

## Images and Hyperlinks

CSE/ISE 102: Introduction to Web Design (Section 02)  
Stony Brook University

## Images

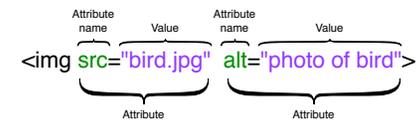
## Empty Elements

- An empty or *void* element has no text content; it just directs the browser to do something
- General syntax:  

```
<element-name>
```
- We can use *attributes* to modify the element
- Examples: `<img>` (image elements) and `<br>` (line breaks)

## Attributes

- Attributes are used to clarify or modify an element
- they specify how it should be processed or displayed
- e.g., the name of the image file to load (or its URL)



The diagram shows the HTML code ``. Brackets are used to identify the components: the word `img` is labeled as the 'Attribute name'. The `src="bird.jpg"` pair is labeled as an 'Attribute', with `src` as the 'Attribute name' and `"bird.jpg"` as the 'Value'. Similarly, the `alt="photo of bird"` pair is labeled as an 'Attribute', with `alt` as the 'Attribute name' and `"photo of bird"` as the 'Value'.

- Attribute names and values are separated by an equals sign (=)
- Multiple attributes are separated by a space

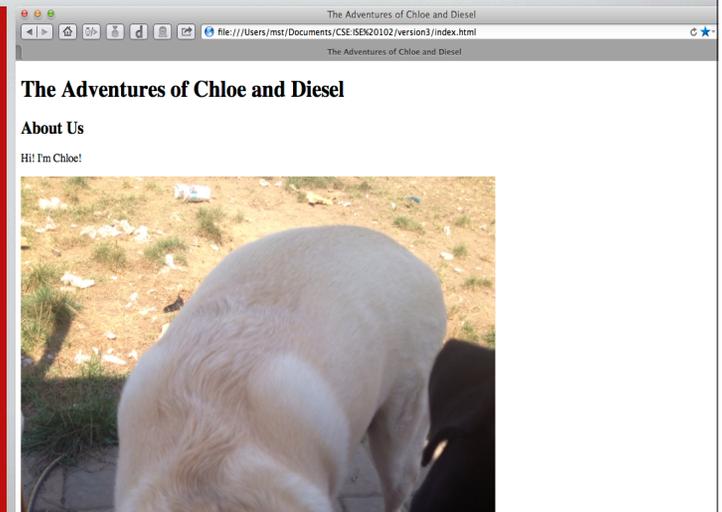
## More on Attributes

- In non-empty elements, attributes **ONLY** go in the opening tag
- A value may be a number, a word, a string of text, a URL, or a measurement
- Some attributes are required (e.g., `src` in `<img>` tags)
- Attribute names are defined in the HTML specification
  - you can't make up or rename attributes

## Using Image Tags

- The `<img>` tag has two required attributes:
  - `src` — the path to the image file to be loaded
  - `alt` — alternate text to show if the image cannot be displayed
- Ideally, images should be placed in a subdirectory of your site to keep your files organized

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <meta charset="utf-8">
5 <title>The Adventures of Chloe and Diesel</title>
6 </head>
7
8 <body>
9 <h1>The Adventures of Chloe and Diesel</h1>
10
11 <h2>About Us</h2>
12
13 <p>Hi! I'm Chloe!</p>
14
15 
16
17 <p>That probably isn't the best picture of me. Here's a better one:</p>
18
19 
20
21 <p>I'm a Lab mix who loves to meet new people, go on car rides, and get lots of petting. I live with my Mommy and my brother Diesel!</p>
22
23 
24
25 <p>He's a hound mix who loves to hunt R-A-B-B-I-T-S. I have to spell it out so he doesn't hear and go crazy. We love to go to the dog park, and we have lots of friends there. I'll tell you about them later.</p>
26
27 <p>Diesel and I also live with a bunch of foster puppies. Mommy is taking care of them until they find their forever homes. Please consider adopting one of them, so they will stop stealing my toys!</p>
28
29 <h2>The Foster Puppies</h2>
30
31 <p>Our Mommy works with a rescue group named Posh Pets. Right now, Mommy has five foster puppies who are looking for good homes. They are:</p>
32
33 <ul>
34 <li>Tiffany</li>
35 <li>Bru</li>
36 <li>Guinness</li>
37 <li>Pollo</li>
38 </ul>
39
40 </body>
41 </html>
```

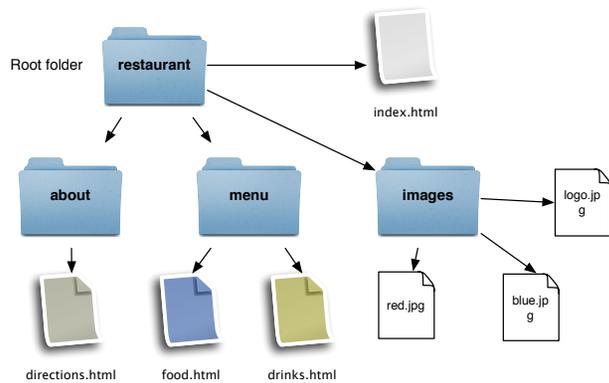


## Adjusting Image Size

- The browser will automatically determine the size of each image before displaying it
- Use the `width` and `height` attributes (with pixel values) to tell the browser how big each image is
  - this makes it easier to start laying out the page
- These attributes can also be used to (crudely) scale an image
  - don't do this if you can avoid it; resize the image in a separate application first
- ``

## Locating Images

- We can specify the location of an image file (or any resource) in one of two ways:
  - *relative addressing* tells us where the file is located relative to the current page
    - if we move the current document, the relative address can change!
  - *absolute addressing* gives us a non-changing address for the file/resource
    - works regardless of where we place or move the current document
- Either way, we use `/` and `..` to move between folders/directories
  - `..` refers to the parent folder
  - `/` indicates a subfolder (e.g., `myFolder/documents/index.html`)



## Path Addressing Examples

- Loading an image from `index.html`:
  - Refer to a file in the "images" subfolder
    - ``
- Loading an image from `food.html`:
  - Need to go up to parent folder first, and then down into the "images" folder
    - ``
- These are still relative paths
  - if we move files, the relative paths will all have to change

## Absolute Paths

- Absolute paths begin with a forward slash (/) indicating the root of the Web site
- List the complete series of subfolders that you need to pass through in order to reach the desired file
- e.g., ``
- As long as the resource itself doesn't move, you can move the current document relative to it without breaking the link

## Image File Formats

Use JPEG for photos and complex graphics	Use PNG or GIF for images with solid colors, logos, and geometric shapes	
Works best for photographs	Works best for images with a few solid colors and images with lines	
Up to 16 million colors	PNG supports millions of different colors	GIF: limited to 256 colors
"Lossy" image compression	Lossless, but compresses files	Lossless
No transparency	Allows multiple transparent colors	Allows a single transparent color
No animation support	Animation through unsupported APNG format	Support for animations

## Hyperlinks

## Weaving a (Tangled) Web

- The Web wouldn't be the Web without hyperlinks
- Fortunately, hyperlinks are easy to add
  - Just use the `<a>` (anchor) element
  - Note: `<a>` is an inline element

## The href Attribute

- The `href` (hypertext reference) attribute specifies the link destination
- When the link is clicked, this determines where the browser goes next
- `href` can point to a Web page or a file (e.g., an image or a video file)
- This attribute's value must ALWAYS be placed in quotes
- URLs can be specified in two ways: absolute URLs or relative URLs

## Absolute vs. Relative URLs

- **Absolute URLs** provide the full URL for a document, including the protocol (`http://`), the domain name, and the pathname
  - e.g., `href="http://www.oreilly.com"`
  - You **must** use absolute URLs for links to pages that are not part of your Web site
- **Relative URLs** give the pathname to a file relative to the current document
  - Relative URLs omit the protocol and domain name
  - e.g., `href="recipes/index.html"`
  - You can only use relative URLs for links to pages that are on the same server

## Linking to Pages on the Web

Attribute name      Value/URL      Link text      Closing tag

```
<a href="http://www.cnn.com">CNN News</a>
```

Attribute

## Linking Within Your Own Site

- This is just like linking to a page on the Web
- Use absolute or relative URLs for internal links
  - refer back to the "Images" slides for a refresher on relative addressing...

## Linking Within a Page

- This is almost as easy as linking to a page in general
- Start by adding an `id` (identifier) attribute to the desired location
  - e.g., `<h1 id="favorites">Favorite Recipes</h1>`
- Use `#` and the identifier name to link to the specified page location
  - e.g., `<a href="#favorites">Back to my favorite recipes</a>`
- To link to a location in another document, add the document URL before the `#` and identifier
  - e.g., `<a href="glossary.html#x">Words starting with X</a>`

## Targeting a New Browser Window

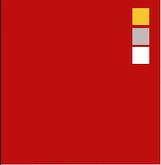
- Use the `target` attribute to specify a new destination window for a link
  - Use `"_blank"` to always open a new window
    - e.g., `<a href="..." target="_blank">link text</a>`
  - Reuse a name to open multiple links in that window
    - e.g., `<a href="..." target="display">link text</a>`
- Note: with the advent of tabbed browsing, this is no longer as necessary or useful as it once was

## Mail Links

- The *mailto* protocol turns a link into a new mail message
  - e.g., `<a href="mailto:foo@bar.com">E-mail me!</a>`
- Warning! Putting complete e-mail addresses in your HTML source can attract spambots
  - Solution 1: Post a "deconstructed" address on your page instead for viewers to reassemble
    - e.g., `jsmith AT foo DOT com`
  - Solution 2: Use a Javascript encoder to encrypt the address
    - e.g., `hiveLogic.com/enkoder/` features a tool to do this for you

## Telephone Links

- Many mobile phone browsers support the *tel* protocol for telephone numbers
  - Users can tap the link to call the associated phone number
    - e.g., `<a href="tel:+18005551212">Call us toll-free</a>`
  - In case the link doesn't work, include the phone number somewhere in the page text as well
  - To be on the safe side, include the full international dialing number for the link
  - See the Robbins book (page 120) for tips on turning off automatic number detection on Android, iPhone, and Blackberry



## Next Time

■ Table Markup

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