

Tutorial 1

Getting Started with HTML5

HTML, CSS, and Dynamic HTML

5TH EDITION



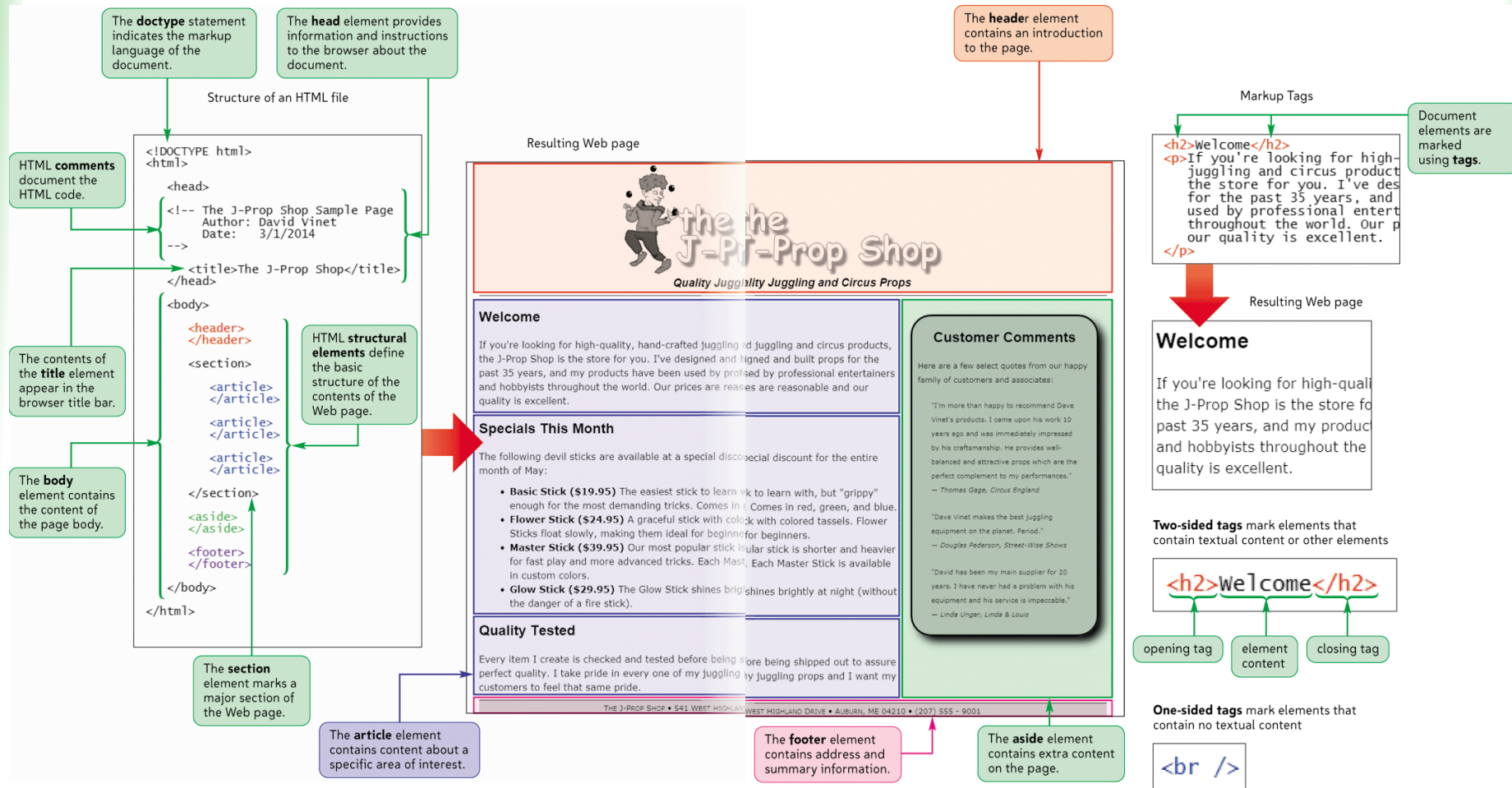
Objectives

- Explore the history of the Internet, the Web, and HTML
- Compare the different versions of HTML
- Study the syntax of HTML tags and attributes
- Define a Web page head, body, and title
- Work with the HTML5 structural elements

Objectives

- Mark page headings, paragraphs, block quotes, and addresses
- Create unordered and ordered lists
- Apply an external style sheet to a Web page
- Run a JavaScript program
- Mark text-level elements including strong and emphasized text
- Insert inline images and line breaks
- Insert special characters from extended character sets

The Structure of an HTML5 Document



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 **node** or **host**
- A host that provides information or a service is called a **server**

Exploring the History of the World Wide Web

- A computer or other device that receives a service 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)**

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**
- Today the Internet has grown to include an uncountable number of networks and hosts involving computers, mobile phones, PDAs, MP3 players, gaming systems, and television stations

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 organization in which data sources are interconnected through a series of **links** or hyperlinks that users can activate to jump from one piece of information to another

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

Introducing HTML

- A Web page is a text file written in **Hypertext Markup Language**
- A **markup language** is a language that describes the content and structure of a document by identifying, or **tagging**, different elements in the document

The History of HTML

- The first popular markup language was **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

The History of HTML

- A group of Web designers and programmers, 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

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** 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**

The History of HTML

- **XHTML 2.0** began development, but work was halted in 2009
- **HTML5** was developed as the next HTML specification, and the de facto standard for the next generation of HTML

The History of HTML

Figure 1-1 Versions of HTML

Version	Date	Description
HTML1.0	1989	The first public version of HTML.
HTML 2.0	1995	Added interactive elements including Web forms.
HTML 3.0	1996	A proposed replacement for HTML 2.0 that was never widely adopted.
HTML 3.2	1997	Included additional support for Web tables and expanded the options for interactive form elements and a scripting language.
HTML 4.01	1999	Added support for style sheets to give Web designers greater control over page layout and appearance, and provided support for multimedia elements such as audio and video. Current browsers support almost all of HTML 4.01.
XHTML 1.0	2001	A reformulation of HTML 4.01 in the XML language in order to provide enforceable standards for HTML content and to allow HTML to interact with other XML languages.
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	discontinued	The follow-up version to XHTML 1.1 designed to fix some of the problems inherent in HTML 4.01 syntax. Work on this version was discontinued in 2009 due to lack of browser support.
HTML 5.0	In development	An update to HTML 4.01 that provides support for a variety of new features including semantic page elements, column layout, form validation, offline storage, and enhanced multimedia.
XHTML 5.0	In development	A version of HTML 5.0 written under the XML language; unlike XHTML 2.0, XHTML 5.0 will be backward compatible with XHTML 1.1.

HTML and Style Sheets

- HTML marks the different parts of a document, but it does not indicate how document content should be displayed by browsers
- For this reason, the exact appearance of each page element is described in a separate document known as a **style sheet**
 - Internal style sheets specify the appearance of different HTML elements

Tools for Creating HTML Documents

- Basic text editor such as Windows Notepad
- Other software programs that enable you to create documents in different formats, such as Microsoft Word or Adobe Acrobat, include tools to convert their documents into HTML for quick and easy publishing on the Web
- Web publishing software manages all of the code and extended features of your site

Entering Elements and Attributes

- An HTML document is composed of **elements** that represent distinct items in the Web page, such as a paragraph, the page heading, or even the entire body of the page itself
 - Elements are marked by one or more **tags**
- A **two-sided tag** is a tag that contains some document content. General syntax for a two-sided tag:

<element>content</element>

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 the J-Prop Shop</p>

Adding an Attribute to an Element

- To add an element attribute, use the format

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

where *attribute1*, *attribute2*, etc. are the names of attributes associated with the element, and *value1*, *value2*, etc. are the values of those attributes

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

Exploring the Structure of an HTML File

<html>

 <head>

 head content

 </head>

 <body>

 body content

 </body>

</html>

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

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/xhtml1-strict.dtd">`
 - `<html xmlns=http://www.w3.org/1999/xhtml>`

The Document Type Declaration

- Prior to the opening `<html>` tag, many HTML files also include a **Document Type Declaration**, or **doctype**, to indicate the type of markup language used in the document

```
<!DOCTYPE html>
```

Defining the Page Title

Figure 1-4 Specifying the page title

```
<!DOCTYPE html>
<html>
  <head>
    <title>The J-Prop Shop</title>
  </head>
  <body>
  </body>
</html>
```

text will appear in
browser title bar
or on browser tab

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

Adding Comments

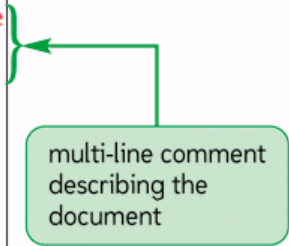
Figure 1-5 Adding comments to the HTML file

```
<!DOCTYPE html>
<html>

  <head>
    <!-- The J-Prop Shop Sample Page
         Author: David Vinet
         Date: 3/1/2014
    -->
    <title>The J-Prop Shop</title>
  </head>

  <body>
  </body>

</html>
```



multi-line comment
describing the
document

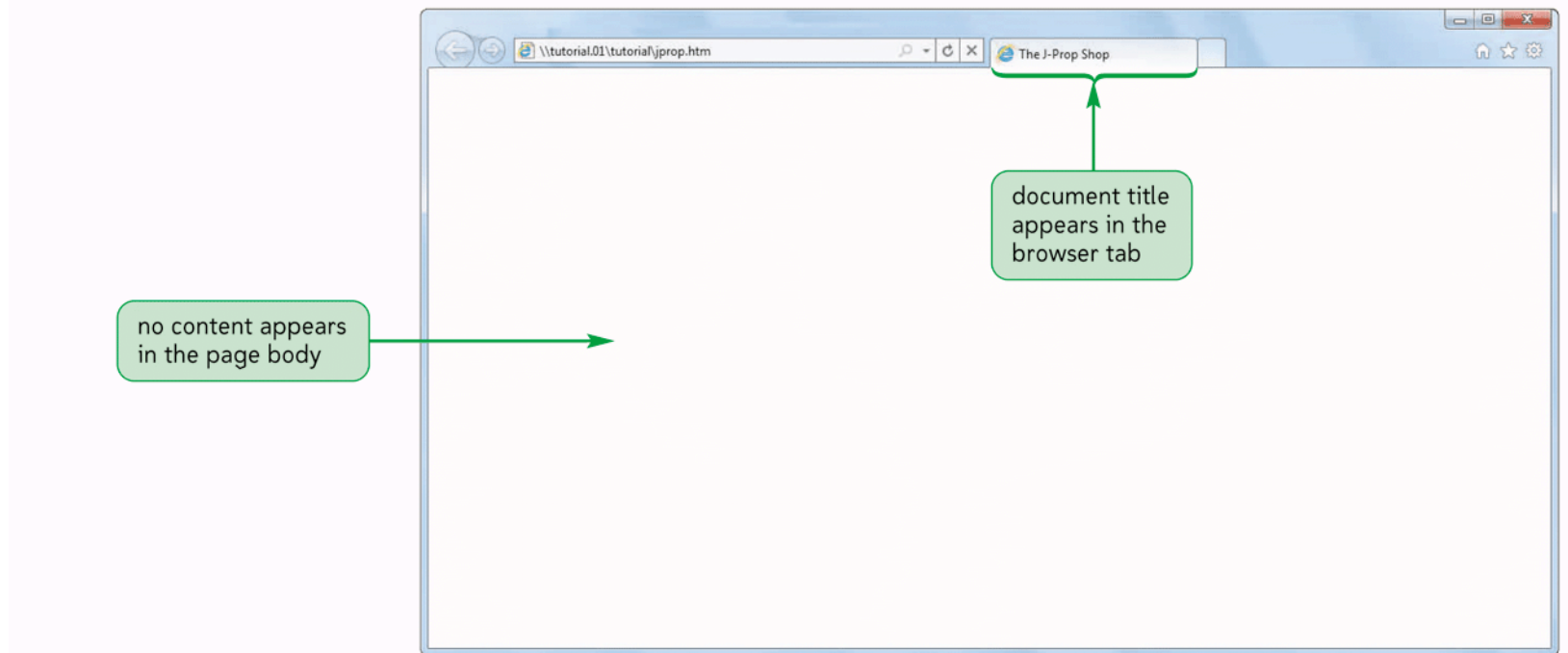
Displaying an HTML File

- 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

Displaying an HTML File

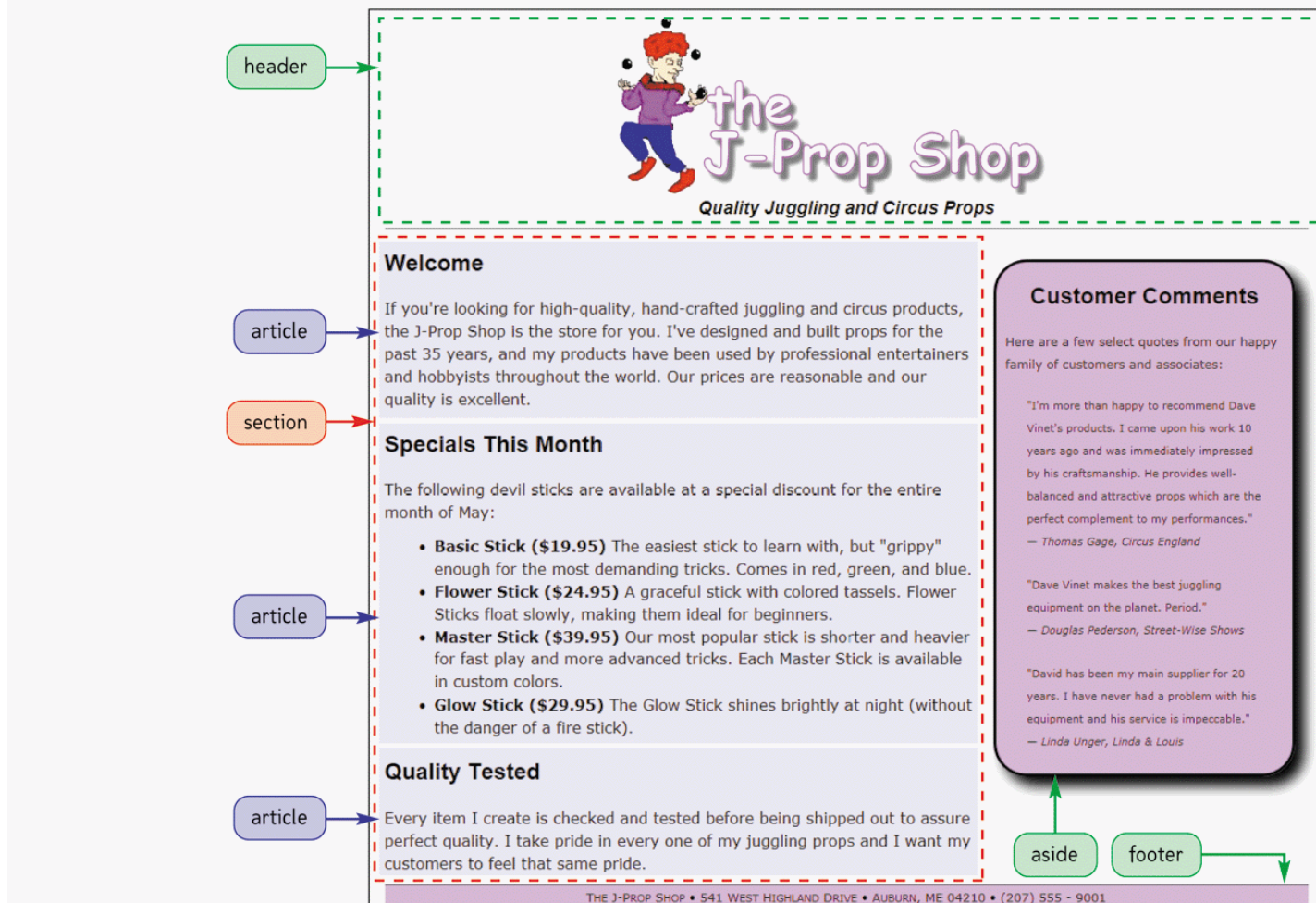
Figure 1-6

Viewing the initial HTML file in a Web browser



Defining the Structure of the Page Body

Figure 1-8 Structure of Dave's Web page



Defining the Structure of the Page Body

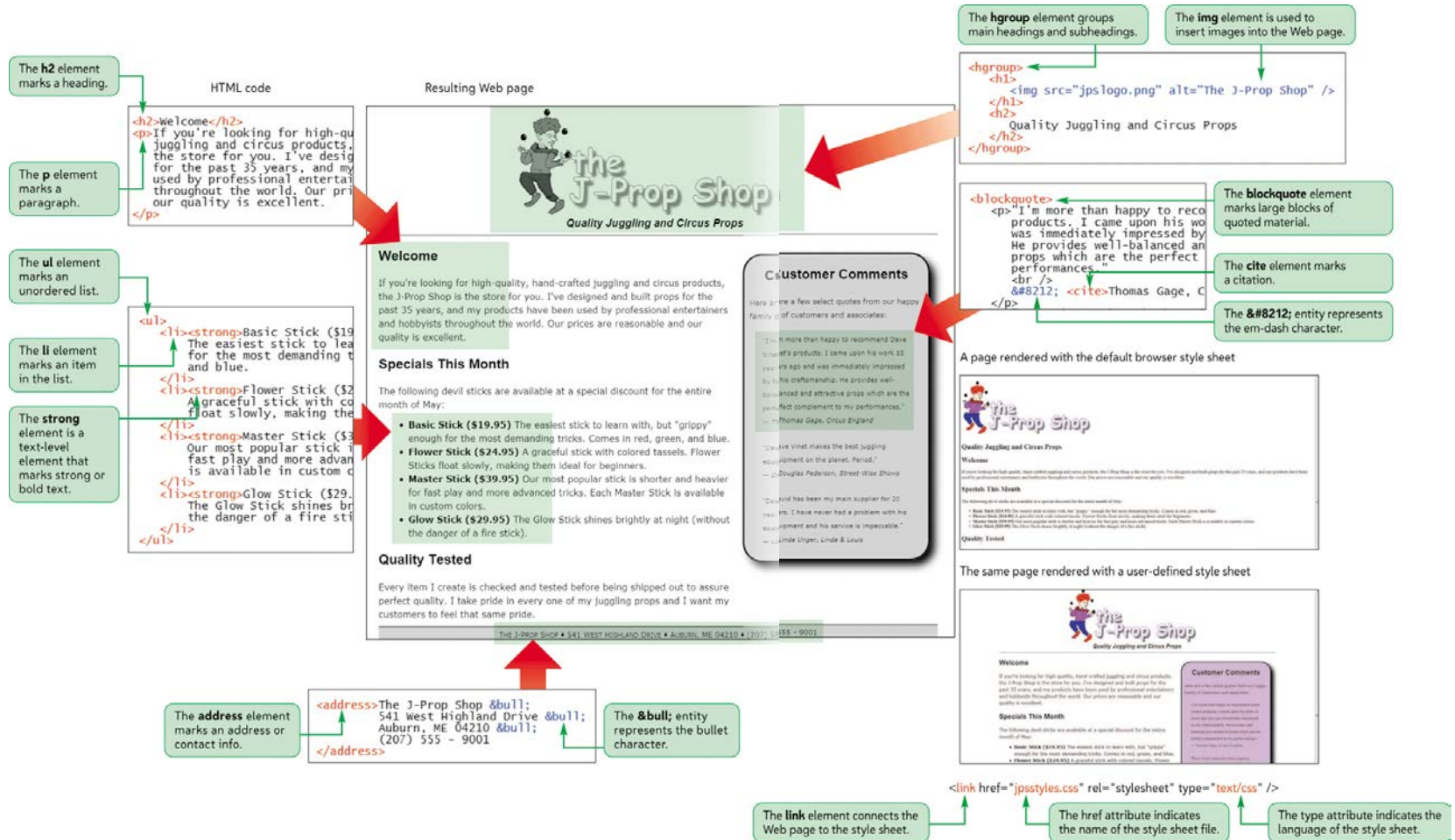
Figure 1-9 HTML5 structural elements

Structural Element	Description
article	A subsection covering a single topic
aside	Content containing tangential or side issues to the main topic of the page
footer	Content placed at the bottom of the page
header	Content placed at the top of the page
nav	A navigation list of hypertext links
section	A major topical area in the page

Marking Structural Elements in HTML5

- To mark the page header, use the header element
- To mark the page footer, use the footer element
- To mark a main section of page content, use the section element
- To mark a sidebar, use the aside element
- To mark an article, use the article element

Page Content Elements



Working with Grouping Elements

Figure 1-13 Grouping elements

Grouping Element	Description
<code>address</code>	Contact information (usually rendered as <i>italicized</i> text)
<code>blockquote</code>	An extended quotation (usually indented from the left and right margins)
<code>dd</code>	A definition from a description list
<code>div</code>	A generic grouping element
<code>dl</code>	A description list
<code>dt</code>	A definition term from a description list
<code>figure</code>	A figure or illustration (HTML5 only)
<code>figcaption</code>	The caption of a figure, which must be nested within the figure element (HTML5 only)
<code>hn</code>	A heading, where n is a value from 1 to 6, with h1 as the most prominent heading and h6 the least prominent (usually displayed in bold text)
<code>li</code>	A list item from an ordered or unordered list
<code>ol</code>	An ordered list
<code>p</code>	A paragraph
<code>pre</code>	Preformatted text, retaining all white space and special characters (usually displayed in a <code>fixed</code> width font)
<code>ul</code>	An unordered list

Working with Grouping Elements

- **Grouping 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 Grouping Content

- To mark a heading, enter
`<h n >content</h n >`
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>`

Adding Headings

Figure 1-15

Inserting h1 and h2 headings

```
<body>
  <header>
    <h1>The J-Prop Shop</h1>
    <h2>Quality Juggling and Circus Props</h2>
  </header>

  <section>
    <article>
      <h2>Welcome</h2>
    </article>

    <article>
      <h2>Specials This Month</h2>
    </article>

    <article>
      <h2>Quality Tested</h2>
    </article>
  </section>

  <aside>
    <h2>Customer Comments</h2>
  </aside>

  <footer>
  </footer>
</body>
```

Figure 1-16

Viewing h1 and h2 headings in Dave's document

The J-Prop Shop

Quality Juggling and Circus Props

Welcome

Specials This Month

Quality Tested

Customer Comments

h1 heading

h2 headings

Marking Paragraph Elements

Figure 1-18 Adding paragraph elements

```
<section>
  <article>
    <h2>welcome</h2>
    <p>If you're looking for high-quality, hand-crafted
      juggling and circus products, the J-Prop Shop is
      the store for you. I've designed and built props
      for the past 35 years, and my products have been
      used by professional entertainers and hobbyists
      throughout the world. Our prices are reasonable and
      our quality is excellent.
    </p>
  </article>
  <article>
    <h2>Specials This Month</h2>
    <p>The following devil sticks are available at a
      special discount for the entire month of May:
    </p>
  </article>
  <article>
    <h2>Quality Tested</h2>
    <p>Every item I create is checked and tested before
      being shipped out to assure perfect quality. I take
      pride in every one of my juggling props and I want
      my customers to feel that same pride.
    </p>
  </article>
</section>
<aside>
  <h2>Customer Comments</h2>
  <p>Here are a few select quotes from our happy family
    of customers and associates:
  </p>
</aside>
```

Figure 1-19 Paragraphs in the Web page

The J-Prop Shop

Quality Juggling and Circus Props

Welcome

If you're looking for high-quality, hand-crafted juggling and circus products, the J-Prop Shop is the store for you. I've designed and built props for the past 35 years, and my products have been used by professional entertainers and hobbyists throughout the world. Our prices are reasonable and our quality is excellent.

Specials This Month

The following devil sticks are available at a special discount for the entire month of May:

Quality Tested

Every item I create is checked and tested before being shipped out to assure perfect quality. I take pride in every one of my juggling props and I want my customers to feel that same pride.

Customer Comments

Here are a few select quotes from our happy family of customers and associates:

paragraphs

Marking a Block Quote

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

Figure 1-20 Adding a block quote

```
<aside>
  <h2>Customer Comments</h2>
  <p>Here are a few select quotes from our happy family
    of customers and associates:
  </p>
  <blockquote>
    <p>"I'm more than happy to recommend Dave Vinet's
      products. I came upon his work 10 years ago and
      was immediately impressed by his craftsmanship.
      He provides well-balanced and attractive
      props which are the perfect complement to my
      performances."
    </p>
    <p>"Dave Vinet makes the best juggling equipment on
      the planet. Period."
    </p>
    <p>"David has been my main supplier for 20 years. I
      have never had a problem with his equipment and
      his service is impeccable."
    </p>
  </blockquote>
</aside>
```

Figure 1-21 Block quote in the Web page

quoted paragraphs
are indented in
the page

Customer Comments

Here are a few select quotes from our happy family of customers and associates:

"I'm more than happy to recommend Dave Vinet's products. I came upon his work 10 years ago and was immediately impressed by his craftsmanship. He provides well-balanced and attractive props which are the perfect complement to my performances."

"Dave Vinet makes the best juggling equipment on the planet. Period."

"David has been my main supplier for 20 years. I have never had a problem with his equipment and his service is impeccable."

Marking an Address

- `<address>content</address>`

Figure 1-22 Adding an address

```
<footer>  
  <address>The J-Prop Shop  
    541 West Highland Drive  
    Auburn, ME 04210  
    (207) 555 - 9001  
  </address>  
</footer>  
</body>
```

Figure 1-23 Address as rendered in the Web page

Customer Comments

Here are a few select quotes from our happy family of customers and associates:

"I'm more than happy to recommend Dave Vinet's products. I came upon his work 10 years ago and was immediately impressed by his craftsmanship. He provides well-balanced and attractive props which are the perfect complement to my performances."

"Dave Vinet makes the best juggling equipment on the planet. Period."

"David has been my main supplier for 20 years. I have never had a problem with his equipment and his service is impeccable."

address text is
displayed in
italic by default

The J-Prop Shop 541 West Highland Drive Auburn, ME 04210 (207) 555 - 9001

Marking a List

- HTML supports three kinds of lists: **ordered**, **unordered**, and **description**
- 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

Description Lists

- The **description 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

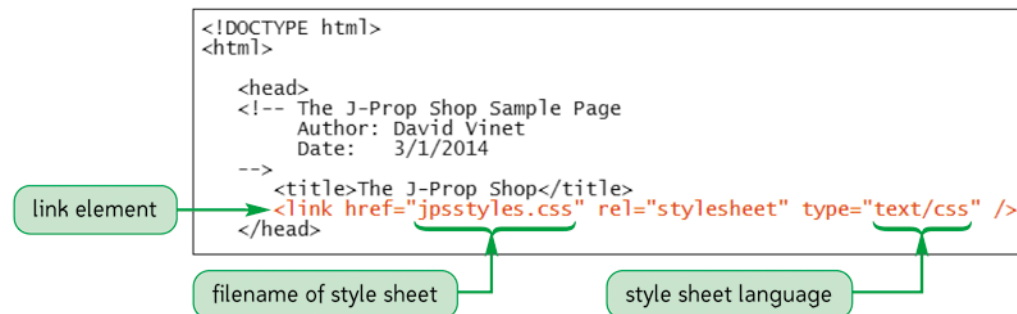
Easiest stick to learn

Applying an External Style Sheet

- Style sheets are written in the **Cascading Style Sheet (CSS)** language
- To apply an external style sheet to a Web page, you create a link within the document head to the style sheet file using the link element

`<link href="file" rel="stylesheet" type="text/css" />`

Figure 1-30 Linking to the jpsstyles.css style sheet




Linking to a JavaScript File

Figure 1-33 Linking to the Modernizr script

```
<!DOCTYPE html>
<html>

  <head>
    <!-- The J-Prop Shop Sample Page
         Author: David Vinet
         Date: 3/1/2014
    -->
    <title>The J-Prop Shop</title>
    <script src="modernizr-1.5.js"></script>
    <link href="jpsstyles.css" rel="stylesheet" type="text/css" />
  </head>
```



Modernizr script file

Marking Text-Level Elements

Figure 1-35 Text-level elements

Text-Level Element	Description
a	A hypertext link
abbr	An abbreviation
b	Text offset from the surrounding content (usually displayed in boldface text)
cite	A citation (usually displayed in <i>italics</i>)
code	Program code (usually displayed in a <code>fixed width</code> font)
del	Deleted text (usually displayed with a striketrough line)
dfn	A definition term (usually displayed in <i>italics</i>)
em	Emphasized content (usually displayed in <i>italics</i>)
i	Text representing an alternate voice or mood (usually displayed in <i>italics</i>)
ins	Inserted text (usually displayed with an <u>underline</u>)
kbd	Keyboard text (usually displayed in a <code>fixed width</code> font)
mark	Highlighted or marked text (usually displayed with a highlight . HTML5 only)
q	Quoted text (occasionally enclosed in "quotes")
samp	Sample computer code (usually displayed in a <code>fixed width</code> font)
small	Text displayed in a smaller font than surrounding content
span	A span of generic text
strong	Strongly emphasized content (usually displayed in boldface text)
sub	Subscripted text
sup	Superscripted text
time	A date and time value (HTML5 only)
var	Programming variables (usually displayed in <i>italic</i>)

Using the Generic Elements

div and span

- HTML supports two such generic elements: div and span
 - The div element is used to mark general grouping content
 - The span element is used to mark general text-level content

Marking a Line Break

Figure 1-41 Inserting line breaks

line break element

```
<blockquote>
  <p>"I'm more than happy to recommend Dave Vinet's
    products. I came upon his work 10 years ago and
    was immediately impressed by his craftsmanship.
    He provides well-balanced and attractive
    props which are the perfect complement to my
    performances."
    <br />
    <cite>Thomas Gage, Circus England</cite>
  </p>
  <p>"Dave Vinet makes the best juggling equipment on
    the planet. Period."
    <br />
    <cite>Douglas Pederson, Street-Wise Shows</cite>
  </p>
  <p>"David has been my main supplier for 20 years. I
    have never had a problem with his equipment and
    his service is impeccable."
    <br />
    <cite>Linda Unger, Linda & Louis</cite>
  </p>
</blockquote>
```

Inserting an Inline Image

Figure 1-42 Adding an inline image

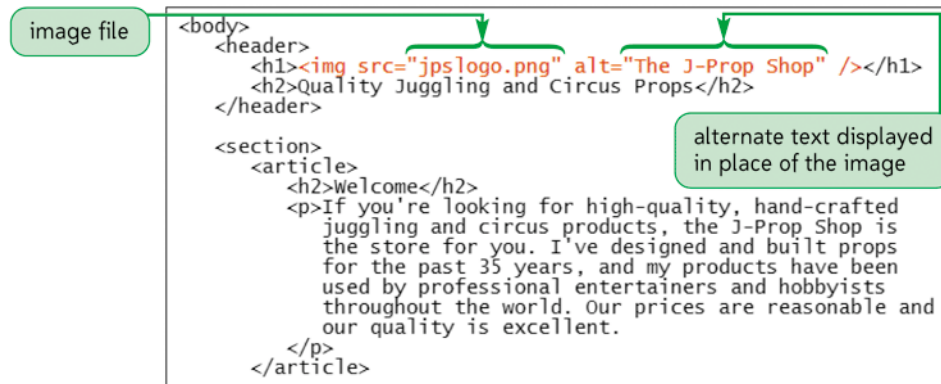


Figure 1-43 Viewing the company logo



Figures and Figure Captions

- In books and magazines, figures and figure captions are often placed within boxes that stand aside from the main content of an article
- HTML5 introduced this type of object to Web page markup with the figure and figcaption elements

`<figure>`

content

`<figcaption>`*caption*`</figcaption>`

`</figure>`

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 Character Sets and Special Characters

- **Character encoding** associates each symbol from a character set with a numeric value called the **numeric character reference**
- 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

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

Working with Character Sets and Special Characters

Figure 1-44

HTML characters demo page

The screenshot shows the 'HTML characters demo page' interface. At the top, there is a text input field labeled 'Enter a character code or character name:' containing the text '®'. To its right is a 'Show' button. Below this, a green callout box labeled 'character symbol' points to a yellow box containing the registered trademark symbol (®). Another green callout box labeled 'character entity reference' points to the '®' text in the input field. Below the input field, there is a dropdown menu labeled 'Select a table of characters from the list box:' with 'General Symbols' selected, and a 'Show Table' button. The 'General Symbols' table is displayed below, showing various characters and their corresponding numeric character references. A green callout box labeled 'symbol' points to the 'μ' character in the table. Another green callout box labeled 'numeric character reference' points to the '164' value for the 'current' character. A third green callout box labeled 'character entity reference' points to the 'frac34' text in the table.

Enter a character code or character name:

character symbol

character entity reference

Select a table of characters from the list box:

General Symbols

"	&	<	>	nbsp (160)	iexcl (161)	cent (162)	pound (163)	current (164)	yen (165)
quot (34)	amp (38)	lt (60)	gt (62)	a	«	¬	®	—	
brvbar (166)	sect (167)	uml (168)	copy (169)	ordf (170)	laquo (171)	not (172)	shy (173)	reg (174)	macr (175)
°	±	²	³	´	µ	¶	·	¸	¹
deg (176)	plusmn (177)	sup2 (178)	sup3 (179)	acute (180)	micro (181)	para (182)	middot (183)	cedil (184)	sup1 (185)
°	»	¼	½	¾					
ordm (186)	raquo (187)	frac14 (188)	frac12 (189)	frac34 (190)					

symbol

numeric character reference

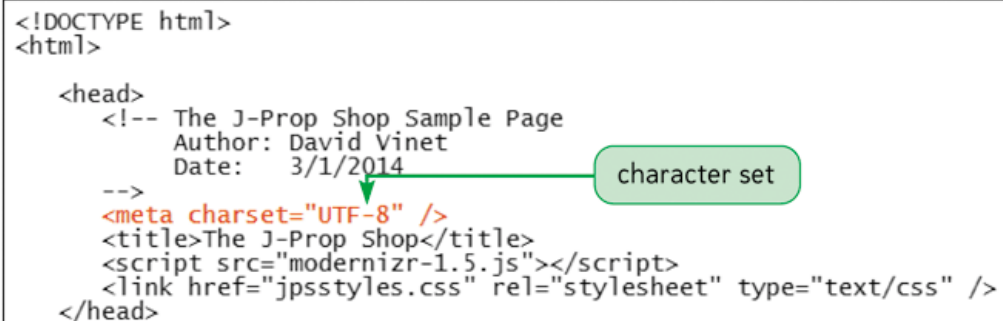
character entity reference

Specifying a Character Set

Figure 1-47 Specifying the character encoding

```
<!DOCTYPE html>
<html>

  <head>
    <!-- The J-Prop Shop Sample Page
         Author: David Vinet
         Date: 3/1/2014
    -->
    <meta charset="UTF-8" />
    <title>The J-Prop Shop</title>
    <script src="modernizr-1.5.js"></script>
    <link href="jpsstyles.css" rel="stylesheet" type="text/css" />
  </head>
```



A green arrow points from a green rounded rectangle labeled "character set" to the `charset="UTF-8"` attribute in the `<meta>` tag of the HTML code.