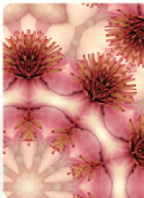


HTML and XHTML  
2nd Edition

## Tutorial 2

### Developing a Basic Web Site



New Perspectives on HTML and XHTML, Comprehensive

## 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

New Perspectives on HTML and XHTML, Comprehensive

## 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

New Perspectives on HTML and XHTML, Comprehensive

## 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

New Perspectives on HTML and XHTML, Comprehensive


## 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

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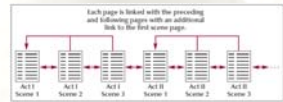
## Linear Structures

A linear structure



Each page is linked with the preceding and following pages

An augmented linear structure



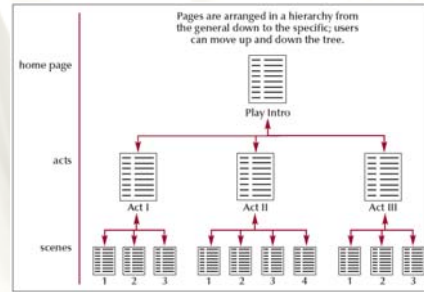
Each page is linked with the preceding and following pages with an additional link to the first or over page

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## 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

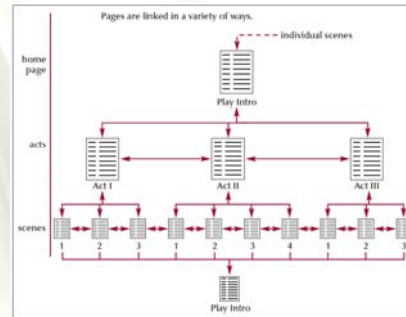
## Hierarchical Structures



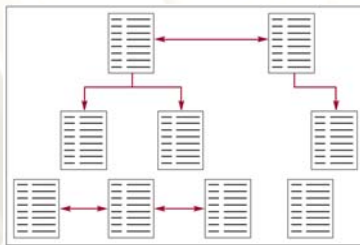
## Mixed Structures

- 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

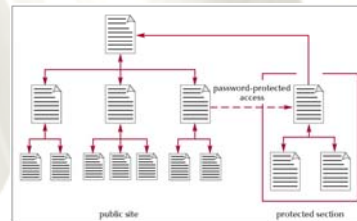


## Web Site with No Coherent Structure



## Protected Structures

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





## 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

```

<h1>Using the id Attribute</h1>
<h2>Using the id Attribute</h2>
<h3>Using the id Attribute</h3>
<h4>Using the id Attribute</h4>
<h5>Using the id Attribute</h5>
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<h99>Using the id Attribute</h99>
<h100>Using the id Attribute</h100>
    
```

## Lining 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

## Lining 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

```
<a href="document1.htm">
  
</a>
```

document file

```

```

element id

## 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  
`<a href="reference"></a>`
- 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">
```

```
</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 multiaided 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  

```

```

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

### Applying an Image Map

```
<body>
```

```

```

```
<map for "topomap" name="topomap">
```

```
<area shape="rect" coords="100, 100, 200, 200" href="cactus.htm" alt="Cactus" />
```

```
<area shape="rect" coords="200, 100, 300, 200" href="cactus.htm" alt="Cactus" />
```

```
</map>
```

```
</body>
```

Diagram labels: **imgmap** points to the `<img>` tag, and **map element name or id** points to the `#topomap` attribute.

## 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
waits	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 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 Internet 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                                               |
|---------------------|-----------------------------------------------------------|
| <code>target</code> | Opens the link in a new window or tab named <i>target</i> |
| <code>_blank</code> | Opens the link in a new, unnamed window or tab            |
| <code>_self</code>  | 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

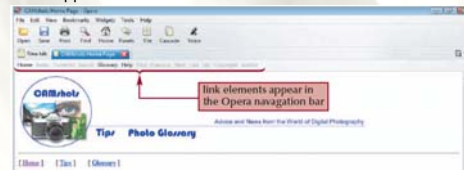
- Links containing the **rel** and **rev** attributes are called **semantic links** because the tag contains information about the relationship between the link and its destination
- A browser can use the information that these attributes provide in many ways—for example to build a custom toolbar containing 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         | <code>&lt;meta name="author" content="Geary, Hayward" /&gt;</code>                        | Supplies the name of the document author                                      |
| classification | <code>&lt;meta name="classification" content="photography" /&gt;</code>                   | Classifies the document                                                       |
| copyright      | <code>&lt;meta name="copyright" content="copy 2011 CMabotca" /&gt;</code>                 | Provides a copyright statement                                                |
| description    | <code>&lt;meta name="description" content="Digital photography and advice" /&gt;</code>   | Provides a description of the document                                        |
| generator      | <code>&lt;meta name="generator" content="Dreamweaver" /&gt;</code>                        | Indicates the name of the program that created the HTML code for the document |
| keywords       | <code>&lt;meta name="keywords" content="photography, cameras, digital" /&gt;</code>       | Provides a list of keywords describing the document                           |
| owner          | <code>&lt;meta name="owner" content="CMabotca" /&gt;</code>                               | Indicates the owner of the document                                           |
| rating         | <code>&lt;meta name="rating" content="general" /&gt;</code>                               | Provides a rating of the document in terms of its suitability for minors      |
| reply-to       | <code>&lt;meta name="reply-to" content="ghayward@camabotca.com (G. Hayward)" /&gt;</code> | 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