target attribute** to the tag <a> tag
- If you want to provide additional information to your users, you can provide a **tooltip** to your links
- A **tooltip** is a descriptive text that appears whenever a user positions the mouse pointer over a link

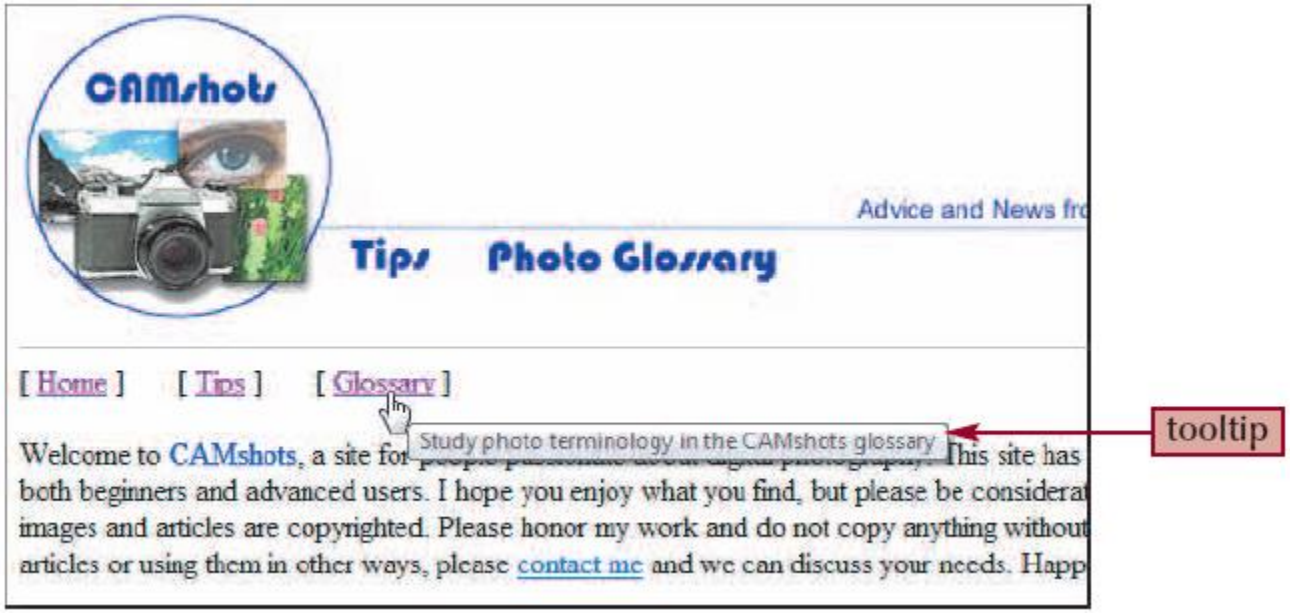
Working with Hypertext Attributes

Target Name	Description
target	Opens the link in a new window or tab named *target*
_blank	Opens the link in a new, unnamed window or tab
_self	Opens the link in the current browser window or tab

Opening a Link in a New Window or Tab

- To open a link in a new browser window or browser tab, add the attribute
  `target="window"`
  to the <a> tag, where *window* is a name assigned to the new browser window or tab.

Working with Hypertext Attributes



Creating a Semantic Link

- Two attributes, **rel** and **rev**, allow you to specify the relationship between a link and its destination
- The **rel** attribute describes the content of the destination document
- The **rev** attribute complements the **rel** attribute by describing the contents of the source document as viewed from the destination document's perspective

Creating a Semantic Link

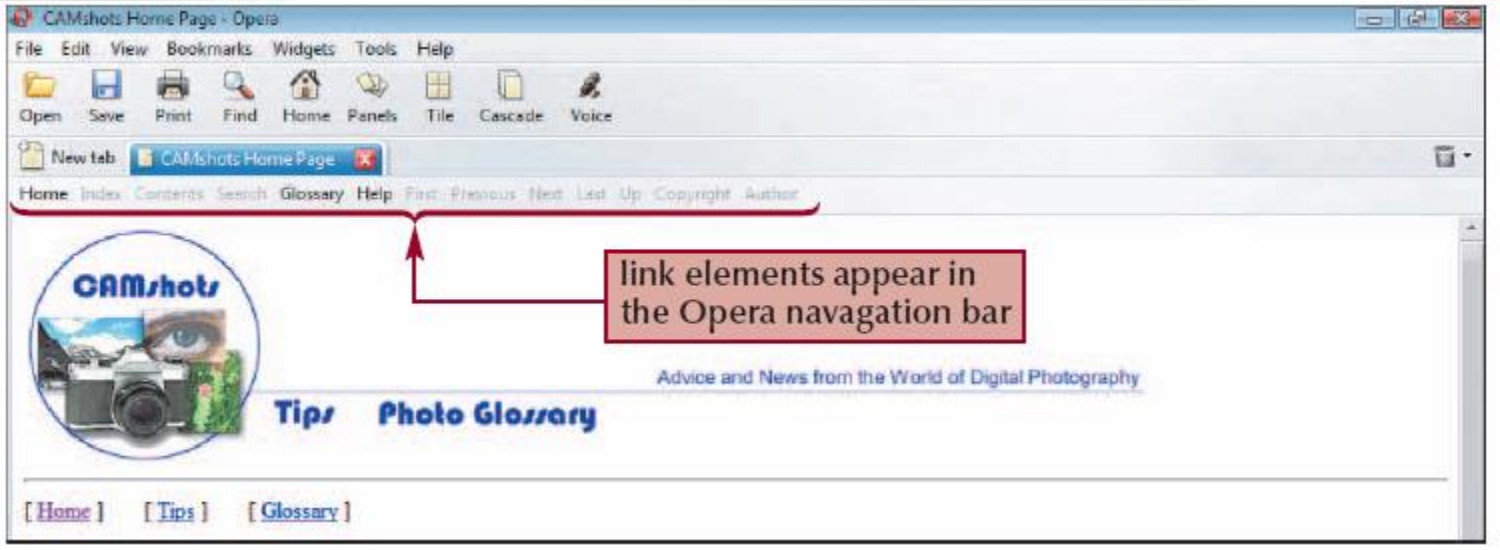
- Links containing the **rel** and **rev** attributes are called **semantic links** because the tag contains information about the relationship between the link and its destination
- A browser can use the information that these attributes provide in many ways—for example to build a custom toolbar containing a list of links specific to the page being viewed

Creating a Semantic Link

Link Relation	Description
alternate	A substitute version of the current document, perhaps in a different language or in a different medium
appendix	An appendix
bookmark	A bookmark in a collection of documents
chapter	A document serving as a chapter in a collection of documents
contents	A table of contents
copyright	A copyright statement
glossary	A glossary
help	A help document
index	An index
next	The next document in a linear sequence of documents
prev	The previous document in a linear sequence of documents
section	A document serving as a section in a collection of documents
start	The first document in a collection of documents
top	The Web site's home page
stylesheet	An external style sheet
subsection	A document serving as a subsection in a collection of documents

Using the Link Element

- Another way to add a link to your document is to add a **link element** to the document's head
- **Link elements** are intended only for the browser's use
- **Link elements** have primarily been used to link style sheets
- Because no single list of relationship names is widely accepted, you must check with each browser's documentation to find out what relationship names it supports



Working with Metadata

- Web authors often turn to companies that specialize in making sites appear more prominently in search engines
- Information about the site is called **metadata**
- Add metadata to your Web pages by adding a meta element to the head section of the document

```
<meta name="text" content="text" scheme="text"
                  http-equiv="text" />
```

Working with Metadata

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="&copy; 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

- In recent years, search engines have become more sophisticated in evaluating Web sites
  - The meta element has decreased in importance, but it is still used by search engines when adding a site to their indexes

Working with Metadata

- To document the contents of your Web page, use the meta element

```
<meta name="text" content="text" />
```

where the name attribute specifies the type of metadata and the content attribute stores the metadata value.

- To add metadata or a command to the communication stream between the Web server and Web browser, use

```
<meta http-equiv="text" content="text" />
```

where the http-equiv attribute specifies the type of data or command attached to the communication stream and the content attribute specifies the data value or command.

Working with Metadata

- You can add information and commands to this communication stream with the meta element's http-equiv attribute
  - Force the Web browser to refresh the Web page at timed intervals

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

  - Redirect the browser from the current document to a new document

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

  - Specify the character set

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

Tutorial Summary

- Create a Web site with several linked pages
- Storyboarding and complex Web structures
- Creating Web pages linked together
- Links to locations within documents and from another document
- Inline images and image maps
- Create links to sites and to non-Web locations
- Different hypertext attributes
- Meta element