



Ch 4: Marking Up with HTML

- Learning to speak the language of web pages: HTML
- Tags and attributes
- Handling images

Recall: Client/Server structure for the Web

- *Server* is the computer that stores web pages
- *Client* is the computer that asks to get a web page
- When you click a link in a web browser program, your computer enters client/server relationship with web server

What's in a Web Page: HTML

- A web server stores many web pages, and may also create custom pages 'on the fly' in response to client requests
- A web page on the server consists of a set of instructions for how to display the page
- The instructions are written in Hypertext Markup language: HTML
- When the client browser receives a page from the server, it uses those HTML instructions to display the page

HTML

- *Hypertext Markup Language (HTML)*
- *Markup* describes the layout of a document
 - Margin width
 - Font
 - Text style
 - Image placement
 - Etc.
- *Hypertext* provides a way to jump from point to point across documents (non-linear)
- Combination of hypertext with markup language lets us build nonlinear documents for the dynamic and interconnected Web

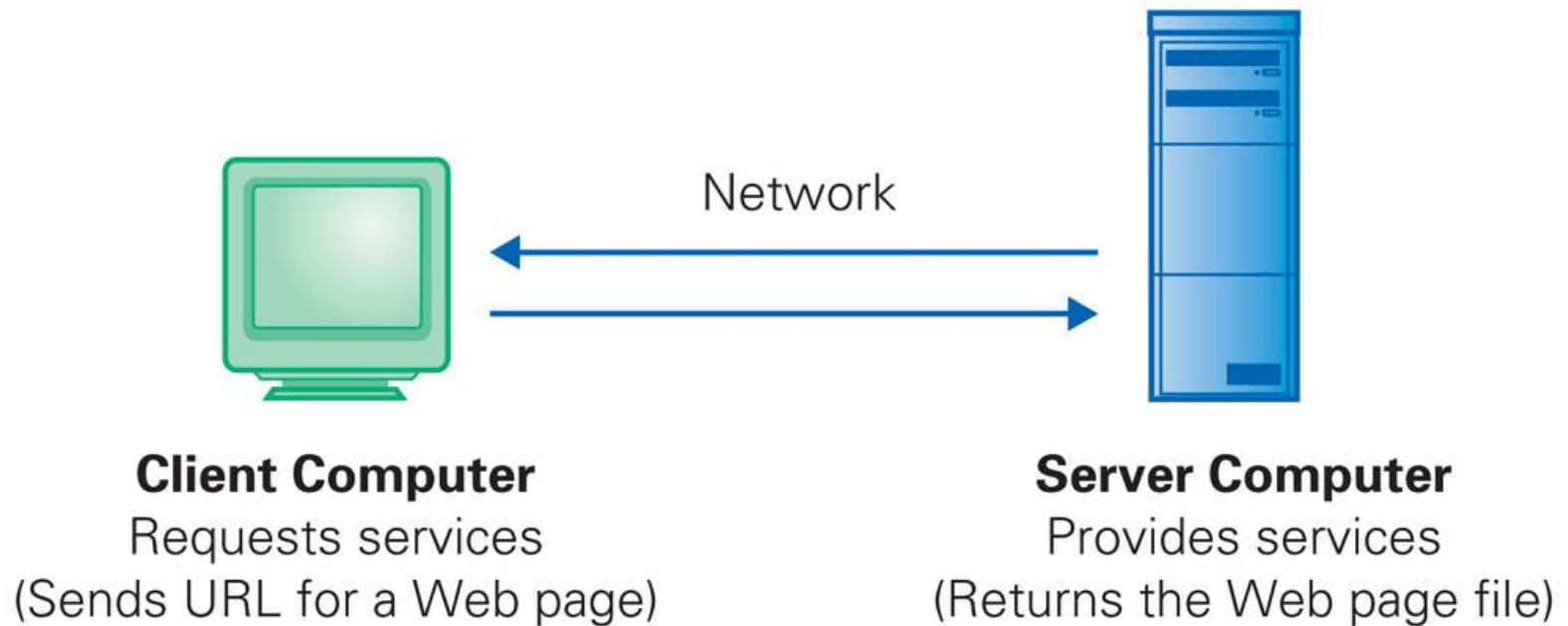


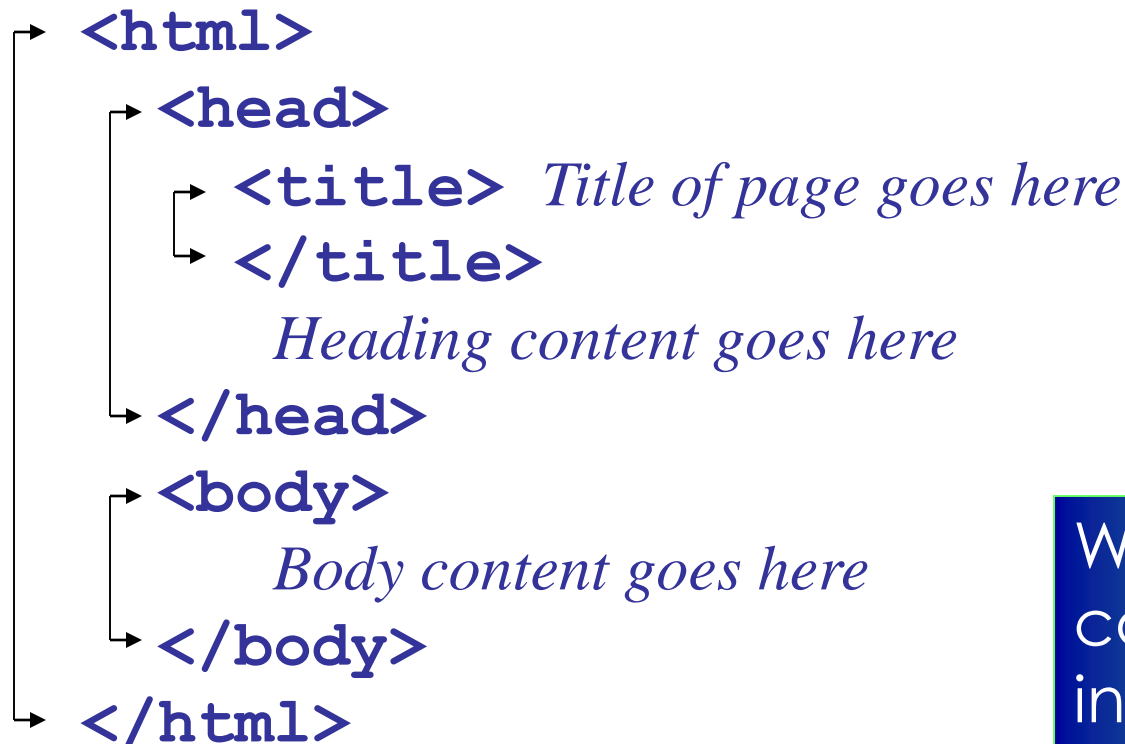
Figure 3.2. The basic client/server interaction, as illustrated by the browser (client) requesting Web pages provided by the Web server.

Some facts about HTML

- HTML commands are called *tags*
- Tags are enclosed in angle brackets `<>`
- Most tags come in pairs, an open tag that starts with `<` and a close tag that starts with `</`
- The tag contains a *tag name*, and possibly some *attributes*
- Text, and other tags, go between the open and close tags
- HTML tag names and attribute names are not case sensitive
 - but most other things in web pages are case sensitive
- Tags determine how the web page looks, and what it does

HTML Structure

- All HTML files use the same structure:



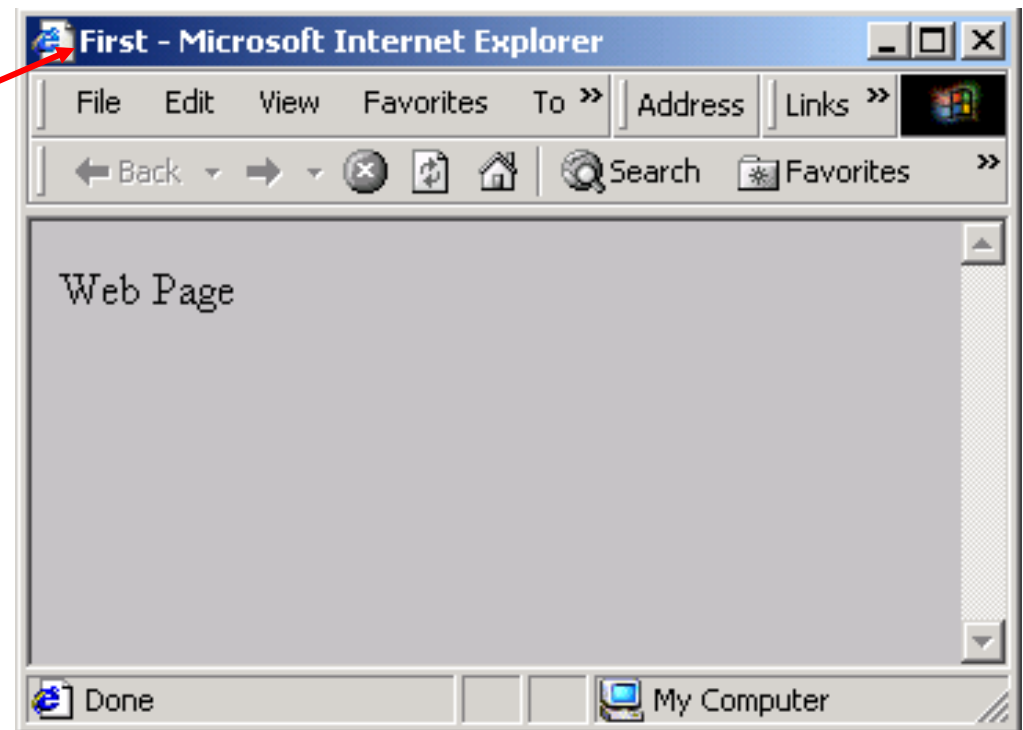
Web page
content goes
in the body

First HTML Web Page

- This HTML produces this result

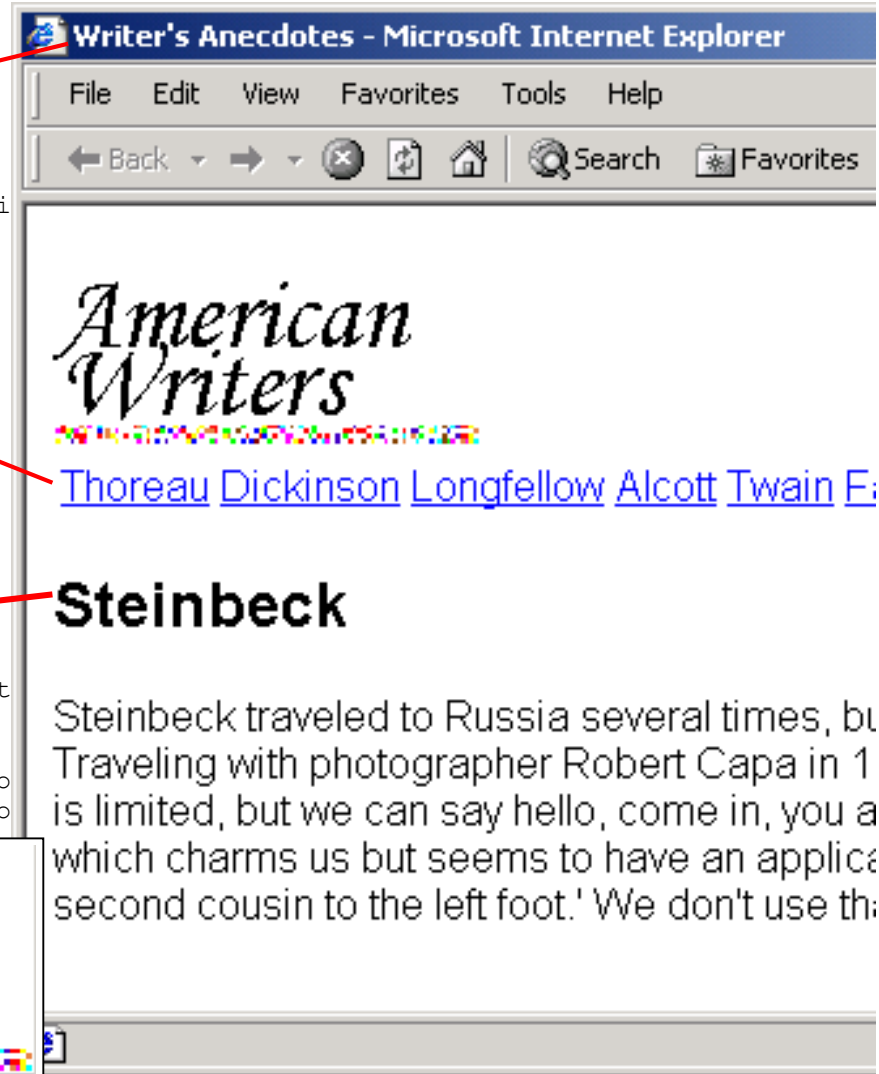
```
<html>
  <head>
    <title>First
  </title>
</head>
<body>
  Web Page
</body>
</html>
```

Content



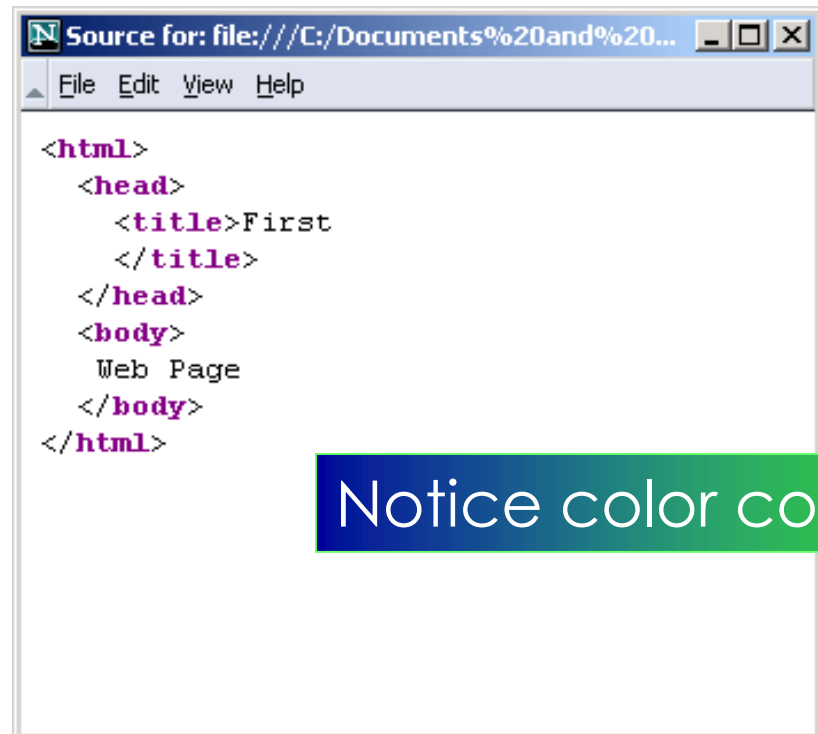
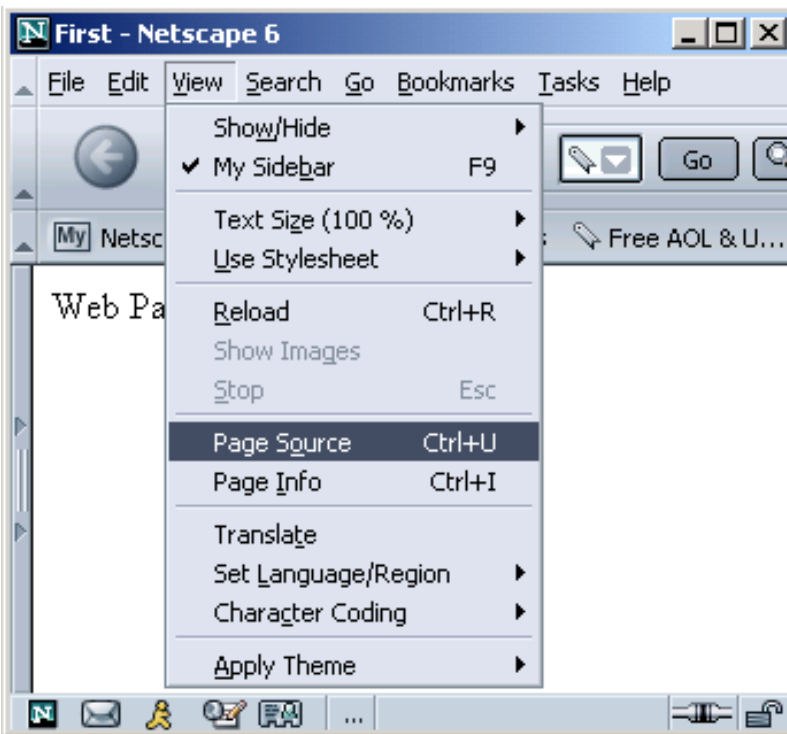
A more complicated page

```
<html>
<head><title>Writer's Anecdotes</title></head>
<body bgcolor="white" text="black"><font face="Helveti
  
  <table>
    <tr>
      <td><a href="hdt.html">Thoreau</a></td>
      <td><a href="ed.html">Dickinson</a></td>
      <td><a href="hwf.html">Longfellow</a></td>
      <td><a href="lma.html">Alcott</a></td>
      <td><a href="sc.html">Twain</a></td>
      <td><a href="wf.html">Faulkner</a></td>
      <td><a href="rf.html">Frost</a></td>
      <td><a href="eh.html">Hemingway</a></td>
      <td><a href="js.html">Steinbeck</a></td>
    </tr>
  </table>
  <h2>Steinbeck</h2>
  <p>Steinbeck traveled to Russia several times, but
  never mastered the language. Traveling with
  photographer Robert Capa in 1947 he wrote, "...I
  admit our Russian is limited, but we can say hello
  come in, you are beautiful, oh no you don't, and o
  which charms us but seems to have an applica
  rarely needed, 'The left foot.' We don't
  </p>
</body>
</html>
```



Viewing HTML source code

- The server sends HTML code to the client browser, which interprets it and displays the page according to the HTML tags
- Or, you can view the source code itself!



Notice color coding

Creating an HTML document

- Use a text editor such as Notepad++
 - File name should have extension `.html`
 - Save as file type HTML or TEXT
- Or: Use an HTML authoring tool
 - Nvu
 - Mozilla Composer
 - Adobe GoLive
 - Macromedia Dreamweaver
- Or: Save As Web Page from a word processor such as MS Word

Tags for Bold and Italic

- **Bold:** `` ``
- *Italic:* `<i>` `</i>`
- Tag pair surrounds the text to be formatted
- You can apply more than one kind of formatting at a time
- `<i>Veni, Vidi, Vici!</i>`
produces:
Veni, Vidi, Vici!

Nesting tags

- Tags have to be nested correctly
 - Correct: `<i>Veni, Vidi, Vici!</i>`
 - Wrong: `<i>Veni, Vidi, Vici!</i>`
- Some tags do not surround anything, so aren't paired (there is only a start tag, no end tag):
 - `<hr>` inserts horizontal line
 - `
` inserts a line break

Tags for headings

- Markup language describes structuring and formatting of a document
- Headings:
 - Choice of eight levels of heading tags to produce headings, subheadings, etc.
 - Headings display material in large font on a new line

```
<h1>Pope</h1><h2>Cardinal</h2><h3>Archbishop</h3>
```

produces:

Pope

Cardinal

Archbishop

Some useful HTML tags

Table 4.1. Basic HTML Tags

Start Tag	End Tag	Meaning	Required
<html>	</html>	HTML document; first and last tags in an HTML file	✓
<title>	</title>	Title bar text; describes page	✓
<head>	</head>	Preliminary material; e.g., title, at start of page	✓
<body>	</body>	The main part of the page	✓
<p>	</p>	Paragraph, can use align attribute	
<hr>		Line (horizontal rule), can use width and size attributes	
<h1>...<h8>	</h1>...</h8>	Headings, eight levels, use in order, can use align attribute	
		Bold	
<i>	</i>	Italic	
		Anchor reference, <i>fn</i> must be a pathname to an HTML file	
		Image source reference, <i>fn</i> must be a pathname to .jpg or .gif file	
 		Break, continue text on a new line	

White Space

- Whitespace in normal text is used for formatting
 - Spaces
 - Tabs
 - New lines
- But your browser turns any sequence of white space characters into a single space when interpreting HTML
 - Exception: Preformatted information between `<pre>` and `</pre>` tags is displayed as it appears

HTML Format vs. Display Format

- HTML source looks quite different from the displayed web page
- HTML source tells the browser how to format the page based on the meaning of the tags, not on how the source instructions look
- But the HTML source is usually written in a nicely formatted way to make the source code easier for web maintainers to read

HTML 'escapes'

- What if our web page needed to show a math relationship like

$$0 < p > r$$

- The browser would interpret `< p >` as a paragraph tag, and would not display it
- To show angle brackets, use escape symbol — ampersand (`&`) — then the appropriate abbreviation, then a semicolon (`;`)

`<` displays as `<`

Table 4.2. Special Symbols for Western European Language Accent Marks

Symbol	HTML	Symbol	HTML	Symbol	HTML	Symbol	HTML
à	à	á	á	â	â	ã	ã
ä	ä	å	å	ç	ç	è	è
é	é	ê	ê	ë	ë	ì	ì
í	í	î	î	ï	ï	ñ	ñ
ò	ò	ó	ó	ô	ô	õ	õ
ö	ö	ø	ø	ù	ù	ú	ú
û	û	ü	ü				

Note: For an accent mark on an uppercase letter, make the letter following the & uppercase.

Simple HTML with no image

```
<html>  
  <head><title>Party Time</title>  
  </head>  
  <body bgcolor="white">  
    <h2>I'm thinking ...</h2>  
    <h1> I need downhill skiing!!! </h1>  
  </body>  
</html>
```


Add An Image

- Images are encoded two major ways:
 - GIF -- Graphics Interchange Format -- best for diagrams and simple drawings
 - JPEG -- Joint Photographic Experts Group -- is for high resolution photos, complex art
- The encoding is given in the file extension:
.gif or .jpg

- Image tags for placing images

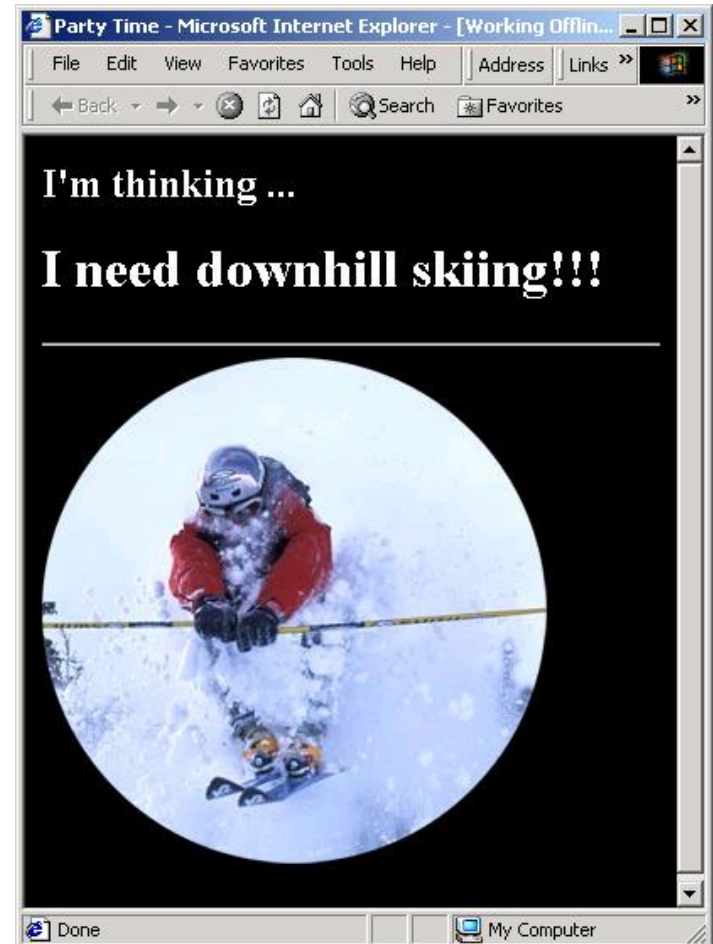
```

```

tag attribute name (source) path name to file

Example HTML with an image

```
<html>
  <head><title>Party Time</title>
  </head>
  <body bgcolor="black">
    <font color="white">
  <h2>I'm thinking ...</h2>
  <h1> I need downhill skiing!!! </h1>
  <hr>
  
  </body>
</html>
```



Positioning images in a Document

- By default, images are inserted in the page at the point where the `img` tag occurs in the HTML, and following text lines up with the bottom of the image
- Use the `align` attribute in the `img` tag to change that
- `Align` attribute value 'left' or 'right' puts the image on the left or right side of the browser window — text flows around it
- To put image on separate line, enclose `img` tag within paragraph `<p>` tags
- More control in placing images is possible with HTML tables, which we will cover later

Attributes in HTML

- Often, getting the desired formatting from HTML requires more than just tag names
- Example: For justification of text in a paragraph we may want to specify right, or center (left justification is the default)
- *Attributes* appear inside the angle brackets, after tag name, and specify further information
- Attribute name is followed by equals sign, and then the attribute value in quotes

```
<p align="center">
```
- There are many other examples of attributes in HTML tags that we will look at later...