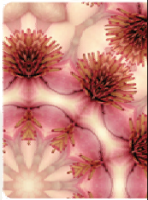


HTML and XHTML
2016/09/04

Tutorial 1

Developing a Basic Web Page



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Exploring the History of the World Wide Web

- A **network** is a structure linking computers together for the purpose of sharing information and services
- Users typically access a network through a computer called a **host** or **node**
- A node that provides information or a service is called a **server**

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Objectives

- Learn the history of the Web and HTML
- Describe HTML standards and specifications
- Understand HTML elements and markup tags
- Create the basic structure of an HTML file
- Insert an HTML comment
- Work with block-level elements
- Create ordered, unordered, and definition lists

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Exploring the History of the World Wide Web

- A computer or other device that requests services from a server is called a **client**
- One of the most commonly used designs is the **client-server network**
- If the computers that make up a network are close together (within a single department or building), then the network is referred to as a **local area network (LAN)**

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Objectives

- Work with inline elements
- Understand the div and span elements
- Add attributes to HTML elements
- Format page content using the style attribute
- Mark empty elements with one-sided tags
- Add an inline image to a Web page
- Work with character sets and codes

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Exploring the History of the World Wide Web

- A network that covers a wide area, such as several buildings or cities, is called a **wide area network (WAN)**
- The largest **WAN** in existence is the **Internet**
- In its early days, the Internet was called **ARPANET** and consisted of two network nodes located at UCLA and Stanford, connected by a phone line

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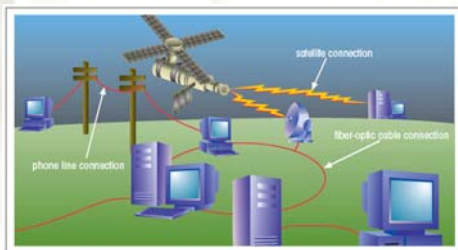
Exploring the History of the World Wide Web

- Today the Internet has grown to include an uncountable number of nodes involving computers, cell phones, PDAs, MP3 players, gaming systems, and television stations
- The physical structure of the Internet uses fiber-optic cables, satellites, phone lines, wireless access points, and other telecommunications media

Hypertext Documents

- When you read a book, you follow a linear progression, reading one page after another
- With hypertext, you progress through pages in whatever way is best suited to you and your objectives
- Hypertext lets you skip from one topic to another

Structure of the Internet



Hypertext Documents

- The key to **hypertext** is the use of **links**, which are the elements in a hypertext document that allow you to jump from one topic or document to another
- A **link** may point to another section of the same document, or to another document entirely
- A **link** can open a document on your computer, or through the Internet, a document on a computer anywhere in the world

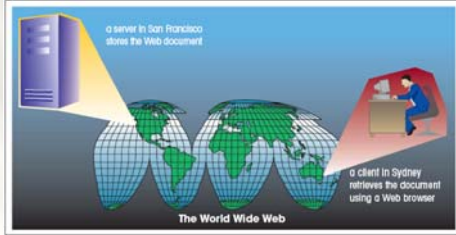
Exploring the History of the World Wide Web

- Timothy Berners-Lee and other researchers at the CERN nuclear research facility near Geneva, Switzerland laid the foundations for the **World Wide Web**, or the **Web**, in 1989
- They developed a system of interconnected **hypertext** documents that allowed their users to easily navigate from one topic to another
- **Hypertext** is a method of organizing information that gives the reader control over the order in which the information is presented

Web Pages and Web Servers

- Each document on the World Wide Web is referred to as a **Web page**
- Web pages are stored on **Web servers**, which are computers that make Web pages available to any device connected to the Internet
- A **Web browser** retrieves the page from the Web server and renders it on the user's computer or other device
- The earliest browsers, known as **text-based browsers**, were incapable of displaying images

Web Pages and Web Servers



The History of HTML

- A group of Web developers, programmers, and authors called the **World Wide Web Consortium**, or the **W3C**, created a set of standards or specifications that all browser manufacturers were to follow
- The **W3C** has no enforcement power
- The recommendations of the **W3C** are usually followed since a uniform approach to Web page creation is beneficial to everyone

Introducing HTML

- A Web page is a text file written in a language called **Hypertext Markup Language**
- A **markup language** is a language that describes a document's content and structure
- HTML is not a programming language or a formatting language
- **Styles** are format descriptions written in a separate language from HTML that tell browsers how to render each element for particular devices

History of HTML and XHTML

Version	Date of Release	Description
HTML 1.0	1989	The first public version of HTML, which included browser support for inline images and text controls.
HTML 2.0	1995	The first version supported by all graphical browsers. It introduced interactive form elements such as option buttons and text boxes. A document written to the HTML 2.0 specification is compatible with almost all browsers on the World Wide Web.
HTML 3.0	1996	A proposed replacement for HTML 2.0 that was never widely adopted.
HTML 3.2	1997	This version included additional support for creating and formatting tables and expanded the options for interactive form elements. It also supported limited programming using scripts.
HTML 4.01	1999	This version added support for style sheets to give Web designers greater control over page layout. It added new features to tables and forms and provided support for international features. This version also expanded HTML's scripting capability and added increased support for multimedia elements.
HTML 5.0	not yet released	This version supports elements that reflect current Web usage, including elements for Web site navigation and indexing for use with search engines. This version also removes support for purely presentational elements because those effects can be better handled with styles.
XHTML 1.0	2000	This version is a reformulation of HTML 4.01 in XML, and combines the strength of HTML 4.0 with the power of XML. XHTML brings the rigor of XML to Web pages and provides standards for more robust Web content on a wide range of browser platforms.
XHTML 1.1	2002	A minor update to XHTML 1.0 that allows for modularity and simplifies writing extensions to the language.
XHTML 2.0	not yet released	The latest version, designed to remove most of the presentational features left in HTML. XHTML 2.0 is not backward compatible with XHTML 1.1.
XHTML 5.0	not yet released	A version of HTML 5.0 written under the specifications of XML, unlike XHTML. A version of HTML 5.0 will be backward compatible with XHTML 1.1.

The History of HTML

- The first version of HTML was created using the **Standard Generalized Markup Language (SGML)**
- In the early years of HTML, Web developers were free to define and modify HTML in whatever ways they thought best
- Competing browsers introduced some differences in the language. The changes were called **extensions**

The History of HTML

- Older features of HTML are often **deprecated**, or phased out, by the W3C. That does not mean you can't continue to use them—you may need to use them if you are supporting older browsers
- Current Web developers are increasingly using **XML (Extensible Markup Language)**
- **XML (Extensible Markup Language)** is a metalanguage like SGML, but without SGML's complexity and overhead

The History of HTML

- **XHTML (Extensible Hypertext Markup Language)** is a stricter version of HTML and is designed to confront some of the problems associated with the different and competing versions of HTML
- **XHTML** is also designed to better integrate **HTML** with other markup languages such as **XML**
- **HTML** will not become obsolete anytime soon

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Tools for Creating HTML Documents

- Basic text editor such as Windows Notepad
- **HTML Converter** – translates formatted text into HTML code
 - Can create the source document in a word processor and then convert it
 - HTML code created using a converter is often longer and more complicated than necessary, resulting in “bloating” code

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The History of HTML

- **XHTML 2.0** is still in the draft stage, and is not backward-compatible with earlier versions of HTML and XHTML
- HTML 5 is being developed under the XML specifications as **XHTML 5.0**

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Tools for Creating HTML Documents

- **HTML Editor** – helps you create an HTML file by inserting HTML codes for you as you work
 - They can save you a lot of time and help you work more efficiently
 - Advantages and limitations similar to those of HTML converters
 - Allow you to set up a Web page quickly
 - Will usually still have to work with HTML code to create a finished document

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Writing HTML Code

- Become well-versed in the history of HTML
- Know your market
- Test your code on several different browsers and browser versions
- Read the documentation on the different versions of HTML and XHTML

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Creating an HTML Document

- Plan out your Web page before you start coding
- Draw a planning sketch or create a sample document using a word processor
- Preparatory work can weed out errors or point to potential problems

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Creating an HTML Document

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Marking Elements with Tags

- A two-sided tag's opening tag (<p>) and closing tag (</p>) should completely enclose its content
- Elements can contain other elements
 - Tags cannot overlap

`<p>Welcome to Dave's Devil Sticks</p>`

Creating an HTML Document

- In planning, identify a document's various elements. An **element** is a distinct object in the document, like a paragraph, a heading, or a page's title
- Formatting features such as **boldfaced** font, and *italicized* text may be used

The Structure of an HTML File

- The opening `<html>` tag marks the start of an HTML document, and the closing `</html>` tag tells a browser when it has reached the end of that HTML document
 - `<html>` marks the **root element**
- Anything between these two tags makes up the document content, including all other elements, text, and comments

Marking Elements with Tags

- The core building block of HTML is the **tag**, which marks the presence of an element
- A **two-sided tag** is a tag that contains some document content. General syntax for a two-sided tag:

`<element>content</element>`

The Structure of an HTML File

- An HTML document is divided into two main sections: the **head** and the **body**
- The **head element** contains information about the document, for example the document title or the keywords
- The content of the **head** element is not displayed within the Web page

The Structure of an HTML File

- The **body element** contains all of the content to appear on the Web page
- The **body element** can contain code that tells the browser how to render the content
- The **title element** contains the page's title. A document's title is usually displayed in the browser's title bar

Adding Comments

```
<html>
<head>
  <!-- Dave's Devil Sticks
        Author: David Vinet
        Date: 3/1/2011
  -->
  <title>Dave's Devil Sticks</title>
</head>
<body>
</body>
</html>
```

multiline comment

Converting an HTML Document into XHTML

- There is considerable overlap between HTML and XHTML
- You can convert an HTML file into an XHTML file by replacing the opening `<html>` tag with the following three lines of code:
 - `<?xml version="1.0" encoding="UTF-8" standalone="no" ?>`
 - `<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml11-strict.dtd">`
 - `<html xmlns=http://www.w3.org/1999/xhtml>`

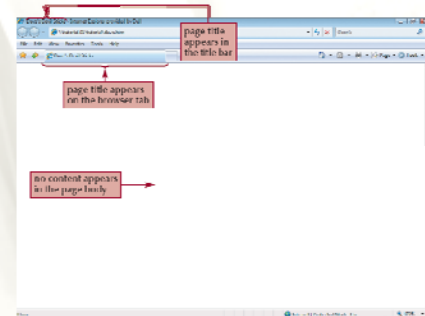
Displaying an HTML File

- As you continue modifying the HTML code, you should occasionally view it with your Web browser to verify that you have not introduced any errors
- You may want to view the results using different browsers to check for compatibility

Adding Comments

- The **comment tag** adds notes to your HTML code
`<!-- comment -->`
- Comments can be spread over several lines
- Comments are useful in documenting your HTML code for yourself and others

Displaying an HTML File



Working with Block-Level Elements

- **Block-level** elements are elements that contain content that is viewed as a distinct block within the Web page
- **Heading elements** are block-level elements that contain the text of main headings on the Web page
 - `<hn>content</hn>`
 - *n* is an integer between 1 and 6
 - `<h1>` is the largest heading
 - `<h6>` is the smallest heading

Marking Paragraph Elements

```
<body>  
  <h1>Dave's Devil Sticks</h1>  
  <h2>Who Am I?</h2>  
  <p>Welcome to Dave's Devil Sticks. If you're looking for quality, full, hand-crafted, devil sticks, you've come to the right place. For 20 years, including high-quality, hand-crafted, devil sticks, we've been producing and holding sticks for the past 20 years, and I know that my sticks are the best of the best.</p>  
  <p>Every stick is checked and tested before being shipped out to ensure perfect quality. I make sticks for every one of my sticks, and I want my customers to feel that same pride.</p>  
  <h2>My Products</h2>  
</body>
```

Dave's Devil Sticks

Who Am I?

Welcome to Dave's Devil Sticks. If you're looking for quality, full, hand-crafted, devil sticks, you've come to the right place. For 20 years, including high-quality, hand-crafted, devil sticks, we've been producing and holding sticks for the past 20 years, and I know that my sticks are the best of the best.

My Products

Marking Block-Level Elements

- To mark a heading, enter `<hn>content</hn>` where *n* is an integer from 1 to 6 and *content* is the text of heading
- To mark a paragraph, enter `<p>content</p>`
- To mark a block quote, enter `<blockquote>content</blockquote>`
- To mark a generic block-level element, enter `<div>content</div>`

White Space and HTML

- HTML file documents are composed of text characters and **white space**
- **White space** is the blank space, tabs, and line breaks within the file
- HTML treats each occurrence of **white space** as a single blank space
- You can use **white space** to make your document more readable

Adding <h1> and <h2> Markup Tags

```
<body>  
  <h1>Dave's Devil Sticks</h1>  
  <h2>Who Am I?</h2>  
  <h2>My Products</h2>  
</body>
```

Dave's Devil Sticks

Who Am I?

My Products

Marking a Block Quote

- The syntax for making an extended quote is `<blockquote>content</blockquote>`

```
<blockquote>  
  Welcome to Dave's Devil Sticks. If you're looking for quality, full, hand-crafted, devil sticks, you've come to the right place. For 20 years, including high-quality, hand-crafted, devil sticks, we've been producing and holding sticks for the past 20 years, and I know that my sticks are the best of the best.  
</blockquote>
```

Dave's Devil Sticks

Who Am I?

Welcome to Dave's Devil Sticks. If you're looking for quality, full, hand-crafted, devil sticks, you've come to the right place. For 20 years, including high-quality, hand-crafted, devil sticks, we've been producing and holding sticks for the past 20 years, and I know that my sticks are the best of the best.

Marking a List

- HTML supports three kinds of lists: **ordered, unordered, and definition**
- You use an **ordered list** for items that must appear in a numerical order
- You use an **unordered list** for items that do not need to occur in any special order
- One **list** can contain another list This is called a nested list

Using Other Block-Level Elements

- HTML supports the **address element** to indicate contact information Most browsers display an address element in an italicized font, and some right-justify or indent addresses

```
<address>Steve J. Devitt Sticks  
248 West Highland Dr.  
Asbury, NJ 08210  
(202) 555-9000  
</address>
```

My Products

- Basic Stick
- Flower Stick
- Master Stick
- Ultra Stick

Steve's Devitt Sticks, 248 West Highland Dr., Asbury, NJ 08210 (202) 555-9000

Marking a List

Marking Lists

- To mark an ordered list, enter

```
<ol>  
  <li>item1</li>  
  <li>item2</li>  
</ol>
```

 where *item1*, *item2*, and so forth are the items in the list.
- To mark an unordered list, use

```
<ul>  
  <li>item1</li>  
  <li>item2</li>  
</ul>
```
- To mark a definition list, use

```
<dl>  
  <dt>term1</dt>  
  <dd>description1</dd>  
  <dt>term2</dt>  
  <dd>description2a</dd>  
  <dd>description2b</dd>  
</dl>
```

 where *term1*, *term2*, etc. are the terms in the list and *description1*, *description2a*, *description2b*, etc. are the descriptions associated with each term.

Using Other Block-Level Elements

Block-Level Element	Mark	Usual Visual Appearance
<code><address> ... </address></code>	Contact information	Italicized text
<code><blockquote> ... </blockquote></code>	An extended quotation	Plain text indented from the left and right
<code><center> ... </center></code>	Text horizontally centered with the block (deprecated)	Plain text, centered
<code><dd> ... </dd></code>	A definition description	Plain text
<code><dl> ... </dl></code>	A multicolored directory list (deprecated)	Plain text
<code><div> ... </div></code>	A generic block-level element	Plain text
<code><dt> ... </dt></code>	A definition term from a definition list	Plain text
<code><div style="font-size: 2em;"> ... </div></code>	A heading where <i>n</i> is a value from 1 to 6 with <i>n</i> as the most prominent heading and 6 the least prominent	Boldfaced text of various font sizes
<code> ... </code>	A list item from an ordered or unordered list	Bulleted or numbered text
<code><table> ... </table></code>	A single column menu list (deprecated)	Plain text
<code> ... </code>	An unordered list	Plain text
<code><p style="text-align: center;"> ... </p></code>	A paragraph	Plain text
<code><pre> ... </pre></code>	Preformatted text, retaining all white space and special characters	Fixed-width text
<code><ul style="list-style-type: none;"> ... </code>	An unordered list	Plain text

Creating a Definition List

- The **definition list** contains a list of terms, each followed by the term's description
- Web browsers typically display the definition description below the definition term and slightly indented:

Basic Stick
 Easiest stick to learn

Working with Inline Elements

- An **inline element** marks a section of text within a block-level element
- Often used to format characters and words
 - Also referred to as **character formatting elements**

text marked with the `<div>` tag

```
HTML Code
```

```
<div style="font-size: 2em;">
  Steve's Devitt Sticks, 248 West Highland Dr., Asbury, NJ 08210 (202) 555-9000
</div>
```

Preview

Steve's Devitt Sticks, 248 West Highland Dr., Asbury, NJ 08210 (202) 555-9000

bold text *italicized text*

Working with Inline Elements

Inline Element	Mark	Usual Visual Appearance
<code><abbr> ... </abbr></code>	An abbreviation	Plain text
<code><acronym> ... </acronym></code>	An acronym	Plain text
<code> ... </code>	Boldfaced text	Boldfaced text
<code><big> ... </big></code>	Big text	Larger text
<code><code> ... </code></code>	A program	Fixed-width text
<code> ... </code>	Deleted text	Strikethrough text
<code><dfn> ... </dfn></code>	A definition term	Boldfaced text
<code> ... </code>	Emphasized content	Boldfaced text
<code><i> ... </i></code>	Italicized text	Italicized text
<code><ins> ... </ins></code>	Inserted text	Underlined text
<code><input type="style" ... </input></code>	Keyboard-style text	Fixed-width text
<code><q> ... </q></code>	Quoted text	Quoted text
<code><s> ... </s></code>	Strikethrough text (Deprecated)	Strikethrough text
<code><sample> ... </sample></code>	Sample computer code	Fixed-width text
<code><small> ... </small></code>	Small text	Smaller
<code> ... </code>	A generic inline element	Plain text
<code> ... </code>	Strikethrough text (Deprecated)	Strikethrough text
<code><u> ... </u></code>	Strongly emphasized content	Boldfaced text
<code><sub> ... </sub></code>	Subscripted text	Smaller text
<code><sup> ... </sup></code>	Superscripted text	Smaller text
<code><tt> ... </tt></code>	Teletype text	Fixed-width text
<code><u> ... </u></code>	Underlined text (Deprecated)	Underlined text
<code><var> ... </var></code>	Programming variable	Italicized text

The Style Attribute

- Use the **style attribute** to control the appearance of an element, such as text alignment
- The **text-align style** tells the browser how to horizontally align the contents of an element
- The **color style** tells the browser to render the text in a certain color
- **Presentational attributes** specify exactly how the browser should render an element

Logical Elements vs Physical Elements

- A logical element describes the nature of the enclosed content, but not necessarily how that content should appear
- A physical element describes how content should appear, but doesn't indicate the content's nature
- You should use a logical element that accurately describes the enclosed content whenever possible, and use physical elements only for general content

The Style Attribute

Applying the Style Attribute

- To add the style attribute, in the opening tag enter `style="name1: value1; name2: value2; ..."` where `name1`, `name2`, etc. are style names and `value1`, `value2` and so forth are the values of those styles.
- To center text horizontally, use `style="text-align: alignment"` where `alignment` is left, right, center, or justify.
- To set the font color, use `style="color: color"` where `color` is a color name.

Using Element Attributes

- Many tags contain attributes that control the use, behavior, and in some cases the appearance, of elements in the document
- Attributes are inserted within the tag brackets

```
<element attribute1="value1" attribute2="value2" ...>content</element>
```

The Style Attribute

HTML Code

```

1 <div style="text-align: center; color: red;">
2   Dave's Devil Sticks
3 </div>
```

styles to center the text and change the font color to red

Preview

Dave's Devil Sticks

↓

formal text

Working with Empty Elements

- An **empty element** contains no content
- Empty elements appear in code as **one-sided tags**
 - <element />
- The one-sided tag to mark a line break is
 -

- The horizontal rule element places a horizontal line across the Web page
 - <hr />

Working with Empty Elements



Working with Empty Elements

```
<!DOCTYPE html>
<html>
  <head>
    <title>Dove's Devil Sticks</title>
  </head>
  <body>
    <img alt="Dove's Devil Sticks logo" data-bbox="560 210 760 245" />
    <h1>Dove's Devil Sticks</h1>
    <hr />
    <h2>Who Am I?</h2>
    <p>Welcome to Dove's Devil Sticks. If you are looking for...</p>
  </body>
</html>
```

Working with Character Sets and Special Characters

- **Character sets** come in a wide variety of sizes, based on the number of symbols required for communication in the chosen language
 - ASCII (American Standard Code for Information Interchange)
 - Latin-1
 - ISO 8859-1
 - Unicode
 - UTF-8

Working with Empty Elements

- To display a graphic, you insert an **inline image** into the page. An **inline image** displays a graphic image located in a separate file within the page
 -

```
<img alt="Dove's Devil Sticks logo" data-bbox="560 210 760 245" />
```

Working with Character Sets and Special Characters

- To store a character set, browsers need to associate each symbol with a number in a process called **character encoding**
- Another way to insert a special symbol is to use a **character entity reference**, in which a short memorable name is used in place of the numeric character reference

Working with Character Sets and Special Characters

Inserting Character Codes

- To insert a character based on a numeric character reference, use `&#code;` where `code` is the character code number.
- To insert a character based on the character entity reference, use `&char;` where `char` is the name assigned to the character.
- To insert a nonbreaking space, use ` `.
- To insert the `<` symbol, use `<`.
- To insert the `>` symbol, use `>`.

Working with Character Sets and Special Characters

Enter a character code or character name: Show

character symbol character entity reference

Select a table of characters from the list box: General Symbols Show Table

General Symbols									
”	&	<	>	ı	ı	ı	ı	ı	ı
quot (194)	amp (195)	lt (196)	gt (197)	stab (198)	scot (199)	cent (200)	percnt (201)	num (202)	yen (203)
ı	§	–	–	–	–	–	–	–	–
brpar (166)	sect (167)	uml (168)	copy (169)	left (170)	back (171)	dot (172)	str (173)	reg (174)	macr (175)
ı	ı	ı	ı	ı	ı	ı	ı	ı	ı
deg (176)	pluss (177)	sup2 (178)	sup3 (179)	acute (180)	micro (181)	para (182)	moder (183)	cedil (184)	sup1 (185)
o	»	¼	½	¾	numeric character reference	character entity reference			
ordm (186)	raquo (187)	frac14 (188)	frac12 (189)	frac34 (190)					

Tutorial Summary

- Create a basic Web page using HTML
- Concepts and history surrounding networks and the development of the World Wide Web
- History of HTML
- Creation of a simple Web page
- Block-level elements
- Inline elements
- Element attributes
- Character sets and special character symbols