

### 3. Introduction to HTML

HTML stands for Hyper Text Markup Language. It was invented for formatting of online documents and to be used by web browsers to display documents. Background and historical perspective about HTML can be found elsewhere.

HTML was invented by Tim Berners-Lee in the late of 1980s at the European Laboratory for Particle Physics in Geneva, Switzerland. It has been in use by the World Wide Web (WWW) global information initiative since 1990.

HTML is a very simple markup language used to create hypertext documents. You can simply use Notepad or a professional editor such as Microsoft Visual InterDev to edit the HTML files. Of course, you can create a web page on your own PC. However, if you would like to broadcast your pages to the world, you have to save them on a server.

#### 3.1 Terms to know

WWW – World Wide Web

Hypertext – text stored in electronic form with cross reference links between pages.

SGML – Standard Generalized Markup Language, a standard for describing markup languages.

Java – a programming language developed by MicroSun System.

VB – stands for Visual Basic developed by Microsoft.

JavaScript – scripting language that is run on the client.

VBScript – a scripting language developed by Microsoft.

ASP – active server page, server-based Microsoft technology.

XML – extensible markup language, metalanguage like SGML but without the complexity. Much easier way to describe information.

#### 3.2 File naming convention

Typically, web documents use a naming convention to identify the type of file being used or transferred on the Internet. Usually, HTML documents have a name followed by the extension ".html" or ".htm". Image files will have name ending with extensions such as ".gif", ".jpg", ".mpg", etc. It is recommended you follow these naming

conventions in order to minimize confusion and problems while creating your web documents. It is also recommended that the actual file name be as descriptive of their content as possible in order to facilitate ulterior work on these files.

Example of recommended names for html documents

ProjectModule1.html

Presentation.htm

FinalReport.html

Example of less desirable names for html documents

a.html

myFile.htm

aProject

### 3.3 File Location

File location depends on the server systems. On Windows system, all files should be put under c:\inetpub\wwwroot\user\_defined\_directory. Basically, the starting page can be anything. However, on most system, it is assumed that a file named "index.html" or "index.htm" is the point of entry in a directory. That is, if only a directory name is provided by a person browsing the web, the web server will search for a file called "index.html" and return that file to be displayed if it exists. For example, the starting page for Wood Science and Technology at WVU is:

<http://www.wdsc.caf.wvu.edu/index.html>

or

<http://www.wdsc.caf.wvu.edu>

### 3.4 HTML Structure

The following is the basic structure of HTML codes:

```
<HTML>
<HEAD>
<TITLE>HTML example</TITLE>
</HEAD>

<BODY>

<H1>HTML example</H1>

<P>The following is an example of HTML markup codes:</P>
```

```
...  
</BODY>  
  
</HTML>
```

HTML codes usually come in pairs, enclosing the text which they format. The entire file is bracketed by HTML tags. Within this there are two main sections, the "TITLE" and "BODY" blocks. Paragraphs in the body text are enclosed within "P" tags, and so on. Linear white space is ignored; any number of blank lines may be left between codes to make it easier to read the raw HTML file. Links are easy to code, though they have been omitted from the above example for simplicity.

Let's create a simple web page that links to another page. You should name the first as "index.html" that contains the following code.

```
<html>  
<title> Wang's Web Page</title>  
<h1>Jingxin Wang's Web Site</h1>  
Welcome to my web site. Click <a href="jingxinwang.html">  
here </a> to access to another page.  
</html>
```

Here is the code for the second file and you name it as "jingxinwang.html".

```
<html>  
  
<title> Wang's another Web Page</title>  
  
<h1>Another Page</h1>  
  
Welcome to this page. Form here, you can browse more pages.  
  
</html>
```

The above code, when viewed on a web browser, will generate an output as shown in Figure 1:

# Jingxin Wang's Web Site

Welcome to my web site. Click [here](#) to access to another page.

## Another Page

Welcome to this page. Form here, you can browse more pages.

Figure 1. An example output.

As you already know, it suffices the click the mouse on the word "here" to access the document it points to, in this case, the server will attempt to load a document called "jingxinwang.html".

HTML uses keywords to identify specific formatting and coding operations. For example, the keyword `<html>` signifies that the text that follows is an html document. Note however there is a keyword `</html>` at the end of the file. This indicates the end of the html document. So, the `<html>` keyword begins an html document, and the keyword `</html>` concludes it. In general, in HTML language, keywords are paired in this fashion: one begins a formatting action, the other terminates it. In the above example, `<title>` precedes the title given to the page and `</title>` follows it. Likewise, the keyword `<h1>` is used to begin a phrase to be displayed as a header (size 1) and `</h1>` ends the phrase.

Keywords such as `<html>`, `<title>`, `<h1>` only have formatting implications while some keywords such as `<a href=" " >` bring about some actions. The `<a>` keyword is referred as an anchor. It is used to identify active text, that is text which when clicked on will make the browser load a new page, i.e. the page identified by the hypertext reference e.g. `href="jingxinwang.html"`. Here, it is assumed that the file `jingxinwang.html` exists in the same directory as the `index.html` file. If so, it will be served, i.e. shown on the user's browser when the user clicks on the word "here" imbedded between `<a>` and `</a>`.

The example above introduced keywords most frequently used. Table 1 below lists other html keywords frequently used.

Table 1. Commonly used HTML keywords.

<b>Keyword</b>	<b>Interpretation</b>
<code>&lt;html&gt; &lt;/html&gt;</code>	Begin, end of html document
<code>&lt;title&gt;&lt;/title&gt;</code>	Document title
<code>&lt;h1&gt;&lt;/h1&gt;</code>	Header size 1
<code>&lt;h2&gt;&lt;/h2&gt;</code>	Header size 2 (smaller than size 1)
<code>&lt;h3&gt;&lt;/h3&gt;</code>	Header size 3 (smaller than size 2)
<code>&lt;h4&gt;&lt;/h4&gt;</code>	Header size 4 (smaller than size 3)
<code>&lt;p&gt;&lt;/p&gt;</code>	Paragraph delimiter
<code>&lt;a href=""&gt;&lt;/a&gt;</code>	Link identifier
<code>&lt;img&gt; &lt;img&gt;</code>	Image identifier/loader
<code>&lt;table&gt;&lt;/table&gt;</code>	Table formatting

### 3.5 Applications of HTML Tags

#### (1) HTML

This tag tells your browser that the file contains HTML-coded information. The file extension .html also indicates this is an HTML document.

#### (2) Head

The head element identifies the first part of your HTML-coded document that contains the title. The title is shown as part of your browser's window.

#### (3) Title

The title tag contains your document title and identifies its content in a global context. The title is typically displayed in the title bar at the top of the browser window, but not inside the window itself. It is what the system will add to your favorites when browsing a site.

#### (4) Body

The second and largest part of your HTML document is the body. It contains the content of your document and is displayed within the text area of the browser window.

Here is another example to explain the above tags.

```
<html>
<head>
<title> My Web Page</title>
</head>
<body>
This is the body of my web page.
</body>
</html>
```

If the file is saved as tagtest1.html and browse it, you will have the following output (Figure 2).

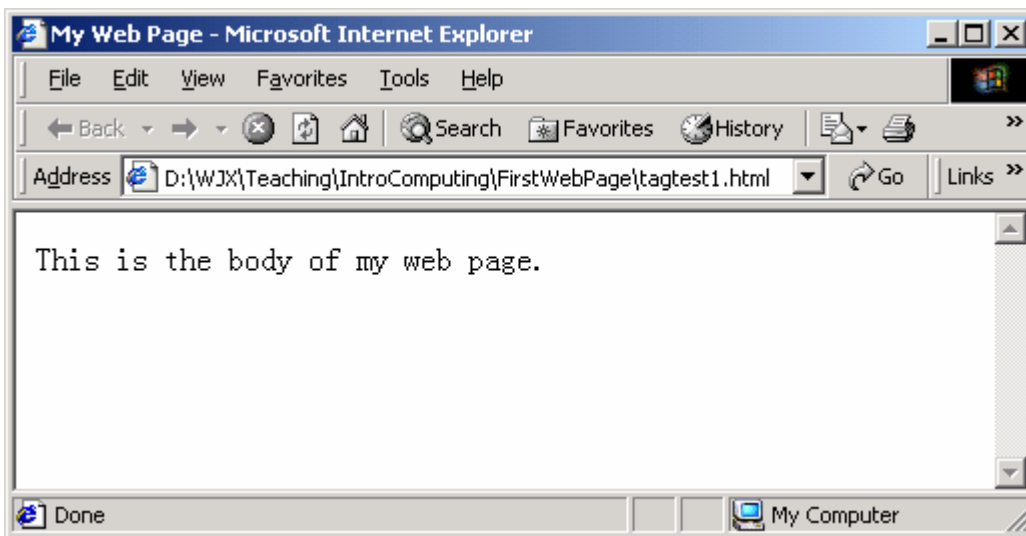


Figure 2. Output of tagtest1.html.

The following tags are used within the body of your HTML document.

## (5) Headings

The syntax of the heading tag is:

```
<hi> text string </hi>
```

Where *i* is between 1 and 6. For example,

```
<h2>a page title</h2>
```

## (6) Paragraphs

Web browsers ignore line breaks in the documents. The text wraps through all white spaces unless the `<p></p>` tag is used. It will start a new paragraph.

For example,

This is  
a test  
of the  
p.

The output would look like this in a browser window:

This is a test of the p.

However, if the above file was rewritten like that:

```
<p>This is</p>  
a test  
of the  
p.
```

You would see:

This is  
a test of the p.

You can also justify the test. For example.

```
<p align = center>  
This is a centered paragraph.  
</p>
```

I would like to give you an example to show you how to use the heading and paragraph tags. Open Notepad, type the following code, and save it as HPTags.html. The browsing Window will look like what displayed in Figure 3.

```
<html>  
  
<title>Headings and Paragraphs</title>  
  
<h1>FOR 470V</h1>  
  
<h2>Introduction To Computing</h2>  
  
<h3>In Natural Resources</h3>  
  
<P>Welcome you to this class.</P>  
  
<P>Everyone will do an excellent job!</P>  
  
</html>
```

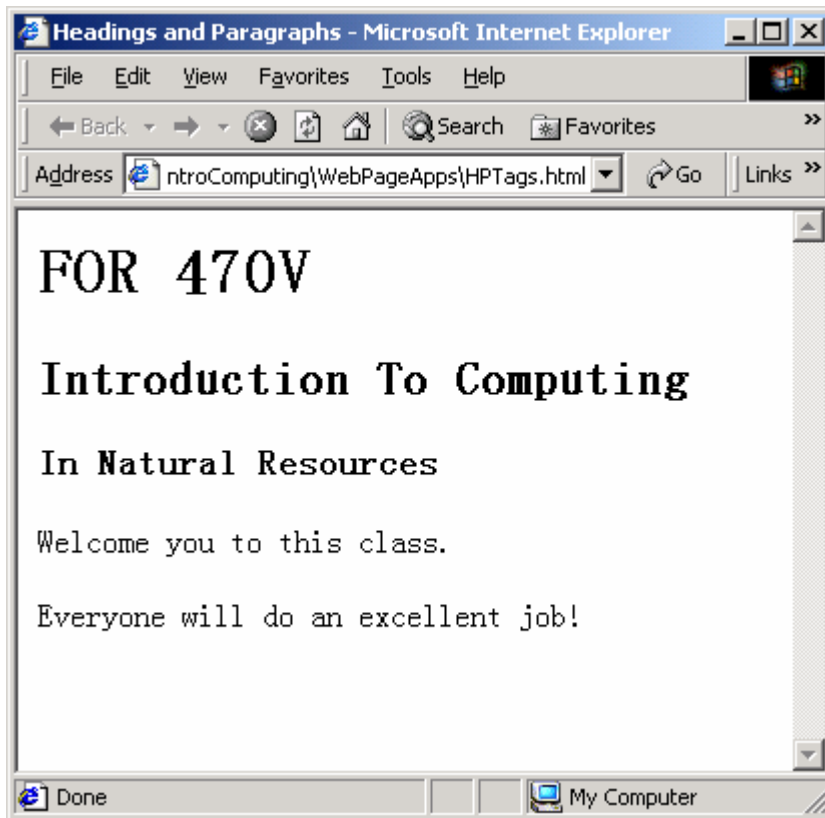


Figure 3. Headings and paragraphs.

## (7) Lists

HTML supports unnumbered and numbered lists. You can nest lists too, but use this feature separately because too many nested items can get confusion.

Unnumbered lists:

```
<ul>
<li>red oak
<li>sugar maple
<li>yellow poplar
</ul>
```

A numbered list (also called an ordered list) is identical to an unnumbered list, except it uses `<ol>` instead of `<ul>`. The items are tagged using the `<li>` tag.

```
<ol>
<li>red oak
<li>sugar maple
<li>yellow poplar
</ol>
```

Here is an example to show you how to use the lists.



```
<html>
<head>
<title> Using HTML lists</title>
</head>
<body>
<p>Unnumbered list:</p>
  <ul>
    <li>red oak
    <li>sugar maple
    <li>yellow poplar
  </ul>
<p>Numbered list:</p>
  <ol>
    <li>red oak
    <li>sugar maple
    <li>yellow poplar
  </ol>
</body>
</html>
```

The output is:

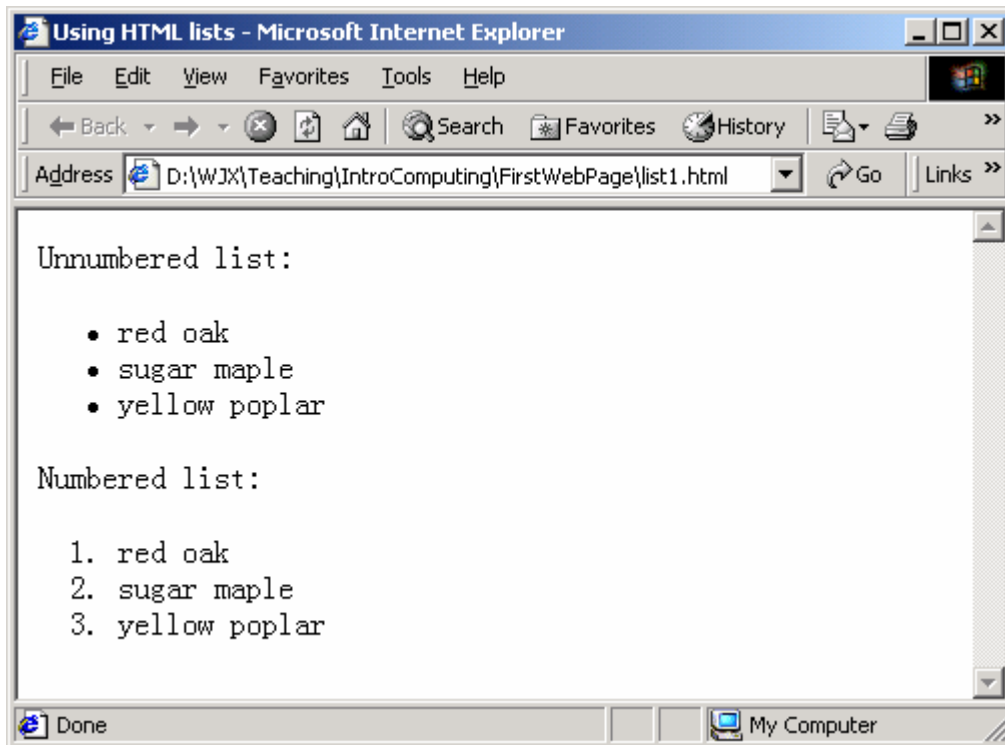


Figure 4. Output of HTML lists.

#### (8) Forced line breaks

The `<BR>` tag forces a line break with no extra (white) spaces between lines.  
 This is `<br>`  
 a test.

It will look like:  
 This is  
 a test.

#### (9) Tables

The basic syntax is:  
`<table>`  
`<tr><td>column code</td></tr>`  
`</table>`

`<table>`- defines start of a table, can use align, color, size here.  
`<tr>` - defines table row, can align, color, size here,  
`<td>` - defines table columns, can align, color, size, and input data here.  
`<th>` - table heading

For example,

```
<html><head>
<title>FOR 470V - Introduction to Computing ...</title>
</head>
<body>

<h2><center> FOR 470V </center>
<center>Introduction to Computing in</center>
<center>Natural Resources</center></h2>

<table ALIGN="center" BORDER="3" WIDTH="90%" CELLPADDING="6"
CELLSPACING="2" style="HEIGHT: 265px; WIDTH: 511px">
  <tbody>
    <tr>
      <th width="100">No.</th>
      <th width="300">Contents</th>
    </tr>
    <tr>
      <td>1</td>
      <td><p><h3><A href=" ../courses/IntroCompuSyl2003.doc">Syllabus</a></h3>
      </td>
    </tr>
    <tr>
      <td>2</td>
      <td><p><h3><A href=" ../courses/notesFOR470V.html">Class Notes</a></h3>
      </td>
    </tr>
    <tr>
      <td>3</td>
      <td><p><h3><A href=" ../courses/projectFOR470V.html">Project&nbsp;and Lab
      Assignments</a></h3>
      </td>
    </tr>
  </tbody>
</table>
<br>
<h5 align="center"><font color="tomato"><em>This page was last modified on January 1,
2003.</em></font>    </h5>
</body>
</html>
```

The output is:

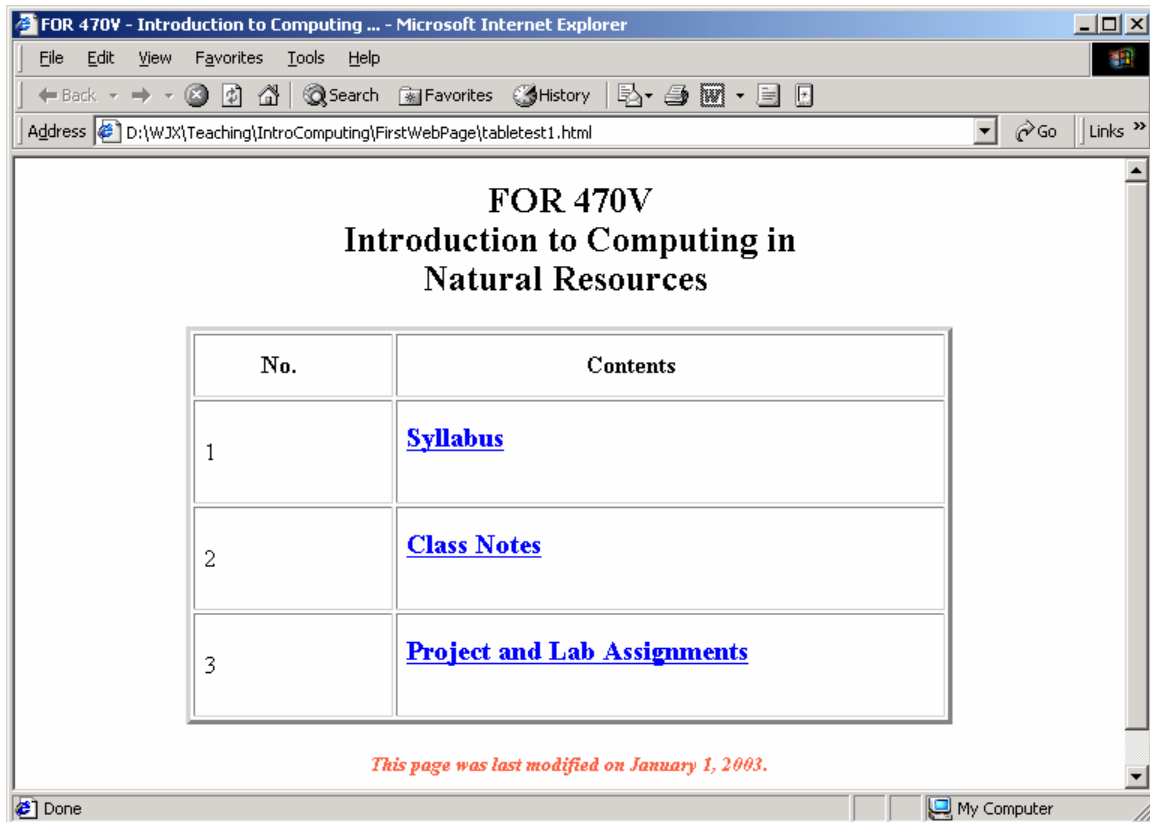


Figure 5. Output of a table.

Here is another example to show you how to use table to display both an image and texts. This is especially useful while designing a main web page.

Open a Notepad editor, type the following code, and save the file as image.html.

```
<html>
<title>Jingxin Wang </title>
<body>

<table WIDTH="600">
<tbody>
<tr>
<td WIDTH="240" VALIGN="top" ALIGN="left"><a HREF></a></td>

<td WIDTH="460" VALIGN="top" ALIGN="left" NOWRAP><br>

<p><b><h1><b>Jingxin Wang</b></h1></p>
<p><b><h2><i>Assistant Professor of Forest Operations</i></h2></p>
<p><b>Education</b>: Ph.D. (The University of Georgia) </p>
<p><b>Research Interest</b>: Forest Resources Management and Operations, Computer
Simulations, and System Modeling</p>
<p><b>Email Address</b>: <a href="mailto:jxwang@wvu.edu">jxwang@wvu.edu</a></p>
<p><b>Telephone</b>: (304) 293 - 2941 </p>
```

```

<p><b>Fax</b>: (304) 293 - 2441 </p>
<p><b>Office Room</b>: Percival Hall 206B </p>

<hr ALIGN="left" SIZE="20" WIDTH="95%" COLOR="ff0000">
<p><font Size="2">This web page was last modified on January 20, 2003.</font></p>

</td></tr>
</tbody></table>
</body>
</html>

```

Browse the file you just created, you will have a page as shown in Figure 6.

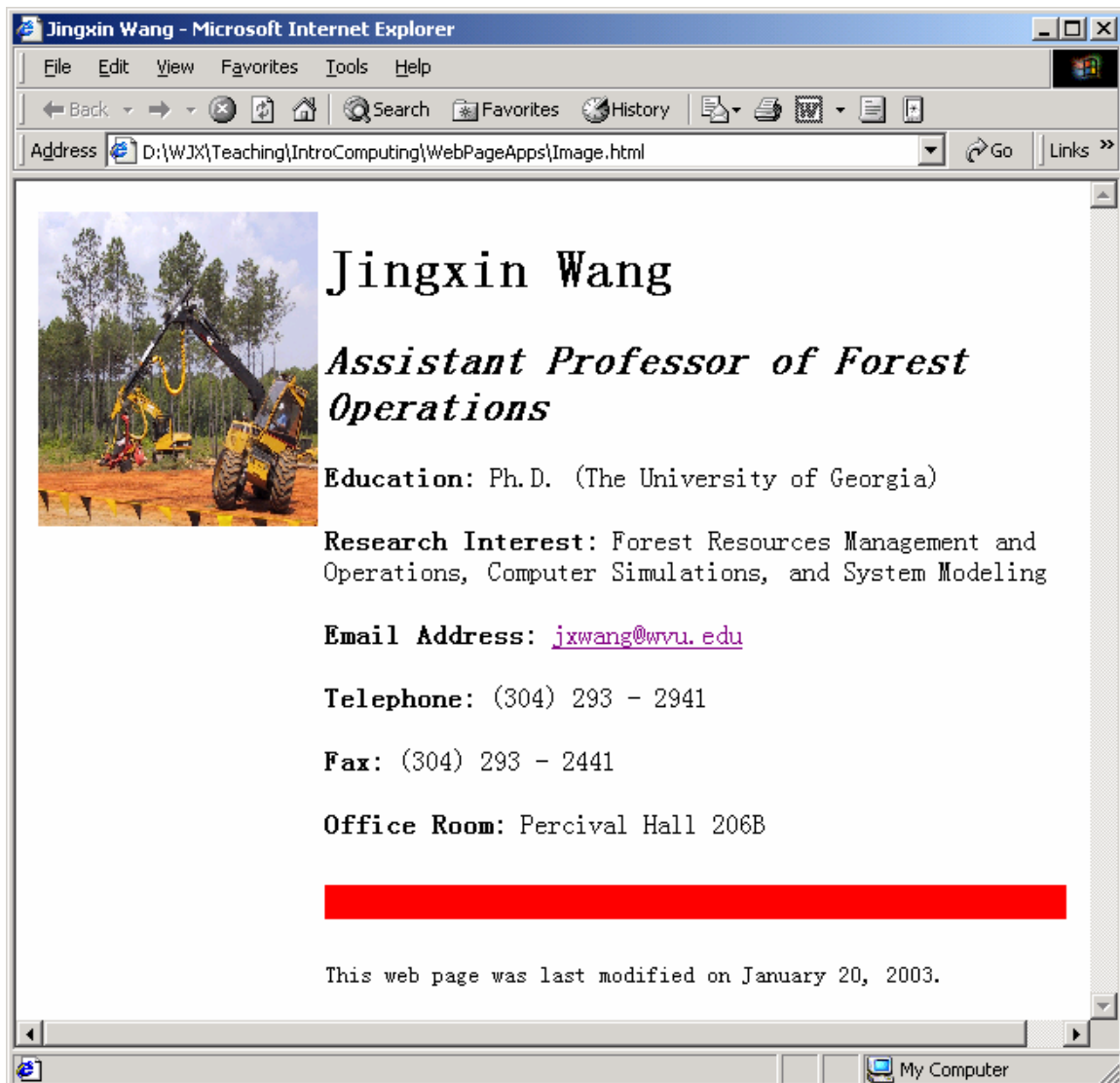


Figure 6. A page with an image.

The following example demonstrates you to enlarge the thumbnail size image.

```
<html>

<title>Enlarge an Image</title>

<body>

<h3>Click the image to enlarge it!</h3>

<a href="image1.jpg" target="_top"></a>

</body>

</html>
```

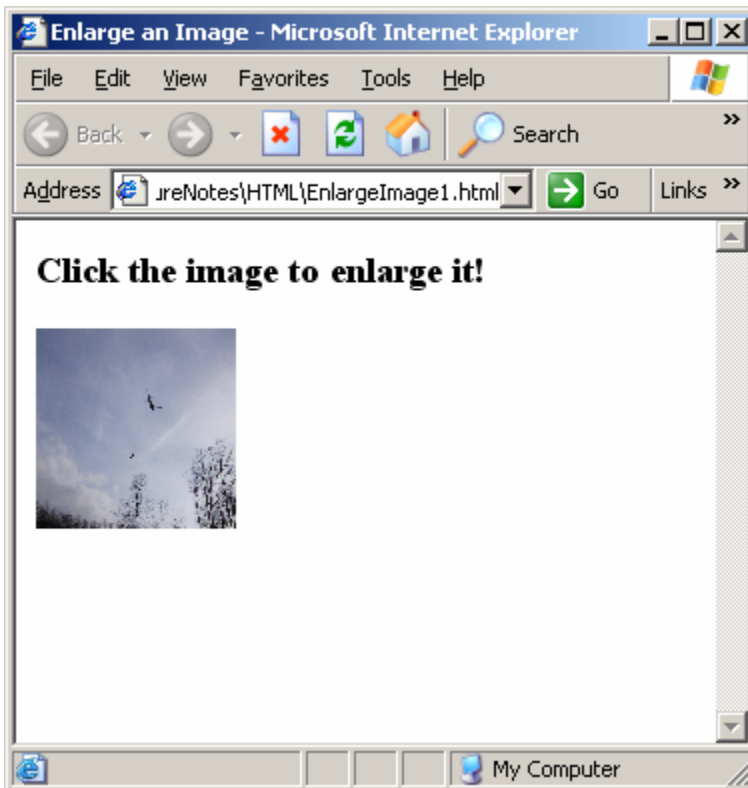


Figure 7. A thumbnail size image.

Once you click the image, it will be enlarged (Figure 8).

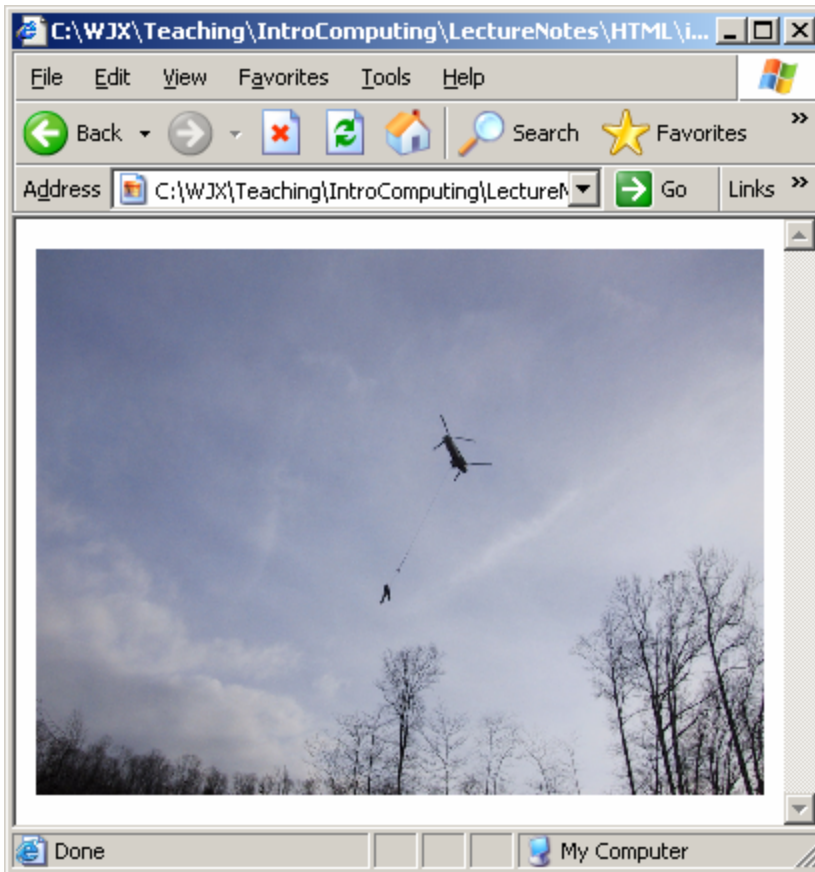


Figure 8. Enlarged image.

## (10) Forms

An HTML form is part of a web page that includes areas where readers can enter information to be sent back to the publisher of the web page. The following code details the basic form elements.

```
<form action="..."> - declare the form and tell it what you want to do on submit.
<input type="text" NAME="subject" VALUE="title of form"> - define a form field.
<input type="submit"> - define a submit button.
<input type="reset"> - define a reset button.
</form> - end the form
```

### Types of input:

```
<input type="text"> - text box
<input type="radio"> - radio button
<input type="checkbox"> - checkbox
<input type="hidden"> - hidden text box
<input type="password"> - password text box
<input type="button"> - button
```

Dropdown menu:

```
<select name="...">
<option>one</option>
<option>two</option>
<option>three</option>
</select>
```

Listbox:

```
<select name="..." size=2 multiple>
<option>one</option>
<option>two</option>
<option>three</option>
</select>
```

Text area:

When you want to allow multiple lines of text in a single input item, use the `<textarea>` and `</textarea>` tags. For example.

```
<textarea id="comments" rows="4" cols="20">
Please send more information.
</textarea>
```

Getting data from forms:

Forms collect data, but they are not used to process them. To process form data, you must include METHOD and ACTION in the `<form>` tag. METHOD can be set to "post" or "get". The HTML specifications *technically* define the difference between "GET" and "POST" so that former means that form data is to be encoded (by a browser) into a URL while the latter means that the form data is to appear within a message body. As a simplification, we might say that "GET" is basically for just getting (retrieving) data whereas "POST" may involve anything, like storing or updating data, or ordering a product, or sending E-mail.

ACTION points the address of the application that will process the form data. There are several ways to process the data collected by a form:

- Email the form data using mailto
- Use a server-based application to process the data
- Process the form data with the client-based script
- Send the form to a database

The following is an example of using form to collect the data and sum the three values.

File name – formtest21.html

```
<html><head><title>Form Test 1</title></head>
<body>
```



```
<h1>HTML Form Example 1 - enter the data</h1>
<Table>
<form method="post" action="formtest22.asp">
<tr>
<td>Enter your name here: </td>
<td><input type="text" name="v1" size="25" /></td></tr>
<tr>
<td>Enter first integer value: </td>
<td><input type="text" name="v2" size="25" /></td>
<tr>
<td>Enter second integer value: </td>
<td><input type="text" name="v3" size="25" /></td>
</tr>
<p></p>
<tr>
<td></td>
<td><input type="submit" value="Click here to process the data" border="0" align="top"
/></td>
</form>
</tr>
</table>

</body></html>
```

The output of this form looks like Figure 9.

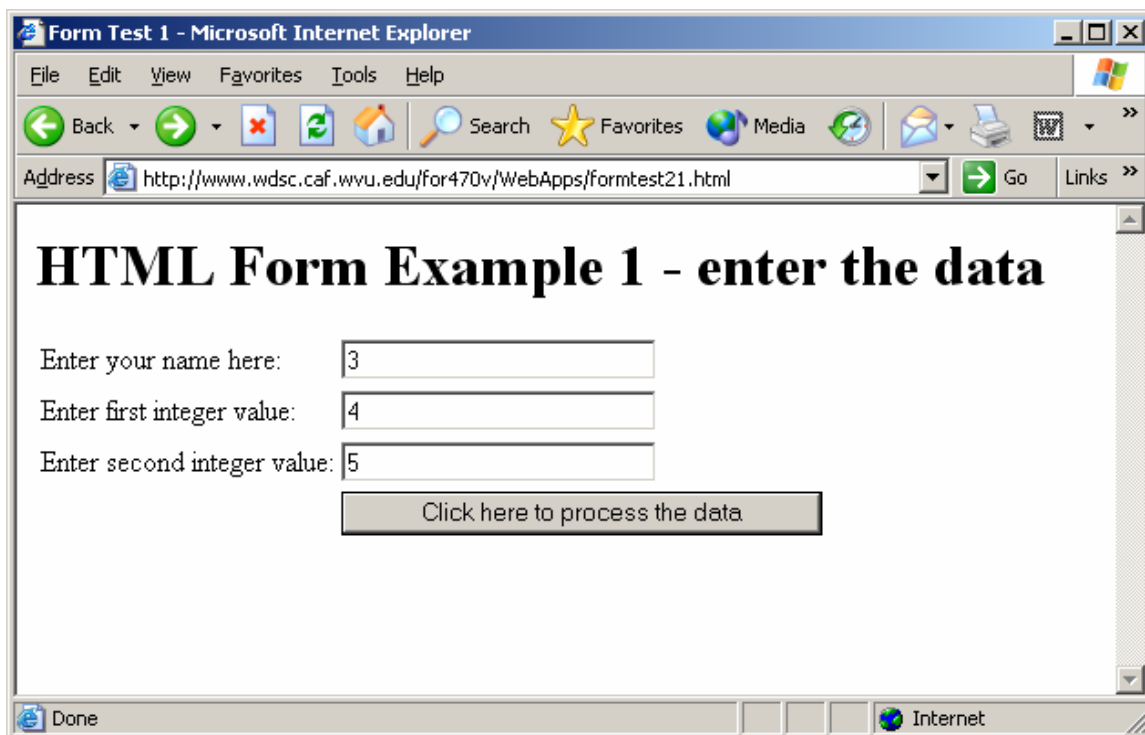


Figure 9. Interface of a form.

Once you enter the data and click the button, the form data will be transferred to the address indicated by the ACTION item, formtest22.asp in this case (Figure 10).

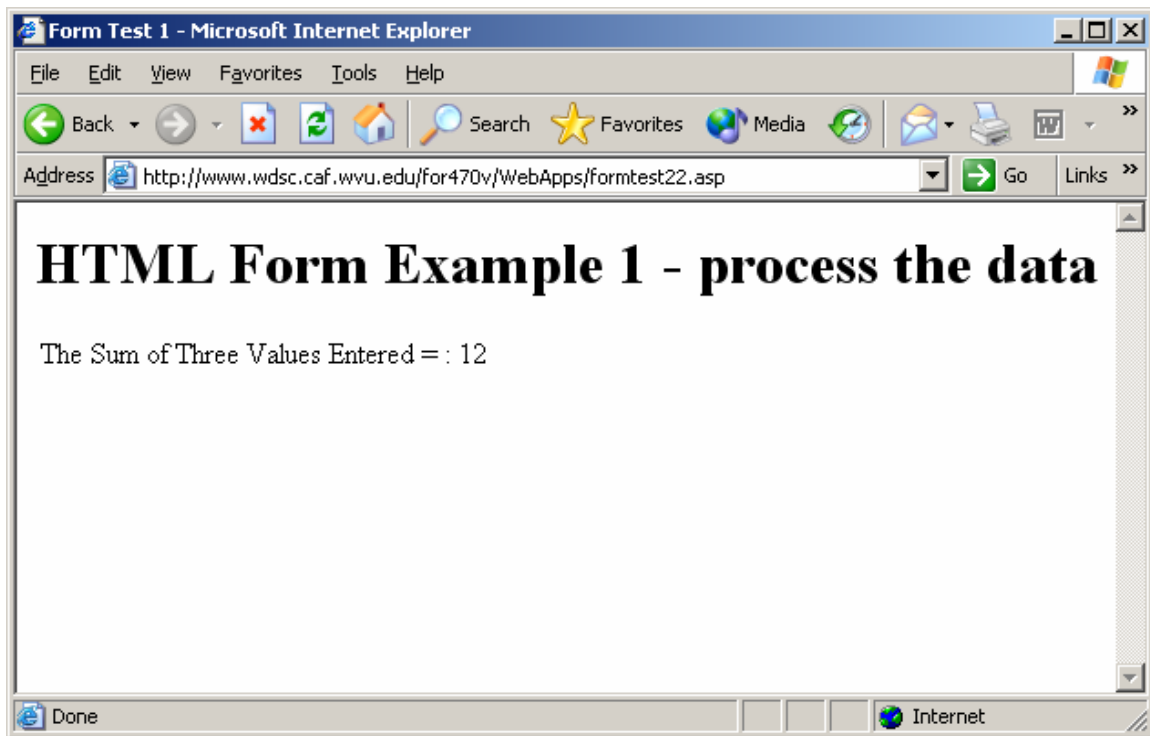


Figure 10. Result of the data processing.

File name – formtest22.asp

```
<html><head><title>Form Test 1</title></head>
<body>
<h1>HTML Form Example 1 - process the data</h1>
<%
v1=Request.Form("v1")
v2=Request.Form("v2")
v3=Request.Form("v3")
sum = csng(v1) + csng(v2) + csng(v3)
%>
<Table>
<tr>
<td>The Sum of Three Values Entered = : </td>
<td><% Response.write sum %></td></tr>
</table>
</body></html>
```

Here is another example of using dropdown menu, listbox, and text area.

```
<html><head><title>Form Example 2</title></head>
<body>
<h4>HTML Form Example 2 - Dropdown menu, Listbox, and Text Area:</h4>
<Table>
<form method="post" action="dropdownlistbox.html">
<tr>
```

```

<td>Dropdown Menu: </td>
<td>
<select name="dd" >
<option>Red Oak</option>
<option>Sugar Maple</option>
<option>Black Cherry</option>
</select>
</td></tr>
<tr>
<td>List Box: </td>
<td>
<select name="lm" size=2 multiple>
<option>One</option>
<option>Two</option>
<option>Three</option>
</select>
</td>
<tr>
<td>Text Area: </td>
<td><textarea name="ta" rows="4" cols="20">
Please enter more information here.
</textarea>
</td>
</tr>
<tr>
<td></td>
<td><input type="submit" value="Send data" border="0" align="top" /></td>
</form>
</tr>
</table>
</body></html>

```

If browsing this page, it should look like that (Figure 11).

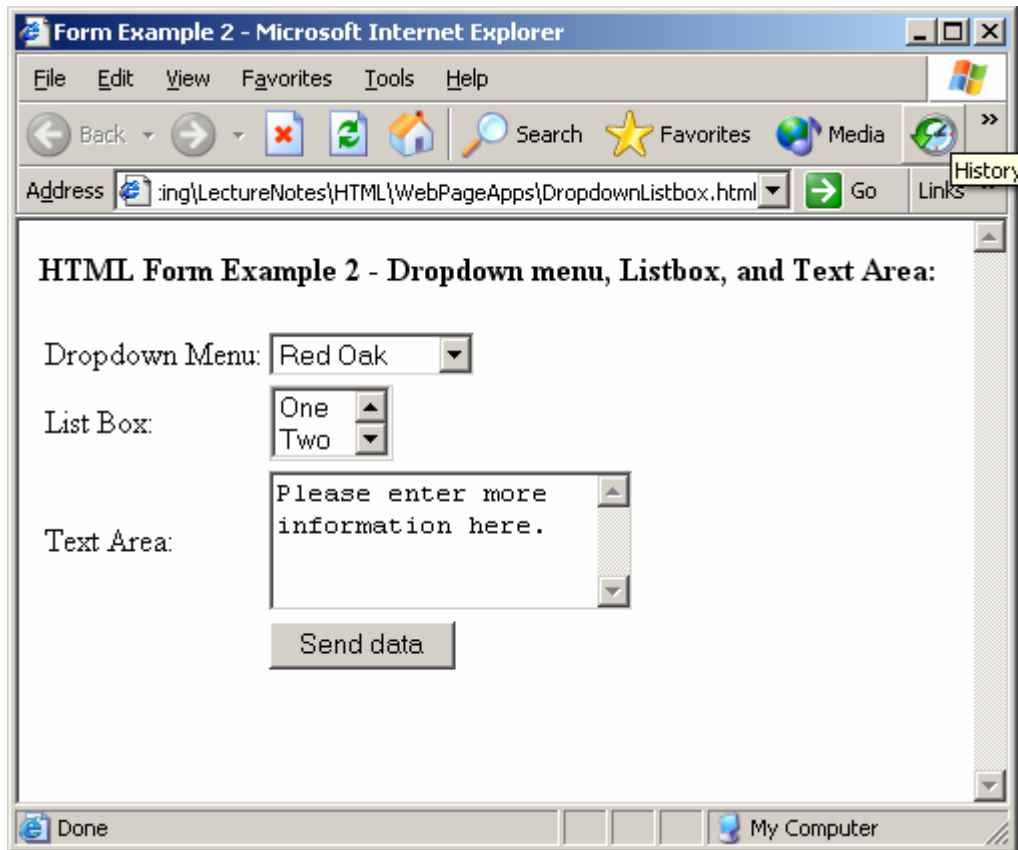


Figure 11. Form example 2.

For further documentation on these keywords and others available in HTML please consult html books or search the information on the Internet.

### 3.6 More HTML examples

[Example 1 \(http://www.blooberry.com/indexdot/css/examples/csshtmlxmp.htm\)](http://www.blooberry.com/indexdot/css/examples/csshtmlxmp.htm)

[Example 2 \(http://www.dcn.davis.ca.us/~csandvig/ip/example.html\)](http://www.dcn.davis.ca.us/~csandvig/ip/example.html)

### Class Exercises

- (1) Cross-reference link on page 3
- (2) Heading and title on page 7
- (3) List on page 9
- (4) Table on page 11
- (5) Table on page 12

### References

Holzschlag, M.E. 2002. Using HTML and XHTML. QUE. Indianapolis, Indiana.