

HTML

SUMMARY

A Brief Introduction to HTML

A web page is written in a language called HTML (Hypertext Markup Language). Like Python code, HTML code is made up of text that follows certain strict rules. When a browser reads a web page, the browser *interprets* the code and *renders* the page, displaying characters, fonts, paragraphs, tables, and images.

HTML files are made up of text and *tags* that tell the browser how to render the text. Nowadays, there are dozens of HTML tags—see Table 1 for a summary of the most important tags. Fortunately, you need only a few to get started. Most HTML tags come in pairs consisting of an opening tag and a closing tag, and each pair applies to the text between the two tags. Here is a typical example of a tag pair:

Python is a `<i>high-level</i>` programming language.

The tag pair `<i> </i>` directs the browser to display the text inside the tags in *italics*:

Python is a *high-level* programming language.

The closing tag is just like the opening tag, but it is prefixed by a slash (/). For example, bold-faced text is delimited by ` `, and a paragraph is delimited by `<p> </p>`.

`<p>Python is a <i>high-level</i> programming language.</p>`

The result is the paragraph

Python is a *high-level* programming language.

Another common construct is a bulleted list. For example:

Python is

- easy to learn
- portable
- free and open source

Here is the HTML code to display it:

```
<p>Python is</p>
<ul><li>easy to learn</li>
<li>portable</li>
<li>free and open source</li></ul>
```

Each item in the list is delimited by ` ` (for “list item”), and the whole list is surrounded by ` ` (for “unnumbered list”).

Table 1 Selected HTML Tags			
Tag	Meaning	Children	Commonly Used Attributes
html	HTML document	head, body	
head	Head of an HTML document	title	
title	Title of an HTML document		
body	Body of an HTML document		
h1 ... h6	Heading level 1 ... 6		
p	Paragraph		
ul	Unnumbered list	li	
ol	Ordered list	li	
dl	Definition list	dt, dd	
li	List item		
dt	Term to be defined		
dd	Definition data		
table	Table	tr	
tr	Table row	th, td	
th	Table header cell		
td	Table cell data		
a	Anchor		href, name
img	Image		src, width, height
pre	Preformatted text		
hr	Horizontal rule		
br	Line break		
i or em	Italic		
b or strong	Bold		
tt or code	Typewriter or code font		
s or strike	Strike through		
u	Underline		
sup	Superscript		
sub	Subscript		
form	Form		action, method

Table 1 Selected HTML Tags

Tag	Meaning	Children	Commonly Used Attributes
input	Input field		type, name, value, size, checked
select	Combo box style selector	option	name
option	Option for selection		
textarea	Multiline text area		name, rows, cols

You can freely use white space (spaces and line breaks) in HTML code to make it easier to read. For example, you can lay out the code for a list as follows:

```
<p>Python is</p>
<ul>
<li>easy to learn</li>
<li>portable</li>
<li>free and open source</li>
</ul>
```

The browser ignores the white space.

If you omit a tag (such as a ``), most browsers will try to guess the missing tags—sometimes with differing results. It is always best to include all tags.

You can include images in your web pages with the `img` tag. In its simplest form, an image tag has the form

```

```

This code tells the browser to load and display the image that is stored in the file `hamster.jpeg`. This is a slightly different type of tag. Rather than text inside a tag pair ` `, the `img` tag uses an attribute to specify a file name. Attributes have names and values. For example, the `src` attribute has the value `"hamster.jpeg"`. Table 2 contains commonly used attributes.

Table 2 Selected HTML Attributes

Attribute	Description	Commonly Contained in
name	Name of form element or anchor	input, select, textarea, a
href	Hyperlink reference	a
src	Source (as of an image)	img
code	Applet code	applet
width, height	Width, height of image or applet	img, applet
rows, cols	Rows, columns of text area	textarea
type	Type of input field, such as text, password, checkbox, radio, submit, hidden	input
value	Value of input field, or label of submit button	input
size	Size of text field	input

Table 2 Selected HTML Attributes

Attribute	Description	Commonly Contained in
checked	Check radio button or checkbox	input
action	URL of form action	form
method	GET or POST	form

It is considered polite to use several additional attributes with the `img` tag, namely the *image size* and an *alternate description*:

```

```

These additional attributes help the browser lay out the page and display a temporary description while gathering the data for the image (or if the browser cannot display images, such as a voice browser for blind users). Users with slow network connections really appreciate this extra effort.

Because there is no closing `` tag, we put a slash `/` before the closing `>`. This is not a requirement of HTML, but it is a requirement of the XHTML standard, the XML-based successor to HTML. (See www.w3c.org/TR/xhtml1 for more information on XHTML.)

The most important tag on a web page is the `<a>` `` tag pair, which makes the enclosed text into a *link* to another file. The links between web pages are what makes the Web into, well, a web. The browser displays a link in a special way (for example, underlined text in blue color). Here is the code for a typical link:

```
<a href="http://horstmann.com">Cay Horstmann</a> is the author of this book.
```

When the viewer of the web page clicks on the words [Cay Horstmann](http://horstmann.com), the browser loads the web page located at `horstmann.com`. (The value of the `href` attribute is a *Universal Resource Locator* (URL), which tells the browser where to go. The prefix `http:`, for *Hypertext Transfer Protocol*, tells the browser to fetch the file as a web page. Other protocols allow different actions, such as `ftp:` to download a file, `mailto:` to send e-mail to a user, and `file:` to view a local HTML file.)

Table 3 Selected HTML Entities

Entity	Description	Appearance
<	Less than	<
>	Greater than	>
&	Ampersand	&
"	Quotation mark	"
 	Nonbreaking space	
©	Copyright symbol	©

You have noticed that tags are enclosed in angle brackets (less-than and greater-than signs). What if you want to show an angle bracket on a web page? HTML provides the notations `<` and `>` to produce the `<` and `>` symbols, respectively. Other codes of this kind produce symbols such as accented letters. The `&` (ampersand) symbol introduces these codes; to get that symbol itself, use `&`. See Table 3 for a summary.

You may already have created web pages with a web editor that works like a word processor, giving you a WYSIWYG (what you see is what you get) view of your web page. But the tags are still there, and you can see them when you load the HTML file into a text editor. If you are comfortable using a WYSIWYG web editor, you don't need to memorize HTML tags at all. But many programmers and professional web designers prefer to work directly with the tags at least some of the time, because it gives them more control over their pages.

