

of the source must be made. Most style guides, including the *MLA Style Manual and Guide to Scholarly Publishing*, provide guidelines for how to cite Internet-based work.

HANDS-ON EXAMPLE 13.1.3

CITING ONLINE SOURCES

The Internet is a great resource for information. The *MLA Style Manual and Guide to Scholarly Publishing* provides guidelines for properly citing Internet-based information.

1. Launch a browser.
2. Navigate to a search engine, such as Google or Bing.
3. Enter the search string MLA citation format for websites.
4. Evaluate the results for relevance and validity.
5. Select an appropriate link in the results.
6. Evaluate the site for accuracy.
7. Use the information on the website to determine the proper method for citing a web document.

13.1

SECTION REVIEW

CHECK YOUR UNDERSTANDING

1. Distinguish between upload and download.
2. How does the World Wide Web relate to the Internet?
3. List four programming tools used to create interactive or dynamic web pages.
4. List the three Boolean operators that can be used in a search string.
5. If basing your own work on material found on the Internet, what must you do to document that?

IC3 CERTIFICATION PRACTICE

The following question is a sample of the types of questions presented on the IC3 exam.

1. In the domain name system, which top-level domain would be used by a university?
 - A. .gov
 - B. .com
 - C. .org
 - D. .edu

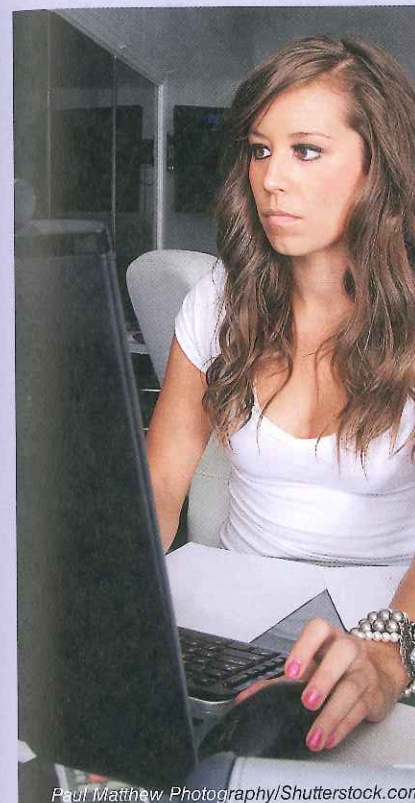
BUILD YOUR VOCABULARY

As you progress through this course, develop a personal IT glossary. This will help you build your vocabulary and prepare you for a career. Write a definition for each of the following terms and add it to your IT glossary.

Boolean operators	modem
browser	packet
digital wellness	plug-in
download	protocol
ergonomics	public switched network
human-computer interaction (HCI)	search engine
hypertext markup language (HTML)	uniform resource locator (URL)
Internet service provider (ISP)	upload

CREATING FOR THE WEB

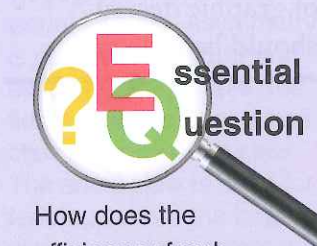
SECTION 13.2



Paul Matthew Photography/Shutterstock.com

The primary principle for web designers is the usability of their pages. Users must be able to perform tasks with a minimum of effort. This requires a great deal of design. Once the design is in place, the pages can be created. Web pages are developed on a rising scale of complexity. For each level, more sophisticated tools are used.

The tools for creating documents for the web include HTML for simple markup of existing documents or creating of static web pages, CSS for formatting web pages, and programming and scripting languages to make dynamic pages. This section explores how to use these tools to create web pages.



Essential Question
How does the efficiency of web programming impact the usability of a web page?

TERMS

alignment
cascading style sheet (CSS)
contrast
external style
inline style
internal style
JavaScript
PHP hypertext preprocessor
proximity
repetition
semantic tag
tag
validation

LEARNING GOALS

After completing this section, you will be able to:

- Identify graphic design principles that should be applied when creating a web page.
- Explain how to create a basic web page using HTML.
- Discuss programming languages used to create web pages.

FYI

A website is a graphic design, and principles of graphic design should be followed.

Designing for the Web

There are many commonly accepted principles of web design. At the root of these principles is the need to present information in a format that is easy to understand and visually pleasing. The first step is to determine the audience for the page and what information will be presented.

Each page on a website should be easy to understand. A web designer must consider what the user will want and present it in a clear and intuitive interface. It is important to organize the information so that it is easy to find. Help to focus the readers' attention by using typefaces that are easy to read, changing text size for emphasis, and using colors for grabbing attention.

Navigation of the site should be obvious. Make use of common conventions. For example, users expect to follow links. Make them clear. Use standard icons to help users find links to common services, such as Facebook or Twitter. When designing a website, use a storyboard to plan the navigation. Create a sketch of each page in the website. Then, arrange the sketches on a whiteboard and draw lines between the pages to illustrate the navigation. Using storyboards can also be used for time management, which is discussed in Chapter 17.

Basic graphic design principles apply to the visual design of a website. Principles such as contrast, repetition, alignment, and proximity should be followed.



kosmos111/Shutterstock.com

Figure 13-16. The colors of these umbrellas have high contrast, which makes it easy to see all of them.

Contrast

A key principle in graphic design is contrast. **Contrast** is the degree of difference between elements in a design, as shown in Figure 13-16. Mixing elements of different qualities provides interest, draws focus, and helps the user to understand the information on the page.

Contrast can be achieved by using large items with small items; a serif typeface for some elements and a sans serif typeface for other elements; bright colors with subtle colors; or by grouping some elements and separating other elements. These methods provide the opportunity to indicate importance of an item because of the contrast to other, lesser important items on the page.

Repetition

Repetition, or pattern, is when an element occurs more than once. Repeating design elements such as color choices or image treatment provides a uniform look to the pages of a website. This promotes a feeling that all of the pages belong together. It provides a sense that there is an organization to the website.

Alignment

All items on the page should look as if they are specifically placed. Nothing looks accidental. **Alignment** is placing elements in relation to key points in other elements. Proper alignment of elements gives a professional look to a page.

For example, alignment can be around a specific element or left justified to the edge of the display. Text referring to an image should be aligned with the image. Aligning elements by edge or on centers is common, as shown in Figure 13-17. The designer chooses the type of alignment to enhance the message being communicated.

Proximity

Proximity means how closely elements are placed to each other. For example, the caption for an image should be placed next to the image it describes. In this case, the caption is said to be in proximity to the image, meaning it is close to the image. People will tend to think of elements as a group if they are laid out in proximity to each other.



STEM

Science

Asymmetry is commonly used in photography and videography to create visual interest. Asymmetry is common in nature and biology. For example, the fiddler crab has one small claw and one large claw. The small claw is used for feeding, where the large claw is used for defense or courtship.

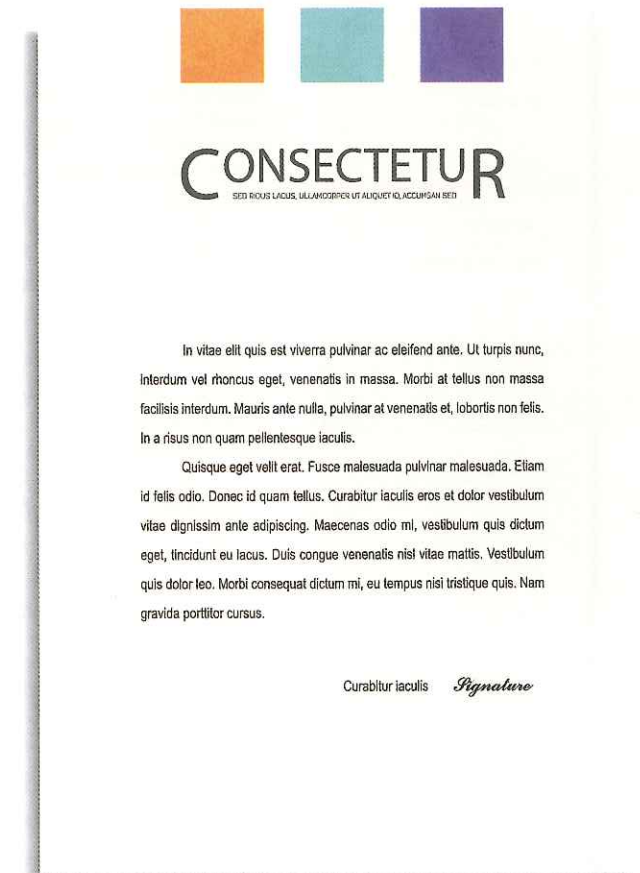
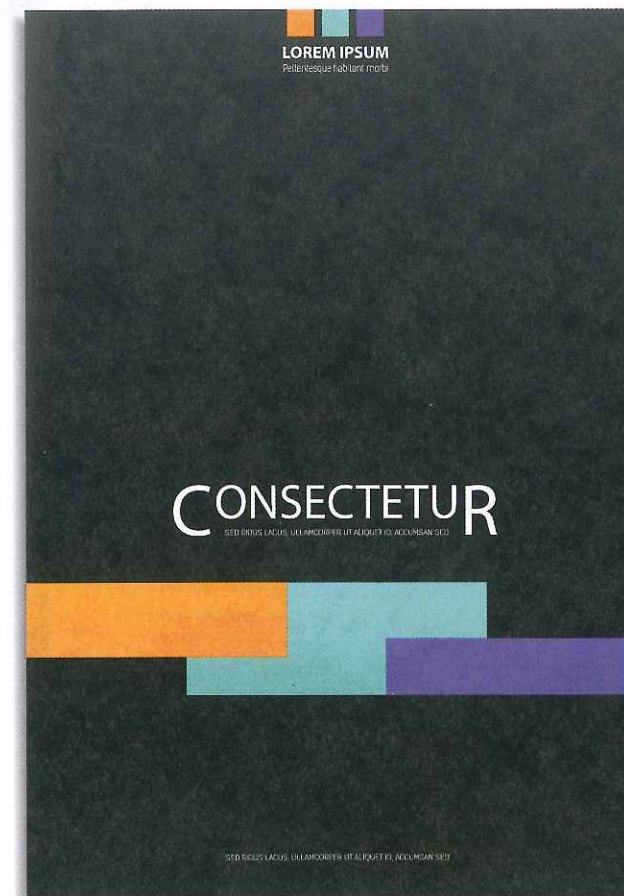


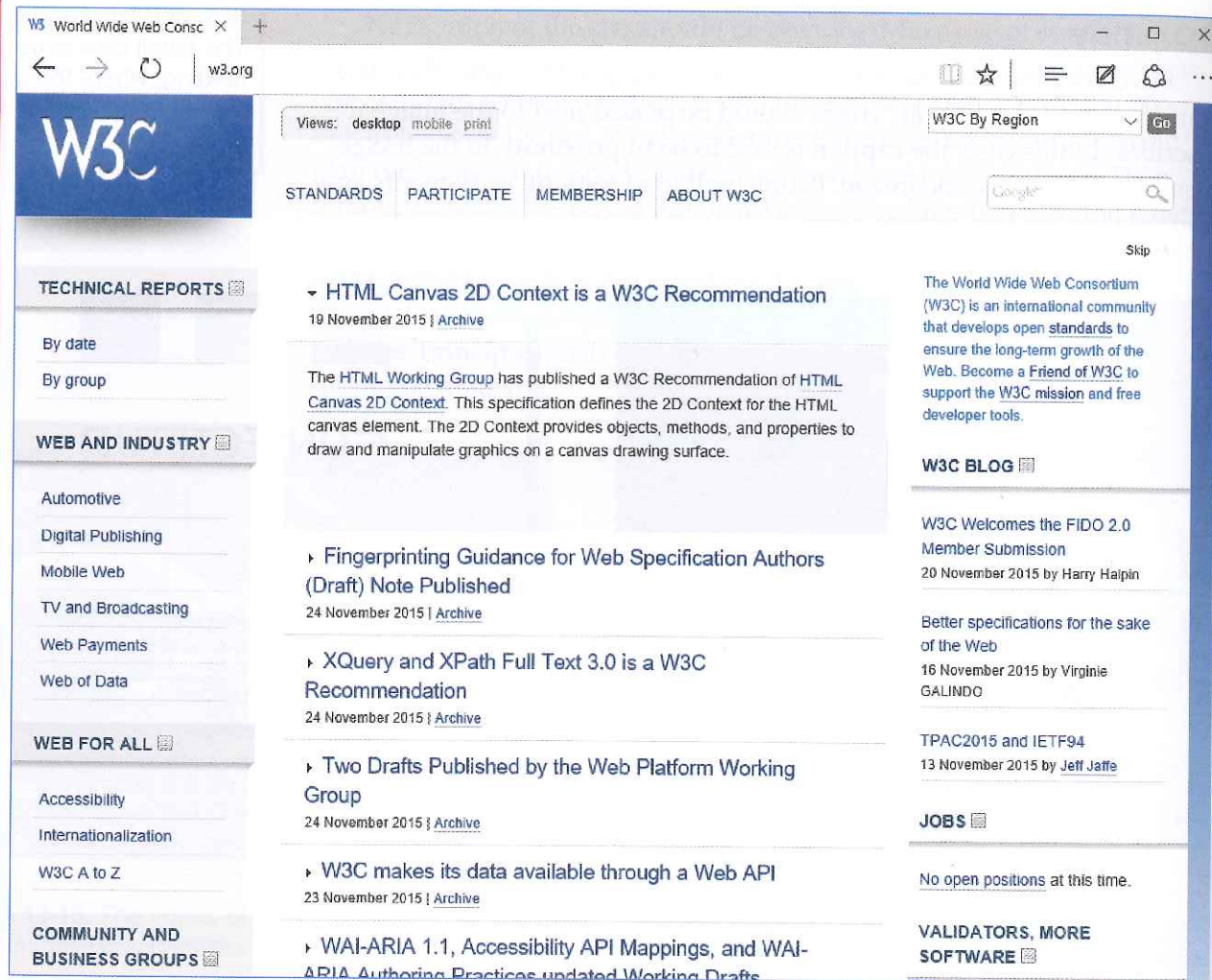
Figure 13-17. Notice how the designer has chosen to align not only the text, but the other elements in this layout.

HANDS-ON EXERCISE 13.2.1

IDENTIFYING DESIGN PRINCIPLES

The design of a website should follow basic design principles. It should be easy to identify whether or not design principles have been followed.

1. Launch a browser.
2. Navigate to the World Wide Web Consortium website at www.w3.org, as shown. Note: the content of this page may have changed because the web is dynamic, but the basic design should appear similar.



3. Examine the menu along the left side of the page. Notice the contrast used to indicate level. Titles are in a larger font and set in all caps. Subtitles are in a smaller font and set in title case. Contrast is also applied by shading the large blocks in which the titles appear of background color, and the entire menu is a different color from the main background.

HANDS-ON EXAMPLE 13.2.1 (CONTINUED)

4. Click each entry in the menu. Notice how the menu is repeated on each page. While the specific entries in the menu vary from page to page, the formatting of the menu is consistent. This repetition is useful for rapid recall.
5. Return to the website's home page. Notice the material is arranged in the three columns on the page. The text in each of the columns is left-justified. Images are also left-justified. This is the alignment.
6. Scroll to the bottom of the home page, and examine the proximity of elements. The calendar graphics are in close proximity to the related events and talks.
7. Identify one more example of each of these four design principles: contrast, repetition, alignment, and proximity.

HTML

It is very easy to make a simple web page. Only a few rules must be followed to make an HTML-based web page.

- The files must be text only.
- The file name ends in .html or .htm.
- The page must be stored in a folder or subfolder of a web server connected to the Internet.
- Tags are embedded in the file to instruct the browser how to display the page elements.

A **tag** is a code enclosed in chevrons (angle brackets) that tells the browser how to format or display the content. In general, a tag definition consists of a pair of starting and ending tags, such as `<p>` and `</p>`. Ending tags start with a slash. A few tag definitions do not have an ending tag. Figure 13-18 shows some basic tags. A comprehensive list of HTML tags is available on the W3 Schools website (www.w3schools.com) and other online resources.

The best way to see how HTML defines a web page is to create a basic page. This will show the foundation for all web page development. From there, you can develop your skills in creating web pages. The best way to learn web-page development is to make web pages and learn as you go.

1. Launch Notepad or other plain-text editor. Do not use a word-processing program, such as Microsoft Word, because there is hidden formatting in the documents these programs create.
2. Enter the tags and text shown in Figure 13-19. Notice the spacing and indentation used to separate sections of the code. This has no effect on the functionality, but it makes it easier for a person to read and understand the code.

CS5 Key Applications
1.2

FYI

The first line in an HTML file should declare the document type.

Start Tag	End Tag	Purpose
<html>	</html>	Identifies a document as a hypertext document and contains all other HTML code.
<head>	</head>	Identifies the portion of the document that contains information about the page.
<title>	</title>	Contains the text that appears in the title bar of the browser window.
<body>	</body>	Identifies the portion of the document that is displayed in the browser window; the content of the page.
		Contains text (content) that is important; often displayed in bold, but how it is displayed is controlled by the CSS.
		Contains text (content) that is emphasized; often displayed in italic, but how it is displayed is controlled by the CSS.
<a>		Defines the anchor for a hyperlink.
<p>	</p>	Identifies a paragraph of text; text will wrap if the browser window is resized.
 	none	Defines a single line break; content after the tag is displayed on the next line.
	none	Identifies an image to be displayed in the browser window; height and width of the image can also be specified.
<h1> to <h6>	</h1> to </h6>	Heading tags determine font sizes where h1 is the largest and h6 is the smallest.

Note: there is a tag with more options, such as typeface, italics, etc., but this tag is not supported in HTML5.

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Figure 13-18. These are basic HTML tags used in creating a web page.

```

<!DOCTYPE html>

<html>

  <title>
    My First Web Page
  </title>

  <body>
    <h1>
      Hello World!
    </h1>
  </body>

</html>

```

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Figure 13-19. The HTML code for creating a basic web page.

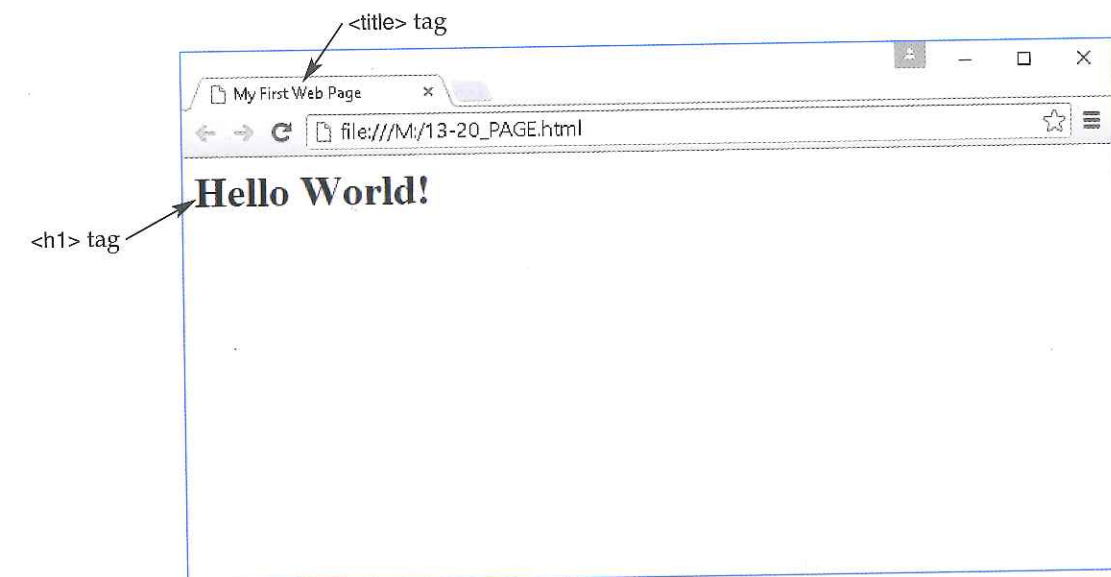
- Save the file as First.html. Be sure to change the file type from .txt to .html, otherwise the browser will not be able to find the file.
- Launch the system file explorer, navigate to where the First.html file is saved, and double-click the file. The default web browser is launched, and the page is loaded. Note: in Windows 10, you may need to right-click on the file and select **Open with** followed by either Google Chrome, Internet Explorer, or another browser other than Microsoft Edge.
- Examine the browser window, as shown in Figure 13-20. The title bar or tab displays My First Web Page, which is defined by the <title> tag. The content in the window is Hello World!, which is defined by the <h1> tag, making it the highest level head in the body.
- Using the browser, navigate to the NASA website (www.nasa.gov), and use the menu or search function to locate a photograph you like.
- Right-click on the image, and click **Save picture as...** in the shortcut menu. Save the image as NASA_Image in the same folder as the First.html file. Make note of the image file type. You will need to know the file extension.
- Switch to Notepad. Add the code shown in color in Figure 13-21. Be sure to use the correct file extension for the image file. Match the spacing and indentation shown to make the code easier to read.
- Save the file. Note: if you receive a message that the file cannot be saved because it is being used, your file explorer may be previewing the file, in which case close the file explorer and then save the file.



Ethics

Collusion

It is unethical for a business to participate in acts of collusion. Collusion occurs when competing businesses work together to eliminate competition by misleading customers, fixing prices, or participating in other fraudulent practices. Unethical businesses sometimes collude with others so they can dominate the marketplace. Collusion is not only unethical—it is illegal.



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Figure 13-20. The basic web page created with the code shown in Figure 13-19.

```

<! DOCTYPE html>
<html>
  <title>
    My First Web Page
  </title>
  <body>
    <h1>
      Hello World!
    </h1>
    
    <h1>
      NASA Image
    </h1>
  </body>
</html>

```

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Figure 13-21. Update the HTML file with the code shown here in color.

- Switch to the web browser, and press the **Refresh** or **Reload** button for the My First Web Page tab. Notice how the edits you made to the HTML file are reflected on the web page.

Congratulations, you have created a basic web page! Use this HTML file to experiment. Try changing the number in the `<h1>` tags to see what happens. Be sure to change the number in both the start and end tags. Try removing the `<h1>` tags altogether. Change the title text to see the effect that has. By making changes to this HTML file and seeing how the changes affect the web page, you can learn how to build larger and more complex web pages.

HANDS-ON EXAMPLE 13.2.2

CREATING A BASIC WEB PAGE

It is easy to create a basic web page using a plain-text editor. For example, with a small amount of code, you can create a web page about yourself that includes a photograph.

- Insert your PRINC-OF-IT flash drive into the computer.
- Applying what you have learned, create a folder on the flash drive named Chap13.

HANDS-ON EXAMPLE 13.2.2 (CONTINUED)

- Using Notepad or other plain-text editor, enter the HTML code shown.

```

<! DOCTYPE html>
<html>
  <title>
  </title>
  <body>
    <h1>
    </h1>
    <img src=>
    <p>
    </p>
  </body>
</html>

```

- Save the file as AboutMe.html in the Chap13 folder on your flash drive.
- Using a digital camera, smartphone, or other device, take a photograph of yourself and save it in the Chap13 folder on your flash drive.
- Applying what you have learned, edit the HTML file so the title of the web page is About Me, the heading is your name, and the image is the photograph of yourself. Refer to the example in the text if needed.
- On the line between the paragraph tags, which are `<p>` and `</p>`, add one or two sentences describing yourself.
- Save the HTML file, and load it into a web browser.
- Debug the HTML file if needed. Refer to the example in the text as needed.

HTML5

There have been five revisions to the HTML standard. Each revision has added clarity and uniformity for how a browser developer should present the marked-up text. In addition, the W3C has approved additional tags for new features. The new elements for HTML5 can be presented in four groups: semantic, form control, graphics, and multimedia.



vectorshape/Shutterstock.com

Cascading style sheets allow for much flexibility when designing website pages.

A **semantic tag** is one in which the purpose of the tag is clear from the tag name. Some of the new semantic tags are `<header>`, `<footer>`, `<article>`, and `<section>`. These help to provide contextual information for a reader of a web page.

Graphics and multimedia support have been expanded in HTML5. Now scalable vector graphic (SVG) files are supported so that changing the size of a vector graphic preserves fidelity to the original graphic. The canvas is a new feature that allows developers to draw images on the web page. The `<audio>` and `<video>` tags allow playing of sound and video files without a plug-in. Eliminating the need for plug-ins saves time for both developers and users.

CSS

A **cascading style sheet (CSS)** provides formatting information for a web page. While a CSS can be contained within an HTML file, in practice it is usually a separate file with a `.css` extension that is referenced by the HTML file. Separating the content of the HTML file from the formatting makes it easier to maintain an entire website. Each page can reference one CSS file. Any needed formatting changes can be made only once in the CSS file instead of in each HTML file.

The current standard for formatting web pages is maintained by the World Wide Web Consortium (W3C). There are three levels of formatting that a CSS provides:

- inline styles
- internal styles
- external styles

FYI

The website www.csszengarden.com is an interesting site that shows how changing the style sheet can change the entire design of a website without modifying the content.

Inline styles are embedded into the HTML file within the element being formatted. They are the first priority of formatting, which means they override all other styles. For example, to modify the paragraph style:

```
<p style="margin-left: 30px;">This paragraph is indented 30 pixels.</p>
```

This style is in-line with the paragraph tag `<p>`. The `margin-left` property, which sets the left-hand margin of the element, is specified as 30 pixels. Pixel is abbreviated as `px`. The text in the paragraph is: This paragraph is indented 30 pixels.

Internal styles are defined in the head section of the HTML file. They are the second priority of formatting, which means they override all other styles except for inline styles. To set the left-hand margin as an internal style:

```
<head>
  <style>
    p{margin-left: 30px;}
  </style>
</head>
```

This sets the left-hand margin to 30 pixels, just as the previous inline style does. However, the difference is the inline style applies only to the one paragraph where the style is defined. The internal style applies to *all* paragraphs in the web page. Any text with the `<p>` tag will be indented by 30 pixels.

External styles are similar to internal styles, but they are contained in a separate CSS file. They are the final priority of formatting, which means they can be overridden by internal and inline styles. To set the left-hand margin as an external style sheet, this would be included in a CSS file:

```
p{
  margin-left: 30px;
}
```

These are the most powerful because the style sheet is linked to many pages. When a style is updated in the external style sheet, every occurrence of the style in the entire website is updated. The best practice is to create external styles whenever possible.

A good question to ask is, if the external styles are the most powerful and preferred option, why are they the lowest in the cascade of formatting priorities? The answer is simple: there may be formatting needed only one time on one page. An inline or internal style can meet this need. Changing the CSS file will not affect that formatting.

An example of an external CSS is shown in Figure 13-22. It specifies that the background image of the body of the web page will be an image named `watermark.png`, which is stored in the same web folder as the CSS file. If it is located in a different folder, the path must be specified. The CSS also specifies that any text defined with the `<h1>` tag will be displayed in the dark blue color with right-hand justification (alignment). Finally, each paragraph, which is defined by the `<p>` tag, will be indented 30 pixels from the left-hand page margin. To use this style sheet to control



Green Tech

Digital Coupons

Many companies offer convenient digital coupons that are sent directly to customers through e-mail, text messages, or QR codes. Digital coupons eliminate the costs and resources involved in printing and physically distributing coupons. Digital coupons are a convenient and green solution that benefits both customers and businesses.

FYI

On some web servers, references to URLs are case sensitive, so always exactly match the capitalization in path and file names.

```
body {
    background-image: url("watermark.png");
}

h1 {
    color: darkblue;
    text-align: right;
}

p {
    margin-left: 30px;
}
```

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Figure 13-22. This is a cascading style sheet that is saved in a separate file, which is called an external style sheet.

the formatting of a web page, a link must be specified in the <head> portion of the HTML file:

```
<head>
    <link rel="stylesheet" type="text/css" href="formal.css">
</head>
```

This code specifies the relationship (rel) as a style sheet, the media type as a text or CSS file, and the URL of the file named formal.css. The href attribute specifies a URL and is found in many HTML tags. In this case, the CSS file is in the same folder as the HTML file, so only the file name and extension need to be provided. If the file is in a different folder from the HTML file, the entire path or a relative path must be specified.

Web Widgets

A *widget*, or gadget, is a small limited functionality application that can be easily inserted into a web page. Examples are body mass index (BMI) calculators, holiday countdown widgets, weather apps, and others. Many widgets are free, while some must be purchased. Conduct a search for free web widgets to see the various widgets that are available.

Widgets are written in JavaScript, PHP, or other web-page programming language. Widgets generally come with instructions on how to add it to a web page. Often, you can customize a widget after which you are provided with HTML code that is to be inserted into your web page HTML definition.

FYI

The W3 Schools website (www.w3schools.com) provides comprehensive information about how to create and use a CSS.

CS5 Living Online 1.1.3.6

HANDS-ON EXAMPLE 13.2.3

CREATING A BASIC EXTERNAL STYLE SHEET

The best practice for formatting a web page is the use of an external CSS. For example, a CSS file can be easily created to control the formatting of the AboutMe.html web page created earlier.

1. Launch a web browser, and load the AboutMe.html file in the Chap13 folder on your flash drive.
2. Launch Notepad or other plain-text editor, and save the file as Style.css in the Chap13 folder on your flash drive.
3. Enter this code into the CSS file.

```
body{
    background-color: black;
}

h1{
    color: orange;
    text-align: center;
}

p{
    font-family: Verdana, Geneva, sans-serif;
    font-size: 18 px;
    color: white;
}
```

4. Save the CSS file. Be sure it is saved as Style.css.
5. Switch to the web browser, and reload the page. What happens? Nothing changes because the CSS file has not been linked to the HTML file.
6. Using Notepad, open the AboutMe.html file. Note: you will need to open the file from within Notepad; double-clicking the file will not open it for editing.
7. After the <html> tag, press the [Enter] key to begin a new line, and add the following code.


```
<head>
    <link rel="stylesheet" type="text/css" href="Style.css">
</head>
```
8. Save the HTML file.
9. Switch to the web browser, and reload the page. The formatting of the page changes to match what is specified in the CSS file.
10. Applying what you have learned, modify the CSS to change the font size of the <h1> tag to 75 pixels. Verify the change by reloading the page in the browser.
11. Applying what you have learned, modify the CSS to change the text alignment of the <p> tag to right-hand justified, and verify the change.

FYI

Together HTML, CSS, and validation promote sites that adhere to W3C standards.

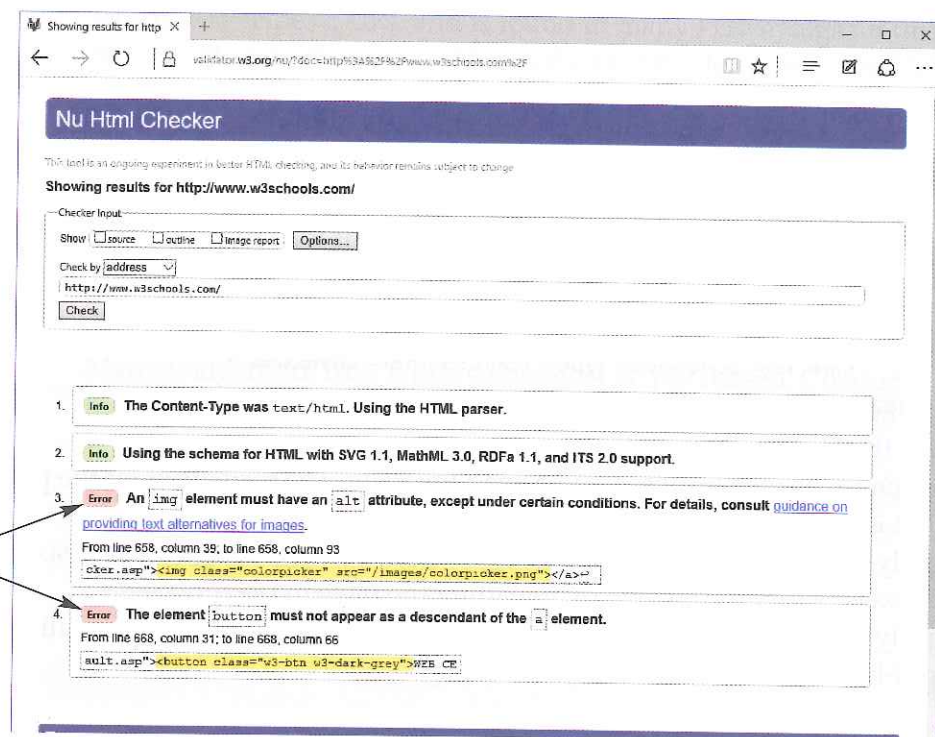
Validation

HTML is a very forgiving language. Errors are not reported nor do they cause a web page not to load. If an error exists in the code, the browser ignores it and tries its best to display the remainder of the page. To keep the quality of web pages high and to confirm that a page is built according to the standards, a validation should be performed on a web page. **Validation** is a process of checking the code to ensure it contains no errors of syntax or usage.

The W3C validation site (validator.w3.org) can be used to check for valid code. Visit this site and submit a web address or a file or directly enter code to check for errors. Just for fun, examine the W3 Schools site for conformance to standards, as shown in Figure 13-23. The site passes, but two warnings are issued.

Programming Languages

In order to add interactivity to a web page, more than HTML is required. There are several technologies used in web page development to produce interactivity. These include JavaScript, PHP, and other preprocessors.



Two errors are reported

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Figure 13-23. The W3C validation site can be used to check for valid code. The evaluation shown here reports two errors.

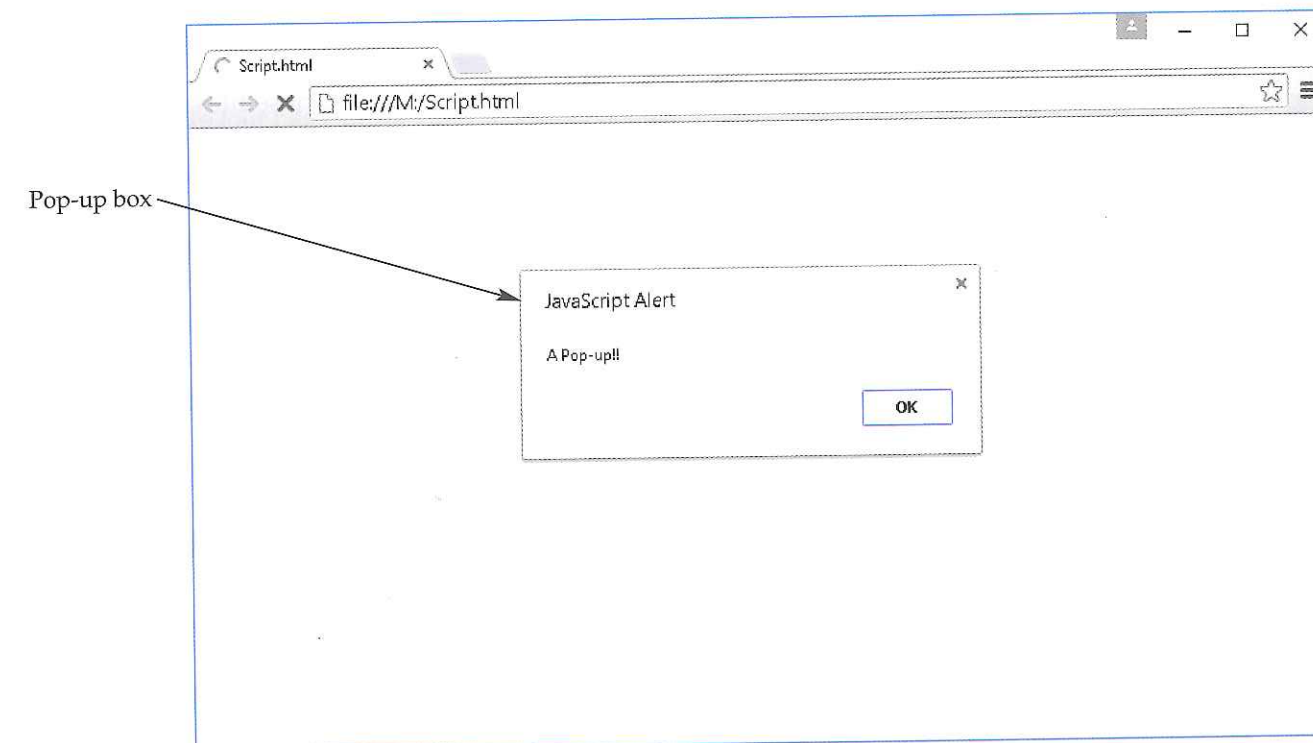
JavaScript

JavaScript is an object-oriented programming language most often used in web development. When used as a browser enhancement, it allows web developers to create buttons, process forms, and vary the experience of the user based on selections made. The scripts are embedded in the HTML file itself. Because the rendering of the JavaScript to HTML is performed by the browser on the client's (user's) machine, it is called a *client-side technology*.

A simple pop-up box is produced by the **alert** command in this JavaScript statement added to an HTML file:

```
<script>
  alert("A Pop-up!");
</script>
```

The result is shown in Figure 13-24. Notice the text between the quotation marks is the text displayed in the alert. When the alert is displayed, the browser halts loading the page until the user clicks the **OK** button. When the user clicks the **OK** button, the remainder of the page is loaded.



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Figure 13-24. This pop-up box is created with JavaScript.

HANDS-ON EXAMPLE 13.2.4

ADDING JAVASCRIPT TO A WEB PAGE

It is relatively easy to incorporate some basic JavaScript code into a web page. For example, an alert can be added to the AboutMe.html web page created earlier.

1. Applying what you have learned, open the AboutMe.html file for editing.
2. Below the <h1> end tag, enter the following code.

```
<script>
    alert ("My first Web page! Woo Hoo!");
</script>
```

3. Save the file, and load it into a web browser to see the alert.
4. Applying what you have learned, edit the script so the alert displays A short biography of *your name*.
5. Verify the change in the browser.

FYI

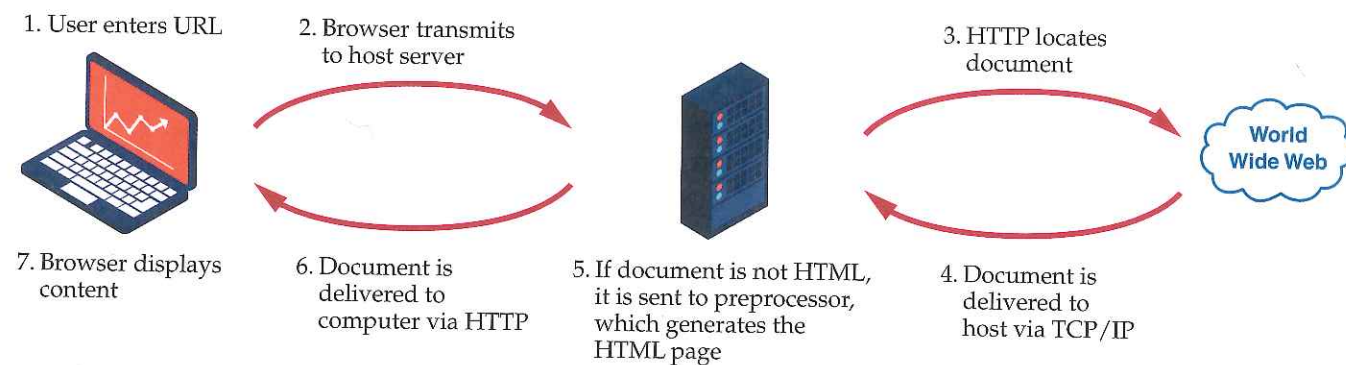
The original name for PHP was personal home page.

PHP and Other Preprocessors

A preprocessor language is required to provide database support to a web page. **PHP hypertext preprocessor** enhances interactions and supplies database support using structured query language (SQL). Early applications of PHP were address books and forum development. This functionality is not handled by the hypertext protocol. An additional program must be running on the server to handle these files. The filename extension is .php. Because the rendering of the PHP code to HTML is performed at the host, not by the user's computer, it is called a *server-side technology*.

Preprocessing functions as follows, as shown in Figure 13-25. Notice an additional step is added to the process shown in Figure 13-4 at the beginning of this chapter.

1. The user either enters a location in the navigation bar of a web browser or clicks a link on a web page, which issues the URL for a document to the browser.



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Figure 13-25. Preprocessing involves one more step than normal web processing.

2. The web browser transmits that to its WWW program on the host server.
3. The HTTP protocol locates the document specified by the URL and requests its delivery to the host.
4. If necessary, the document is delivered via TCP/IP packets to the host.
5. If the file name extension is not .html, additional processing must take place at the host, and the file is sent to the appropriate preprocessor for translation into an HTML file.
6. The host delivers the HTML document to the requesting computer using HTTP.
7. The web browser determines how the document should be formatted and displays it.

13.2

SECTION REVIEW

CHECK YOUR UNDERSTANDING

1. What are four basic design principles that should be applied to the design of a website?
2. In HTML, what are used to tell browsers how to format or display a web page?
3. What is the order of the cascade for CSS?
4. What does validation do for a web page?
5. What is required to add database support to a web page?

IC3 CERTIFICATION PRACTICE

The following question is a sample of the types of questions presented on the IC3 exam.

1. A server is a:
 - A. specialized computer.
 - B. conductive wireframe.
 - C. set of ports to the Internet.
 - D. client machine.

BUILD YOUR VOCABULARY

As you progress through this course, develop a personal IT glossary. This will help you build your vocabulary and prepare you for a career. Write a definition for each of the following terms and add it to your IT glossary.

alignment	PHP hypertext
cascading style sheet (CSS)	preprocessor
contrast	proximity
external style	repetition
inline style	semantic tag
internal style	tag
JavaScript	validation

Chapter Summary

Section 13.1

Internet and the World Wide Web

- Information on the Internet and World Wide Web is transmitted in packets. The Internet protocol address uniquely identifies each computer on the network and is used to correctly route packets.
- Digital wellness is the area of study to discuss and remedy excessive use of screen time, online addictions, and smartphone addictions. Ergonomics is the science concerned with designing and arranging things people use so they can interact with them both efficiently and safely.
- A search engine examines massive databases trying to identify the best matches to the search phrases. Boolean operators can be used to fine-tune searches, and search results should be evaluated for accuracy, relevance, and validity.
- It is important to use the Internet in an ethical manner. Many schools, organizations, and companies have an acceptable use policy that outlines ethical uses of online resources.

Section 13.2

Creating for the Web

- Basic design principles such as contrast, repetition, alignment, and proximity should be followed when designing for the web. Information on a web page should be presented in a format that is easy to understand and visually pleasing.
- Hypertext markup language is a basic language used to create web pages based on tags that tell the browser how to format or display the content. A cascading style sheet is used to control formatting of web pages.
- Interactivity on a web page requires a programming language beyond HTML.

Languages often used to program interactivity include JavaScript and PHP.

Now that you have finished this chapter, see what you know about information technology by scanning the QR code to take the chapter posttest. If you do not have a smartphone, visit www.g-wlearning.com.



Chapter 13 Test

Multiple Choice

Select the best response.

- What is the client software program that retrieves web documents and displays them to the user?
 - preprocessor
 - server
 - host
 - browser
- What does Web 2.0 promote?
 - WYSIWYG editors
 - use of multimedia and social networking
 - use of uniform resource locators
 - relative addresses
- Any information you retrieve from a search engine:
 - is guaranteed accurate
 - is correct, factual, and truthful
 - is not to be questioned
 - should be evaluated for accuracy, relevance, and validity
- Which of the following is the correct pair of starting and ending tags for defining a hyperlink in a web page?
 - `<a>...`
 - `<h>...</h>`
 - `<p>...</p>`
 - `<html>...</html>`

- Which of the following can be used to add interactivity to a web page?
 - DNS
 - URL
 - JavaScript
 - HTML

Completion

Complete the following sentences with the correct word(s).

- A(n) _____ is an address that points to a specific document or other resource on a computer network.
- _____ involves statement of the problem, gathering of information, formulation of a solution, and action to resolve the problem.
- A method for ensuring the correctness in which the same information can be located in at least three different sources is _____.
- In practice, a(n) _____ is usually a separate file referenced by each page in a website to control formatting.
- The _____ JavaScript command displays a pop-up box containing a message.

Matching

Match the correct term with its definition.

- domain name system
 - upload
 - download
 - MLA
 - HTML
- Source for how to properly cite information.
 - Maps the numbers and letters in an IP address to a human-readable string of characters.
 - Transmission from the host to the client.
 - Transmission from the client to the host.
 - Defines a web page.

Application and Extension of Knowledge

- Go to the World Wide Web Consortium (W3C) website (www.w3.org). Use the site's search function, and search for a little history of the world wide web. In the search results, look for the article of the same name. Read the W3C article, and write a one-page summary of the key game-changing events. Be sure to cite the information source.
- Go to the Wikipedia website (www.wikipedia.org). Use the site's search function, and search for programming languages used in most popular websites. If the site does not transport you directly to the article, click the link in the search results that matches the search string. Examine the information in the article. Prepare for a class discussion on the accuracy, relevance, and validity of the information on this web page.
- Go to the NASA website (www.nasa.gov). Use the site's search function to locate an image file of a planet in our solar system, such as Venus. Make note of the URL of the image or the page on which it is displayed, and download or save the image. Using Notepad or other plain-text editor, create an HTML file to display the image. Save it in the same folder as the image file. Identify the purpose of the page in `<title>` and `<h1>` tags. Include the image file using the code `` where *image* is the name of the image file. Use the `<p>` tag to include a proper citation of the image source. Use the `<a>` tag to include a hyperlink to the image URL. Make sure all tags are properly closed, then save the HTML file, and display the web page in a browser.
- Edit the HTML file created in #3. Add this code to the `<head>` section,

and then save and close the file:
`<link rel="stylesheet" type="text/css" href="mystyle.css">`. Using Notepad or other plain-text editor, create the following style sheet, and save it as `mystyle.css` in the same folder as the HTML and image files. Display the web page in a browser, and note the color of the hyperlink before clicking it, while the cursor is over it, and after clicking it. Experiment with editing the CSS to create different colors. Use hex-code colors (search the Internet for color codes).

```
a:link{
    color: red;
}


a:visited{
    color: orange;
}


a:hover{
    color: blue;
}
```

- Go to the W3 Schools website (www.w3schools.com). Use the site's search function, and search for my first javascript example. Evaluate the search results, and select the link for JavaScript Tutorial. The tutorial contains an example that matches the search string. Click the button in the example to display the date and time. Next, click the **Try it Yourself** button to view the HTML and JavaScript code. Notice that the button tag actually draws a button for you. Identify the part of the code that matches what is displayed on the web page button. Edit the code to change what is displayed on the button, and then click the **See Result** button at the top of the page to update the HTML code. Consider how adding a button to a website can improve the navigation. Prepare for a class discussion on that topic.

Online Activities

Complete the following activities, which will help you learn, practice, and expand your knowledge and skills.

 **Certification Practice.** Complete the certification practice test for this chapter.

 **Vocabulary.** Practice vocabulary for this chapter using the e-flash cards, matching activity, and vocabulary game until you are able to recognize their meanings.

Communication Skills



College and Career Readiness

Writing. Rhetoric is the study of writing or speaking as a way of communicating information or persuading someone. Identify rhetoric that could be used to persuade a customer to purchase a Mac over a PC. Write a script in a step-by-step format for presenting the item to an adult customer.

Speaking. It is important to be prepared when you are speaking to an individual or to an audience. Style and content influences how the listener understands your message. Using the script you developed in the last activity, convince a classmate to buy a Mac. Make use of visuals or demonstrations to enhance the presentation. Adjust your presentation length to fit the attention span of the audience.

Listening. Active listening is fully participating as you process what others are saying. Salespersons must practice active listening in order to fully understand a customer's need. Make a list of listening strategies that could be used to enhance listening comprehension. Examples might include monitoring the message for what is being said or focus on the message.

Internet Research

Boolean Searches. Using various search engines, conduct an Internet search for the term mammals. Take note of how many results you get. Next, using combinations of the Boolean search operators AND, OR, and NOT, conduct a search using the terms mammals, marine, herbivore, and monotreme. Record results for each search you conduct. Which Boolean operator yields the most results? Make a chart showing your search parameters and number of results, and share your findings with the class.

Teamwork

Working with your team, select an IT company that you think needs a new website. Or, consider proposing a site revision to your school's Career and Technical Student Organization website. First, analyze the selected website. Create a list of structural elements that need to be addressed. Identify what components work and what needs improvement. Make a list of tasks that must be considered to improve the website's structure. Outline each step that would be necessary if your team is awarded the opportunity to update and revise the website.

Portfolio Development



College and Career Readiness

Soft Skills. Employers and colleges review various qualities of candidates. For example, the ability to communicate effectively, get along with customers or coworkers, and solve problems are important skills for many jobs. These types of skills are often called soft skills. Make an effort to learn about and develop the soft skills needed for your chosen career field.

- Conduct research about soft skills and their value in helping people succeed.

- Create a Microsoft Word document and list the soft skills that are important for a job or career that you currently possess. Use the heading "Soft Skills" and your name. For each soft skill, write a paragraph that describes your abilities. Give examples to illustrate your skills. Save the document.
- Update your master spreadsheet.

CTSOs



Community Service Project. Many competitive events for CTSOs include a community service

project. This project is usually carried out by the entire CTSO chapter and will take several months to complete. This project will probably span the school year. There will be two parts of the event, written and oral. The chapter will designate several members to represent the team at the competitive event. To prepare for a community service project, complete the following activities.

- Read the guidelines provided by your organization.
- Contact the association immediately at the end of the state conference to prepare for next year's event.
- As a team, select a theme for your chapter's community service project.
- Decide which roles are needed for the team. There may be one person who is the captain, one person who is the secretary, and any other roles that will be necessary to create the plan.
- Identify your target audience, which may include business, school, and community groups.
- Brainstorm with members of your chapter. List the benefits and opportunities of supporting a community service project.