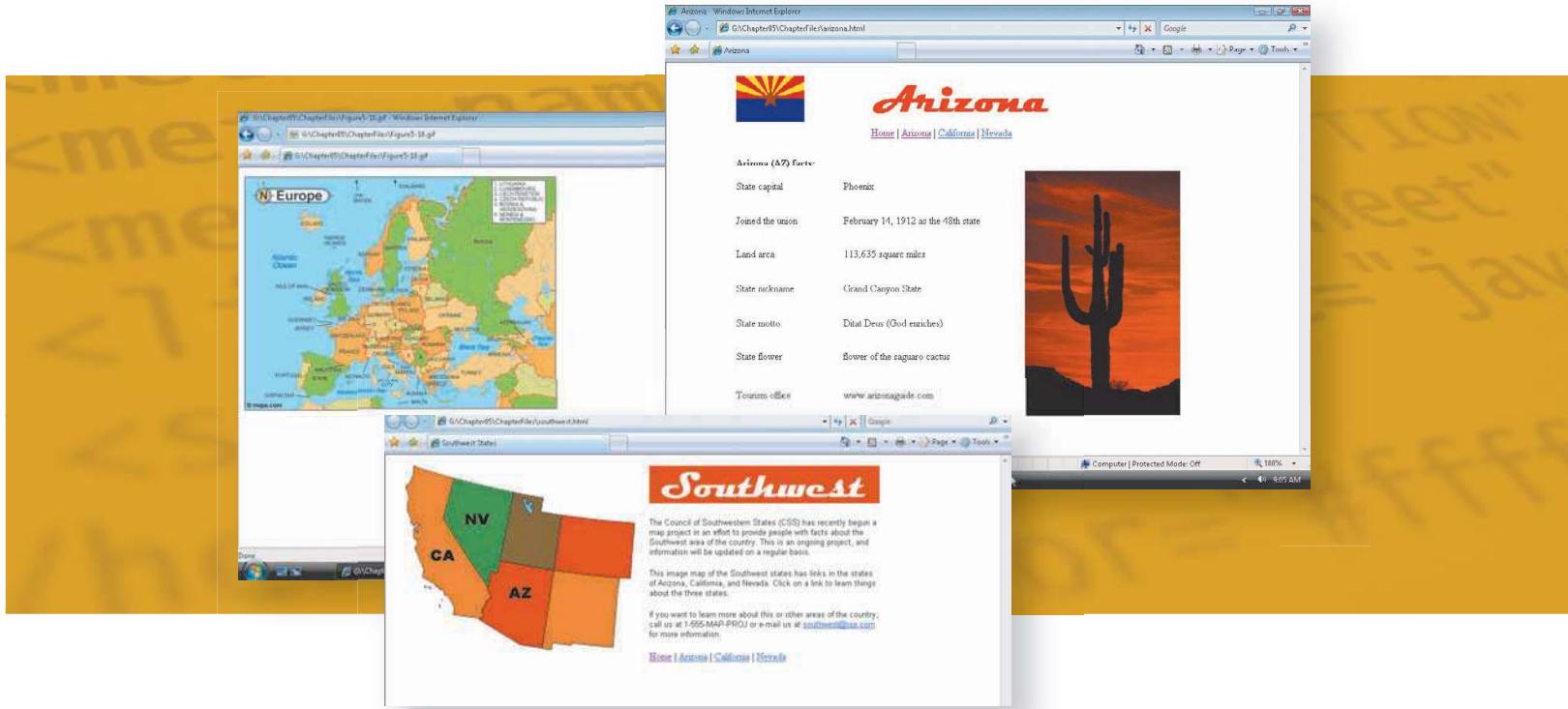


5| Creating an Image Map



Objectives

You will have mastered the material in this chapter when you can:

- Define terms relating to image mapping
- List the differences between server-side and client-side image maps
- Name the two components of an image map and describe the steps to implement an image map
- Distinguish between appropriate and inappropriate images for mapping
- Sketch hotspots on an image
- Describe how the x- and y-coordinates relate to vertical and horizontal alignment
- Open an image in Paint and use Paint to map the coordinates
- Create the home page and additional Web pages
- Create a table, insert an image into a table, and use the `usemap` attribute to define an image map
- Add text to a table cell and create a horizontal menu bar with text links
- Use the `<map>` `</map>` tags to start and end a map
- Use the `<area>` tag to indicate the shape, coordinates, and URL for a mapped area
- Change link colors

5 | Creating an Image Map

Introduction

Many of the Web pages in Chapters 2 through 4 used the `` tag to add images. In Chapter 3, an image also was used as a link back to the home page, by using the `<a> ` tags to define the image as the clickable element for the link. When an image is used as a link, as in Chapter 3, the entire image becomes the clickable element, or hotspot. With an image map, the entire image does not have to be clickable. Instead, one or more specific areas serve as hotspots. An image map is a special type of inline image in which you define one or more areas as hotspots. For example, each hotspot in an image map can link to another part of the same Web page or to a different Web page. Using an image map in this way gives Web page developers significant flexibility, as well as creative ways to include navigation options. Instead of using only text links, a Web page can include an image map that highlights key sections of a Web site and allows a user to navigate to that section by clicking the appropriate area of the image map.

Project — Southwest Map



Image Maps

Image maps are used frequently for Web site navigation. Many online HTML sources address the purposes of image maps and give suggestions for their use. An online style guide produced by the World Wide Web Consortium is available for use by Web developers at www.w3c.org.

Chapter 5 illustrates how to create an image map with links to other Web pages within the Southwest Map Web site. The Southwest Map Web site includes four Web pages, each linked to the home page using an image map and text links, as shown in Figure 5–1. In Chapter 5, you will create two of the four Web pages on the Web site: the home page (Figure 5–1a) and the Arizona Web page (Figure 5–1b). The Web pages shown in Figures 5–1c and 5–1d are included in the Data Files for Students. HTML tags are used to create the image map that supports the three clickable areas in the image. One of the key features of the Web is its support for graphics, so Web visitors expect to view many images on the Web pages that they visit. Images make Web pages more exciting and interesting to view and, in the case of image maps, provide a creative way to make navigational elements available to users.



Figure 5-1

Overview

As you read this chapter, you will learn how to create the Web pages shown in Figure 5–1 on the previous page by performing these general tasks:

- Enter HTML code into the Notepad window.
- Save the file as an HTML file.
- View the image in Microsoft Paint to see image map coordinates.
- Enter basic HTML tags and add text to the file.
- Insert an image to be used as an image map.
- Create an image map by mapping hotspots on the image.
- Create links to the other Web pages and to the home page with a horizontal menu bar.
- Add an e-mail link.
- Create a new Web page with tables of information.
- Save and print the HTML code.
- Validate, view, and print the Web pages.

Plan Ahead

General Project Guidelines

As you create Web pages, such as the project shown in Figure 5–1 on page HTML 203, you should follow these general guidelines:

1. **Plan the Web site.** As always, you should plan a multiple-page Web site before you begin to write your HTML code. Refer to Table 1–4 on pages HTML 12 and 13 for information on the planning phase of the Web Development Life Cycle. In this phase, you determine the purpose of the Web site, identify the users of the site and their computing environment, and decide who owns the information on the Web page.
2. **Analyze the need.** In the analysis phase of the Web Development Life Cycle, you should analyze what content to include on the Web page. The Web development project in Chapter 5 is different than the one completed in other chapters because it contains an image map. Part of the analysis phase then includes determining what image to use and where to put links within the image map.
3. **Choose the image.** You need to select an image that has distinguishable areas that can be used as links. Not all images are conducive to image mapping, as described in the chapter.
4. **Determine what areas of the image map to use as links.** Once an appropriate image is selected, you need to determine how to divide up the image map for links. You want to make sure that your hotspot (link) areas do not spill over into each other. You also want to make sure that the links are clearly separated.
5. **Establish what other links are necessary.** In addition to links between the home page and secondary Web pages, you need an e-mail link on this Web site. It is a general standard for Web developers to provide an e-mail link on the home page of a Web site for visitor comments or questions. Additionally, you need to provide links to all other Web pages on the Web site (`arizona.html`, `california.html`, and `nevada.html`).
6. **Create the Web page, image map, and links.** Once the analysis and design is complete, the Web developer creates the Web pages using HTML. Good Web development standard practices should be followed, such as utilizing the initial HTML tags as shown in previous chapters, providing text links for all hotspots in the image map, and always identifying alt text with images.

(continued)

(continued)

7. Test all Web pages within the Web site. An important part of Web development is testing to assure that you are following XHTML standards. In this book, we use the World Wide Web Consortium (W3C) validator that allows you to test your Web page and clearly explains any errors you have. Additionally when testing, you should check all content for accuracy. Finally, all links (image map hotspots, text links, and page to page within the same Web site) should be tested.

When necessary, more specific details concerning the above guidelines are presented at appropriate points in the chapter. The chapter also will identify the actions performed and decisions made regarding these guidelines during the creation of the Web pages shown in Figure 5–1 on page HTML 203.

Plan Ahead

Introduction to Image Maps

In this chapter, you use an image map to create three clickable areas within a single image, each with a link to a different Web page. All three of the clickable areas have a polygon shape. Figure 5–2a shows the borders of the three clickable areas, each of which encloses a specific area of the map. These outlines, although visible in the figure, are not visible on the Web page. A Web page visitor clicking anywhere within one of the polygonal shaped clickable areas will link to the associated Web page. Figure 5–2b shows areas that are not part of the clickable areas. Any area outside those clickable areas is not linked to another Web page.

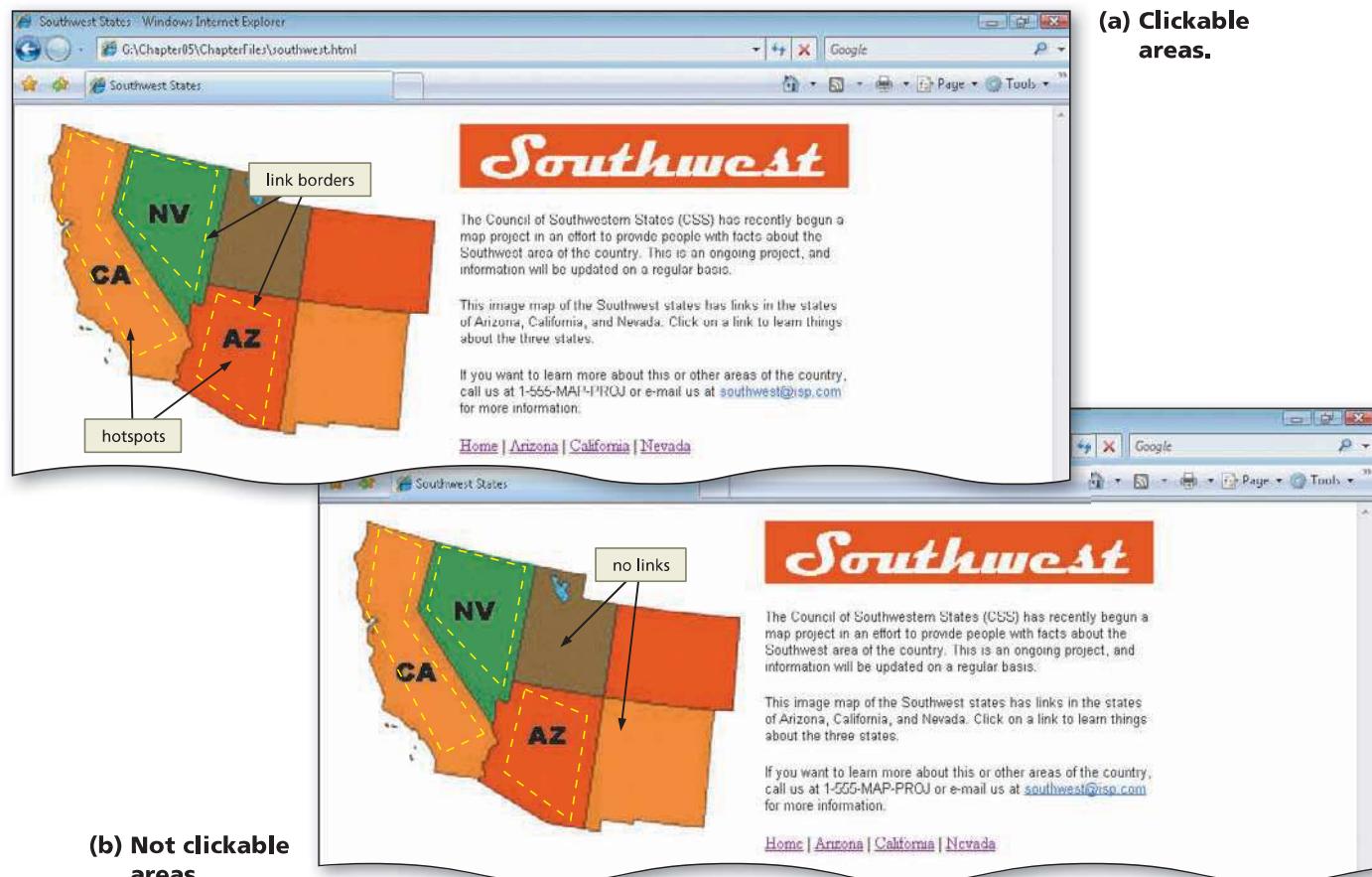


Figure 5–2

Using Image Maps

One of the risks in using image maps to provide navigational elements is that if the image does not load, a user will not have the ability to navigate to other linked Web pages. Another potential issue is that using a large image for an image map can increase the amount of time required for pages to download over lower-speed connections. To avoid such performance issues, some people turn off the viewing of images when they browse Web pages, electing to display only text in their browsers. These users, and users of text-based browsers, also will not be able to navigate a Web page that relies on an image map. For these reasons, a Web page that uses an image map for navigation also should include text links to the URLs reflected in the image map, as shown in Figure 5–3a. Using text links in conjunction with the image map ensures that if the image does not download or a Web page visitor has images turned off, as shown in Figure 5–3b, a user still can navigate to other Web pages using the text links.

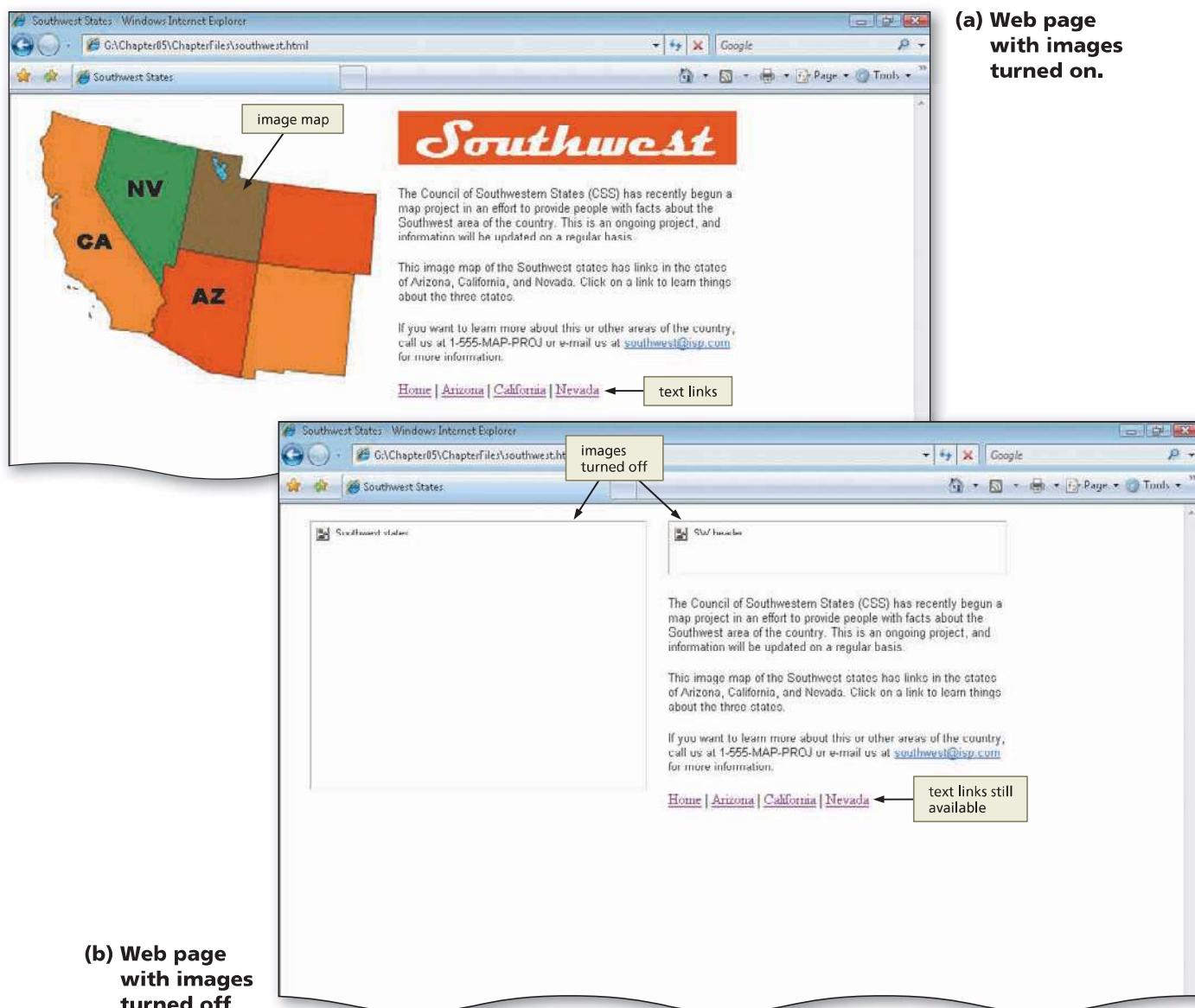


Figure 5–3

Image maps can enhance the functionality and appeal of Web pages in many ways. For example, an image map can be used as an **image map button bar**, which is a menu bar that uses graphical images, as shown in Figure 5–4. This makes the menu bar a more attractive feature of the Web page.

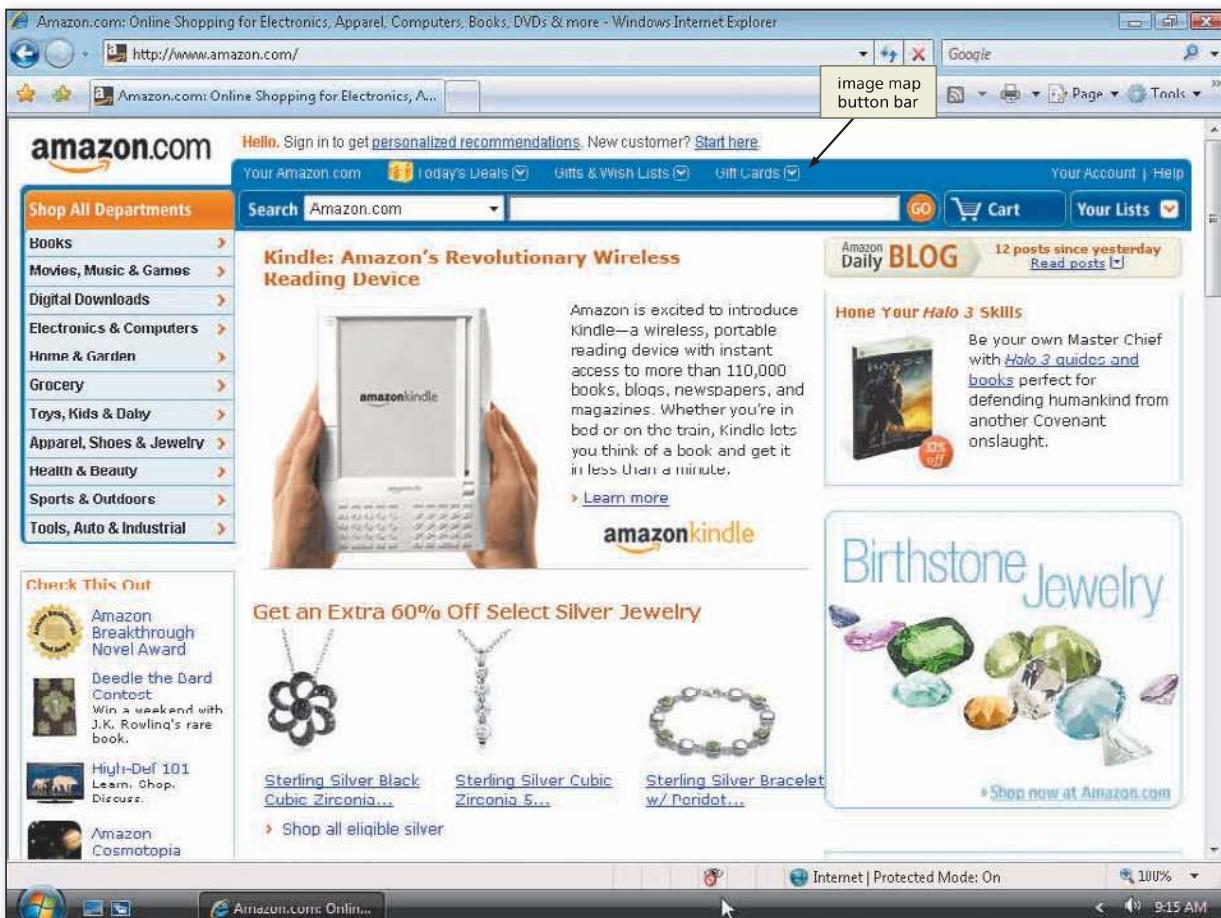


Figure 5–4 Image map on e-commerce site.

Image maps are also utilized to divide a geographical map into hotspots, as shown in Figure 5–5 on the next page. A Web page visitor can click a geographical area on the map and be linked to additional information about that location.

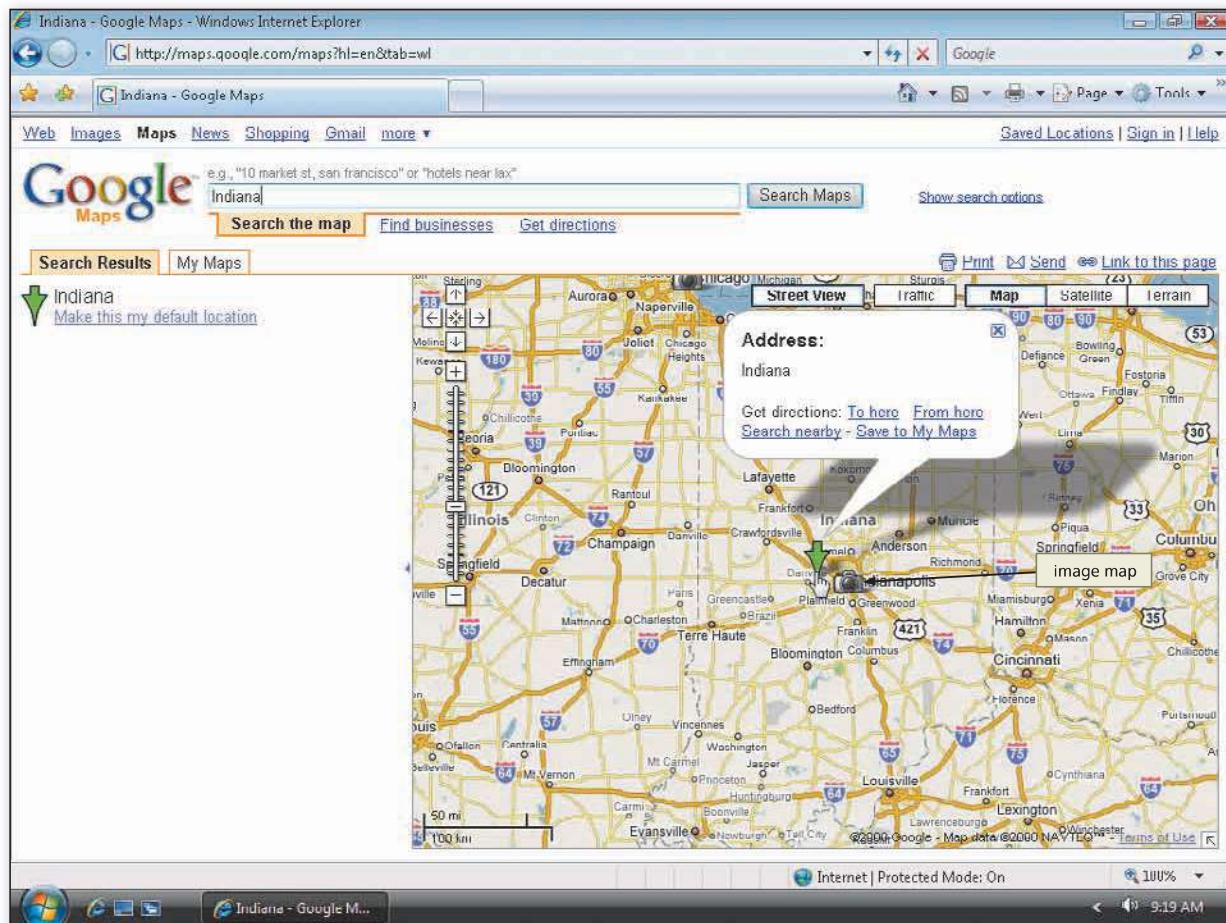


Figure 5–5 Image map on map Web page.

Image maps can be used for many applications. The travel industry uses image maps for many of their applications. For instance, the levels on a cruise ship (Figure 5–6a) can be used to link to the floor plan of a particular deck (Figure 5–6b).

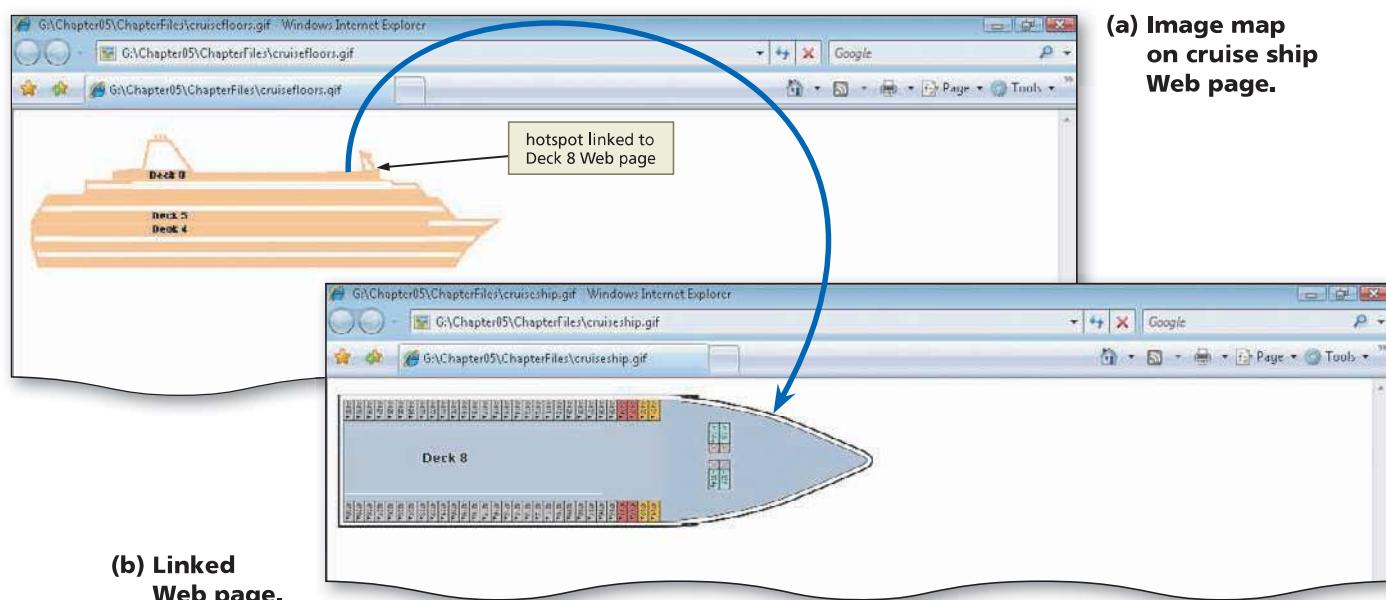


Figure 5–6

Organizations also use image maps to create hotspots that link different functional areas within a business or organization, as shown in Figure 5–7, to Web pages that contain more information about that specific area or department.

A company with several products or services can use an image map as a creative way to provide links to more specific information about those products or services (Figure 5–8).

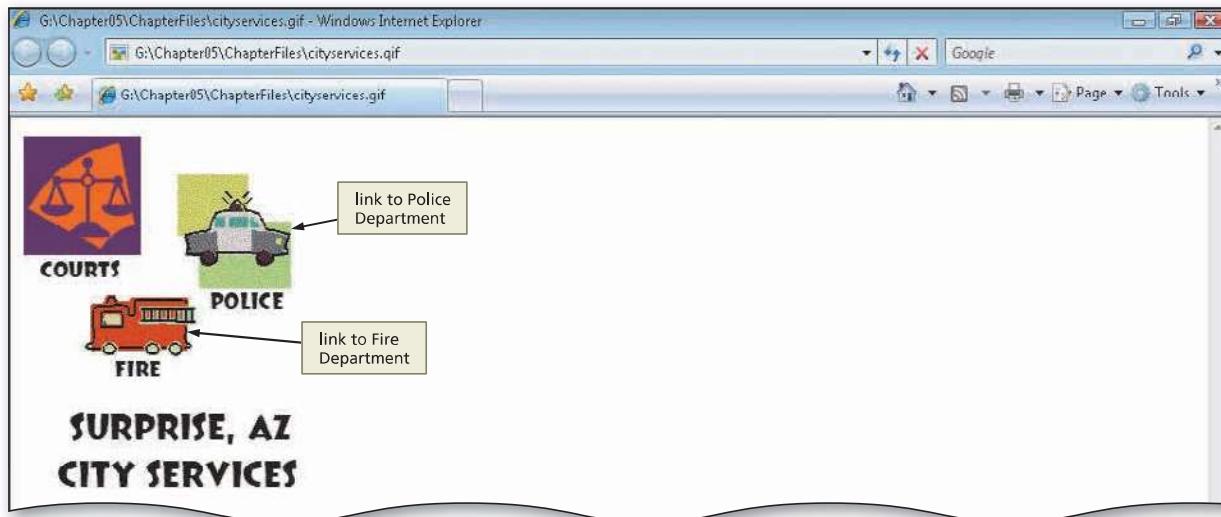


Figure 5–7 Image map on municipal Web page.



Figure 5–8 Image map on products and services Web page.

Server-Side vs. Client-Side Image Maps

Two types of image maps exist: server-side and client-side. In a **server-side image map**, the image is displayed by the client (browser) and implemented by a program that runs on the Web server. When a Web page visitor clicks a link on a server-side image map, the browser sends the x- and y-coordinates of the mouse click to the Web server, which interprets them and then links the visitor to the correct Web page based on those coordinates. Thus, with a server-side image map, the Web server does all the work.

BTW**Server-Side vs.
Client-Side Image Maps**

Web sites exist that provide information about server-side versus client-side image maps. To see an example of how image maps can be used for Web pages and which type is more efficient, search on "HTML image maps" in a Web browser search engine.

With a **client-side image map**, the browser does all the work. Most Web developers prefer to work with client-side image mapping, which does not have to send the x- and y-coordinates of the mouse click to the Web server to be interpreted. Instead, the coordinates are included in the HTML file along with the URL to which to link. When a visitor to a Web page clicks within a client-side image map, the browser processes the data without interaction with the Web server.

One advantage of server-side image mapping is that most, if not all, browsers support server-side image maps, while some older browsers do not support client-side image maps. Server-side image maps have disadvantages, however. They require additional software to be running on the Web server. That would then require that the server administrator maintain and update that server software on a regular basis. Also, an image map available on a particular Web site's server must be registered to the server before it can be used. Although this process is simple, it must be done. Further, all changes to that registered image map must be coordinated on the Web server, which does not allow for quick updates. Client-side image maps help reduce the load on the Web server, generally download faster, and provide faster response when a user clicks a link. In this chapter's project, you will create a client-side image map with three links on the home page of the Southwest Map Web site.

**Plan
Ahead****Understand the image map process.**

Before inserting the graphical and color elements on a Web page, you should plan how you want to format them. By effectively utilizing graphics and color, you can call attention to important topics on the Web page without overpowering it. Creating a client-side image map for a Web page is a four-step process:

- 1. Select an image to use as an image map.** Not all images are appropriate for good image mapping. Those images without distinct boundaries are not easy to map. Besides causing difficulty to the Web developer to find the points to plot, non-distinct areas make it difficult for visitors to see where one link might end and another begins. When choosing an image to map, choose wisely.
- 2. Sketch in the hotspots on the image.** It is sometimes good to print a copy of the image and draw the hotspot areas on top of the paper image. You can then take that hardcopy and review it while working with the image in the image editing software. When sketching (either on paper or in the software), determine what shapes (i.e., circle, rectangle, or polygon) make sense for the specific area that you want to link. Based on this determination, start the next step of plotting those areas on the image.
- 3. Map the image coordinates for each hotspot.** This chapter explains what x- and y-coordinates you need to provide for every linkable area. One thing to consider is making sure that the linkable areas do not run over one another. This overrun ends up confusing your Web site visitors because they think they will link to one area, and the coordinates take them somewhere else.
- 4. Create the HTML code for the image map.** Writing HTML code for an image map is different than anything that you have done thus far in the book. When you create an image map, you first insert the image itself and then identify the name of the map that you use later in the HTML code. Further down in the code, you actually use that name and identify the map areas that form the boundaries around the hotspot.

BTW**Server-Side Image
Maps**

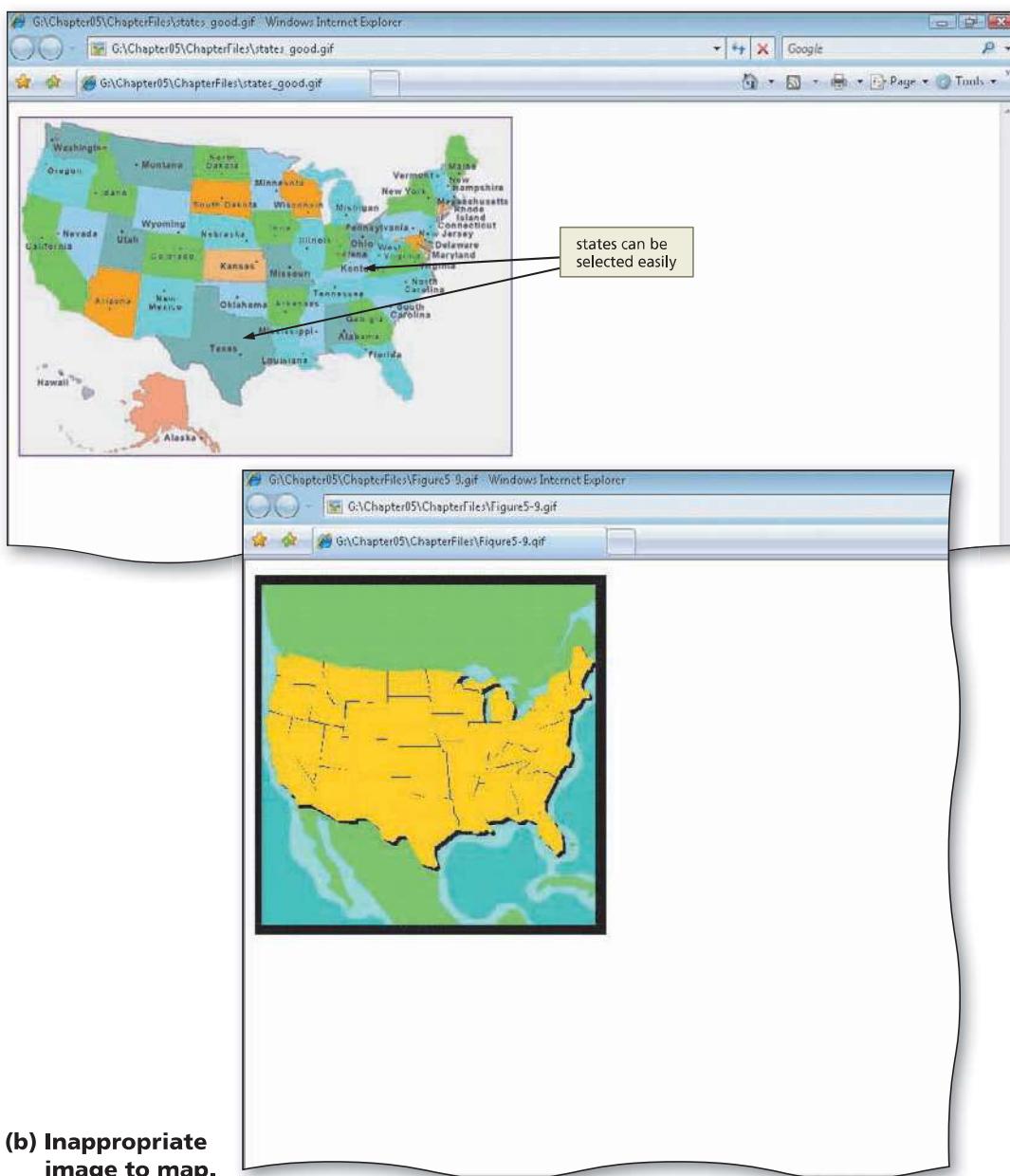
When a hotspot on an image map is clicked, a special image map program that is stored on the Web server runs. In addition, the browser also sends the x- and y-coordinates to the Web server for the position of the link on the image map. Most, if not all, browsers support server-side image maps.

Creating an Image Map

An image map consists of two components: an image and a map definition that defines the hotspots and the URLs to which they link.

Selecting Images

Not all images are appropriate candidates for image mapping. An appropriate image, and a good choice for an image map, is one that has obvious visual sections. The USA map image shown in Figure 5–9a, for example, has distinct, easy-to-see sections, which serve as ideal hotspots. A user easily could select an individual area on the map to link to more information about each region. The image in 5-9b, however, would not be a good choice because the boundaries of the states are indistinct.



(a) Appropriate image to map.

BTW **Images for Mapping**
Not all images are appropriate for image mapping. An appropriate image has obvious visual sections that can be easily divided into click-able areas. An inappropriate image does not have obvious visual sections and therefore is not a good choice as an image map.

Figure 5–9

Sketching the Borders of Hotspots

After an appropriate image is selected for the image map, the next step is to sketch the hotspots (clickable areas) within the image. Figure 5–10 shows an example of an image map with the borders of the hotspots sketched on the image. A map of Europe is used, with two countries (Spain and Sweden) defined as hotspots. The image map thus will include a hotspot for two countries, each of which can link to a different Web page.

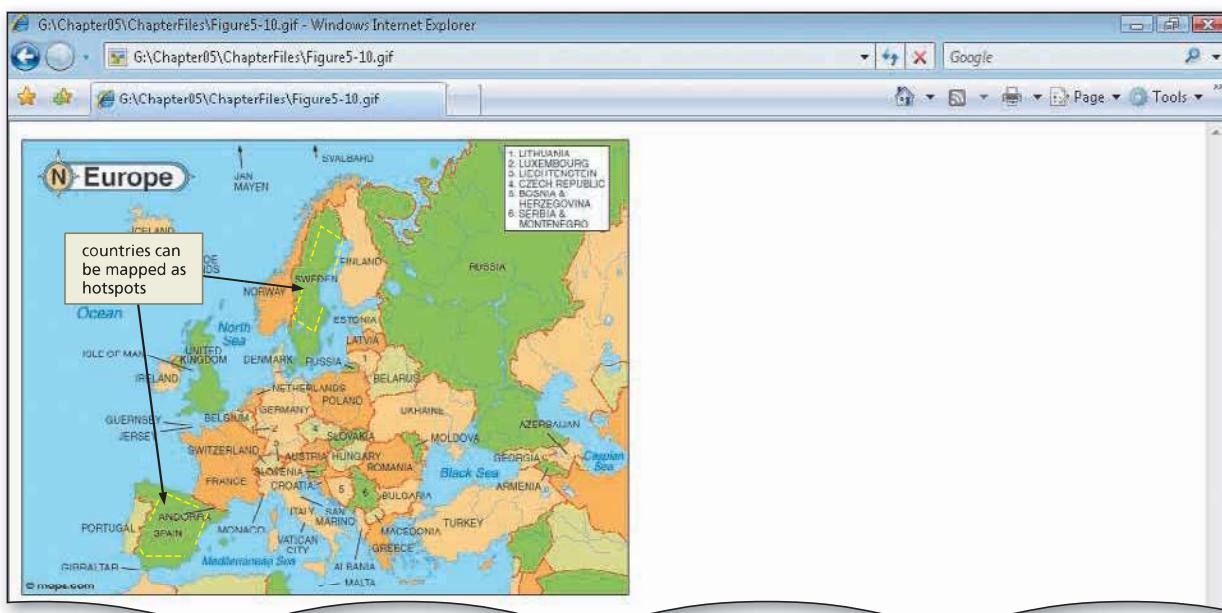


Figure 5–10 Sketched areas for image map hotspots.

Figure 5–11 shows the southwestern states image used as an image map in this chapter, with the hotspots sketched in. This image, southwest.jpg, is included in the Data Files for Students. Three states are defined as hotspots, which will link to other Web pages that contain information about each state. The process of mapping the image coordinates for each hotspot is based on this initial sketch.

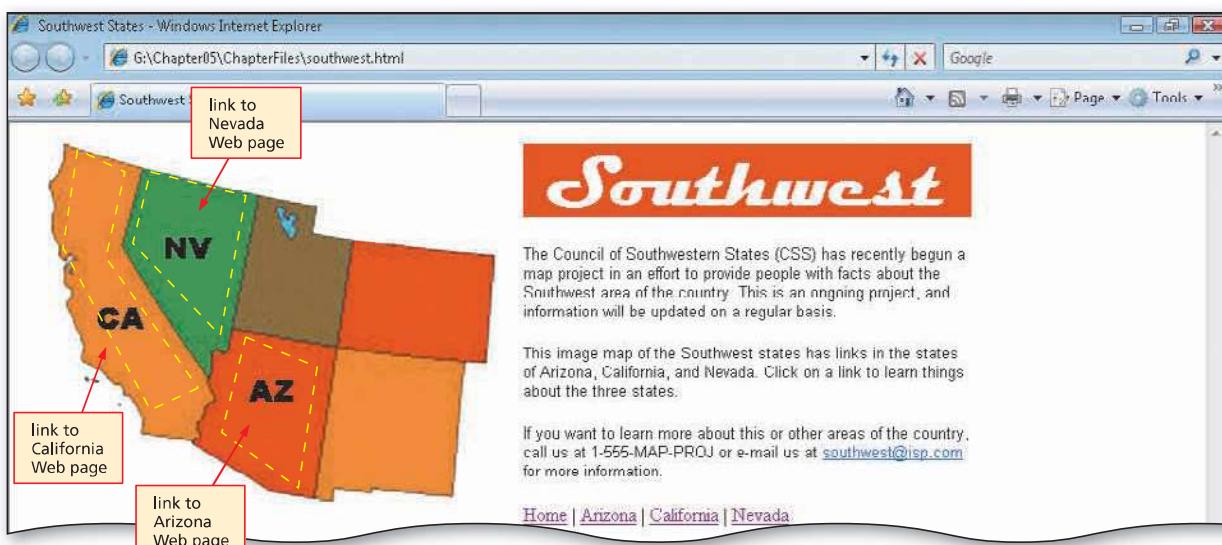


Figure 5–11 Sketched areas for southwestern states image map.

Mapping Image Coordinates

After you have determined how to divide the image into areas, you must determine the x- and y-coordinates for those sections. The x- and y-coordinates are based on a position relative to the x- and y-axes. The **x-axis** runs horizontally along the base of the image, while the **y-axis** runs vertically along the left of the image. The top-left corner of an image thus is the coordinate point (0,0), as shown in Figure 5–12. The first number of a **coordinate pair** is the x-coordinate, and the second number is the y-coordinate.

Figure 5–12 shows some sample x- and y-coordinates in a Paint window that contains the image southwest.jpg. The y-coordinate numbers increase as you move the mouse pointer down the image, and the x-coordinate numbers increase as you move the mouse pointer to the right on the image. As you move the mouse pointer, the coordinates of its position are displayed on the status bar.

You can use a simple or a sophisticated image editing or paint program to determine the x- and y-coordinates of various image points. In this project, the Paint program is used to find the x- and y-coordinates that you will use in the map definition that divides a single image into several areas.

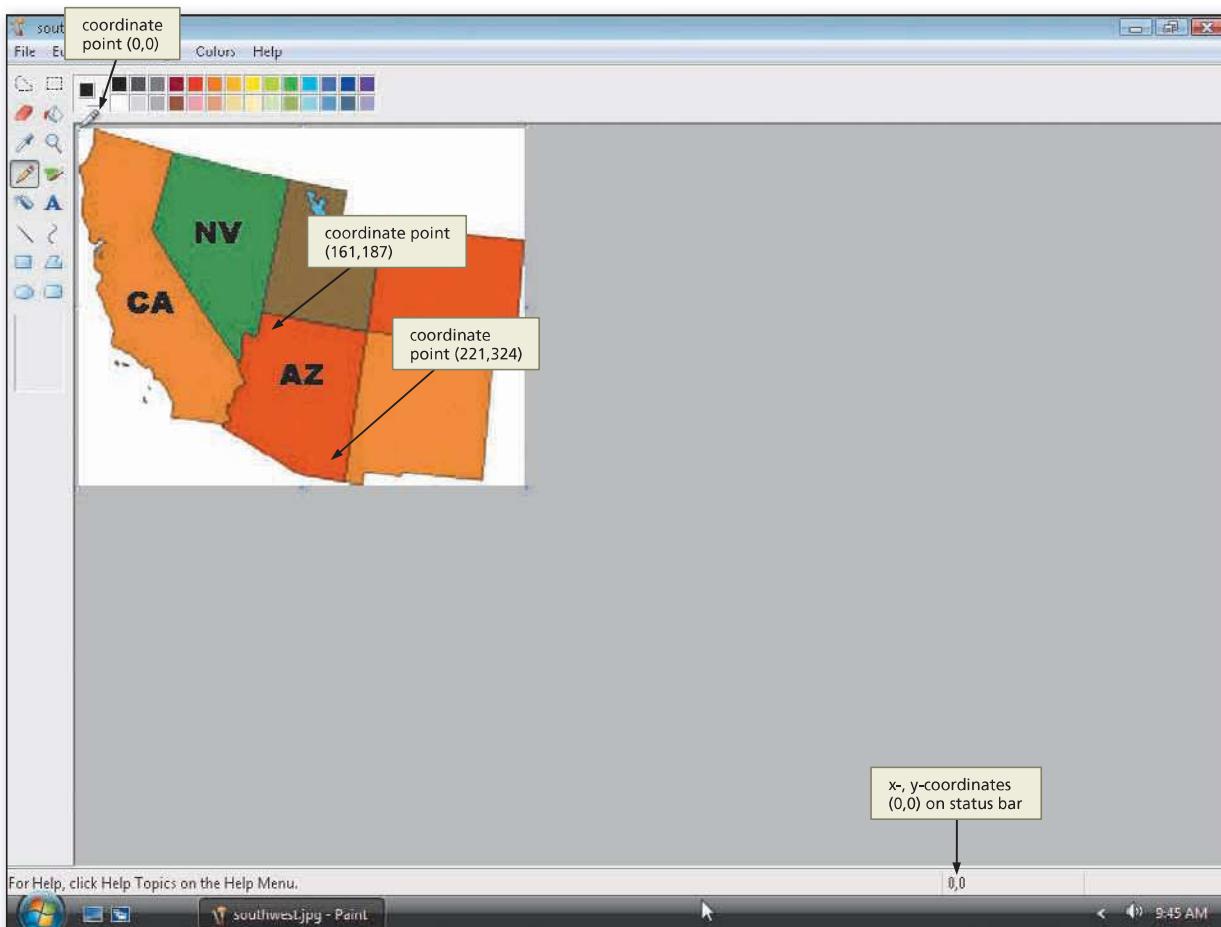


Figure 5–12 Southwest map open in Paint.

Map areas can use one of three shapes: rectangle, circle, or polygon. These shapes are shown in Figure 5–13. To define a map area of an image, you must determine the x- and y-coordinates for that shape and then insert the coordinates for the various map shapes in the HTML code.

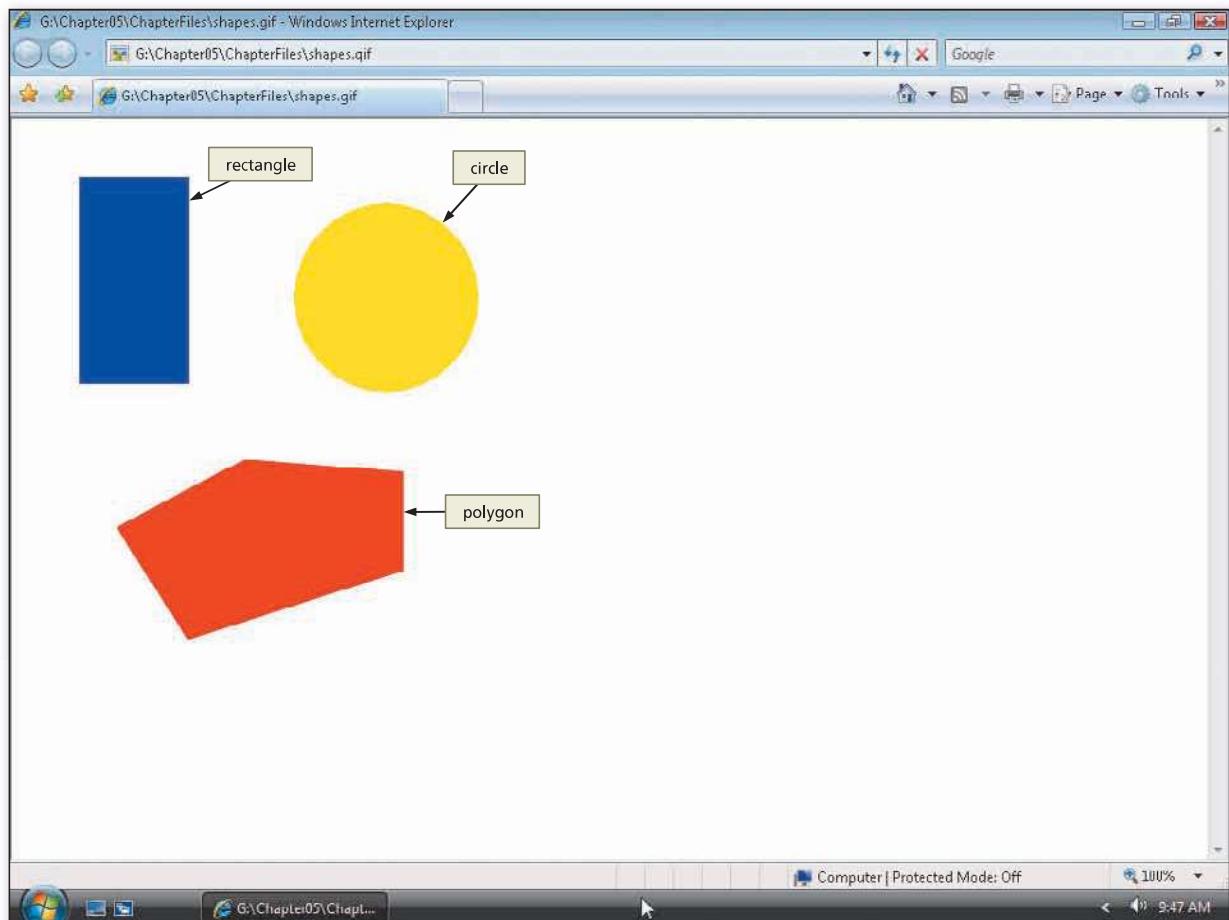


Figure 5–13 Shapes of map areas.

For a rectangular map area, you use the coordinates of the top-left and the bottom-right corners. For example, as shown in Figure 5–14, the rectangle's x- and y-coordinates are (46,35) for the top-left corner and (137,208) for the bottom-right corner. You use “rect” as the value for the shape attribute for rectangles. For a circular map area, you use the center point and the radius as the coordinates. The x- and y- coordinates of the center point of the circle in Figure 5–14 are (308,113). If the mouse pointer is moved along the y-axis (113) to the border of the circle, the x-axis is 380. The radius can be calculated by subtracting the x-axis value of the center point (308) from the x-axis value of the circle's right border (380), which gives a radius of 72 (380 - 308). For circles, you use “circle” as the value for the shape attribute. For a polygonal map area, you must use the coordinates for each corner of the shape. For example, in Figure 5–14, the polygon has five corners with the coordinates (78,309), (183,251), (316,262), (317,344), and (136,402). For polygonal shapes, you use “poly” as the value for the shape attribute.

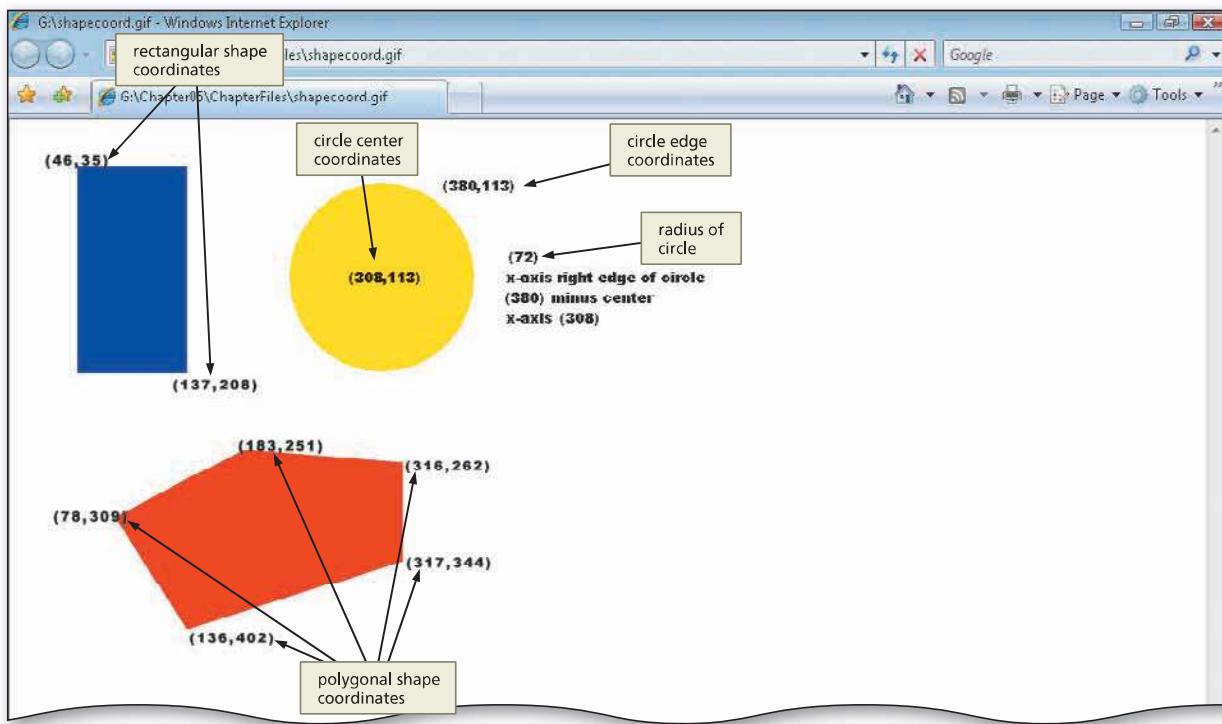


Figure 5–14 Coordinates of map areas.

In the Southwest map image (*southwest.jpg*), the image map will use three polygon shapes for the three hotspots, as sketched in Figure 5–11 on page HTML 212. Clickable areas are mapped in polygon shapes enclosing the following areas: Arizona, California, and Nevada.

Coding the Map

The final step in creating an image map is writing the HTML code for the map. To create a client-side image map, the tags `<map>` and `<area>` are used. The map start tag (`<map>`) and map end tag (`</map>`) create the client-side image map. The `<area>` tag defines the specific areas of the map and the links and anchors for those areas. The x- and y-coordinates for each map area are inserted into the `<area>` tag with the **coords** attribute, within quotation marks and separated by commas.

Working with the image.

In order to determine the x- and y-coordinates for image map points, you need to open the image in the chosen software tool.

- **Select a software tool.** Computers running the Windows operating system already have an image editing tool available, Paint. This chapter shows you how to work with your image within Paint. For other suggested editing software products, see Table 5–2 on page HTML 222.
- **Edit the image.** It is sometimes necessary to alter the image before using it on the Web page. In the case of the project in this chapter, the images were all too large for the page. Microsoft Paint was used to scale down the size of the image (Image menu, Resize/Skew). Paint also gives you the image dimensions (i.e., width and height) you need for the `` tag.
- **Make other changes to the image.** In Paint, you can make other changes to the image such as flipping the image horizontally or vertically, or altering the colors of the image. Other graphic editing software provides a variety of tools to alter an image slightly or significantly.

Plan Ahead

Using Paint to Locate X- and Y-Coordinates

As you have learned, you can use a simple or a sophisticated image editing or paint program to determine the x- and y-coordinates of various points on an image. In this chapter, the Paint program is used to find the x- and y-coordinates used in the map definition that divides a single image into several areas.

To Start Paint

The following steps illustrate how to start Paint.

1

- Click the Start button on the taskbar.
- Point to All Programs on the Start menu, click Accessories on the All Programs submenu, and then point to Paint on the Accessories submenu (Figure 5–15).
- Click Paint.

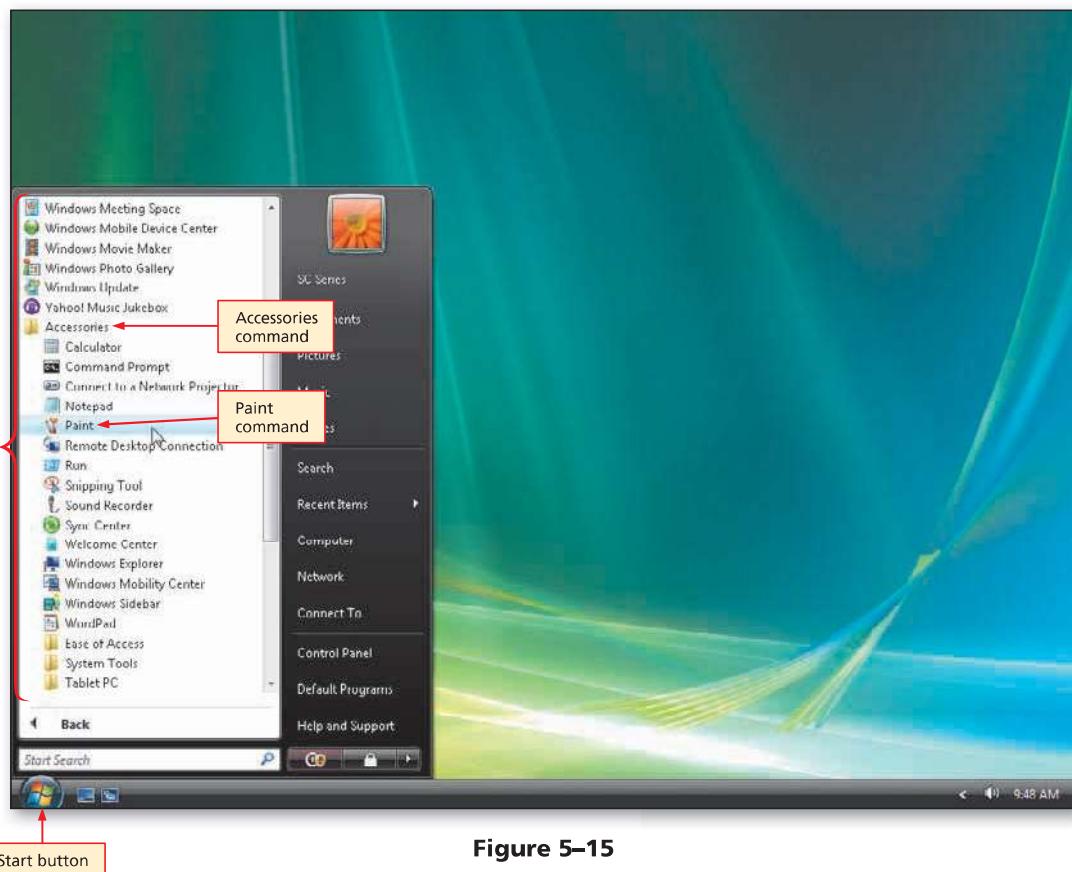


Figure 5–15

BTW

Using Paint

The Help feature of Paint can answer your questions about the use of this popular tool. Paint can be used to identify the x- and y-coordinates in an image used as an image map. It also can be used to create images that are used as image maps.

2

- If necessary, click the Maximize button on the right side of the title bar to maximize the window (Figure 5–16).

Q&A

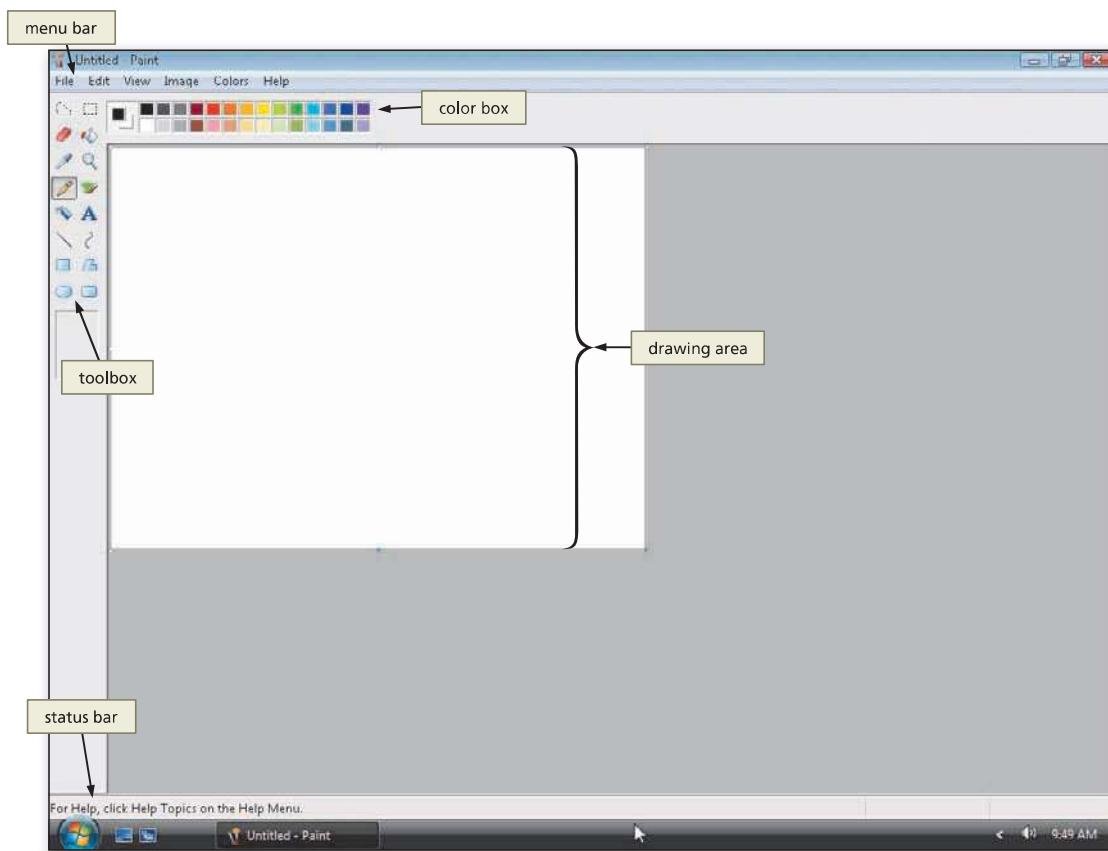
Do all computers running Windows include Paint?

Yes, Paint should be included with all Windows operating systems.

Q&A

How can I find out more about using Paint?

The Paint Help utility is quite good. You can search for information using its Search option or the Index. Paint Help gives step-by-step instructions for many tasks.

**Figure 5–16**

The Paint Window

The Paint window contains several elements similar to the document windows in other applications. The main elements of the Paint window are the drawing area, the toolbox, the color box, the menu bar, and the status bar, as shown in Figure 5–16.

Drawing area The **drawing area** is where the image is displayed.

Toolbox The **toolbox** displays tools that are used to edit or draw an image. In this project, the Pencil tool in the toolbox is used to find the x- and y-coordinates of the southwestern states image.

Color Box The **color box** displays a palette of colors that can be used to set the colors of the foreground, the background, or other elements in a drawing.

Menu Bar The **menu bar** is at the top of the window just below the title bar and shows the Paint menu names. Each menu name contains a list of commands that can be used to: open, save, and print the image in a file; edit the image; change the view of the Paint window; and perform other tasks.

Status Bar The **status bar** displays the coordinates of the center of the mouse pointer at its current position on the image.

To Open an Image File in Paint

The Southwest states image file (southwest.jpg) used for the image map is stored in the Data Files for Students. See the inside back cover of this book for instructions for downloading the Data Files for Students or see your instructor for information about accessing the files required for this book. The following step illustrates how to open an image file in Paint.

1

- With a USB drive plugged into your computer, click File on the Paint menu bar and then click Open on the File menu.
- If Computer is not displayed in the Favorite Links section, drag the top or bottom edge of the Open dialog box until Computer is displayed.
- Click Computer in the Favorite Links section to display a list of available drives.
- If necessary, scroll until UDISK 2.0 (G:) appears in the list of available drives.
- If necessary, click the Look in box arrow, and then double-click USB drive (G:). Double-click the Chapter05 folder, and then double-click the ChapterFiles folder in the list of available folders.
- Click the southwest.jpg image, then click the Open button in the Open dialog box to display the image that will be used for image mapping in this chapter as shown in Figure 5–17.

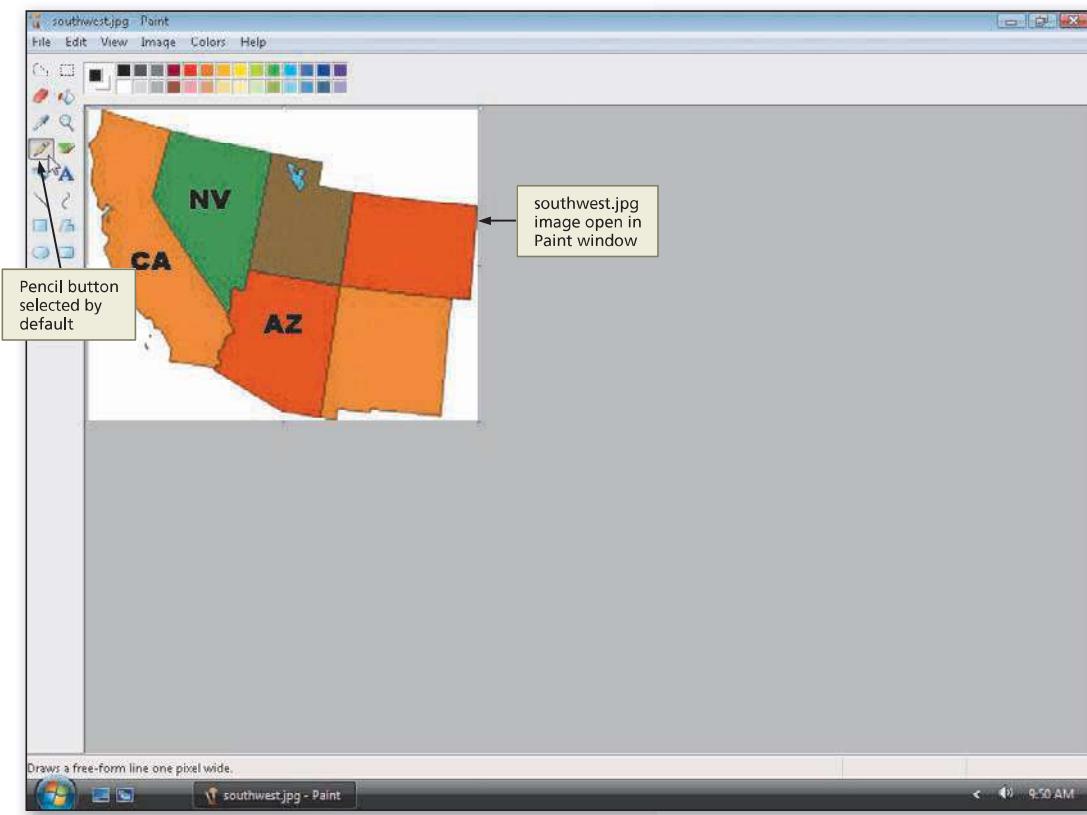


Figure 5–17

Locating X- and Y-Coordinates of an Image

The next step is to locate the x- and y-coordinates of the areas that should be mapped on the image. As shown in Figure 5–18, the image map should include three clickable polygonal areas that will link to other Web pages. For each of the three linkable map areas, every x- and y-coordinate pair corner must be determined.

As you have learned, the x- and y-coordinates begin with (0,0) in the top-left corner of the image, as shown in Figure 5–18. Moving the mouse pointer to the right (horizontally) increases the x-coordinate, and moving the mouse pointer down (vertically) increases the y-coordinate. Because all three clickable areas sketched on the southwest.jpg image are polygon shaped, the map definition must include the x- and y-coordinates of each point in each polygon. You use the poly attribute for all hotspot areas in this project.

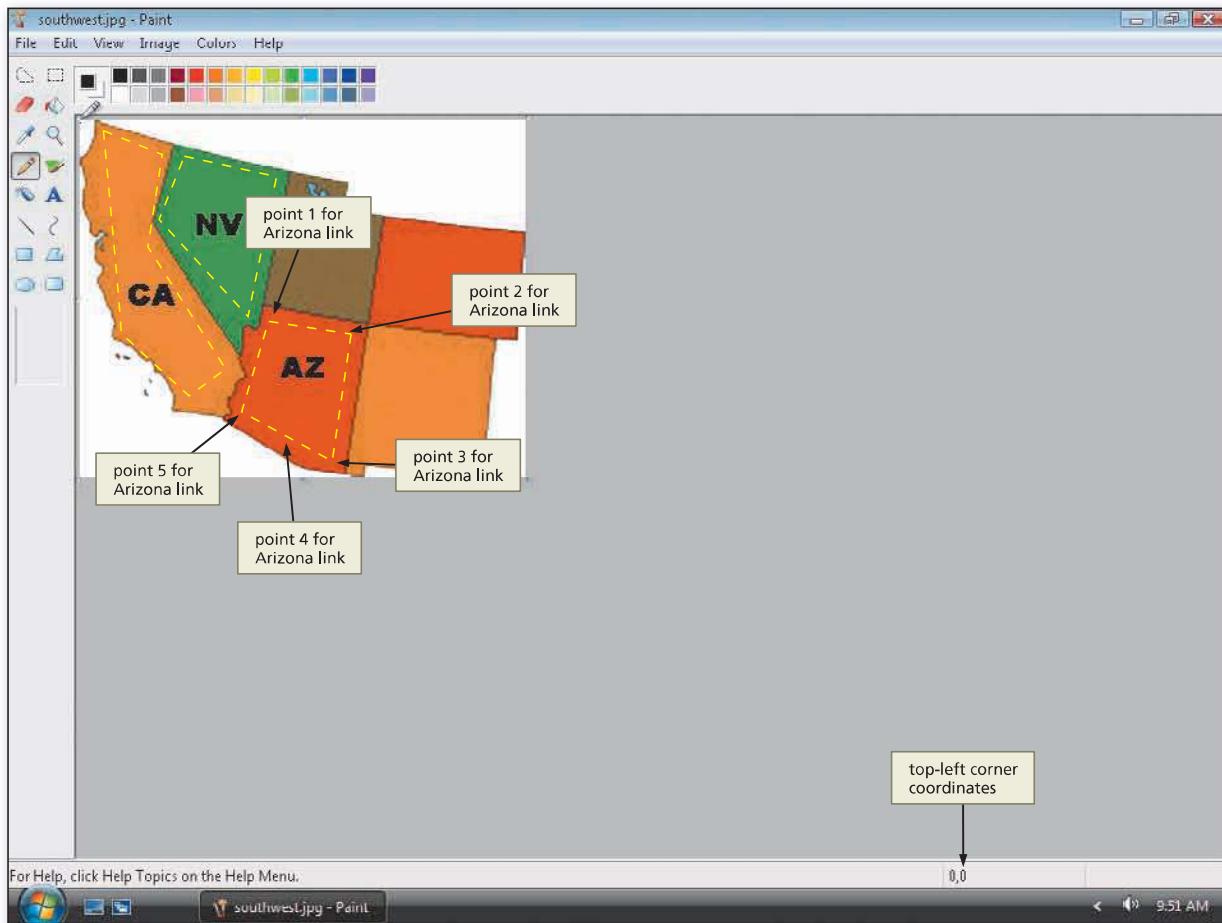
**Figure 5–18**

Table 5–1 shows the x- and y-coordinates for all three polygon-shaped map areas. The first number is the x-coordinate, and the second number is the y-coordinate. For example, the Arizona polygon consists of five pairs of x- and y-coordinates. The first x-coordinate is 157 and the first-left y-coordinate is 162. The next set of x- and y-coordinates in the Arizona map shape is 234 and 177; the third set is 217 and 288; the fourth set of coordinates is 187 and 285; and the final set of coordinates is 128 and 250. These x- and y-coordinates are used in the <area> tag to create the map definition for an image map.

Table 5–1 X- and Y- Coordinates

Pairs of X- and Y-Coordinates	
Arizona (five points)	157,162 and 234,177 and 217,288 and 187,285 and 128,250
California (seven points)	16,10 and 69,25 and 51,85 and 129,204 and 114,242 and 34,167 and 6,67
Nevada (five points)	81,24 and 169,47 and 144,166 and 126,175 and 68,85

To Locate X- and Y-Coordinates of an Image

The following steps illustrate how to locate the x- and y-coordinates of the boundary points of each clickable polygon area by moving the mouse pointer to the various points to see the x- and y-coordinates of those points. Although you do not need to record the coordinates for this project, you generally would do that. In this case though, you will compare the coordinates with those shown in Table 5–1, which lists the exact coordinates used in the <area> tags for this project.

1

- If necessary, click the Pencil button in the toolbox (Figure 5–19).

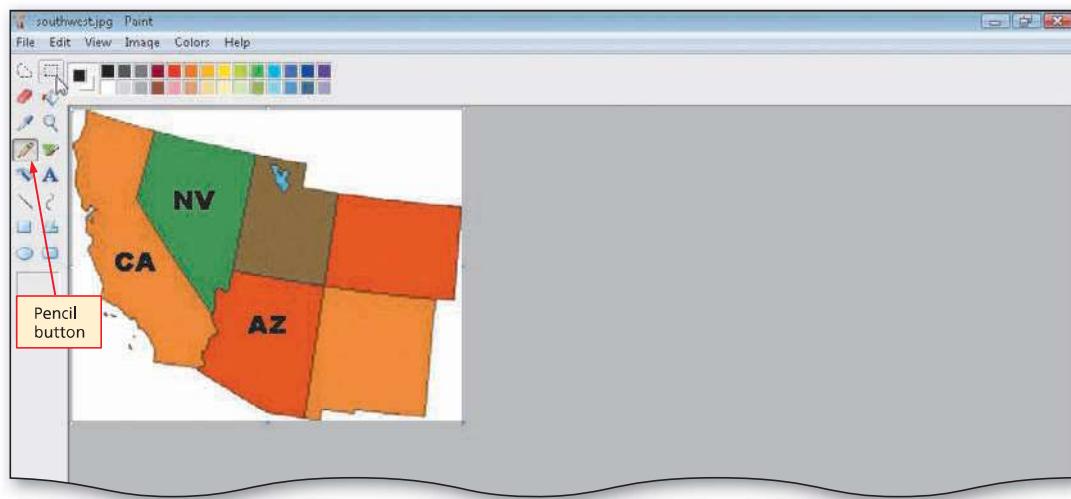


Figure 5–19

2

- Move the mouse pointer near the top-left corner of Arizona and note the x- and y-coordinates for that point as indicated in the status bar. Move the mouse until the coordinates read (157,162) (Figure 5–20). (Do not click the mouse button.)

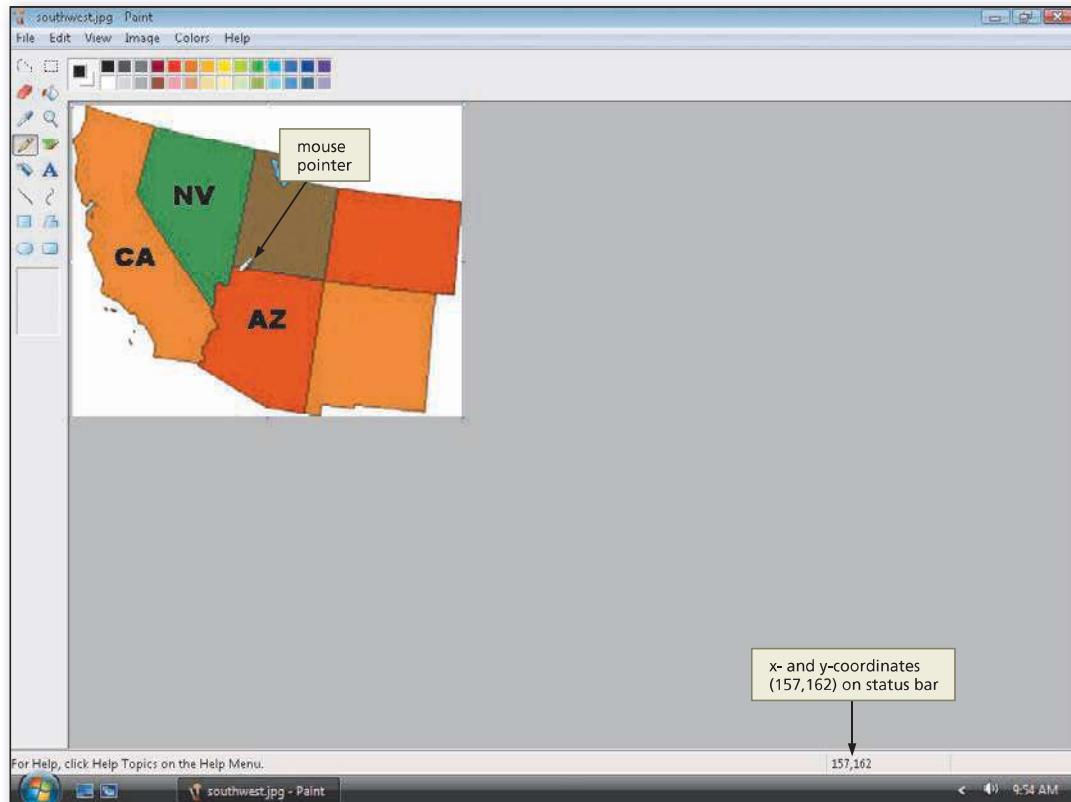


Figure 5–20

- Move the mouse pointer near the top-right corner of Arizona. The coordinates should read (234,177) (your coordinates may differ slightly) as indicated on the status bar (Figure 5–21). (Do not click the mouse button.)
- Move the mouse pointer to other points in the Arizona, California and Nevada hotspots by following the x- and y-coordinates in Table 5–1 on page HTML 219.
- After you have finished, click the Close button on the right side of the title bar. If prompted, do not save any changes to the file.

Q&A

I am not sure of the purpose of this exercise because the coordinates are already given to us for the project. Why am I doing these steps using Paint?

For the purpose of the project, we give you the coordinates to use. The normal image mapping process, however, consists of: finding an appropriate image, sketching out where you think the boundaries will be, and finding the coordinates on your own using a software tool that shows that information. The purpose of this exercise is to get you familiar with using Paint to find the coordinates.

Q&A

I notice that in addition to the Pencil tool, I can use the Free-Form Select and the Select tools to show the x- and y-coordinates on the status bar. Is it OK to use them?

It is fine to use any of the three tools for this purpose. You are only trying to see the x- and y-coordinates for the hotspot areas.

Experiment

- Play with the Image and Colors menu items. They give you many options to alter the image.

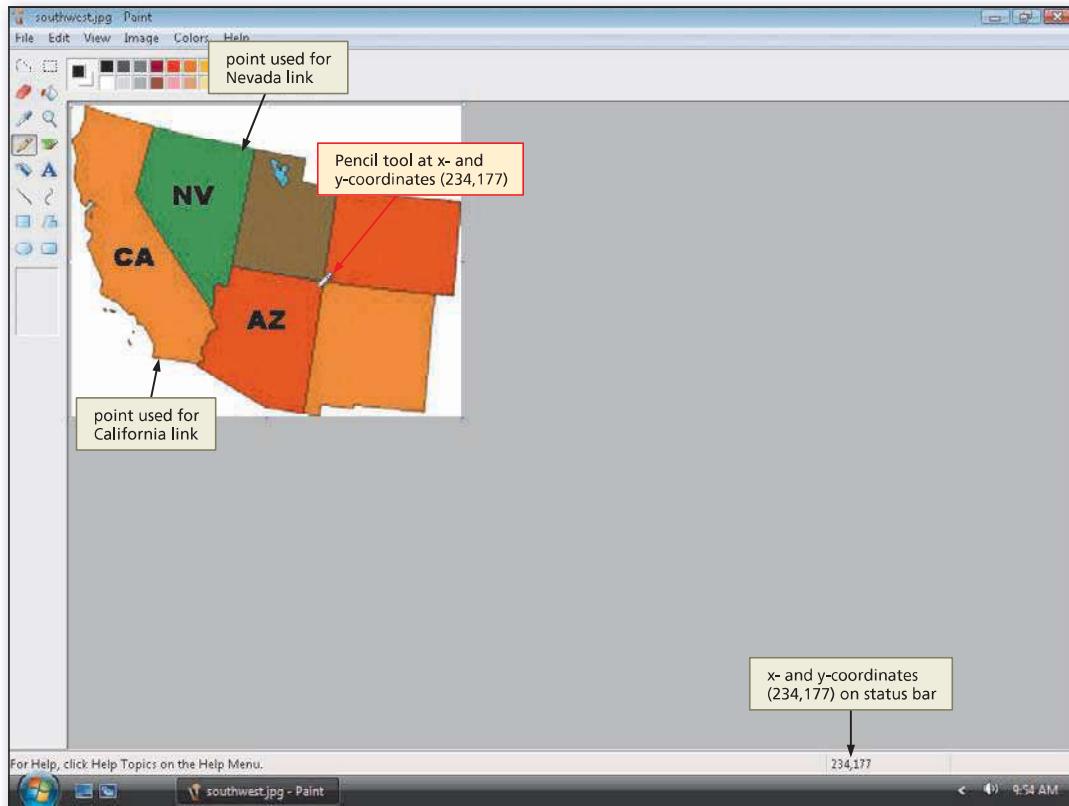


Figure 5–21

BTW

Graphics Software

Many graphics tools are available for advanced image creation and maintenance. One of the more popular tools is Adobe Photoshop. Photoshop allows you to create images that can be used as image maps or crop sections out of existing images.

Other Software Tools

Although Paint allows you to identify the coordinates for a map area manually, there are dedicated image map software tools that can simplify this process (see Table 5–2). These tools allow you to click the image to define the clickable areas of the image map and then automatically generate the x- and y-coordinates and HTML code needed for the image map. If possible, download one of the software tools listed in Table 5–2 and use that software to map the clickable areas in the southwest.jpg image. As further practice, open the file shapcoor.gif found in the Chapter05\ChapterFiles folder in Paint (Figure 5–22) and use your mouse pointer to identify the coordinates to map the clickable areas in the shapcoor.gif image. You also could experiment with using one or more of the tools in Table 5–2 to map clickable areas in the image.

Table 5–2 Image Map Software Tools

Tool	Platform
Mapedit	Windows, UNIX, Mac OS
CoffeeCup Image Mapper	Windows
Imaptool	Linux/X-Window

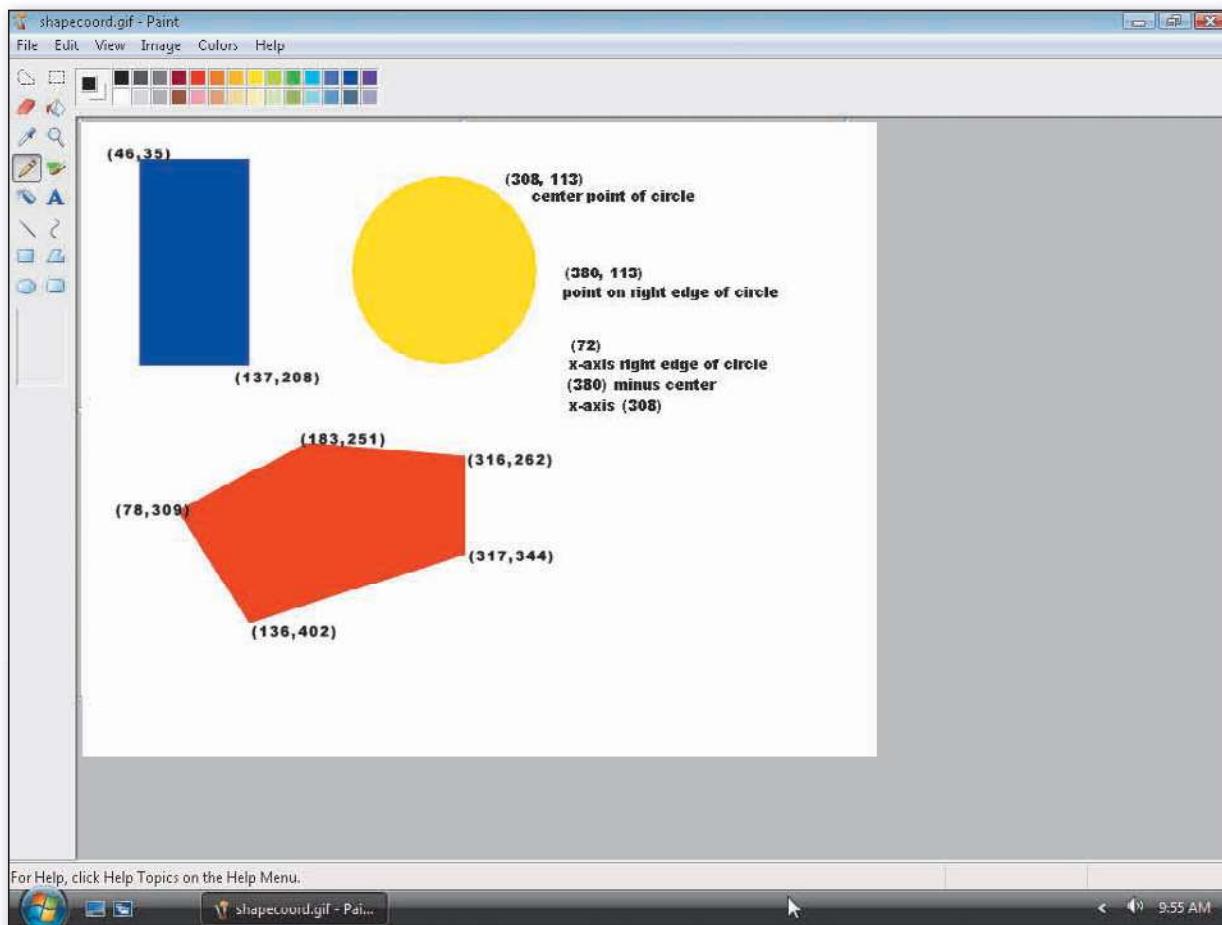


Figure 5–22

Starting the home page.

Just as with the other projects in previous chapters, you need to review good Web development standards before you start a new Web page.

- **Use the HTML structure tags required.** You will validate your Web pages for this project, so make sure that you use the HTML tags needed to make the page XHTML compliant. This includes using the <meta> tag and a DOCTYPE statement.
- **Copy what you can.** In earlier chapters, you copied HTML code from one completed page to another to make it easier. You should do the same in this project. Once a Web page is validated, you know that the initial HTML tags are correct. It makes sense then to copy/paste those lines of code to the next Web page file. If you are utilizing the same menu bar throughout a Web site, it also makes sense to copy that code from one Web page to another.

**Plan
Ahead**

Creating the Home Page

Before the image map can be added to the home page of the Southwest Map Web site, the home page must be created. The home page includes a borderless table, a logo image, and paragraphs of text, along with a table of text links to other pages on the Web site (arizona.html, california.html, and nevada.html).

To Start Notepad and Enter Initial HTML Tags

The first steps in creating the home page are to start Notepad and enter the initial HTML tags to define the overall structure of the Web page, as shown in Table 5–3.

Table 5–3 HTML Code to Define Web Page Structure

Line	HTML Tag and Text
1	<!DOCTYPE html
2	PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
3	"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
4	
5	<html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en">
6	<head>
7	<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
8	<title>Southwest States</title>
9	</head>
10	<body>
11	
12	
13	</body>
14	</html>

The following step illustrates how to start Notepad and enter HTML tags to define the Web page structure.

1

- Click the Start button on the taskbar and then point to All Programs on the Start menu.
- Click Accessories on the All Programs submenu and then click Notepad on the Accessories submenu.
- If necessary, click the Maximize button.
- If necessary, click Format on the menu bar and click Word Wrap to turn on Word Wrap.
- Enter the HTML code as shown in Table 5–3 on page HTML 223.

Creating a Table

The next task in developing the home page is to create a left-aligned, borderless table with one row and two columns, as shown in Figure 5–23. The first data cell contains the image southwest.jpg, which will be used for the image map. The second data cell contains the logo and paragraphs of information about Southwest mapping project, along with the text links on the bottom of the Web page.

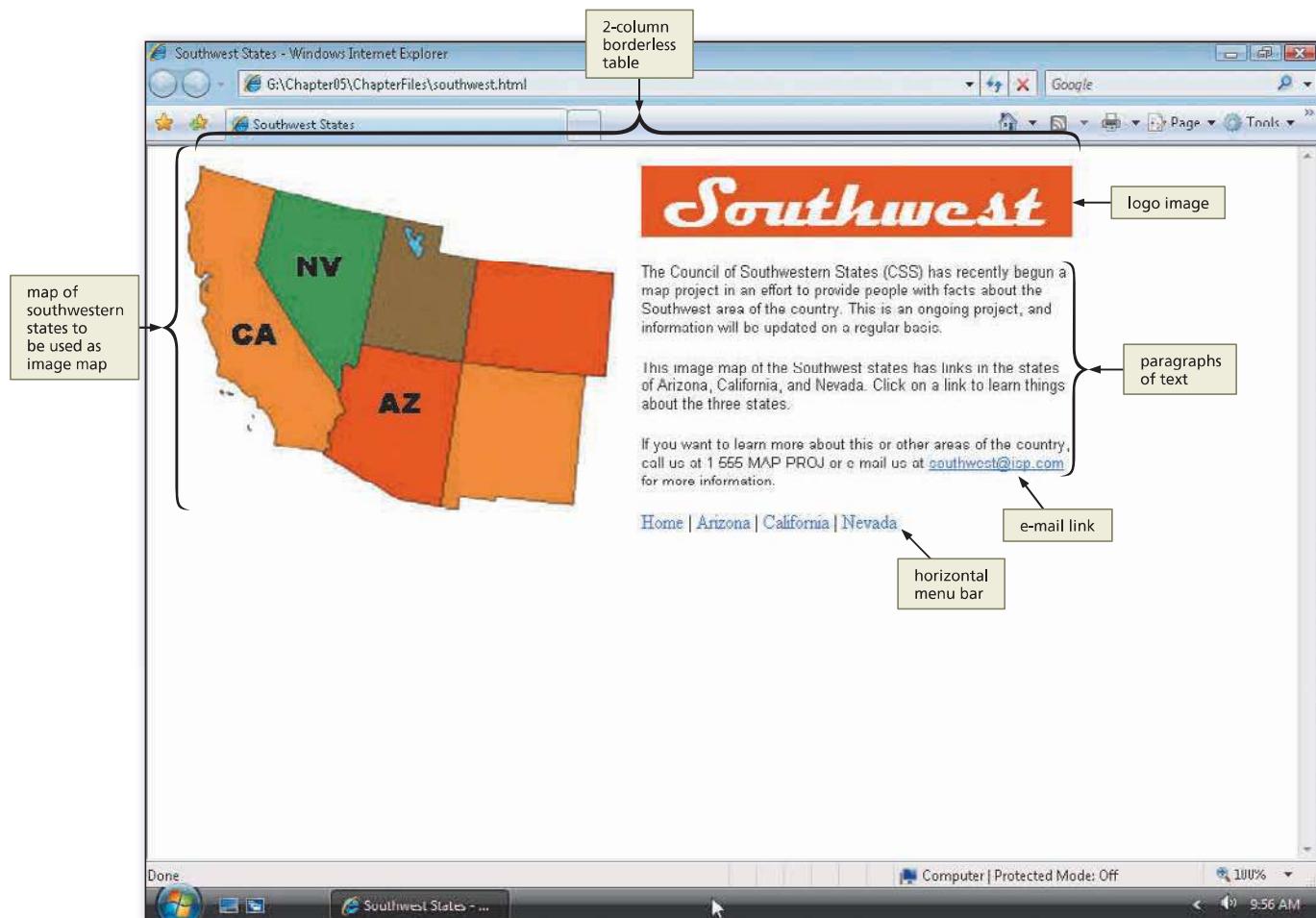


Figure 5–23

The two cells of the table are created using `<td>` tags that create table data cells. As you learned in Chapter 4, the `<td>` tag aligns the contents of a cell in the center of the cell vertically and to the left horizontally, by default. As shown in Figure 5–23, the table should use a vertical alignment so the contents of all cells are aligned with the top of the cell. The HTML code thus should use a `<tr>` tag with the `vAlign="top"` attribute to create a table row that uses vertical alignment. Using this tag eliminates the need to set each table data cell to use vertical alignment.

To Create a Table

The following step creates a one-row, two-column borderless table, with a table row that uses vertical alignment.

1

- With the insertion point on line 12, type `<table width="75%">` and then press the ENTER key.
- Type `<tr valign="top">` and then press the ENTER key twice as shown in Figure 5–24.

Q&A What is the `vAlign` attribute?

This attribute allows you to align text or an image vertically in the table. In this example, you align the first row of the table at the top.

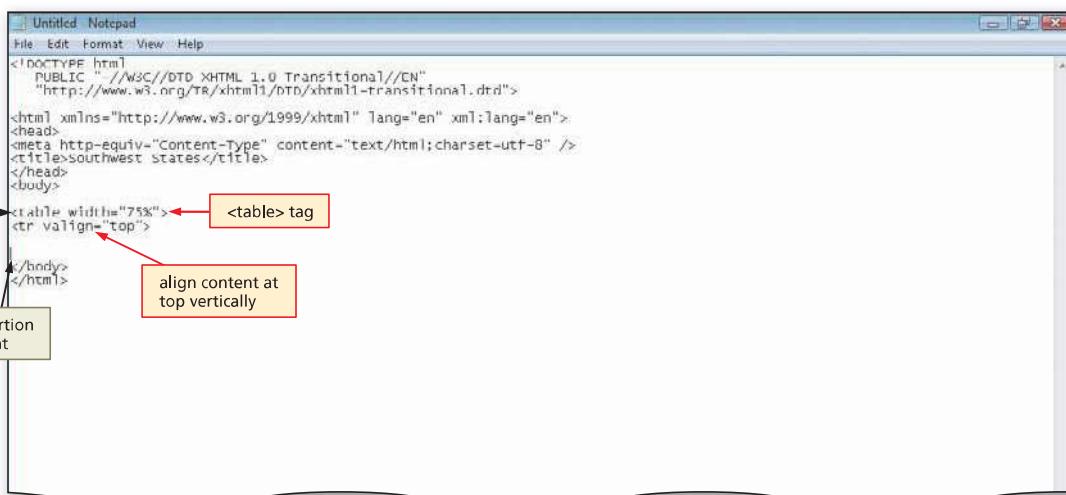


Figure 5–24

Inserting an Image to Use as an Image Map

The next step in creating the home page is to add the image, described in Table 5–4, which is used as the image map. The image, southwest.jpg, is stored in the Data Files for Students.

BTW

Image Map Tutorials

Many great resources on the Web discuss image maps. For more information about tutorials, search for the term “image map tutorials” with any good search engine.

Table 5–4 Tag Attributes Used to Create Image Maps

Tag	Attribute	Function
<code></code>	<code>usemap</code>	• Indicates the URL of a client-side image map
	<code>ismap</code>	• Indicates a server-side image map

BTW

Image Width and Height
As you have learned in earlier projects, specifying the width and height attributes helps improve page loading time because the browser does not have to determine the width and height of the image.

The Southwest Map home page will use a client-side image map. The HTML code to add the image thus will use attributes of the `` tag — `src`, `width`, `height`, `border`, `hspace`, and `usemap` — as follows:

```

```

where the `src` attribute identifies the image, the `width` and `height` attributes define the image size, and the `border` attribute makes the image borderless. The `hspace` attribute adds 20 pixels of horizontal space between the image and the text, so the text does not run right up against the image.

The `usemap` attribute indicates to the browser which client-side image map will be used for that image. The client-side image map is placed within the `<map>` tag and defines the x- and y-coordinates of the areas on the image being used for the image map. Later in this chapter, a map named `states` will be created using the `<map>` tag. When adding the image to use as an image map, the value of the `usemap` attribute — in this case, `usemap="#states"` — indicates that the browser should use the image map named `states` as its image map source. The following steps show how to add an image to use as an image map.

To Insert an Image to Use as an Image Map

The following step shows how to insert an image in the first row of the table.

1

- If necessary, click line 15.
- Type `<td>` and then press the ENTER key.
- Type `` and then press the ENTER key.
- Type `</td>` and then press the ENTER key twice (Figure 5–25).

The screenshot shows a Windows Notepad window titled "Untitled - Notepad". The code is as follows:

```
<!DOCTYPE html>
PUBLIC "-//W3C//DTD XHTML 1.0 transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Southwest States</title>
</head>
<body>
<table width="75%">
<tr valign="top">
<td>

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

Annotations in the screenshot:

- A callout points to "line 15" in the code with the text "hspace attribute adds horizontal space around image".
- A callout points to "line 19" in the code with the text "usemap attribute tells browser what image map to use".
- A callout points to the `` tag with the text " tag with source, width, and height attributes".

Figure 5–25

Q&A

I do not understand the purpose of the `usemap` attribute. Can you explain it?

The `usemap` attribute is what identifies the image with the map that will be inserted at the end of this Web page. The value (i.e., `#states`) in the `usemap` attribute tells the browser that this is an image map, and that it needs to look at the `<map>` tag name and id with that name (`states`) for the mapping.

Q&A If I want to speed up the download of a large image, can I change the dimensions of the image using the `width` and `height` attributes to make it smaller?

Although you can do this, you should not. Making a change to an image with these attributes still forces the browser to download the entire image and then display it as you indicate in the `width` and `height` attributes. If you want to speed up the download by making the image smaller, you should use Paint (or some other image editing software) to change the dimensions and then save the image. In Paint, look under Image and then Resize/Skew.

To Add a Header and Text to a Table Cell

The home page also contains three paragraphs of text in the right column of the first row. The HTML code for this text is shown in Table 5–5. Entering the HTML code shown in Table 5–5 adds three paragraphs of text describing the company and an e-mail link. As you have learned, a Web page always should include an e-mail address on the home page for visitor contact.

Table 5–5 HTML Code for Inserting Paragraphs

Line	HTML Tag and Text
19	<td>
20	<p>The Council of Southwestern States (CSS) has recently begun a map
21	project in an effort to provide people with facts about the Southwest area of the country. This is
22	an ongoing project, and information will be updated on a regular basis.</p>
23	
24	<p>This image map of the Southwest states has links in the states of Arizona,
25	California, and Nevada. Click on a link to learn things about the three states.</p>
26	
27	<p>If you want to learn more about this or other areas of the country, call
28	us at 1-555-MAP-PROJ or e-mail us at southwest@isp.com
29	for more information.</p>

The following step shows how to enter the tags for the paragraphs of text.

1

- If necessary, click line 19.
- Enter the HTML code shown in Table 5–4 and then press the ENTER key twice (Figure 5–26).

Q&A

Why am I using an image file (swheader.gif) rather than just making that an h1 header?

You can use an image in lieu of a header if you want to use a specific font that might not display properly on all computers. In this case, we created the header using the Text tool and Magneto font in Paint and saved it as a .gif file. Make sure to display the Text Toolbar (look under View) to do this.



Figure 5–26

To Create a Horizontal Menu Bar with Text Links

The next step is to create a horizontal menu bar of text links at the bottom of the page that mirror the image map links. As previously discussed, it is important that a Web page include text links to all URLs in the image map, in the event the image does not download, a user is using a text reader of some sort, or a user's browser is set to not display images.

Table 5–6 shows the HTML code used to create the horizontal menu bar. As shown in lines 31 through 35, the HTML code adds the menu bar to the existing data cell in the table.

Table 5–6 HTML Code for Creating a Horizontal Menu Bar

Line	HTML Tag and Text
31	<p>Home
32	Arizona
33	California
34	Nevada</p>
35	</td>

The following step shows how to create the text links at the bottom of the home page.

1

- If necessary, click line 31.
- Enter the HTML code shown in Table 5–6 and then press the ENTER key twice (Figure 5–27).

Q&A

I notice that we use a horizontal menu bar for many projects in the book. Are there other ways to display a menu?

Many different ways exist to display your menu. The horizontal menu bar is used because it makes sense aesthetically in these projects. A great idea is to review other menu bar options on the Internet and view the HTML source. You can get a lot of ideas by looking at the Web pages and source code from other Web developers. Remember that the whole point of the menu bar is to allow easy navigation access to your Web site visitors.

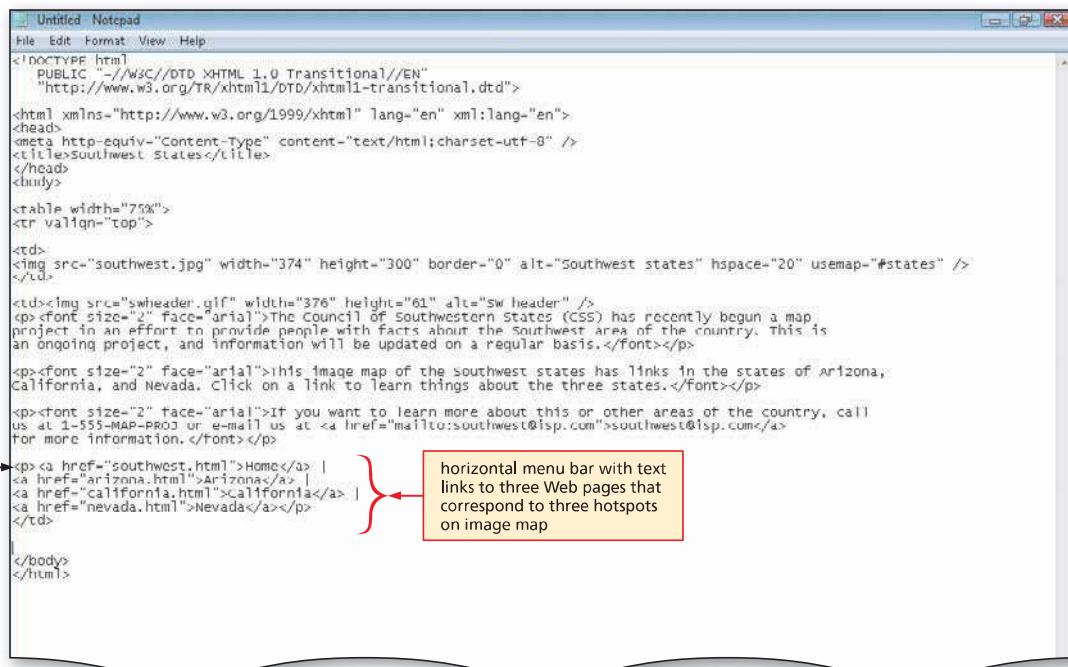


Figure 5–27

To End the Table

To complete the table, you add the closing tags for the table row and table.

1

- If necessary, click line 37.
- Type `</tr>` and then press the ENTER key.
- Type `</table>` and then press the ENTER key twice as shown in Figure 5–28.

```

<!DOCTYPE html
PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<title>Southwest States</title>
</head>
<body>
<table width="75%">
<tr valign="top">
<td>
<td>
<p><font size="2" face="arial">The Council of Southwestern States (CSS) has recently begun a map project in an effort to provide people with facts about the Southwest area of the country. This is an ongoing project, and information will be updated on a regular basis.</font></p>
<p><font size="2" face="arial">This image map of the southwest states has links in the states of Arizona, California, and Nevada. Click on a link to learn things about the three states.</font></p>
<p><font size="2" face="arial">If you want to learn more about this or other areas of the country, call us at 1-555-MAP-PRO or E-mail us at <a href="mailto:southwest@isp.com">southwest@isp.com</a> for more information.</font></p>
<p><a href="southwest.html">Home</a> |<a href="arizona.html">Arizona</a> |<a href="california.html">California</a> |<a href="nevada.html">Nevada</a></p>
</td>
</tr>
</table>
</body>
</html>

```

Figure 5–28

Creating an image map.

This is the final step in the four-step process of image mapping. The HTML code is very specific about what is required for image mapping. It only takes one coordinate that is not correct or one shape that is wrong for the image map not to work as intended.

- **Use the `<map>` tag.** The `<map>` tag identifies the name and ID for the image map. It is important that the name is spelled correctly, and that the same name is used in the `usemap` attribute in the `` tag.
- **Use the `<area>` tag.** The `<area>` tag also is very important in image mapping. You identify the area shape and the x- and y-coordinates in this tag. Again, if even one number is typed incorrectly, it can make the image map nearly unusable. Image mapping software (described on page HTML 230) makes this a moot point because it inserts the coordinates for you into the HTML code.

Plan Ahead

BTW Text Links

It is important to use text links on all Web pages in addition to using an image map. Some people turn graphics off while browsing the Web. If you did not have text links, those people could not access your other Web pages with graphics turned off. With text links, all your Web site visitors have access to all pages in the Web site.

Coding the Image Map Using HTML Tags and Attributes

Thus far, the chapter has addressed three of the four steps in creating an image map: the southwest.jpg image to use as an image map has been selected and added to the home page, the hotspots have been sketched on the southwest.jpg image, and Paint was used to locate the x- and y-coordinates for each map area on the image that serves as a hotspot. With these steps completed, the final step is to code the image map using HTML. Table 5–7 shows the two HTML tags used to create an image map, along with several key attributes of each.

Table 5–7 Tags and Tag Attributes Used to Create Image Maps

Tag	Attribute	Function
<map> </map>		<ul style="list-style-type: none"> Creates a client-side image map
	name	<ul style="list-style-type: none"> Defines the map's name
<area>		<ul style="list-style-type: none"> Defines clickable areas within a <map> element, as well as links and anchors
	shape	<ul style="list-style-type: none"> Indicates the shape of the map area; possible values are rect, poly, and circle
	coords	<ul style="list-style-type: none"> Indicates the x- and y-coordinates of the points bounding the map area
	href	<ul style="list-style-type: none"> Indicates the link (URL) used for a map area
	alt	<ul style="list-style-type: none"> Indicates the alternate text for the image

BTW**Accessibility**

Developers should use accessibility guidelines when developing Web pages. It is important that the Web page content is understandable and navigable. The W3C gives some good suggestions for Web site accessibility issues that should be reviewed. For more information about accessibility, visit the W3C Web site, or refer to Appendix C in this book.

The start <map> tag and end </map> tag define the section of code that includes the client-side image map. The <area> tag is used to define the clickable areas on the image map. An example of the <area> tag is:

```
<area shape="poly"
coords="157,162,234,177,217,288,187,285,128,250"
href="arizona.html" alt="AZ shape" />
```

where the **shape** attribute with the **poly** value defines the clickable map area as a polygon. Other possible values for the shape attribute are circle and rect (rectangle). The alt attribute defines alternate text for the image. The coords attribute indicates the pairs of x- and y-coordinates of the polygon that serve as the boundaries of the linkable area. In a polygon, all pairs of x- and y-coordinates must be included. Finally, the href attribute designates the URL of the link. In this example, a Web page visitor clicking anywhere within the polygon bordered by x,y (157,162,234,177,217,288,187,285,128,250) will link to the Web page arizona.html.

To insert the <area> tag for the circle and polygon shapes, such as those shown in Figure 5–14 on page HTML 215, the HTML code would be as follows:

```
<area shape="circle" coords="308, 113, 72" href="circle.html">
<area shape="poly"
coords="78, 309, 183, 251, 316, 262, 317, 344, 136, 402"
href="poly.html">
```

To Create an Image Map

For the image map on the Southwest Map home page, three clickable areas are created, one for each state: Arizona, California, and Nevada. All three clickable areas are polygonal in shape. Table 5–8 shows the HTML code used to create the image map for the southwest.jpg image on the home page. Line 40 defines the name of the image map as states, which is the name referenced in the usemap attribute of the tag that added the southwest.jpg image. Lines 41 through 43 define the three polygonal map areas for the image map, based on the x- and y-coordinates listed in Table 5–1 on page HTML 219. Each polygonal map area links to one of the three other Web pages on the Web site.

Table 5–8 HTML Code for Creating an Image Map**Line HTML Tag and Text**

```

40   <map name="states" id="states">
41     <area shape="poly" coords="157,162,234,177,217,288,187,285,128,250" href="arizona.html" alt="AZ shape" />
42     <area shape="poly" coords="16,10,69,25,51,85,129,204,114,242,34,167,6,67" href="california.html" alt="CA shape" />
43     <area shape="poly" coords="81,24,169,47,144,166,126,175,68,85" href="nevada.html" alt="NV shape" />
44   </map>
```

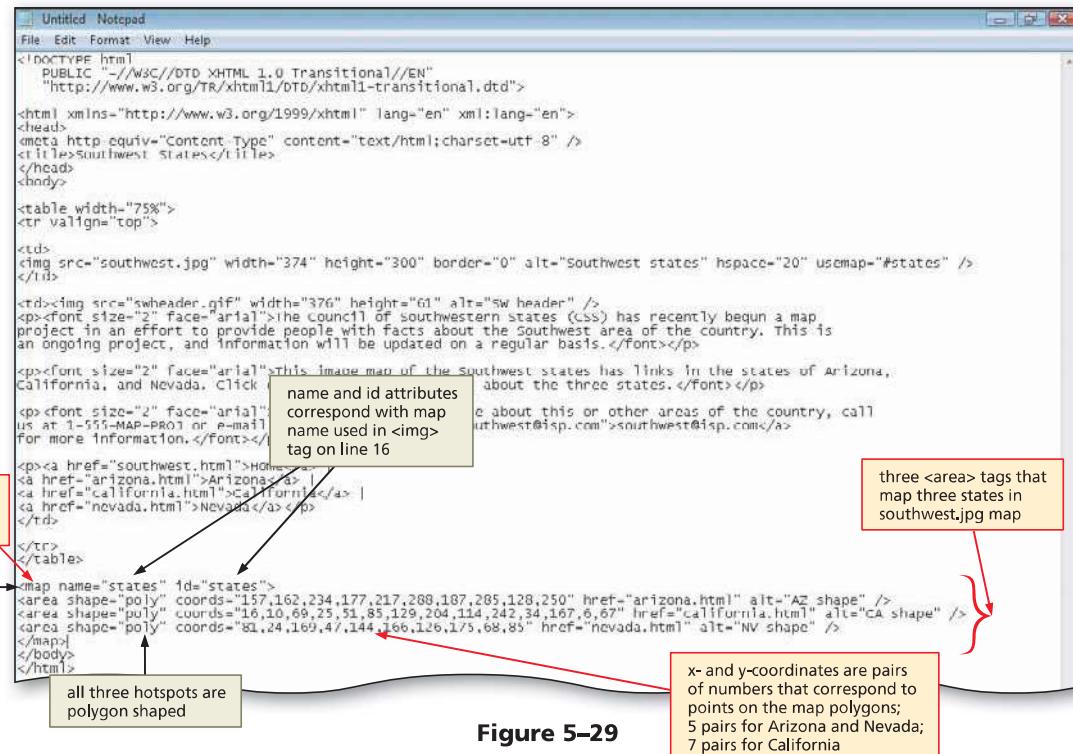
The following step illustrates how to enter the HTML code to create the image map for the southwest.jpg image.

1

- If necessary, click line 40.
- Enter the HTML code shown in Table 5–8 (Figure 5–29).

Q&A For this project, I am using all polygon shapes. Could I have used other shapes for these three states?

A rectangle shape could have been appropriate for the state of Arizona, but it would not have included the slight southward dip at the bottom of the state. To include as much of the states' area in the hotspots, we used polygons.

**Figure 5–29**

Q&A Could I have used other x- and y-coordinates for this image map?

Sure, this is a very subjective part of image mapping. You need to select the points in the boundaries that make sense to you. Just make sure that the points also will make sense to your Web page visitors. Also, take care not to overlap the points or you will end up with false results.

To Save and Print the HTML File

1

- With a USB drive plugged into your computer, click File on the Notepad menu bar and then click Save As. Type southwest.html in the File name text box (do not press ENTER).

- If Computer is not displayed in the Favorite Links section, drag the top or bottom edge of the Save As dialog box until Computer is displayed.

- Click Computer in the Favorite Links section to display a list of available drives.

- If necessary, scroll until UDISK 2.0 (G:) appears in the list of available drives.

- If necessary, open the Chapter05\ChapterFiles folder.

- Click the Save button in the Save As dialog box to save the file on the USB flash drive with the name southwest.html.

- Click File on the menu bar, and then click Print on the File menu (Figure 5–30).

```

<!DOCTYPE html
PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Southwest States</title>
</head>
<body>
<table width="75%">
<tr valign="top">
<td>

<td>
<p><font size="2" face="arial">The Council of Southwestern States (CSS) has recently begun a map project in an effort to provide people with facts about the southwest area of the country. This is an ongoing project, and information will be updated on a regular basis.</font></p>
<p><font size="2" face="arial">This image map of the Southwest states has links in the states of Arizona, California, and Nevada. Click on a link to learn things about the three states.</font></p>
<p><font size="2" face="arial">If you want to learn more about this or other areas of the country, call us at 1-555-MAP-PROJ or e-mail us at <a href="mailto:southwest@isp.com">southwest@isp.com</a> for more information.</font></p>
<p><a href="southwest.html">Home</a> |<a href="arizona.html">Arizona</a> |<a href="california.html">California</a> |<a href="nevada.html">Nevada</a></p>
</td>
</tr>
</table>
<map name="states" id="states">
<area shape="poly" coords="157,162,234,177,217,208,187,205,120,250" href="arizona.html" alt="AZ shape" />
<area shape="poly" coords="16,10,69,25,51,85,129,204,114,242,34,167,6,67" href="california.html" alt="CA shape" />
<area shape="poly" coords="61,24,169,47,144,106,120,175,68,85" href="nevada.html" alt="NV shape" />
</map>
</body>
</html>

```

Figure 5–30

To Validate, View, and Print a Web Page

After the HTML file for the Southwest Map home page is saved and printed, you should validate it, view it in a browser to confirm that the Web page appears as desired, and test that the links function as expected. The following steps illustrate how to validate, view, and print a Web page.

1

- Open your browser and browse to the validator.w3.org link.
- Click the Validate by File Upload tab.
- Click the Browse button.
- Locate the southwest.html file on your storage device and click the file name.
- Click the Open button in the File Upload dialog box and the file name will be inserted into the File box.
- Click the Check button. The resulting validation should display as shown in Figure 5–31.

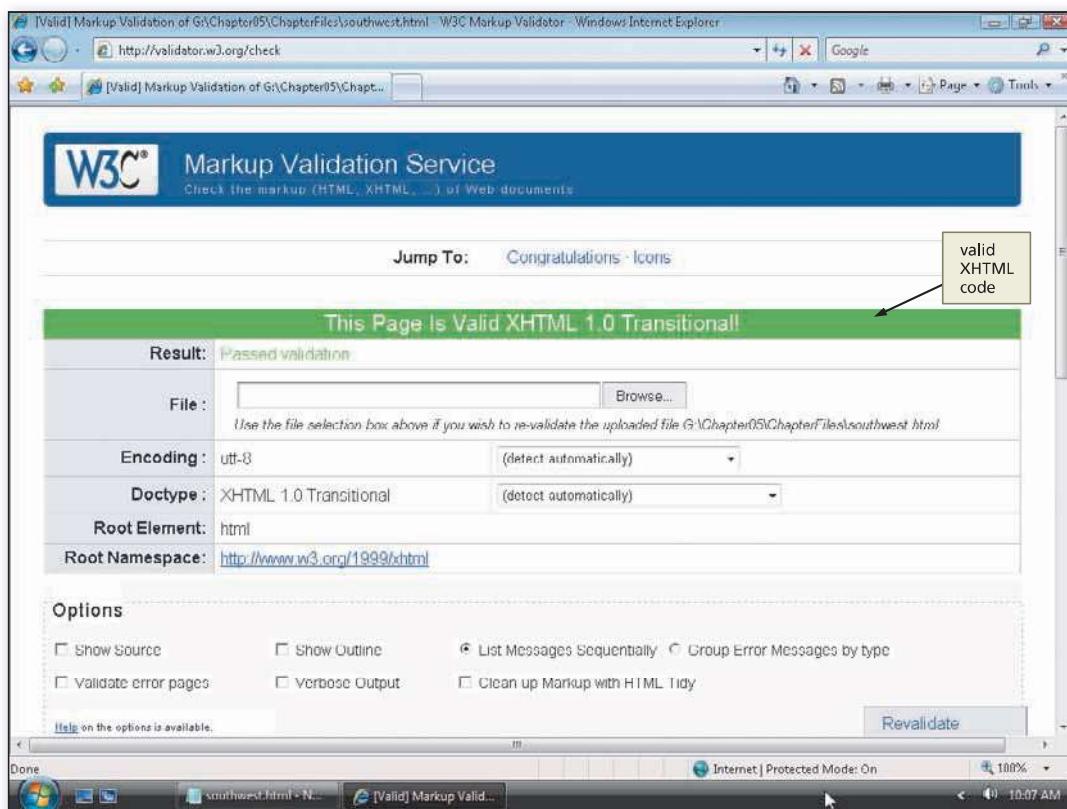


Figure 5–31

2

- In Internet Explorer, click the Address bar to select the URL on the Address bar.
- Type g:\Chapter05\ChapterFiles\southwest.html to display the new URL on the Address bar and then press the ENTER key (Figure 5–32).
- Click the e-mail link to verify that it works correctly. Next, test the links to the California and Nevada pages by clicking the corresponding mapped areas of the image and the text links at the bottom of the page.

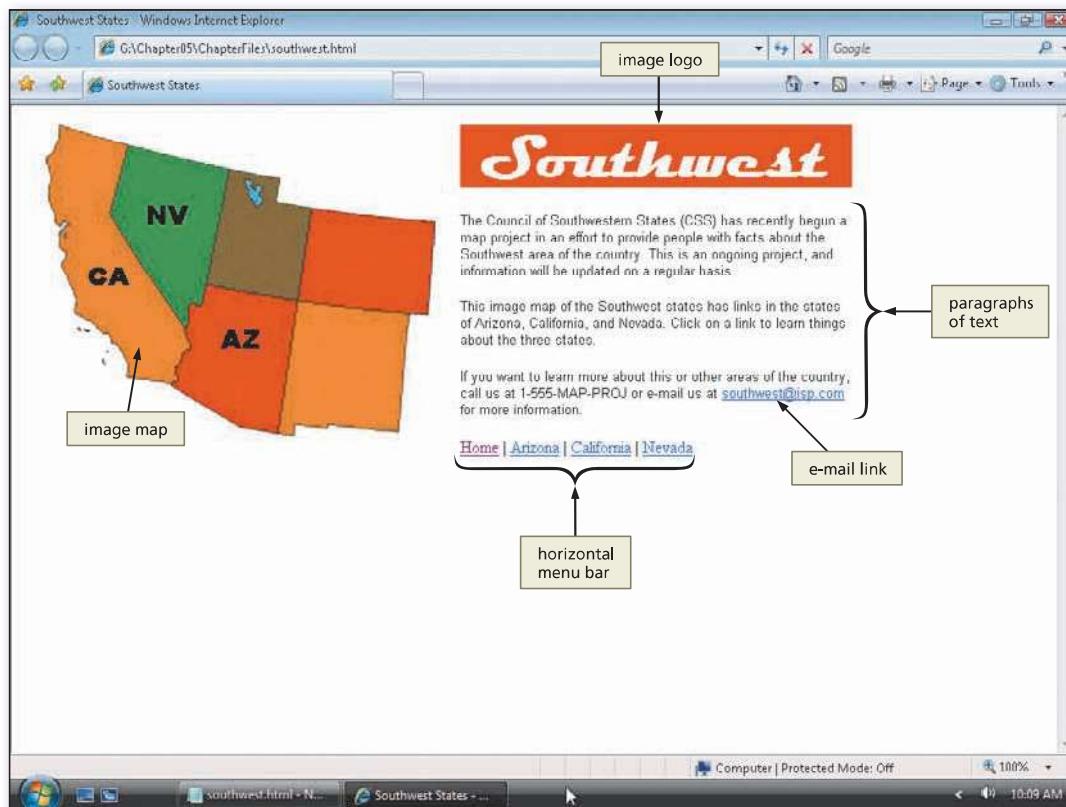
Q&A

Why do the Nevada and California links work, but not the Arizona link?

These links work because the files nevada.html and california.html are stored in the Chapter05\ChapterFiles folder of the Data Files for Students. The Arizona hotspot and text link cannot be tested yet because the Arizona Web page has not been created.

BTW

Testing Image Maps
It is important to test the Web page thoroughly in the browser, especially with image maps. If one incorrect number is typed as an x- or y-coordinate, the entire image map can be wrong. Make sure that the clickable area is exactly where you want it to be by testing your Web pages.

**Figure 5–32**

3

- Click the Print button on the Standard Buttons toolbar to print the Web page (Figure 5–33).

**Figure 5–33**

Planning subsequent Web pages.

The content for secondary Web pages is very important because these pages are generally what the visitor is searching for. The home page gives a good introduction to a Web site, but the main site content is generally found in the subsequent Web pages.

- Determine content and organization.** The way in which the Web page is organized is important as well. For the subsequent Web pages in this project (i.e., Arizona, California, and Nevada), we need to determine a Web page layout that works well for all three states. Using tables for the Web pages allows us to organize the pages in a readable manner.
- Make the Web page attractive.** Color and images used on a Web page help to make it attractive to your Web site visitor. In the case of the secondary Web pages, we used an image of the state flag together with a picture that is relevant to that state. If we had just displayed the text content in tables alone, it would not have been as attractive.

Plan Ahead

Creating a Second Web Page

With the home page complete, the next step is to create the Arizona Web page. As shown in Figure 5–1 on page HTML 203, each area represented in the image map (Arizona, California, and Nevada) has a separate Web page that contains text that describes the area, together with a picture relevant to the state. The individual area Web pages also have text links to the home page, as well as to all other Web pages on the Web site. This section discusses how to create the Arizona Web page (*arizona.html*), as shown in Figure 5–34. The other pages on the Web site (*california.html* and *nevada.html*) are completed and stored in the Data Files for Students.

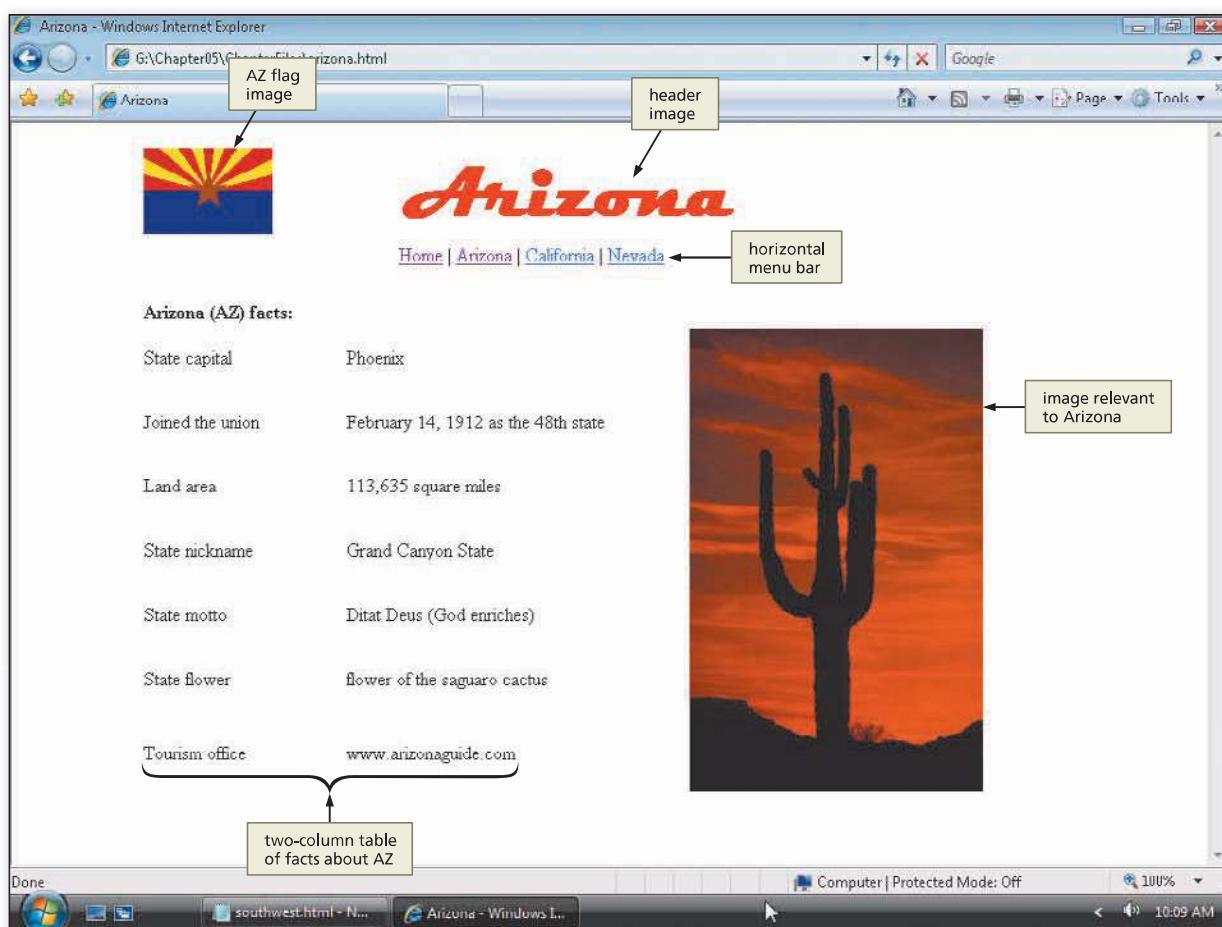


Figure 5–34

To Copy and Paste HTML Code to a New File

The easiest way to start creating the Arizona Web page is to reuse code from the home page, wherever possible. For example, the first ten lines of HTML code on the home page, which are used to describe the Web page structure, can be used on the Arizona Web page. The following step illustrates how to copy the first ten lines of HTML code from the HTML file for the home page and then paste the lines in the HTML file for the Arizona Web page.

1

- Click the southwest - Notepad button on the taskbar.
- When the southwest.html file is displayed in the Notepad window, click immediately to the left of the < in the <!DOCTYPE html tag on line 1. Drag through the <body> tag on line 10 to highlight lines 1 through 10.
- Press CTRL+C to copy the selected lines to the Clipboard.
- Click File on the menu bar and then click New.
- Press CTRL+V to paste the contents of the Clipboard into the new file (Figure 5–35).

```
<!DOCTYPE html
PUBLIC "-//W3C//DTD XHTML 1.0 transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Southwest States</title>
</head>
<body>
```

Figure 5–35

To Change the Web Page Title

The next step is to edit the pasted code to change the title of the Web page. The title of the Web page should be changed to Arizona, so the title of the current Web page is displayed on the title bar of the Web browser. The following step shows how to change the title of the Web page.

1

- Highlight the words Southwest States between the <title> and </title> tags on line 8. Type Arizona as the title to replace the words Southwest States.
- Click immediately to the right of the <body> tag on line 10 and then press the ENTER key three times.
- Type </body> and then press the ENTER key.
- Type </html>.
- Return the insertion point to line 12 (Figure 5–36).

```
<!DOCTYPE html
PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Arizona</title>
</head>
<body>
```

Figure 5–36

To Add a Heading

The next step is to add a table with two rows and two columns to the Arizona Web page. As shown in Figure 5–34 on page HTML 236, the first cell of the first row contains an image of the state flag (azflag.gif). The second cell of the first row contains an image header (azheader.gif). In the second row, the first cell contains a table of information, while the second cell contains an image (arizona.jpg).

Table 5–9 lists the HTML code used to create the first row of the table and enter the heading to identify the Web page.

Table 5–9 HTML Code for Adding a Heading

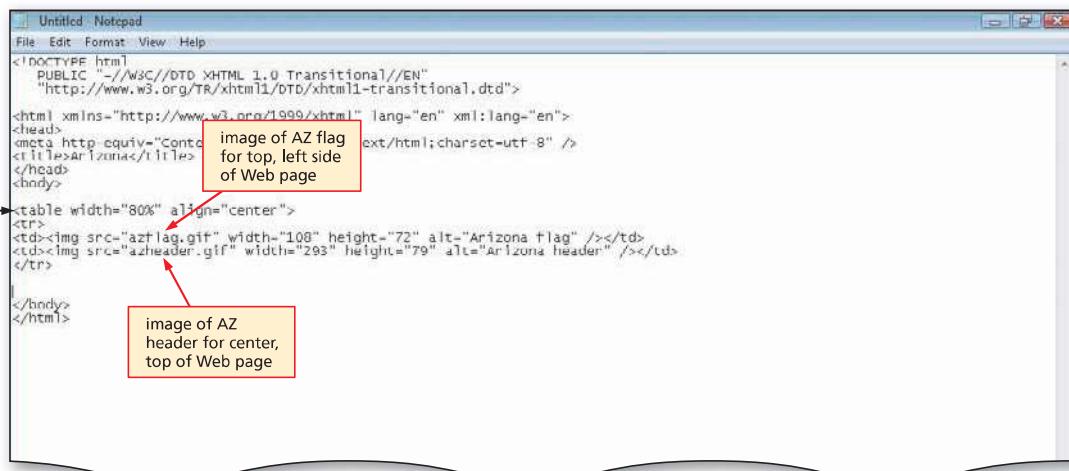
Line	HTML Tag and Text
12	<table width="80%" align="center">
13	<tr>
14	<td></td>
15	<td></td>
16	</tr>

The following step illustrates how to enter the HTML code to create a table and then add a heading in the first cell of the first row.

1

- If necessary, click line 12.
- Enter the HTML code shown in Table 5–9, pressing the ENTER key twice after the last line (Figure 5–37).

line 12



```

Untitled - Notepad
File Edit Format View Help
<!DOCTYPE html
  PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
</head>
<body>
<table width="80%" align="center">
<tr>
<td></td>
<td></td>
</tr>
</table>
</body>
</html>

```

Figure 5–37

To Add a Horizontal Menu Bar

Next, you will add navigation that allows visitors to link to any Web page quickly on the Web site. Table 5–10 shows the HTML code used to add a horizontal menu bar to the Arizona Web page.

Table 5–10 HTML Code to Add Paragraphs of Text

Line	HTML Tag and Text
18	<tr>
19	<td> </td>
20	<td>Home
21	Arizona
22	California
23	Nevada
24	</td>
25	</tr>
26	</table>

The following step shows how to add paragraphs of text.

1

- If necessary, click line 18.
- Enter the HTML code shown in Table 5–10, pressing the ENTER key twice after the last line (Figure 5–38).

line 18

```

Untitled - Notepad
File Edit Format View Help
<!DOCTYPE html>
PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en">
<head>
<meta http-equiv="Content-type" content="text/html; charset=utf-8" />
<title>Arizona</title>
</head>
<body>
<table width="80%" align="center">
<tr>
<td><br /></td>
<td><a href="southwest.html">Home</a> |</td>
<a href="arizona.html">Arizona</a> |</td>
<a href="california.html">California</a> |</td>
<a href="nevada.html">Nevada</a></td>
</td>
</tr>
</table>
</body>
</html>

```

Figure 5–38

To Add Information and an Image

The next step in creating the Arizona Web page is to create a second table for information and an image relevant to Arizona, as shown in Figure 5–34 on page HTML 236. The image that is used, arizona.jpg, is stored in the Data Files for Students. Table 5–11 shows the HTML code to add a photo of a cactus and information about Arizona to the Arizona Web page. In line 42, you insert an image into the table. Because the image is large, you want it to span across all rows of data.

Table 5–11 HTML Code for Adding Information and an Image

Line	HTML Tag and Text
28	<table width="80%" align="center">
29	<tr>
30	<td> </td>
31	<td> </td>
32	</tr>
33	
34	<tr>
35	<td>Arizona (AZ) facts:</td>
36	<td> </td>
37	</tr>
38	
39	<tr>
40	<td>State capital</td>
41	<td>Phoenix</td>
42	<td rowspan="9"></td>
43	</tr>
44	
45	<tr>
46	<td>Joined the union</td>
47	<td>February 14, 1912 as the 48th state</td>
48	</tr>
49	
50	<tr>
51	<td>Land area</td>
52	<td>113,635 square miles</td>
53	</tr>

1

- If necessary, click line 28.
- Enter the HTML code shown in Table 5–11, pressing the ENTER key twice after the last line (Figure 5–39).

```

<html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>arizona</title>
</head>
<body>
<table width="80%" align="center">
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><br /></td>
<td><a href="southwest.html">Home</a> |<a href="arizona.html">Arizona</a> |<a href="california.html">California</a> |<a href="nevada.html">Nevada</a></td>
</tr>
</table>

<table width="80%" align="center">
<tr>
<td><br /></td>
<td><br /></td>
</tr>
<tr>
<td><br /></td>
<td></td>
</tr>
<tr>
<td>State capital</td>
<td>Phoenix</td>
<td rowspan="9">

```

Figure 5–39

To Add Additional Information

The remainder of information (as shown in Figure 5–34 on page HTML 236) is added next. Table 5–12 shows the HTML code used to add the additional information on the Arizona Web page.

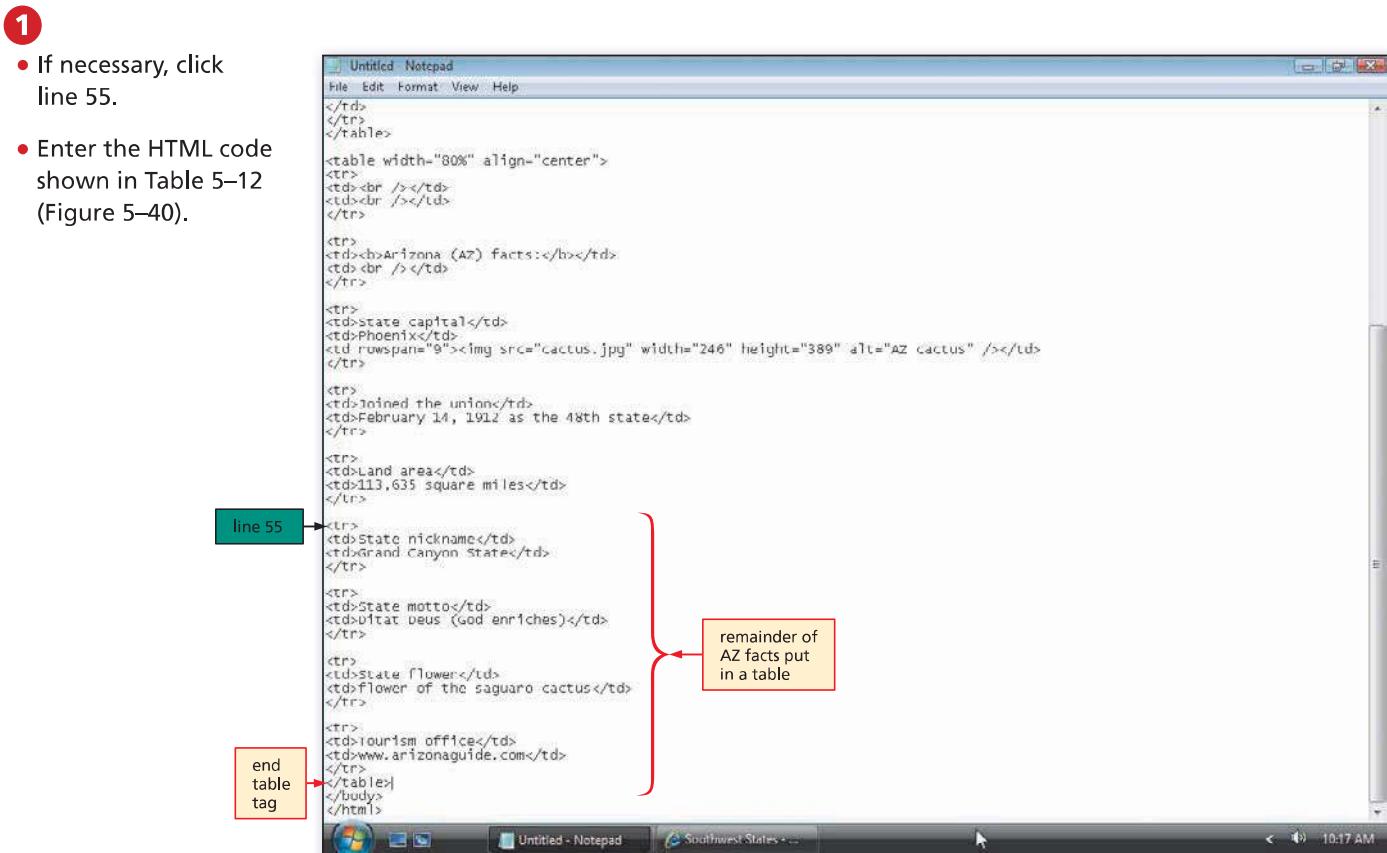
Table 5–12 HTML Code for Adding the Remaining Information

Line	HTML Tag and Text
55	<tr>
56	<td>State nickname</td>
57	<td>Grand Canyon State</td>
58	</tr>
59	
60	<tr>
61	<td>State motto</td>
62	<td>Ditat Deus (God enriches)</td>
63	</tr>
64	
65	<tr>
66	<td>State flower</td>

Table 5–12 HTML Code for Adding the Remaining Information (continued)

Line	HTML Tag and Text
67	<td>flower of the saguaro cactus</td>
68	</tr>
69	
70	<tr>
71	<td>Tourism office</td>
72	<td>www.arizonaguide.com</td>
73	</tr>
74	</table>

The following step shows how to enter the code to create the horizontal menu bar.

**Figure 5–40**

To Save and Print the HTML File

1

- With a USB drive plugged into your computer, click File on the menu bar and then click Save As. Type arizona.html in the File name text box.
- If necessary, click UDISK (G:) in the Save in list. Click the Chapter05 folder and then double-click the ChapterFiles folder in the list of available folders. Click the Save button in the Save As dialog box.
- Click File on the menu bar and then click Print on the File menu (Figure 5–41).

```

<html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Arizona</title>
</head>
<body>

<table width="80%" align="center">
<tr>
<td></td>
<td></td>
</tr>

<tr>
<td><br /></td>
<td><a href="southwest.html">Home</a> |<a href="arizona.html">Arizona</a> |<a href="california.html">California</a> |<a href="nevada.html">Nevada</a></td>
</tr>
</table>

<table width="80%" align="center">
<tr>
<td><br /></td>
<td><br /></td>
</tr>

<tr>
<td><b>Arizona (AZ) facts:</b></td>
<td><br /></td>
</tr>

<tr>
<td>State capital</td>
<td>Phoenix</td>
<td rowspan="9"></td>
</tr>

<tr>
<td>Joined the union</td>
<td>February 14, 1912 as the 48th state</td>
</tr>

<tr>
<td>Land area</td>
<td>113,635 square miles</td>
</tr>

<tr>
<td>State nickname</td>
<td>Grand Canyon State</td>
</tr>

<tr>
<td>State motto</td>
<td>Ditat Deus (God enriches)</td>
</tr>

<tr>
<td>State flower</td>
<td>flower of the saguaro cactus</td>
</tr>

<tr>
<td>Tourism office</td>
<td>www.arizonaguide.com</td>
</tr>
</table>
</body>
</html>

```

Figure 5–41

To Validate, View, and Print the Web Page

1

- Click the Internet Explorer button on the taskbar.
- Validate the Arizona Web page using the W3C validation service.
- Click the Arizona area on the Southwest states image map to display the Web page as shown in Figure 5–42.

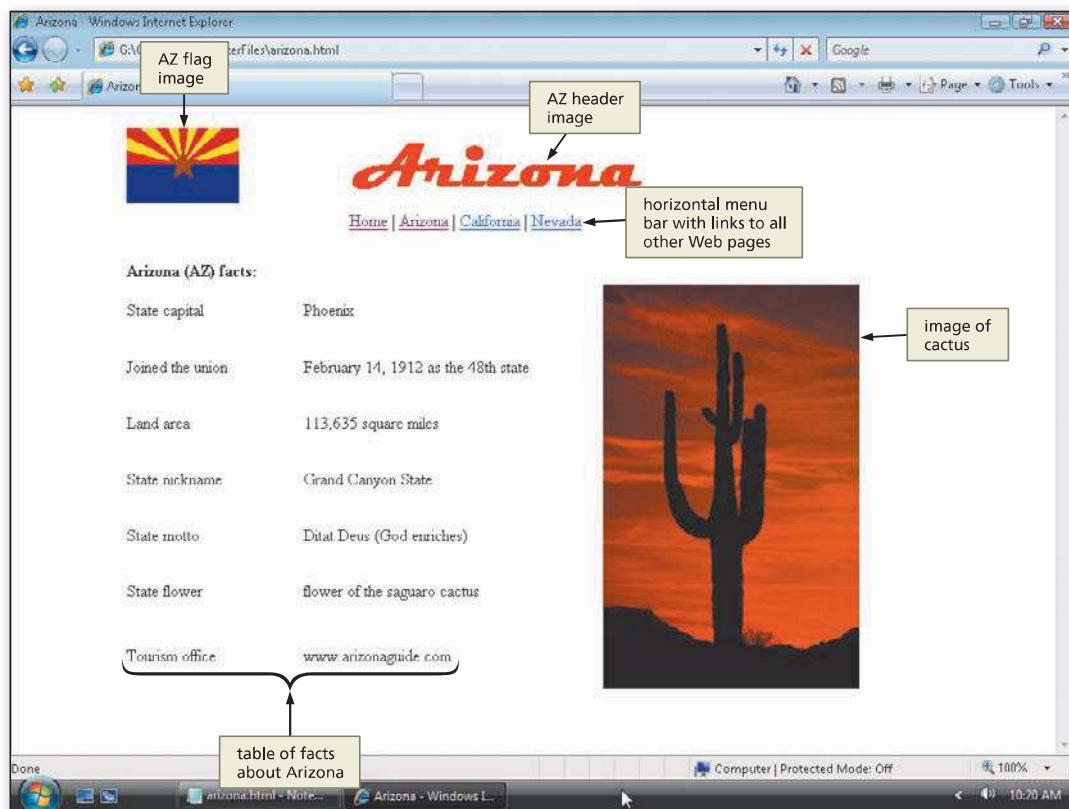


Figure 5–42

- Click the Print button on the Standard Buttons toolbar to print the Web page (Figure 5–43).



Arizona

[Home](#) | [Arizona](#) | [California](#) | [Nevada](#)

Arizona (AZ) facts:

State capital	Phoenix
Joined the union	February 14, 1912 as the 48th state
Land area	113,635 square miles
State nickname	Grand Canyon State
State motto	Ditat Deus (God enriches)
State flower	flower of the saguaro cactus
Tourism office	www.arizonaguide.com



Figure 5–43

To Test the Links

The next step is to test the links on the various pages on the Web site to verify that each link connects to the appropriate Web page. If possible, view all of the Web pages in more than one browser type or version to ensure that the Web pages appear correctly in different browsers. Links must be tested from the image map on the home page, as well as from the horizontal menu bar on each of the Web pages. If any of the links do not work correctly, return to Notepad to modify the HTML code, save the changes, and then retest the links in the browser.

1

- Click the Home link on the Arizona Web page.
- Click the Nevada area on the image map on the home page.
- Click the California link on the Nevada Web page.
- Click the Home link on the California Web page (Figure 5–44).
- If any of the links do not work correctly, return to Notepad to modify the HTML code, save the changes, and then retest the links in the browser.

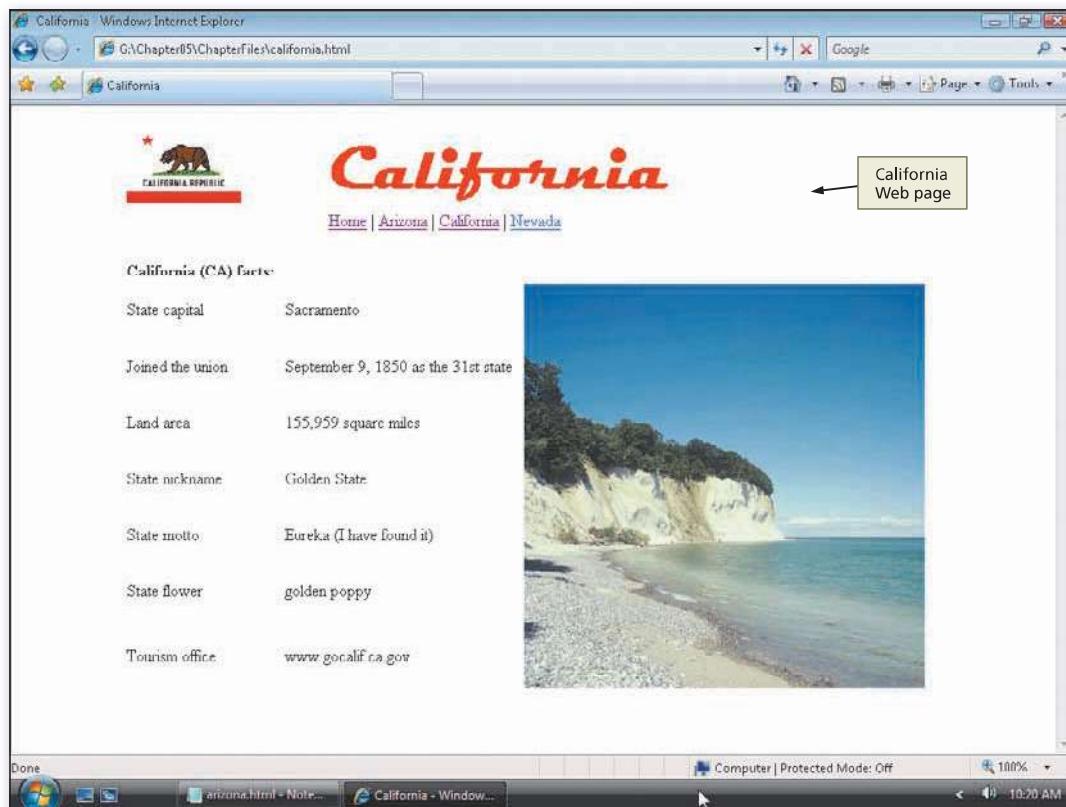


Figure 5–44

To Quit Notepad and a Browser

1

- Click the Close button on the browser title bar.
 - Click the Close button on the Notepad window title bar.
-

Chapter Summary

In this chapter, you have learned how to develop a Web site that utilizes image mapping from the home page to create three clickable areas. The items listed below include all the new HTML skills you have learned in this chapter.

1. Start Paint (HTML 216)
2. Open an Image File in Paint (HTML 218)
3. Locate X- and Y-Coordinates of an Image (HTML 220)
4. Create a Table (HTML 225)
5. Insert an Image to Use as an Image Map (HTML 226)
6. Add a Header and Text to a Table Cell (HTML 227)
7. Create a Horizontal Menu Bar with Text Links (HTML 228)
8. End the Table (HTML 229)
9. Create an Image Map (HTML 230)
10. Validate, View, and Print a Web Page (HTML 233)
11. Copy and Paste HTML Code to a New File (HTML 236)
12. Change the Web Page Title (HTML 237)
13. Add a Heading (HTML 238)
14. Add a Horizontal Menu Bar (HTML 239)
15. Add Information and an Image (HTML 240)
16. Add Additional Information (HTML 241)

Learn It Online

Test your knowledge of chapter content and key terms.

Instructions: To complete the Learn It Online exercises, start your browser, click the Address bar, and then enter the Web address scsite.com/html5e/learn. When the HTML Learn It Online page is displayed, click the link for the exercise you want to complete and read the instructions.

Chapter Reinforcement TF, MC, and SA

A series of true/false, multiple choice, and short answer questions that test your knowledge of the chapter content.

Flash Cards

An interactive learning environment where you identify chapter key terms associated with displayed definitions.

Practice Test

A series of multiple choice questions that test your knowledge of chapter content and key terms.

Who Wants To Be a Computer Genius?

An interactive game that challenges your knowledge of chapter content in the style of a television quiz show.

Wheel of Terms

An interactive game that challenges your knowledge of chapter key terms in the style of the television show, *Wheel of Fortune*.

Crossword Puzzle Challenge

A crossword puzzle that challenges your knowledge of key terms presented in the chapter.