HTML, XHTML, and CSS, 7th Edition

Chapter Five: Creating an Image Map

A Guide to this Instructor's Manual:
We have designed this Instructor's Manual to supplement and enhance your teaching experience through classroom activities and a cohesive chapter summary.

This document is organized chronologically, using the same heading in **red** that you see in the textbook. Under each heading you will find (in order): Lecture Notes that summarize the section, Figures and Boxes found in the section, if any, Teacher Tips, Classroom Activities, and Lab Activities. Pay special attention to teaching tips, and activities geared towards quizzing your students, enhancing their critical thinking skills, and encouraging experimentation within the software.

In addition to this Instructor's Manual, our Instructor's Resources CD also contains PowerPoint Presentations, Test Banks, and other supplements to aid in your teaching experience.

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Chapter Objectives

Students will have mastered the material in Chapter Five when they 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 locate the image map coordinates
- Create a home page
- Create a navigation bar of text links

- Insert an image onto a Web page that is used as an image map and use the usemap attribute to define an image map
- Insert special characters into a Web page
- 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
- Create an external style sheet for styles used across the Web site

HTML 234: Introduction

LECTURE NOTES
- Review the use of images in Web pages, as demonstrated in Chapters 2, 3, and 4, in particular the use of images as links by means of the <a> (anchor) tag in Chapter 3
- Define clickable element and hotspot

TEACHER TIP
Explain to students that while they may be used to seeing an entire image (such as a thumbnail) serve as a link to a single Web page, an image map can use a single image to provide links to multiple Web pages.

CLASSROOM ACTIVITIES
1. Class Discussion: Survey students in terms of their familiarity with Web sites that use image maps.

2. Quick Quiz:
    1) What is a hotspot? (Answer: A clickable element within an image)

LAB ACTIVITIES
1. Give students the assignment of locating Web pages that implement image maps.

HTML 234: Project – Lake Tahanna Tourism

LECTURE NOTES
- Use Figures 5-1a through 5-1d to walk students through the way in which an image map uses different areas within a single image to provide links to multiple Web pages
- Review the tasks to be performed in this chapter

FIGURES: 5-1a, 5-1b, 5-1c, 5-1d

TEACHER TIP
Explain that while image maps provide Web page developers with significant flexibility in Web page design, developers still must wrestle with the fact that, in some audiences, some users view their Web site over a slow connection and large images take a long time to download.

CLASSROOM ACTIVITIES
1. Critical Thinking: Point out the text links beneath the image map in Figure 5-1a. Why are they there?

HTML 236: Plan Ahead Box (Critical Thinking): General Project Guidelines

LECTURE NOTES
- Review the general guidelines for students to keep in mind as they create a Web page

HTML 237: Introduction to Image Maps

LECTURE NOTES
- Use Figure 5-2 to point out an image map with multiple hotspots
- Explain that image maps are a way to make images, which already enhance a Web page, useful for navigation
- Use Figures 5-3a and 5-3b to reinforce the importance of a text-based counterpart to a Web page's image map
- Explain what an image map button bar is, and point out an example in Figure 5-4
- Use Figures 5-5 through 5-8 to show examples of several creative uses of image maps
- Explain the difference between a server-side image map and a client-side image map, and discuss the advantages and disadvantages of both types of image map

FIGURES: 5-2, 5-3a, 5-3b, 5-4, 5-5, 5-6, 5-7a, 5-7b, 5-8

BOXES
1. BTW: *Image Maps.* Discuss the use of image maps for Web site navigation and refer students to use a search engine to find additional information.

2. BTW: *Server-Side vs. Client-Side Image Maps.* Encourage students to use a search engine to find out more about the differences between the two kinds of image maps.

3. BTW: *Server-Side Image Maps.* Discuss what happens when a hotspot on a server-side image map is clicked.

TEACHER TIP
Explain that server-side image maps require extra time for connecting to the server and starting the image map program that resides on the server. Client-side image maps do not need to send coordinates to the Web server and as such can process the request faster. Unlike client-side image maps, server-side image maps also do not make use of the status bar to tell you in advance what your destination will be if you click a particular hotspot. But while all users who have graphics enabled in their browsers can use server-side image maps, people using older browsers may encounter difficulty using client-side image maps.

CLASSROOM ACTIVITIES
1. Class Discussion: Ask students to discuss any experiences they might have had surfing the Web using a slow modem connection. Discuss why some users would have graphics disabled in their browsers and, thus, why it is important to include text-based links to match those of image maps.

2. Group Activity: Ask students to brainstorm, without going on the Web, clever ways businesses and individuals might use image maps, using the examples in Figures 5-5 through 5-8 to jumpstart the conversation.

3. Quick Quiz:
1) In a client-side image map, the image is displayed by the client and implemented by a program that runs on the Web server. T/F? (Answer: False)
2) In a server-side image map, the browser does all the work. T/F? (Answer: False)

4. Critical Thinking: Under what circumstances might Web page developers leave a portion of an image map without a hotspot (e.g., leaving space for an eventual link to a page that is still under construction)?

5. Critical Thinking: What types of images would be inappropriate for image mapping?

LAB EXERCISES
1. Encourage students to locate examples of image map button bars on the Web, or of particularly creative uses of image maps.

HTML 243: Plan Ahead Box (Critical Thinking): Understand the Image Map Process

LECTURE NOTES
- Review the four-step process for students to use as they identify an image for an image map and prepare the image for use in their Web site

HTML 243: Creating an Image Map

LECTURE NOTES
- Review the two components of an image map
- Define appropriate image and inappropriate image in terms of image mapping
- Use Figures 5-9a and 5-9b to contrast an appropriate image with an inappropriate one
- Use Figures 5-10 and 5-11 to illustrate the borders of a clickable area added to images in order to turn those images into image maps
- Define x-axis and y-axis and indicate both in the image in Figure 5-12
- Explain the components of a coordinate pair and point out the position of coordinate point (0, 0) in the top-left corner of the image
- Point out the appearance of the coordinates of the mouse pointer on the screen display on the status bar in Figure 5-12
- Use Figure 5-13 to discuss the available shapes for map areas within an image map (i.e., rectangle, circle, and polygon)
- Use Figures 5-14a and 5-14b to help review the coordinates of each type of shape
- Introduce the <map> </map> and <area> tags
- Discuss the use of the coords attribute

FIGURES: 5-9a, 5-9b, 5-10, 5-11, 5-12, 5-13, 5-14a, 5-14b

TEACHER TIPS
The image in Figure 5-9b is a particularly effective starting point for a discussion of inappropriate images for image mapping, as students might jump to the conclusion that *any* map (including the one in Figure 5-9b) would make a good image map. Other map-related guidelines to share include that while a map with city points and labels on it might appear to students like good candidates for hotspots, it is important to point out that while an image map can use a single point as a hotspot, an effective hotspot requires a distinct space within an image, which scattered points might not necessarily offer.

Explain that the coordinates for the selected map shape are inserted as an attribute in the <area> tag in the HTML file. Because the type of coordinates required by each shape — whether corner points or a center point and the radius — vary by shape, it is important to review each set of requirements.

Explain that the <map> tag takes one attribute, name; as with the <a> tag, this is a name like "surfmap," for example, a unique name within the HTML document, used to refer to it from elsewhere in the document. The <area> tag takes a number of attributes, including some familiar to students (e.g., <href>, <alt>) and some unfamiliar before now (e.g., <shape>, <coords>).

CLASSROOM ACTIVITIES
1. Class Discussion: Brainstorm changes to the map in Figure 5-9b, like adding variously colored regions or states, which would convert it into an appropriate image.

2. Class Discussion: To make sure that students have mastered the use of the x-y coordinate system, one exercise would be to give them a grid with numbered x- and y-axes and ask them to identify where on the grid a given set of coordinate pairs fall.

3. Quick Quiz:
    1) What is the first number in a coordinate pair? (Answer: The x-coordinate)
    2) What does the <area> tag define? (Answer: The specific areas of the map and the links and anchors for those areas)

HTML 249: Plan Ahead Box (Critical Thinking): Working with the Image

LECTURE NOTES
- Discuss the use of the appropriate software tool for determining the x- and y-coordinates needed to transform an image into an image map

HTML 249: Using Paint to Locate X- and Y-Coordinates

LECTURE NOTES
- Use Figures 5-15 and 5-16 to illustrate starting Paint
- Review the components of the Paint window in conjunction with Figure 5-16
- Define the drawing area
- Identify the Home tab, the Paint button, the Tools area, the Colors area, and the status bar
- Use Figure 5-17 to illustrate opening an image file in Paint
- Use Table 5-1 and Figure 5-18 to review the x-y coordinate system, and explain that moving the mouse to the right (horizontally) increases the x-coordinate, and moving the mouse down (vertically) increases the y-coordinate
- Use Figures 5-19 through 5-21 to illustrate locating the x- and y-coordinates of an image, making sure to point out the Pencil tool, in the Tools area, which students use to find an image's x- and y-coordinates
- Encourage students to experiment with this in Paint, and to watch the effect that their movement of the mouse has on the coordinates shown on the status bar
- Use Table 5-2 to review other image map software tools

FIGURES and TABLES: Figures — 5-15, 5-16, 5-17, 5-18, 5-19, 5-20a, 5-20b, 5-21; Tables — 5-1, 5-2

TEACHER TIP
Emphasize that though Paint is the program used here, any image editing program with similar capabilities can be used.

BOXES
1. BTW: *Graphics Software.* Discuss the use of Photoshop for advanced image creation and maintenance.

CLASSROOM ACTIVITIES

1. Class Discussion: Ask students about their experiences with Adobe Photoshop or similar graphics applications.

2. Quick Quiz:
1) What does the Tools area in Paint display? (Answer: Tools that are used to edit or draw an image)
2) Where do the coordinates of the center of the mouse pointer at its current position on the image display? (Answer: On the status bar)

LAB ACTIVITIES
1. Ask students to use the Web to research any of the tools listed in Table 5-2.

2. Ask students to open the shapecoord.gif file in Paint and experiment on their own with finding the coordinates as shown in the images in Figure 5-21.

HTML 255: Plan Ahead Box (Critical Thinking): Starting the Home Page

LECTURE NOTES
• Review the standard practices of Web development that are instrumental in starting to create the new home page for their Web site

HTML 255: Creating the Home Page

LECTURE NOTES
• Review the steps to start Notepad++ and enter initial HTML tags
• Use Table 5-3 to show the HTML code for defining the Web page structure
• Using Figure 5-22, review the steps to enter initial HTML tags to define the Web page structure
• Review the steps to save an HTML file
• Use Table 5-4 and Figure 5-23 to illustrate inserting an image to use as an image map
• Review the steps to add a paragraph of text using Table 5-5 and Figure 5-24 to show the results
• Explain what a character entity reference is and use Figures 5-25, 5-26a, and 5-26b to show the use of a special character
• Use Figure 5-27 to illustrate inserting a special character
• Use Table 5-6 and Figure 5-28 to review the HTML code to create a horizontal navigation bar with text links
• Use Table 5-7 to review using tags and tag attributes to create image maps
• Use Table 5-8 and Figure 5-29 to review the HTML code to create the image map
• Review the step to save the HTML file
• Emphasize the importance of validating and viewing the completed HTML file, and use Figure 5-30 in your review of the steps to view, and test the links on the Web page
• Review the steps to print the HTML file and show the resulting file in Figure 5-31

FIGURES and TABLES: Figures — 5-22, 5-23, 5-24, 5-25, 5-26a, 5-26b, 5-27, 5-28, 5-29, 5-30, 5-31; Tables — 5-3, 5-4, 5-5, 5-6, 5-7, 5-8

TEACHER TIP
Refer students to Appendix F for more information about special characters.

BOXES
1. BTW: *Image Width and Height.* Reinforce to students the utility of specifying width and height attributes as a way to improve page downloading time.

2. BTW: *Using Special Characters.* Caution students about using certain characters in the text of their Web pages (e.g., the greater than sign) and encourage them to learn more about special characters as an alternative to the use of these characters.

3. BTW: *Text Links.* Reinforce to students the importance of using text links on all their pages.

4. BTW: *Accessibility.* Refer students to Appendix C for more information about accessibility guidelines as they develop Web pages.

5. BTW: *Testing.* Emphasize to students the need to confirm that the clickable areas of their image maps are exactly where they want them to be.

CLASSROOM ACTIVITIES
1. Quick Quiz:
   1) What are the possible values of the shape attribute of the <area> tag? (Answer: rect, poly, and circle)

LAB ACTIVITIES
1. Have students verify the links that can be tested and have them proofread the printed page.

HTML 263: Plan Ahead Box (Critical Thinking): Creating an Image Map

LECTURE NOTES
- Review carefully the HTML code that is used to create an image map

HTML 267: Plan Ahead Box (Critical Thinking): Planning an External Style Sheet

LECTURE NOTES
- Refer students to Appendix D for more information about styles that they can use on their Web sites
- Review the short list of styles on this page as options that are frequently used

HTML 268: Creating an External Style Sheet

LECTURE NOTES
- Use Figures 5-32a and 5-32b to compare and contrast the home page before and after the external style sheet is created and applied
- Use Table 5-9 and Figure 5-33 to review the HTML code to create an external style sheet
- Review the steps to save and print the CSS file, and use Figure 5-34 to display the printed CSS file
- Re-emphasize the importance of viewing the completed Web page, and use Figure 5-35 to display the Web page
- Review the steps to test and print the Web page
- Review the steps to quit Notepad++ and the browser

FIGURES and TABLES: Figures — 5-32a, 5-32b, 5-33, 5-34, 5-35; Table — 5-9

BOXES
1. BTW: *Quick Reference.* Encourage students to refer to Appendix F for a list of symbols and characters.

End of Chapter Material

- **Chapter Summary** provides a general survey of the material in the chapter. Students can use these pages to reinforce their achievement of the chapter objectives.

- The **Apply Your Knowledge** section includes short exercises and review questions that reinforce concepts and provide opportunities to practice skills.

- The **In the Lab** activities solidify the concepts presented in the chapter with practical application.

Glossary of Key Terms

- <area> (HTML 248)
- character entity references (HTML 260)
- client-side image map (HTML 242)
- coordinate pair (HTML 246)
- coords (HTML 248)
- image map button bar (HTML 238)
- <map> </map> (HTML 248)
- server-side image map (HTML 242)
- x-axis (HTML 246)
- y-axis (HTML 246)

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