HTML5, CSS3, and JavaScript

6th Edition

Tutorial 1

Getting Started with HTML5

Objectives – 1/3

- Explore the history of the web
- Create the structure of an HTML document
- Insert HTML elements and attributes
- Insert metadata into a document
- Define a page title

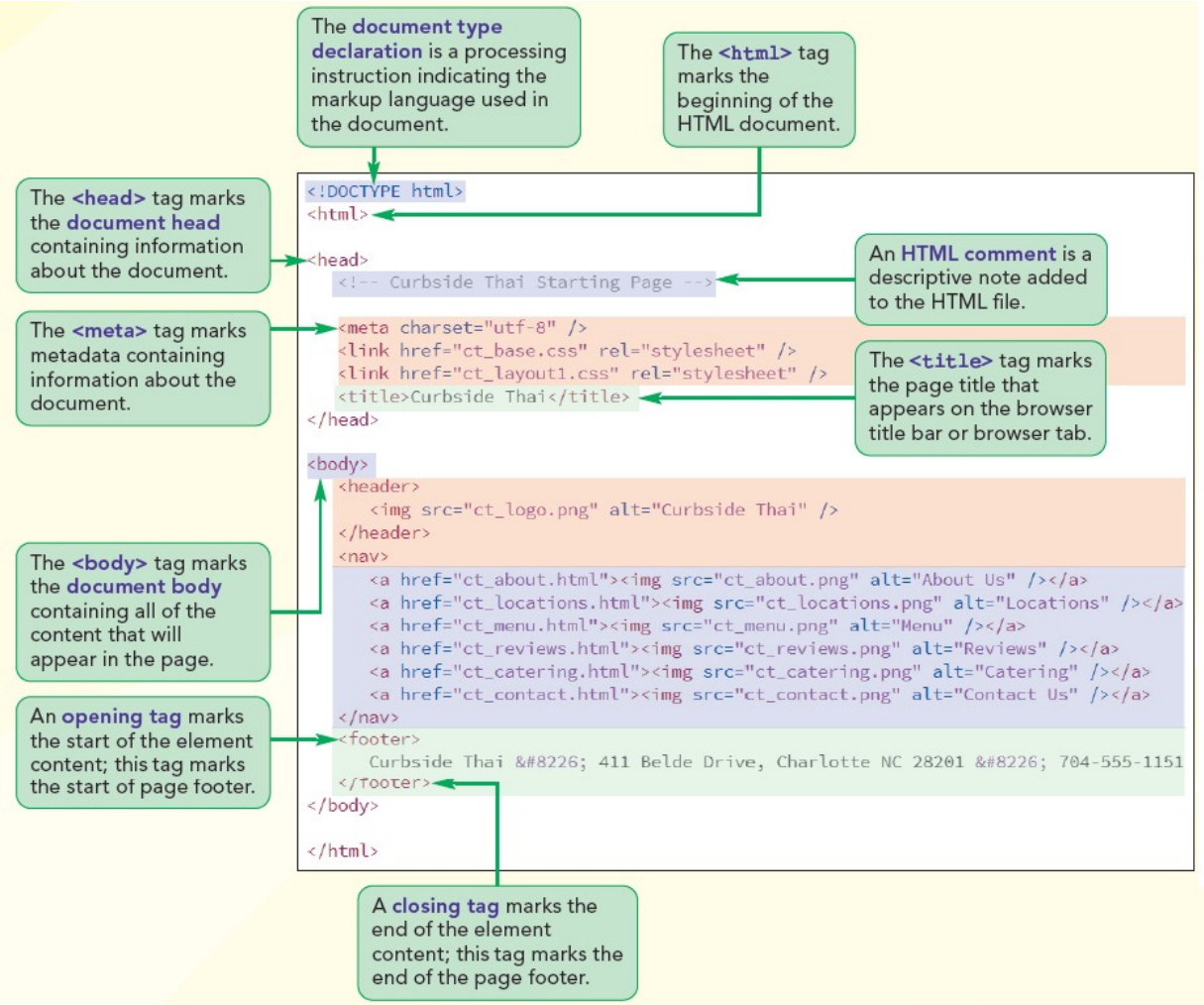
Objectives – 2/3

- Mark page structures with sectioning elements
- Organize page content with grouping elements
- Mark content with text-level elements
- Insert inline images
- Insert symbols based on character codes

Objectives – 3/3

- Mark content using lists
- Create a navigation list
- Link to files within a website with hypertext links
- Link to e-mail addresses and telephone numbers

The Structure of an HTML5 Document



Exploring the World Wide Web – 1/4

- A **network** is a structure in which information and services are shared among devices
- A **host** or a **node** can be any device that is capable of sending and/or receiving data electronically
- A **server** is a host that provides information or a service to other devices on the network

Exploring the World Wide – 2/4

- A computer or other device that receives a service is called a **client**
- In a **client-server network**, clients access information provided by one or more users
- **Local area network** - A network confined to a small geographic area, such as within a building or department

Exploring the World Wide Web – 3/4

- 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**

Exploring the World Wide Web – 4/4

- 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 web is referred to as a **web page**
- Web pages are stored on **web servers**
- Documents on the web are accessed through a software program called a **web browser**

Introducing HTML

- A Web page is a text file written in **HTML** (**Hypertext Markup Language**)

- A **markup language** describes the content and structure of a document by identifying, or tagging, different document elements

The History of HTML – 1/4

- In the early years of HTML, browser developers were free to define and modify the language as no rules or syntax were defined

- The **World Wide Web Consortium**, or the **W3C**, created a set of standards or specifications for all browser manufacturers to follow

The History of HTML – 2/4

- 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 – 3/4

- **XHTML (Extensible Hypertext Markup Language)** is a different version of HTML enforced with a stricter set of standards
- **HTML5** was developed as the de facto standard for the next generation of HTML
- Older features of HTML are often **deprecated**, or phased out

The History of HTML – 4/4

Figure 1-1 HTML version history

Version	Date	Description
HTML 1.0	1989	The first public version of HTML
HTML 2.0	1995	HTML version that added interactive elements including web forms
HTML 3.2	1997	HTML version that provided additional support for web tables and expanded the options for interactive form elements and a scripting language
HTML 4.01	1999	HTML version that 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
XHTML 1.0	2001	A reformulation of HTML 4.01 using the XML markup language in order to provide enforceable standards for HTML content and to allow HTML to interact with other XML languages
XHTML 2.0	discontinued in 2009	The follow-up version to XHTML 1.1 designed to fix some of the problems inherent in HTML 4.01 syntax
HTML 5.0	2012	The current HTML version providing support for mobile design, semantic page elements, column layout, form validation, offline storage, and enhanced multimedia

Tools for Working with HTML – 1/2

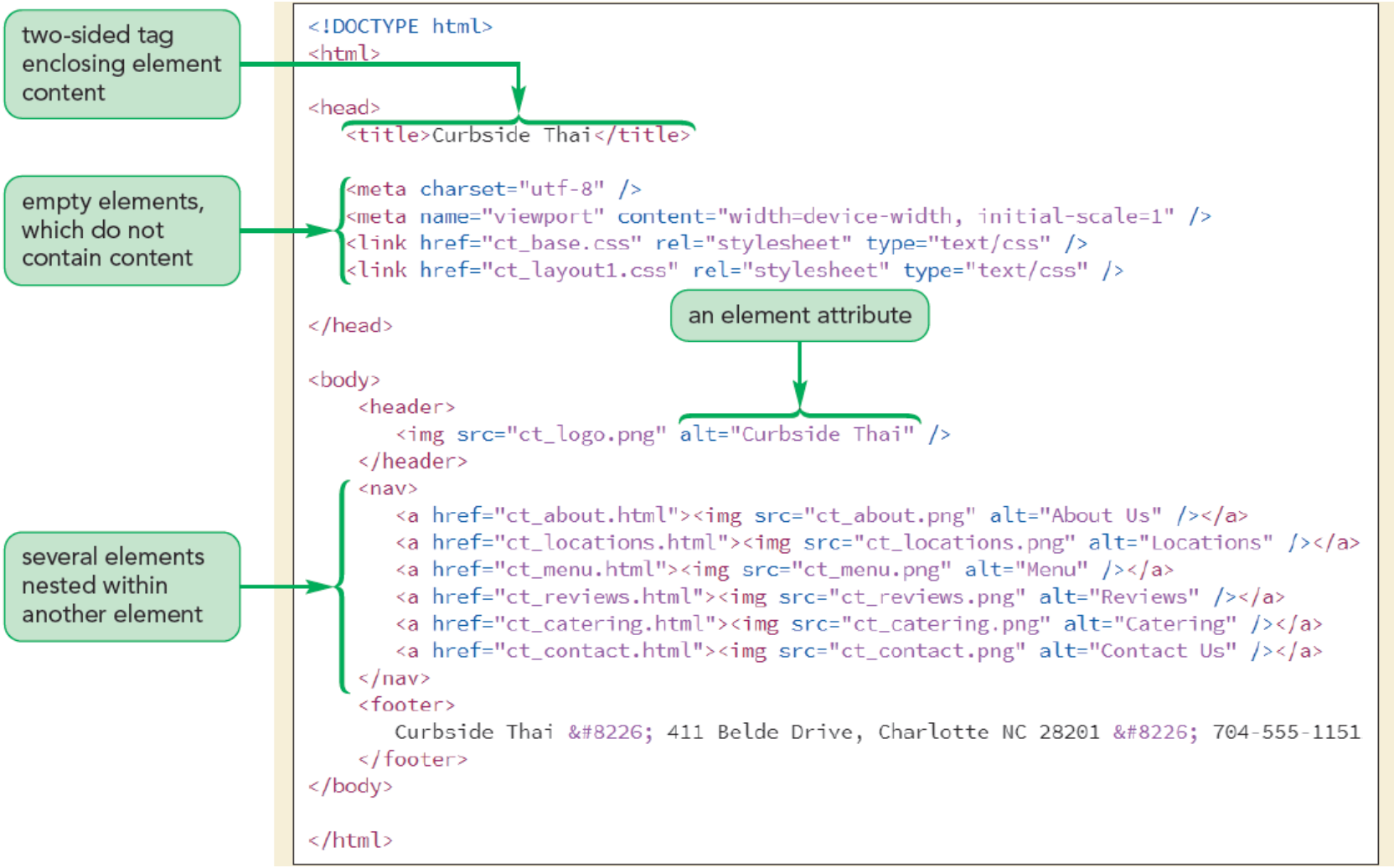
- Basic text editor such as Windows Notepad
- Other HTML editors such as **KOMODO**, Notepad++, UltraEdit, CoffeeCup, BBEdit, and ConTEXT

Tools for Working with HTML – 2/2

- **IDE** (**Integrated Development Environment**) - A software package that provides comprehensive coverage of all phases of the development process from writing HTML code to creating scripts for programs running on web servers

- **Validators** are programs that test code to ensure that it contains no syntax errors

Exploring an HTML File



The Document Type Declaration

- The first line in an HTML file is the **document type declaration**, or **doctype**, that indicates the type of markup language used in the document

```
<!DOCTYPE html>
```

Introducing Element Tags – 1/2

- **Element tag** is the fundamental building block in every HTML document that marks an element in the document
- A **starting tag (<element>)** indicates the beginning of an element, while an **ending tag (</element>)** indicates the ending
- The general syntax of a **two-sided** element tag is

<element>content</element>

Introducing Element Tags – 2/2

- The following code marks a paragraph element

  ** Welcome to Curbside Thai. **

- **Empty elements** are elements that are either nontextual (images) or contain directives to the browser about how the page should be treated
  - For example, **
** is used to indicate the presence of a line break in the text

The Element Hierarchy – 1/2

```
<!DOCTYPE html>
<html>
   <head>
      head content
   </head>
   <body>
      body content
   </body>
</html>
```

The Element Hierarchy – 2/2

- An HTML document is divided into two main sections: the **head** and the **body**
- The **head** element marks information about the document
- The **body** element marks the content that will appear in the web page
- The **body** element is always placed after the **head** element

Introducing Element Attributes

- **Element attributes** provide additional information to the browser about the purpose of the element
- The general syntax of an element attribute is

```
<element attr1="value1" attr2="value2" ...>
content</element>
```

where ***attr1***, ***attr2***, etc. are the names of attributes associated with the ***element*** and ***value1***, ***value2***, etc., are the attribute values

Handling White Space

- HTML file documents are composed of text characters and **white space**
- A **white-space character** is any empty or blank character such as a space, tabs, or a line break
- You can use **white space** to make your file easier to read by separating one code block from another

Viewing HTML File in a Browser – 1/2

To open the ct_start.html file in a web browser:

1. Open your web browser. You do not need to be connected to the Internet to view local files stored on your computer.
2. After your browser loads its home page, open the ct_start.html file from the html01 ▸ tutorial folder. Figure 1-4 shows the page as it appears on a mobile phone and on a tablet device. The two devices have different screen widths, which affects how the page is rendered.

Figure 1-4 The Curbside Thai starting page as rendered by a mobile and tablet device

mobile device tablet device

Trouble? If you're not sure how to open a local file with your browser, check for an Open or Open File command under the browser's File menu. You can also open a file by double-clicking the file name from within Windows Explorer or Apple Finder.

3. Reduce the width of your browser window and note that when the width falls below a certain value (in this case 480 pixels), the layout automatically changes to a stacked row of images (as shown in the mobile device image in Figure 1-4) that are better suited to the narrower layout.
4. Increase the width of the browser window and confirm that the layout changes to a 2×3 grid of images (as shown in the tablet device image in Figure 1-4), which is a design more appropriate for the wider window.

Viewing HTML File in a Browser – 2/2

- HTML describes a document's content and structure, but not its appearance

- The actual appearance of the document is determined by **style sheets**

Creating the Document Head – 1/2

- The document head contains **metadata**

- **Metadata** is the content that describes or provides information about how the document should be processed by the browser

Creating the Document Head – 2/2

Figure 1-6 HTML metadata elements

Element	Description
`head`	Contains a collection of metadata elements that describe the document or provide instructions to the browser
`base`	Specifies the document's location for use with resolving relative hypertext links
`link`	Specifies an external resource that the document is connected to
`meta`	Provides a generic list of metadata values such as search keywords, viewport properties, and the file's character encoding
`script`	Provides programming code for programs to be run within the document
`style`	Defines the display styles used to render the document content
`title`	Stores the document's title or name, usually displayed in the browser title bar or on a browser tab

Setting the Page Title

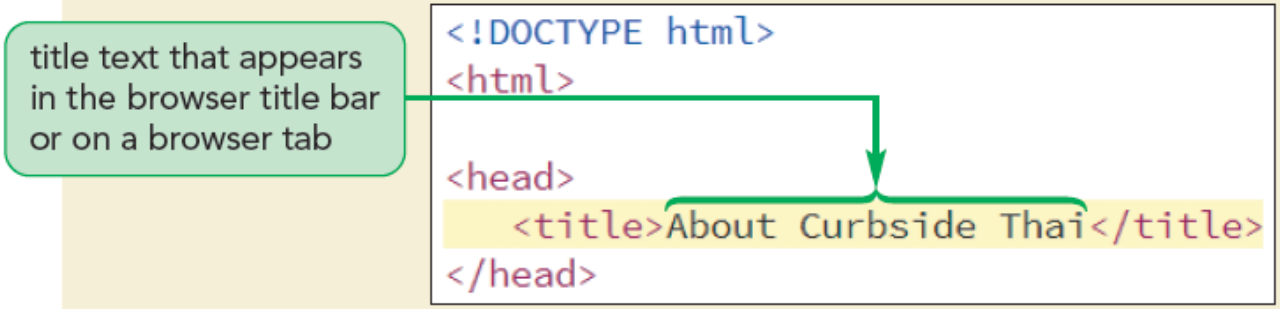
To insert the document title:

1. Directly after the opening `<head>` tag, insert the following `title` element, indented to make the code easier to read.

```
<title>About Curbside Thai</title>
```

Figure 1-7 highlights the code for the page title.

Figure 1-7 Entering the document title



2. Save your changes to the file.

Adding Metadata to the Document – 1/2

- **Meta** element is used for general lists of metadata values.

  The **meta** element structure is

  <meta attributes />

- **Character encoding** is the process by which a computer converts text into a sequence of bytes and vice versa when it stores the text and when the text is read.

Adding Metadata to the Document – 2/2

Figure 1-9 Adding metadata to a document

2. Save your changes to the file.
3. Open the **ct_about.html** file in your browser. Confirm that the browser tab or browser title bar contains the text "About Curbside Thai". There should be no text displayed in the browser window because you have not added any content to the page body yet.

Adding Comments to Your Document – 1/2

- A **comment** is descriptive text that is added to the HTML file but does not appear in the browser window

<!-- comment -->

- Comments can be spread across several lines

- It is a good practice to always include a comment in the document head

Adding Comments to your Document – 2/2

Figure 1-10 Adding a comment to the document

Comment added to the document

```
<head>
   <!--
    New Perspectives on HTML5 and CSS3, 7th Edition
    Tutorial 1
    Tutorial Case
    General Information about Curbside Thai
    Author: your name
    Date:   the date

    Filename: ct_about.html
   -->
   <meta charset="utf-8" />
   <meta name="keywords" content="Thai, restaurant, Charlotte, food" />
   <title>About Curbside Thai</title>
</head>
```

3. Save your changes to the file.

Writing the Page Body

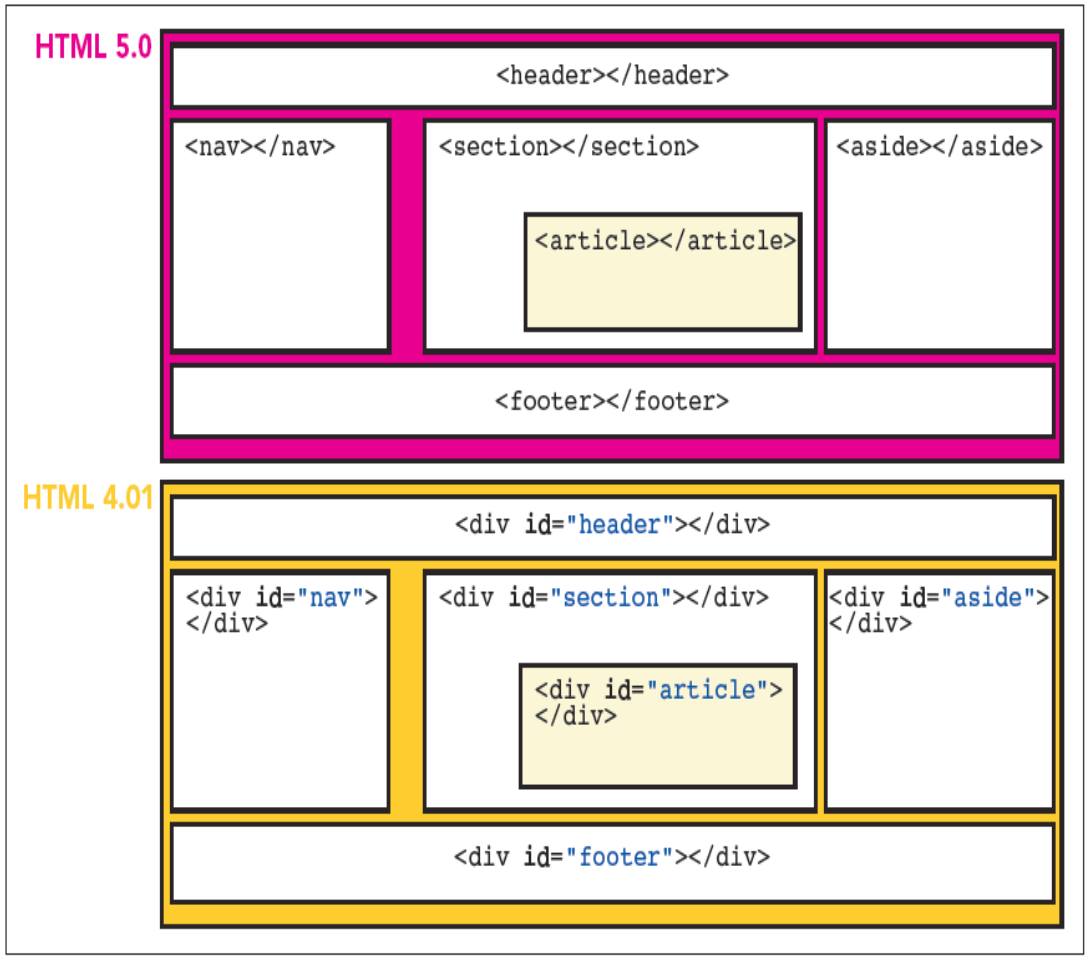
- HTML marks the major topical areas of a page using **sectioning elements** also referred to as **semantic elements**.

Figure 1-11 HTML sectioning elements

Element	Description
`address`	Marks contact information for an individual or group
`article`	Marks a self-contained composition in the document such as a newspaper story [***HTML5***]
`aside`	Marks content that is related to a main article [***HTML5***]
`body`	Contains the entire content of the document
`footer`	Contains closing content that concludes an article or section [***HTML5***]
`h1, h2, h3, h4, h5, h6`	Marks major headings with `h1` representing the heading with the highest rank, `h2` representing next highest-ranked heading, and so forth
`header`	Contains opening content that introduces an article or section [***HTML5***]
`nav`	Marks a list of hypertext or navigation links [***HTML5***]
`section`	Marks content that shares a common theme or purpose on the page [***HTML5***]

Comparing Sections in HTML4 and HTML5

Figure 1-13 Sections in HTML 5.0 vs. divisions in HTML 4.01



Using Grouping Elements

Figure 1-14 HTML grouping elements

Element	Description
`blockquote`	Contains content that is quoted from another source, often with a citation and often indented on the page
`div`	Contains a generic grouping of elements within the document
`dl`	Marks a description list containing one or more `dt` elements with each followed by one or more `dd` elements
`dt`	Contains a single term from a description list
`dd`	Contains the description or definition associated with a term from a description list
`figure`	Contains an illustration, photo, diagram, or similar object that is cross-referenced elsewhere in the document [***HTML5***]
`figcaption`	Contains the caption associated with a figure [***HTML5***]
`hr`	Marks a thematic break such as a scene change or a transition to a new topic (often displayed as a horizontal rule)
`main`	Marks the main content of the document or application; only one `main` element should be used in the document [***HTML5***]
`ol`	Contains an ordered list of items
`ul`	Contains an unordered list of items
`li`	Contains a single item from an ordered or unordered list
`p`	Contains the text of a paragraph
`pre`	Contains a block of preformatted text in which line breaks and extra spaces in the code are retained (often displayed in a monospace font)

Using Text-Level Elements

Figure 1-16 HTML text-level elements

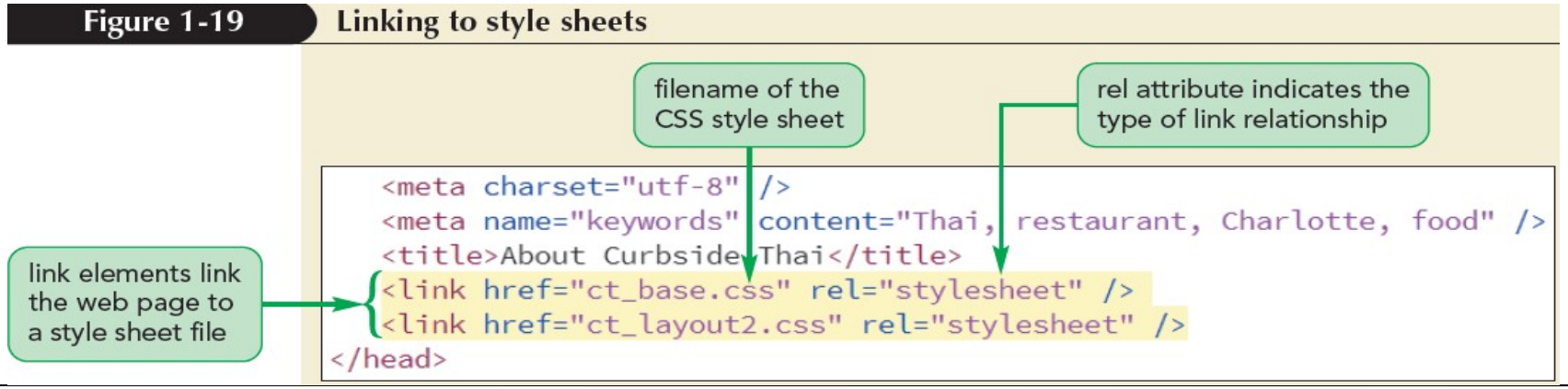
Element	Description
a	Marks content that acts as a hypertext link
abbr	Marks an abbreviation or acronym
b	Indicates a span of text to which attention should be drawn (text usually appears in bold)
br	Represents a line break within the grouping element
cite	Marks a citation to a title or author of a creative work (text usually appears in italics)
code	Marks content that represents computer code (text usually appears in a monospace font)
data	Associates a data value with the marked text with the `value` attribute providing the value [***HTML5***]
dfn	Marks a defined term for which a definition is given elsewhere in the document
em	Indicates content that is emphasized or stressed (text usually appears in italics)
i	Indicates a span of text that expresses an alternate voice or mood (text usually appears in italics)
kbd	Marks text that represents user input, typically from a computer keyboard or a voice command
marks	Contains a row of text that is marked or highlighted for reference purposes [***HTML5***]
q	Marks content that is quoted from another source
s	Marks content that is no longer accurate or relevant (text is usually struck through)
samp	Marks text that represents the sample output from a computer program or application
small	Marks side comments (text usually in small print)
span	Contains a generic run of text within the document
strong	Indicates content of strong importance or seriousness (text usually appears in bold)
sub	Marks text that should be treated as a text subscript
sup	Marks text that should be treated as a text superscript
time	Marks a time value or text string [***HTML5***]
u	Indicates text that appears stylistically different from normal text (text usually appears underlined)
var	Marks text that is treated as a variable in a mathematical expression or computer program
wbr	Represents where a line break should occur, if needed, for a long text string [***HTML5***]

Linking an HTML Document to a Style Sheet

- A **style sheet** is a set of rules specifying how page elements are displayed; it is written in the **Cascading Style Sheet (CSS)** language
- To link an HTML document to an external style sheet file, add the following element:

<link href="*file*" rel="stylesheet" />

Figure 1-19 Linking to style sheets



Working with Character Sets and Special Characters

- **Character set** is a collection of characters and symbols rendered by the browser
- **Character encoding** associates each character from a character set that can be stored and read by a computer program
- **Character entity reference** is also used to insert a special symbol using the syntax

  &char;

  where ***char*** is the character's entity reference

Working with Inline Images

- To support **embedded content**, content imported from another resource, HTML provides **embedded elements**
- **Inline images** are images that are placed like text-level elements in line with the surrounding content
- To embed an inline image into the document, use

```
<img src="file" alt="text" />
```

Working with Lists

- **List** is a type of grouping element
- **Ordered lists** are used for items that follow some defined sequential order, such as items arranged alphabetically or numerically
- **Unordered lists** are used for lists in which the items have no sequential order
- **Description lists** contain a list of terms and matching descriptions
- **Navigation lists** are unordered lists of hypertext links placed within the **nav** element

Working with Hypertext Links

- **Hypertext** is created by enclosing content within a set of opening and closing **<a>** tags like:

  content

  where **url** is **Uniform Resource Locator (URL)**

- **Inline images** can also be turned into links by enclosing the image within opening and closing **<a>** tags

  ****

Linking to the Internet and Other Resources

- The type of resource that a hypertext link points to is indicated by the link's URL

  scheme: location

  where **scheme** indicates the resource type and **location** provides the resource

- **Protocol** is a set of rules defining how information is passed between two devices

Linking to the Internet and Other Resources (continued)

Figure 1-41 Commonly used URL schemes

Scheme	Description
fax	A FAX phone number
file	A document stored locally on a user's computer
ftp	A document stored on an FTP server
geo	A geophysical coordinate
http	A resource on the World Wide Web
https	A resource on the World Wide Web accessed over a secure encrypted connection
mailto	An e-mail address
tel	A telephone number
sms	A mobile text message sent via the Short Message Service

Linking to a Web Resource

- Links to **Web resources** have a general structure like:

  http://server/path/filename#id

  where **server** is the name of the web server hosting the resource, **path** is the path to the file on that server, **filename** is the name of the file, and if necessary, **id** is the name of an id within a file

Linking to an E-Mail Address

- E-mail address can be turned into a hypertext link using the URL:

  mailto : address

Linking to a Phone Number

- Many developers include links to phone numbers for their company's customer service or help line
- The URL for a phone link is

  tel : phone