Exam Manual

CIW v5
Site Designer (1D0-520)

Smarter Training

This LearnSmart exam manual covers the most important topics you will encounter on the CIW v5 Site Designer exam (1D0-520). By studying this guide, you will gain familiarity with an array of exam-related topics, including:

- Elements of the Web site development process
- Web site project and design
- Multimedia and plug-in technologies to enhance the Web site
- And more!

Give yourself the competitive edge necessary to further your career as an IT professional and purchase this exam manual today!

CIW Site Designer (1D0-520)
LearnSmart Exam Manual

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Product ID: 010654
Production Date: July 18, 2011
Number of Questions: 25

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Abstract

This exam manual will help prepare the reader to pass the certification exam for IDO-520 v5 CIW Site Designer; The exam objectives for this certification are based on a combination of technical and non-technical skills and knowledge. None of the questions on the exam are vendor or product specific.

The exam consist of 70 questions from the following four domains:

Domain 1: Site Development Essentials – 11 questions
Domain 2: Web Design Elements – 13 questions
Domain 3: Basic Web Technologies – 26 questions
Domain 4: Advanced Web Technologies – 20 questions

What to Know

The exam objectives for IDO-520 v5 CIW Site Designer certification are based on a combination of technical and non-technical skills and knowledge. None of the questions on the exam are vendor or product specific. The examination period will be 75 minutes. To achieve a passing score on the CIW v5 Site Designer exam 1D0-520, candidates must correctly answer at least 49 of the 70 questions to achieve a total score of 70% or greater.

The exam consist of 70 questions from the following four domains:

Domain 1: Site Development Essentials – 11 questions
Domain 2: Web Design Elements – 13 questions
Domain 3: Basic Web Technologies – 26 questions
Domain 4: Advanced Web Technologies – 20 question

Tips

To pass this certification exam you will have to be very knowledgeable about all the concepts covered in the exam objectives. Do not rely on memorization of terms! Although it is important that you are familiar with the terms and acronyms, you will need higher level problem solving and critical thinking skills to be successful. You will be presented with many scenarios and you will need to make decisions based on specific circumstances.

Remember that the exam is timed. You will have 75 minutes to answer all the questions. If you are unsure about the answer to a question, mark it and move on. You will have the opportunity to go back to the marked questions once you have gotten to the end of the test.   This is the wise thing to do because there are many people who have timed out on certifications exam because they spent too much time trying to think through a difficult questions, leaving others unanswered. By marking the difficult questions and then moving on, you will at least have the opportunity to answer all the questions. When you go back to the marked questions, if you can't reasonably choose the best answer, at least take a guess! Unanswered questions are marked incorrect. If you at least take a guess, you might get it right!

Finally, get a good night sleep the night before your test. I always try to schedule my exams for mornings because my brain seems to work best in the AM! Don't forget to have a good breakfast. Good luck!

Introduction

There is a prerequisite for taking this exam. It is expected that candidates will have a firm foundations of knowledge, which is demonstrated by having previously passed the CIW Foundations exam 1D0-410 or the CIW v5 Foundations exam 1D0-510.

Currently, if you are not a certified CIW Associate (meaning you previously passed the CIW Foundations exam) you can still take this exam for Site Designer, however Prosoft Learning will not award the certificate to you until you pass the prerequisite exam. This prerequisite requirement may change in the future so you should visit the CIW exam website often for current information before scheduling your exam. You should be certain that you meet all the course objectives before attempting the certification exam.

Following are the course level objectives for CIW Site Designer:

- Identify and implement Web design concepts, including page layout, multimedia, font and color selection, graphic images, audience usability, file hierarchy and navigations.

- Manage the Web site development process, develop a Web strategy with goals and tactics to support it and implement techniques such as mind mapping and the site metaphor concepts.

- A mind map might be sketched on paper, drawn on a white board or roughed out with a computer application. Below is one example of what a mind map might look like:

- Choose and implement basic Web technologies, such as A/HTML tables and frames, metadata and Cascading Style Sheets (CSS).

- Use Web production applications and tools to create and manage pages and sites, create animated GIFs, edit graphic image files and created multimedia files.

- Define and implement advanced Web technologies, including scripting languages, Dynamic HTML, Extensible Markup Language (XML), Secure XML, RSS feeds, server-side technologies, Java applets and plug-ins.

- Explain the functions of Web servers, server administrations ports, cookies, databases and database management systems.

- Compare in-house Web site hosting to hosting with an Internet Service Provider (ISP) or Application Service Provider (ASP), and publish sites to the Web using various tools and techniques.

- Complete development of a functional Web site, and maintain and update a site using common sites and server security principles.

Lastly, let's look at the exam objectives that you should master before attempting the CIW Site Designer certification exam:

Domain 1: Site Development Essentials

1.1 Identify and manage elements of the Web site development process.
1.2 Meet customer expectations with Web site project and design.
1.3 Identify ethical and legal issues relevant to Web development and design.

Domain 2: Web Design Elements

2.1 Use Web design principles to evaluate and develop a site's aesthetic qualities, and its ability to enhance viewer experience.
2.2 Use Web design principles to enable navigation, usability and accessibility.

Domain 3: Basic Web Technologies

3.1 Use basic HTML and XHTML (X/HTML) to develop a series of Web pages.
3.2 Use X/HTML and extended technologies to enhance Web page structure, format and usability.
3.3 Create image files, and use images in X/HTML pages and site design.
3.4 Create Web sites using GUI site development applications.
3.5 Publish and maintain a production Web site.

Domain 4: Advanced Web Technologies

4.1 Use multimedia and plug-in technologies to enhance a Web site.
4.2 Use client-side and server-side programming to enhance Web site functionality.
4.3 Connect Web pages to a database.

Now you should have an idea about the skill base and knowledge that you will need to be successful at passing this exam!

Domain 1: Site Development Essentials

There will be *eleven questions* on the CIW Site Design certification exam dealing with site development essentials.

1.1 Identify and manage elements of the Web site development process.

Project Management

- Web project teams include several roles. There may be one team member for each role, or a single team member may take on more than one role, depending on company size, scope of project, etc.
    - *Project manager* – manages the entire project, documents the project plan and tracks the progress.
    - *Information architect* – translates customer requirements into a blueprint, including site navigation, need for database connectivity, etc.
    - *Graphic designer* – creates a consistent and appealing look for the web site, including the creation of graphics, color schemes, Flash animations, etc.
    - *Information technology group* – programmers, database administrators and networking technicians.
    - *Marketing professional* – responsible for developing the strategy and tactics for communicating web site messages, images and brand identity. These team members are involved in the development of the look and feel of the site, as well as the text content of the site.
    - *Writer/editor* – these team members are the wordsmiths, so to speak, and the ones to ensure proper spelling and grammar usage. They do proofreading of other's writing and write content themselves.
- Resource Importance (e.g. Will the team members be available as I need them?). Consider your resources when conducting:
    - Feasibility study
    - Risk management study
    - Contingency planning
- *Web site designer*– depending on the size of the company, a web site designer may have to do most of the roles of a web development team. In larger companies, the web site designer may only have one role on the team. The following are some of the various skills a web site designer may need to be proficient with:
    - Web site planning
    - Graphics design
    - Site navigation, structure and scheme design
    - XHTML coding (usually using a WYSIWYG like Dreamweaver)
    - Programming and/or scripting
    - Customer service
    - Testing

- Email, telephone calls and meetings are basic means of Web project collaboration. Additional collaboration tools include:
    - Intranets
        - Intranets can only be accessed from within a company's network by internal employees.
    - Wiki sites
        - Wiki sites are collaborative Web sites that can be easily modified by anyone with access.
    - Online conferencing
        - Online conferencing enables people from different locations to meet virtually, typically sharing ideas via a virtual whiteboard, voice and text chat, remote control, presentation viewing, program sharing and even video conferencing.
    - Instant messaging
        - Instant chat (IM) applications such as AIM or Trillian are common tools for asking quick questions or having group chat sessions.
- The initiating phase of a Web project includes:
    - Needs analysis
    - Project objectives, assumptions and constraints
    - Statement of Work (SOW)
- Stakeholder – a person or group with an interest in the project. A project must have stakeholder buy-in to succeed.
    - Project Stakeholders
        - Contributor: Anyone directly involved in your project
        - Dependent: Anyone impacted by your project
        - Sponsor: Anyone backing your project
        - Reviewer: Anyone critiquing your project's result
        - Supplier: Anyone who is a resource in implementing your project
        - Deliverer: Anyone responsible for the project delivery
        - Owner: Anyone owning the results of your project
        - User: Anyone using the result of your project
    - Primary Stakeholders
        - The person or people you are primarily doing the project for
        - Determine when the project has been successfully completed

Note: Some of your stakeholders may change as your project progresses. Employees may leave, or you may find that you need the guidance of someone you did not think of in the planning stages.

- Statement of work (SOW) – Contains the project description, goals and plan.
- Project schedule – lists tasks and time frames for completing them.
- A bottom-up approach should be used to determine the look, feel and functionality of a Web site after considering various scenarios from the user's point of view.

- The vision statement is a fundamental framework that defines the scope and intent of a new site and should be defined during the conceptualization phase of a Web development project.

- Tactics support strategies. Strategies will involve attracting and keeping site visitors. Tactics are the methods for realizing these strategies.

Site specifications

- There are four types of web site specifications to consider:

  ‣ Functionality

  ‣ Architecture

  ‣ Content

  ‣ Design

Mindmapping

- Mindmapping is a way to sketch ideas for a Web site on paper or on a whiteboard in a team meeting. This is just a quick process of moving ideas from thoughts to paper or the whiteboard without judgment. As thoughts flow, sketch them in and branch them freely, in a non-linear way. Later, you can refine the mindmap into a realistic Web site plan.

  Example of a mindmap:
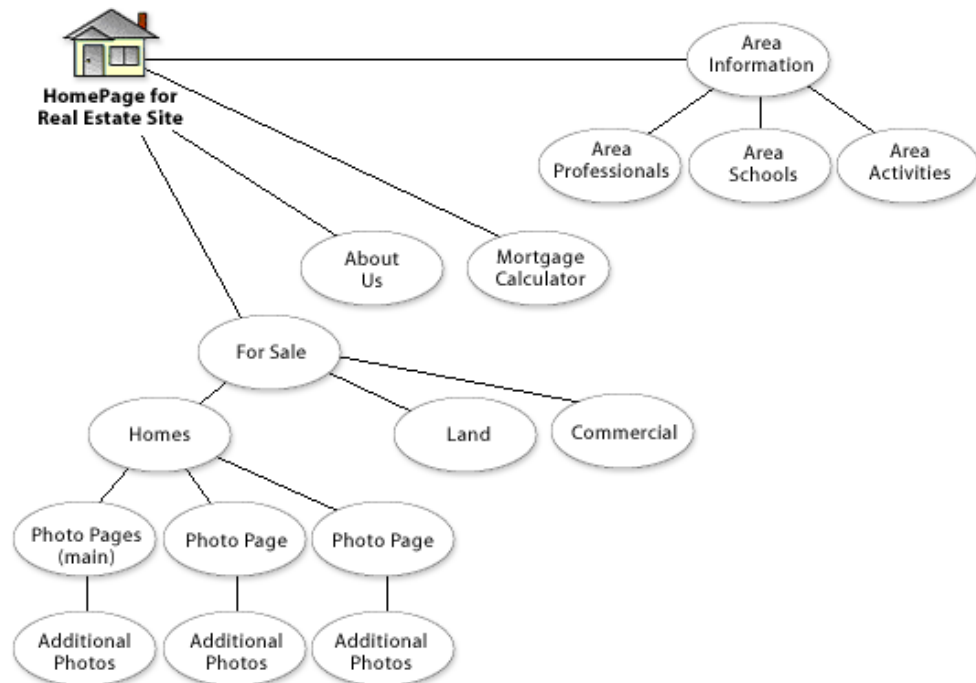
Alternatively, the mindmap could be used to create an outline for a hypothetical hierarchy:

This is an outline of a mindmap.

Home Page for Real Estate Site

I. For Sale
   A. Homes
      1. Photo Pages (many)
         a. Additional Photos
      2. Photo Page
         a. Additional Photos
      3. Photo Page
         a. Additional Photos
   B. Land
   C. Commercial
II. About Us
III. Mortgage Calculator
IV. Area Information
   A. Area Professionals
   B. Area Schools
   C. Area Activities

Consider the target audience

- Determining and knowing the site audience is very important. Demographics and technology are key, but you can't possibly know all of your audience, so it is important to make your site as accessible as possible. You will need to consider:
    - Various system capabilities
    - Users with disabilities
- Elements of usability include:
    - High-quality content
    - Easy navigation
    - Information architecture
    - Search capability
- Audience usability tests are needed to achieve maximum site usability.
- Metaphors are often used in Web site design, just as they are in other forms of advertising and marketing.

Portfolios

- Web designers should build a Web Portfolio or E-Portfolio to show their work. Typically an e-portfolio should include:
    ‣ Resume
    ‣ Samples of custom graphics
    ‣ Links to other Web sites designed by the portfolio owner
    ‣ Samples of other skills such as JavaScript, Flash, etc.
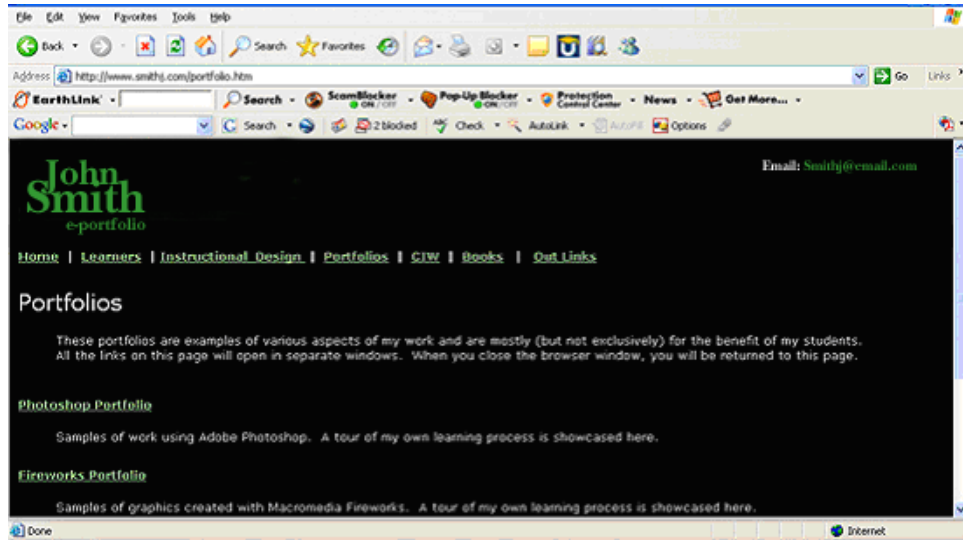
1.2 Meet customer expectations with Web site project and design.

- Meeting customer expectations (needs & desires) is more important than aesthetics.
- Project evaluation – During the closing phase of a Web site design project, the team should reflect back on the project to determine what worked well, what didn't work well and basically lessons learned.
- Weekly written project tracking reports should be shared with stakeholders.
- Scope creep – unanticipated tasks, changes or problems can expand the scope of a project.
- A contingency plan should be in place to deal with changes or delays to the project plan.
- Designers should avoid using technologies and design techniques that are not user-friendly for all site visitors. Here are several examples:
    ‣ <blink> tag
    ‣ <layer> tag
    ‣ ActiveX controls

- When writing content for a web page, think about the nature of the site, its purpose and the intended audience. Stay on target and avoid using jargon specific to an industry or profession.

- Templates are a good way to ensure consistency of structure and style across all pages in a Web site. Cascading style sheets (CSS) are often attached to templates.

1.3 Identify ethical and legal issues relevant to Web development and design.

- Web sites should not be used as sounding board to slander; nor should they misrepresent the truth.

- Consider international legal issues when designing e-commerce web sites. You may even need to consult with a lawyer who specializes in international trade. Things to consider in regard to international trade include:

    ‣ Customs: The legality of shipping your products to other regions.

    ‣ When contracting with parties in another region – whose laws will you go by?

    ‣ Intellectual property & copyright laws differ from one county to another.

    ‣ Fair use in the US may be a copyright infringement in another county.

    ‣ Taxation.

Domain 2: Web Design Elements

There will be *thirteen* questions on the CIW Site Design certification exam dealing with web design elements.

EBay as an example of success

Consider the success of the EBay web site as you read this section. The design and development team at EBay has obviously done a fantastic job of maximizing the use of Web design elements!

2.1 Use Web design principles to evaluate and develop a site's aesthetic qualities and its ability to enhance viewer experience.

The importance of usability

- First impressions are important, and the Web medium is self-centric. This means that visitors are only interested in their own needs and desires. Design easy navigation so that visitors can easily find what they want. If you don't meet your visitor's needs or desires, they will go elsewhere!

- Among the most valuable information a Web developer can have is knowledge of his or her audience. Knowing the audience requires you to learn certain demographic elements about its members. For example, if you are creating a site for children you would not want to include a lot of text with a high level vocabulary. You would want to use simple and few words, with many graphics.

- Usability elements to consider include, but are not limited to:
    - Quality content
    - Easy navigation
    - Information architecture
    - Search capability
- Web site elements to consider include:
    - White space
    - Colors
    - Font choices
    - Rules (horizontal rules)
    - Lists
    - Paragraph styles
    - Heading levels
    - Images
    - Logo
    - Margin
    - Borders
    - Navigation elements
    - Tables
    - Framesets
- Design strategies for user focus include such strategies as:
    - Ensuring that the content of interest to your audience occupies the first 50% to 80% of screen space above the fold (content which can be seen without scrolling).
    - Eye-tracking studies indicate that Web users first look at the center of the page, then left, and then right. They rarely look down.
- Tools for site's visual consistency: Creating and following a style guide to design a template. Pre-designed templates and CSS helps to quickly create consistent pages.
- Visually balanced pages: Web pages should contain about 50% less text than a printed page of the same information.
- Symmetrical balance is created when all elements on both sides of the page are equal.
- Screen resolution should be designed to the lowest common denominator. Currently 800 X 600 is considered the most common denominator, but keep in mind that this is a moving target. Using percentages instead of pixels is one way to ensure a fit for all resolutions.
- Good typography skills are essential for a designer. It is important for a designer to know which fonts will look similar on different operating system. It is also important to use font choices consistently throughout the site.
- By default, Web pages are not printer friendly. Consider providing a printable format copy such as .PDF. Alternatively, you could slim the page down to about 650 pixels.
- The Inverted Pyramid is the most common page layout format. This style offers the user a list of story summaries first, then links or references to the details for those who are interested. Newspapers typically use the inverted pyramid style. Stories summaries on the front page are continued on another page.

- Page Layout refers to the way in which the Web designer presents information to users.

- Web page elements include layout, color, fonts, images and other multimedia.

- When a designer begins the design process, he or she should determine early on what elements to use. The designer should then consistently use these elements throughout the Web site. The design and use of CSS is an excellent way to accomplish this.

- The Element of Color plays a vital role in the perception and presentation of a Web site. A company's style, culture and mood can be portrayed by the colors presented in the site and how they blend, coordinate or contrast. In addition, it is important to understand Web safe colors.

- Colors are standardized in two numeric formats:

    ‣ RGB

    ‣ Hexadecimal code

- The importance of white space: A designer needs to apply the delicate balance between taking advantage of limited real estate, while avoiding clutter.

- 80% of Web users merely scan web page content looking for keywords and phrases - therefore, you must create a page that allows users to quickly scan and find the information they seek.

- First impressions are important.

- Keep users satisfied – give them what they want and they will come back.

- Users do not want to see cluttered pages with irrelevant content and images.

- The Web is self-centric: Users are interested in only what they want.

2.2 Use Web design principles to enable navigation, usability and accessibility.

Design for your target audience. If you are designing for an Intranet and know that all users will have the latest browsers and up to date equipment, you are free to use some cutting edge technology. If you don't know this, you should design for the lowest common denominator because visitors are not coming to the site to experience jazzy technology and multimedia. They are looking for something specific, and if you drive them away by requiring plug-ins they don't have or multimedia that takes too long to load, they are not likely to return.

Positional awareness and navigation

- Navigation is moving from one point to another, in an understood and controlled manner, with purpose.

- New visitors are like tourists in a new city. Make it clear where they can go after arriving at your home page, and from every page, make it clear how to get back "Home."

- As a Web designer, it is your duty to provide sufficient navigation so that users can simply "enjoy the ride."

- A well designed site requires only a few clicks for navigation to be understood

- Common browser navigation features include:

    ‣ Toolbar Back Button

    ‣ Toolbar Forward Button

    ‣ URL Address Field

    ‣ URL drop-down menu

‣ Browser history

‣ Bookmarks or Favorites

‣ Status Bar

‣ Colored Hyperlinks

Navigation

- Primary and secondary navigation:

    ‣ Primary navigation – accessible from most locations

    ‣ Secondary navigation – secondary links from other pages

Notice the primary navigation links on the www.jcpenney.com web site:

Now notice that if the user clicks on the women's link, he/she is presented with secondary navigation on the left:
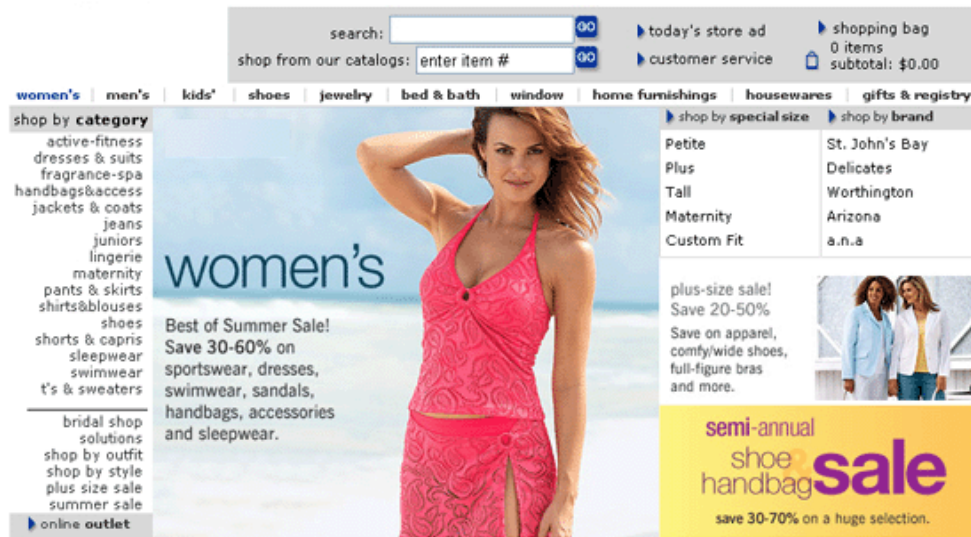
The difference is that the primary navigation is available on almost all pages on the site, while the secondary navigation is only available from certain pages on the site. Different pages will have different sets of secondary navigation links.

Web site characteristics and strategies include but are not limited to the following:

- The Internet is a medium that enables the user to choose which information to access and when to access it, making the Internet a one-to-one medium, as opposed to a broadcast medium. Thus the concepts of mass media are not necessarily valid for the Web.

- The Internet is transactional and interactive.

- Internet Web site visitors are more likely to be responsive to targeted product and marketing offers that are more tailored to their desires or needs.

- The Internet is non-linear, and the user is in control of where he or she will go next. Site visitors can come and go at will and can choose navigation paths to follow.

- Interactivity, navigation and database integration set the Internet apart from other media such as radio, TV and newspapers.

- Interactivity is one of the key differences between Web design and design for traditional media such as print or TV.

- Navigation, interactivity and database integration are examples of website characteristics. A web site designer needs to design for the needs of the target audience and the stakeholder requirements.

Accessibility

- User accessibility standards and laws are the responsibility of the Web Accessibility Initiative (WAI). WAI works to ensure that technologies used on the Web are equally accessible to users with physical, visual, hearing and cognitive disabilities. The WAI works with various W3C groups to ensure Web standards include accessibility options.

10 Quick Tips

1. *Images & animations*: Use the alt attribute to describe the function of each visual.
2. *Image maps*. Use the client-side map and text for hotspots.
3. Multimedia. Provide captioning and transcripts (text alternatives) of audio, and descriptions of video.
4. *Hypertext links*. Use text that makes sense when read out of context. For example, avoid the phrase "click here."
5. *Page organization*. Use headings, lists and consistent structure. Use CSS for layout and style where possible.
6. *Graphs & charts*. Summarize or use the longdesc attribute.
7. *Scripts, applets and plug-ins*. Provide alternative content for case active features that are inaccessible or unsupported at the client's end.
8. *Frames*. Use the noframes element and meaningful titles.
9. *Tables*. Make line-by-line reading sensible. Summarize.
10. *Check your work*. Validate.

- Since Web site visitors do not read as much online as they might if they were reading a brochure, you have to learn to write your message with fewer words.

  ‣ Get directly to the point

  ‣ Be very clear

  ‣ Avoid industry-specific jargon

  ‣ Use keywords, keeping search engines in mind

  ‣ Keep all text relevant to the site

  ‣ Consider using a style guide

  ‣ Check your facts for accuracy

Domain 3: Basic Web Technologies

There will *be twenty six* questions on the CIW Site Design certification exam dealing with Basic Web Technologies.

3.1 Use basic HTML and XHTML (X/HTML) to develop a series of Web pages.

- The four basic structure tags used to create an XHTML page are: <html> <head> <title> & <body>

  ```
  <html>
  <head>
  <title>my page</title>
  </head>
  <body>
  My message goes here
  </body>
  </html>
  ```

- Hexadecimal color code values range fro 00 to FF.

- RGB color values uses digits between 1 and 255 for each red, green and blue value.

Color	HEX Code	RGB Value
White	FFFFFF	255,255,255
Black	000000	0,0,0

Color	Red	Green	Blue	Hexadecimal
Black	0	0	0	#000000
White	255	255	255	#FFFFFF
Red	255	0	0	#FF0000
Green	0	192	0	#00C000
Blue	0	0	255	#0000FF
Yellow	255	255	0	#FFFF00

The World Wide Web Consortium (W3C) controls the HTML and most other Web technology standards.

HTML was developed by Tim Berners-Lee as a markup language, and it is based on SGML. HTML is used to code Web pages by embedding tags. HTML is a constantly changing standard, however, at the time this manual was written, it covered 6 versions: 1.0, 2.0, 3.0, 3.2, 4.0 and 4.01.

- Different browsers have additional, vendor specific (proprietary), standards that designers need to be aware of. Proprietary features generally do not work within competitor browsers. Some browsers simply ignore proprietary tags.

- Features supported by particular browsers that are not part of the HTML standard are called "extensions."

- Proprietary extensions "extend" the HTML standard.

- HTML 4.0 includes three flavors: HTML 4.0 Transitional, HTML 4.0 Strict, HTML 4.0 Frameset.

- HTML 4.0 supports:
    - Cascading Style Sheets (CSS)
    - Internationalization issues
    - Enhanced tables and forms
    - Scripting and multimedia
- HTML 4.1 brought in several modifications to the standard and supports XHTML.
- XHTML 1.0 is the latest version of HTML. It combines features of HTML and XML and is considered the bridge between the two.
- There are three flavors of XHTML:
    - XHTML Transitional
    - XHTML Strict
    - XHTML Frameset

3.2 Use X/HTML and extended technologies to enhance Web page structure, format and usability.

- Tables are a very commonly used method for Web page layout and until recently was the only way to create complex layouts. CSS positioning is now widely accepted by browsers, and this has replaced tables as the preferred method to layout Web pages.
- CSS positioning is the preferred method of laying out Web pages by the W3C.
- Many designers still use tables for Web page layout, and that is also acceptable.
- Tables are preferred for displaying tabular data.
- Separate panes in the browser window are called frames.

Frames and framesets

- Frames reside inside of structures called framesets.
- A frameset is a structured web page that defines a set of frames. Frames are used to display Web pages. If you had a frameset that contained three frames, the computer screen would display three different pages at once, separated by the frames.
- The frameset tag is a container tag. You use it to structure sections in the browser window.
- Frames are an extension of HTML 3.2. Typically, framesets are used for a page in which you wanted some primary navigation to always be visible, while content in another frame changes in response to the navigation pane.
- Targeting content: A web page usually has links to other pages. In a normal, one-window layout, when you click on the link, the linked page replaces the current page in the window. The current window is the target location for the linked page. A framed document works differently. When you put a document into a frame, you can tell the browser to display linked pages with a specific frame in the frameset.
- Here's how it works: You have a table of contents list in one frame. Whenever someone clicks on an item in the table of contents, the browser reads the link, gets the linked page and displays the linked page in another frame, leaving the table of contents on the screen, untouched.

- You can direct the browser to do this in two ways. If all your links will be opening to the same frame, you would use the <base> tag to set a default target for all links in the file. If it is a one time direction of content, you would use the "target=" attribute of the anchor tag.

- The base tag tells the browser to display all linked files in the specified frame. The base tag has one attribute: target="frame-name". The frame-name is the name of the frame into which the browser will display linked files. Remember that you named each frame as part of the frame tag in your frameset? Well, you'll use these names to tell the browser where to display the files that are linked from the current file.

- For example, this base tag tells the browser to display all the linked files in the frame named "content": <base target="content">.

- Frame sizing can be set by indicating pixels, percentages or the wildcard character. In the following example, the frameset will include two rows. The first row is absolutely sized to 150 pixels high, while the next row is sized by the use of the wildcard character, and will take up all remaining space in the browser window:

  ```
  <frameset rows="150,*">
  ```

- The following example shows how two frames are placed inside the frameset and how each frame is assigned a web page to display when the frameset is loaded into the browser:

  ```
  <frameset rows="150,*">
          <frame src="toc.htm">
          <frame src="content.htm">
  </frameset>
  ```

- The following example shows how rows can be sized by percentages of available space in the web browser:

  ```
  <frameset rows="30%,70%">
          <frame src="toc.htm">
          <frame src="content.htm">
  </frameset>
  ```

The resulting table
Would look something like this in structure.

Next, let's look at a two column structure / frameset:

```
<frameset cols="30%", 70%">
        <frame src="toc.htm">
        <frame src="content.htm">
</frameset>
```

	The resulting frameset structure would be similar to this
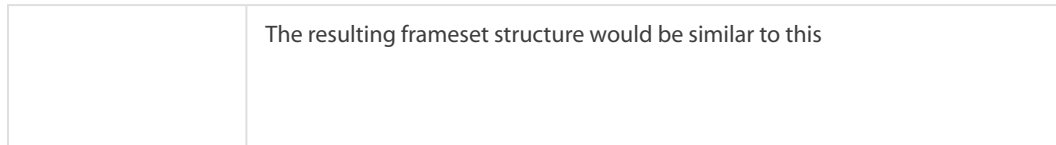
The following is a screen capture of a frameset page. The left column is the table of "contents" (so named in the frameset) frame. Links clicked there will open in the center – "main" (so named in the frameset) frame:
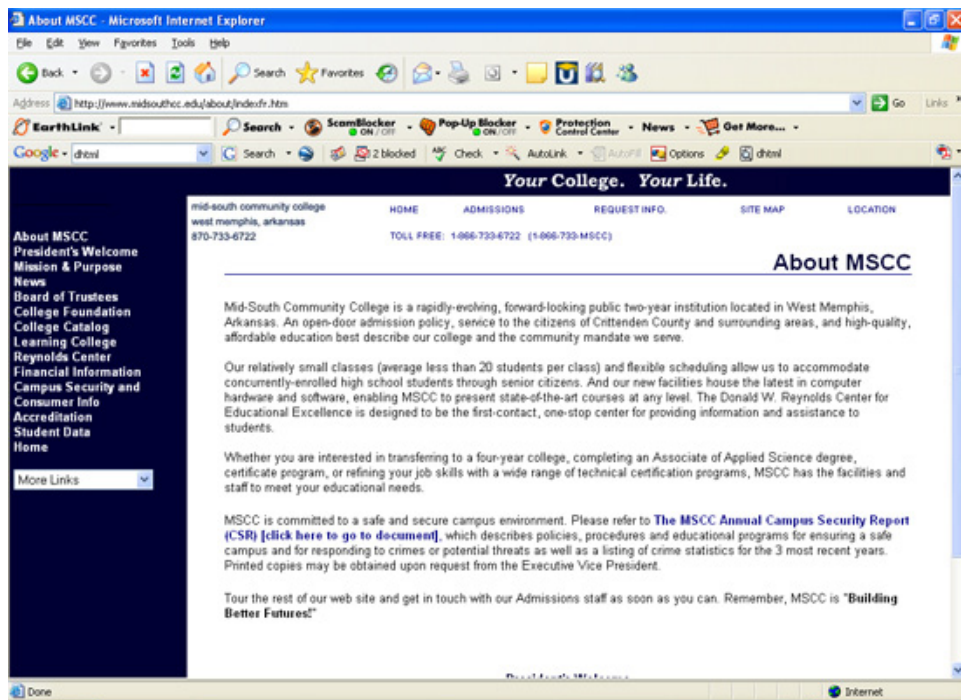
Notice what happens when I click on the President's Welcome link:

- Here is the code the defines the frameset and its structure:
```
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<title>About MSCC</title>
</head>
<frameset framespacing="0" border="0" rows="*" frameborder="0">
 <frameset cols="189,*">
   <frame name="contents" target="main" src="toc2.htm" scrolling="no" TITLE="Navigation Bar">
   <frame name="main" src="msccid.htm" scrolling="auto" target="_self" TITLE="contents">
 </frameset>
 <noframes>
 <body>
 <p>This page uses frames, but your browser doesn't support them.</p>
 </body>
 </noframes>
</frameset>
</html>
```

We can tell then by studying this code that this frameset contains two frames, arranged in column format, and that each frame has a name.

This frame's name is "Contents"	This frame's name is "Main"

We can also tell from the code that each frame has a web page assigned to it as initial content. This: <frame name="**contents**" target="**main**" src="toc2.htm" scrolling="no" TITLE="Navigation Bar"> tells us that the frame named "contents" will house a web page named toc2.htm, that links clicked on the toc2. htm page will open in the framed named "main" and that the frame that holds the toc2.htm page will not include scroll bars. The web page that will load into the frame named "main" is named "msccid.htm." The pages toc2.htm and msccid.htm are just web pages with no instructions related to the frames. The frame-set contains all the instructions for behavior. This may seem complicated at first but it is really very simple. Spend time studying how framesets work because there are sure to be some questions on the certifica-tion exam that will require a good understanding of this technology.

- When a designer wants to cause a link to open outside of a frameset, he/she can set the value of the target attribute to "top". This will cause the linked page to open in a new window.
        "target="_top"

Cascading Style Sheets

The W3C sets the standards for CSS.

- XHTML and HTML specifies four ways to apply CSS styles:

  - ▸ Linking – links to an external .css. This is the preferred method because you can link many pages to a single CSS file. To update the styles on all the linked pages, simply make the change on the single CSS. The syntax example is as follows:
    `<link rel="stylesheet" type="text/css" href="stylesheets/my_stylesheet.css">`

  - ▸ Importing – **This is not supported or recommended!** For informational purposes only, the syntax would be like this: @import url(http://www.somesite.com/styles.css)

  - ▸ Embedding – style instructions are placed in the head section of a single Web page and apply only to that page. By default, all of the styles will be applied to the page unless an inline style is coded which supersedes embedded styles. Syntax example is as follows:
    ```
    <head>
    <style type="text/css">
    <!
    H1  {color: green; font-family: "verdana"; font-size: 18pt}
    -->
    </style>
    </head.
    ```

  - ▸ Inline – Inline styles are added inline to existing HTML tags. The span tag Syntax example is as follows::
    `<span style="background: blue">Text Here</span>`

- Here is an example of an external style sheet:
  ```
  Body
  {color: black;
  background: #000033;
  font-family: arial;
  font-size: 10pt
  }

  HR
  {
  text-align: center;
  color: #FFFFFF; width: 85%
  }

  a:link
  {
  color: #FFFFFF;
  text-decoration: none;

  }

  a:visited
  {
  color: #FFFFFF;
  text-decoration: none;

  }

  a:active
  {
  ```

```
color: #FFFFFF;
text-decoration: none;

}

A:hover
{color: #F4F4F4;
text-decoration: none;
}


H1
{
font-family: arial
}

H2
{
font-family: arial
}

H3
{
font-family: arial
}

H4
{
font-family: arial
}

H5
{
font-family: arial
}

H6
{
font-family: arial
}

P
{
font-size: 10pt
}

Table
{
        font-size: 10pt
}

TD
```

```
                    {
                            font-size: 10pt
                    }
```

This code would be saved as a css file in the web site with the .css extenstion, like this: stylesheet.css and pages would be linked to the css file with the following syntax:

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

Metadata

- Proper use of keyword and description meta tags can give a Web site an advantage because many search engines index meta tag keywords and descriptions found by spiders that crawl the web. Once a search engine registers a web page, users who type in search words that match the words in your site's meta tags can find your page. Many search engines, but not all, index web pages by crawling for meta tags.

- Metadata is "data about data".

- The Metadata tag describes the content of a Web page, and has several uses and forms.

- Meta tags go into the head section of an HTML document. They are for the browser and search engines, not the site visitor.

- Keywords and description are the most common Metadata items.

- Most search engine spiders look for and index keywords and descriptions.

- A Web Site Designer will incorporate keywords and description Meta tags wisely to maximize search engine results.

- META tags are similar to standard HTML tags. However, there is one big difference: You have to insert all META tags between the <head> </head> tags on your page(s). META tags are used primarily to include information about a document. The META tags will be invisible to your site's visitors, but will be seen by browsers and search engines.

- Several of the major search engines make use of the META Keyword tag, and virtually all of them make use of the Description tag. These tags help the search engine spider determine the content of your web site so that it can be indexed properly.

- Examples of Meta tags:
    - <META name="keywords" content="widgets, widget guide">
    - <META name="description" content="The ultimate guide to Widget design!">

- You can also instruct the search engine robot/spider how to index your site using the robots META Tag. This is what it looks like: **<META name="robots" content="noindex,nofollow">** . This instruction tells the spider not to index the page that it appears on, and not to follow the links on that page. Here's a complete list of attributes for the robots tag:
    - index – the default, the page is added to the search engine database
    - noindex – the page is not added to the search engine database
    - nofollow – the spider doesn't follow the links on that page
    - none – same as "noindex, no follow"

## 3.3 Create image files, and use images in X/HTML pages and site design.

- Web designers need to be able to create graphics for the Web. There is a variety of graphics applications to choose from. Macromedia Fireworks is one popular option because it combines many tools that Web-graphic designers need in one application. The capabilities of vector-based programs, bitmap editors and image optimizers have been combined into one application in Fireworks. The native file format for Fireworks images is Portable Network Graphics (PNG). The PNG files can be exported as JPF or GIF for use on Web pages. Furthermore, Fireworks includes features to create animation and graphics that incorporate X/HTML and JavaScript without the designer needing to know programming!
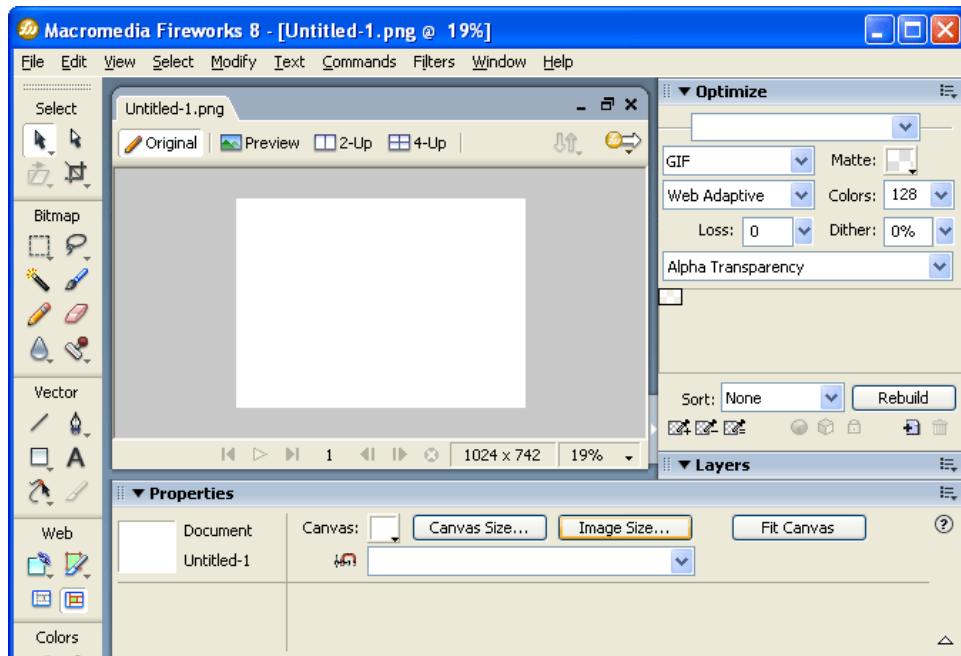
- Image **layers** are extremely handy to work with when creating a custom image. Each layer can contain individual parts of the whole image. Fireworks allows the use layers and the layers remain intact in the PNG copy of the images. However, GIF and JPG do not support layers. It is necessary to flatten the image to one layer when converting (exporting) to the more popular Web formats of GIF or JPG. A meticulous graphics designer will always keep copies of the PNG files on hand for future editing because the JPG or GIF files cannot be converted back to layers. For example: If you created a custom banner with 4 layers in Fireworks, Layer 1 might contain the background color and raised embossed effects. Layer 2 might contain the text, layer 3 several graphics and layer 4 additional shape objects. You export a copy to GIF format for use on a Web site. One year later the site manager decides he wants the name changes on the banner. If you have the original PNG file, this is no problem! You simply open the PNG file in Fireworks, go to the text layer and make the change. Finally, you export a new replacement GIF. If you don't have access to the original PNG file, you are in trouble. You will have to attempt to recreate the entire banner just to change the text. Recreating a graphic from scratch to exact specifications is no easy task and is very time consuming!
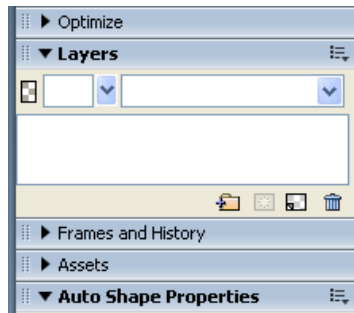
- Fireworks also has a unique method for creating animation. Using Fireworks you can create an animated image from one single file by using **frames**, and them exporting the frames to an animated GIF. Without Fireworks, it takes several different image files to create on animated GIF. Again, the difference is, with most image editing programs, you would have to compile several different images into one animated GIF. With Fireworks, you work with one single image, but multiple frames, and export the finished product to one animated GIF file.
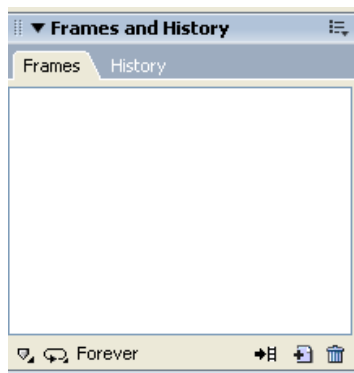
- Transparency is useful when you want the background of a page to show through behind an image. To create a transparent image it is necessary to remove the background and/or background color surrounding the part of the image you want to keep.

- Image slicing occurs when the designer divides large images into smaller sections or pieces. Sometimes, dividing a large image into smaller slices and then arranging them to appear as one image on a Web page enables faster loading in browsers. Fireworks has tools for image slicing, as do several other graphics applications.

- Typically, graphics applications such as Fireworks are used to resize images and change bit depth and resolution for optimal rendering on Web pages.

- Image cropping is an important part of Web image design because the real estate of a Web page is precious and limited! You don't want to use up page space displaying the unnecessary backgrounds of an image. Also, the larger the image, the longer it takes to load in a Web browser.

- Optimizing images for the Web includes both reducing file size and cropping, when appropriate. Graphics applications like Fireworks and PhotoShop have built-in file optimizing tools for the web.

- Graphics are used on web pages to:
  - Illustrate content
  - Provide backdrops for other activities
  - Offer a means of navigating a Web site
- Graphics must be:
  - Aesthetically pleasing
  - Functional
  - Small in file size
- Color depth and resolution are important considerations. As color depth increases, so does file size. Pixels with 4 bits of grayscale information can display up to 16 shades of gray. Higher bit depths result in more intense or realistic colors. As color depth increases, so does the file size. Screen resolution depends on the number of pixels present in a monitor's height and width. Higher screen resolutions display sharper, clearer images.
- Color palettes: Although an 8-bit color display can show millions of colors, it can only display 256 colors at one time. Windows uses a 256-color palette, while Netscape uses a 216-color palette. Thus the most Web-safe color palette is 216 colors.
- Dithering occurs when a color used on a web page does not exist in the browser palette. Dithering is an approximation, or reconciliation, of colors between an image palette and the system palette. Colors on the image palette are replaced to match the colors on the system palette. In simpler terms, if you use colors in your image that the browser cannot render, it will dither the color to match the original as close as possible.
- Bitmap vs. Vector Graphics: Large bitmap images result in larger file sizes because more pixels must be instructed as to which values to display. Conversely, large vector files are no larger in file size than a smaller image, because mathematical instructions are used to render the graphic. Bitmap graphics are best suited for photographs, drop shadow effects, and soft or blurry edges. Vector graphics are best suited for line art, shapes and illustrations.
- Vector graphics are based on mathematical computations, rather than the pixel-by-pixel information that comprise bitmapped graphics. Vector graphics can load faster in Web browsers because they can be scaled without file size being affected.
- Image Tool Functions: Computer graphics fall into two main categories, vector graphics and bitmap images. Understanding the difference between vector graphics and bitmap images helps as you create, edit and import artwork.
- You can create digital images with a variety of graphics programs. These programs can be divided into 2 general groups: Vector based drawing programs and paint type programs.
- Vector based example: Macromedia Fireworks.
- Paint type example: Microsoft Paint.
- The web does not, at this point in time, fully support vector graphics. You can create vector graphics with programs like Illustrator and Fireworks, but before you can use them on the Web, you will have to convert them to bitmap. Only .gif and .jpg file formats are natively supported by browsers.
- Only GIF images can be transparent.
- Only GIF 89a images can be animated, whereas JPG images cannot.
- GIF is considered lossless, meaning that as the image is compressed, no information is lost
- GIF images interlace as they are rendered by the browser.
- JPEG is best for photographs.

- JPEG is lossy, meaning that as the level of compression is increased, colors are dropped, resulting in image degradation.

- PNG is a graphic file format that may soon be supported by both Netscape and Internet Explorer. PNG is lossless and supports transparency, like GIF files, as well as compression, like JPEG files.

3.4 Create Web sites using GUI site development applications.

Dreamweaver is a very popular GUI site development application
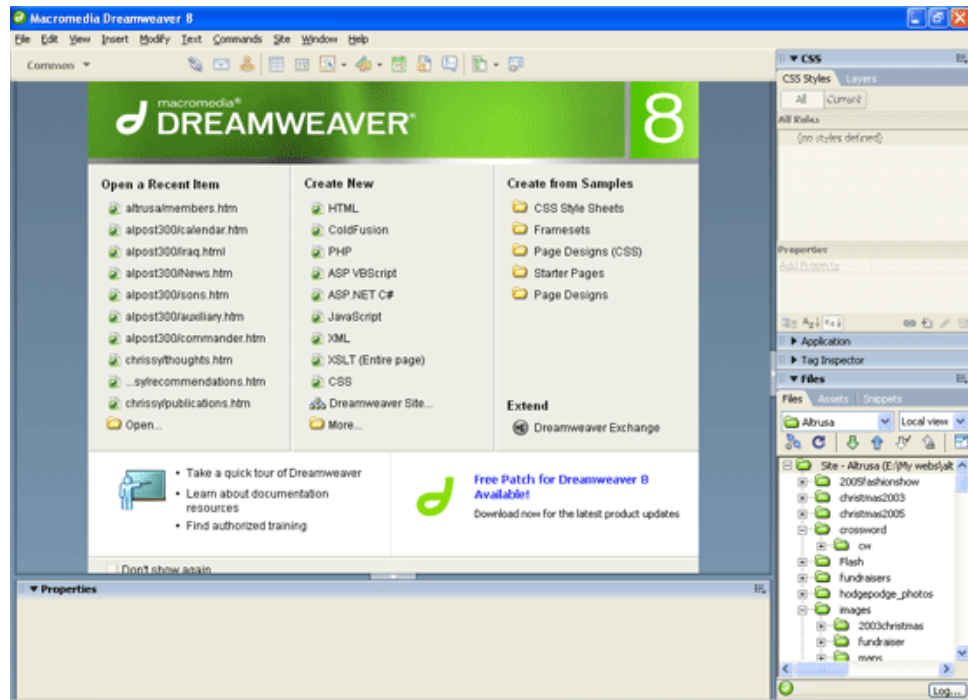
Microsoft FrontPage is another popular GUI site development application

Many benefits of GUI site development applications

- Most web site designers use a GUI site development application that allows for faster development than hand coding. Probably the most popular options include FrontPage and Dreamweaver. Both of these GUI applications incorporate three important functions:

    ‣ Site management

    ‣ Many built-in page layout and design features and tools

    ‣ Data connection tools

- Dreamweaver features offer better support than FrontPage for W3C standards, such as XHTML.

- Both FrontPage and Dreamweaver have tools to help the designer stay compliant with accessibility recommendations.

- Both FrontPage and Dreamweaver have tools to assist the designer with creating CSS.

- Both FrontPage and Dreamweaver enable a designer to create web pages without writing code; however a good designer should certainly know how to write and tweak HTML / XHTML code.

- With Dreamweaver, it is possible to apply absolute positioning by using layers to create a page layout. FrontPage does not currently offer this feature.

- Image maps are easier to create using FrontPage or Dreamweaver then they are with hand coding them. Instead of having to do the complex math needed to come up with the image map coordinates, you simply use the mouse to select the appropriate hot spots.

- It is advisable to use templates to maintain consistency throughout a site. A template often contains, for example, a common banner or navigation that appears on every page. The content area of the page is editable for custom content. This assures that all pages in a site will be consistent in look, feel and navigation.

- Ultimately, it is advisable to link an external CSS to a template. Any new pages that you create based on the template will also automatically be linked to the CSS.

- To apply a template when using GUI applications, simply base new pages on the template. Once you have linked a .css to the template, all of your basic formatting and layout will be covered. All you will have to do is add the content and images relevant to the new page!

- Both FrontPage and Dreamweaver include features to bring in data from Microsoft Word. You can choose to bring in the current formatting or bring data in with no formatting.

- Both FrontPage and Dreamweaver have built-in features for creating rollover images that link to another web page. A rollover image changes from one image to another when the mouse pointer rests on the image. Rollover images are script-driven (generally JavaScript) so the GUI essentially writes the script code. This is a time saver for designers who are not proficient or fast at scripting.

- Both FrontPage and Dreamweaver have built-in tools for creating web forms. FrontPage even has built-in form handling! Typically, web forms need some type of CGI interaction to be processed, and this requires some additional skills, such as Perl or ASP scripting. With FrontPage, all you have to do to enable forms to be processed is to fill-in the form properties' configuration fields. By default, FrontPage will use ASP for forms processing; the good news is, FrontPage writes the ASP code! Note that to use this feature the site has to be published to a server that has the FrontPage extensions installed to enable FrontPage Components.

- Both FrontPage and Dreamweaver include methods for checking individual pages or entire sites for accessibility compliance. Following is a screen capture of the FrontPage accessibility report (Accessibility checker) tool:
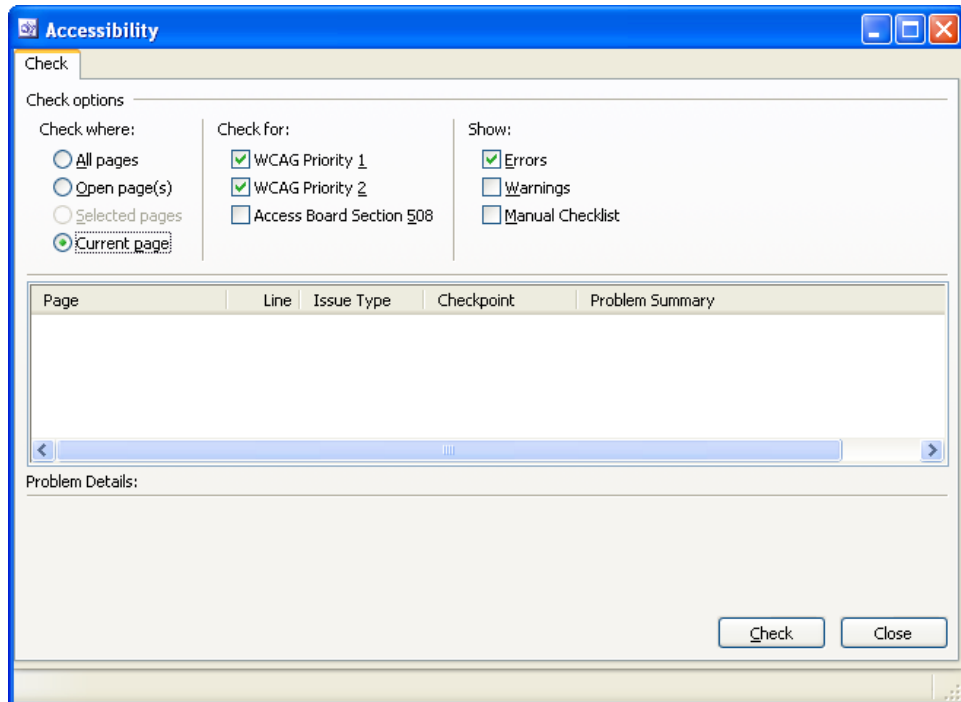
- Dreamweaver has an accessibility feature that can be optionally enabled for each site you manage. If you enable the accessibility checker you will be prompted to provide the needed items (such as alt text for images) each time you insert an object that requires accessibility add-ons. The following is a screen capture of the pop-up window you will see in Dreamweaver immediately after inserting an image, if you have enabled this feature:
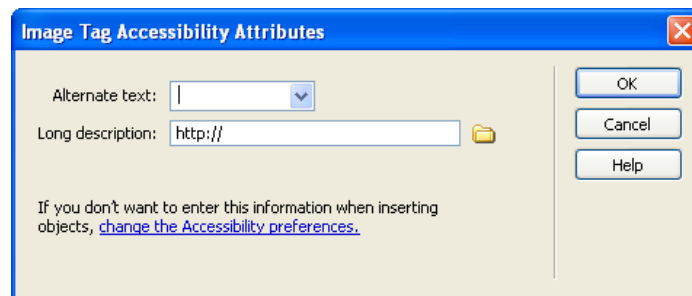
- Homesite is a web site editor that, instead of providing GUI web site management, works as an advanced, code-only editor. It is designed to help professions write code faster by providing many helpers. Although one might think of this web editor as a tool to write HTML code, many programmers also use it to write scripting code.

- The tag chooser is the most helpful feature of the Homesite web editor.

- In summary, it is the Web Designer's job to use technology to convey the appropriate message to site visitors. The concepts of design are as important as the content. Web designers use technical tools to implement their design ideas. They may use a WYSIWYG tool to create the Web site (i.e. FrontPage or Dreamweaver). They will use some graphics program to create and enhance Web graphics.

- People in technical positions must be familiar with Web design concepts. Design concepts and the technology to implement them work together. Note the examples below:

   ‣ Multimedia

   ‣ Data-driven content (Accessing Databases)

   ‣ E-commerce

   ‣ Intranets

- Tools for Web Site Design include, but are not limited to:

   ‣ WYSIWYG editors

   ‣ HTML editing tools

   ‣ Graphics applications

- Technology for Web Site Design include, but are not limited to:

   ‣ Manual HTML Coding

   ‣ JavaScript and other scripting languages

- A combination of manual coding and WYSIWYG functionality is the best option from today's development perspective.

3.5 Publish and maintain a production Web site.

Testing

- Usability Testing: A site's effectiveness should be tested with users who have little or no exposure to the site and, if possible, the Internet. If these testers can easily find what they want on the site, you have done a good job! Before the test, develop the site to the point of being nearly finished.

- Web site testing is preformed to determine how effective the site is in terms of usability and accessibility. The testers should be typical users who have little or no experience with the site. People with limited experience with the Internet are good testers. The site should be nearly finished before testing begins.

- Designers should test sites on various browsers because what looks good on one browser may not look the same with another browser. Some technologies won't render at all with certain browsers. One example would be opening a Microsoft Word document. The document will open just fine within Microsoft Internet Explorer but not at all with a Netscape browser. Another example would be the <blink> tag. The <blink> tag will render blinking text in a Netscape browser but not in other browsers. Different versions of the various browsers should also be considered.

Development servers / staging servers / web servers

- It is never a good idea to work on a live server. Development work should be done on a work server. If databases or programming are involved, the site should be published to a staging server, and then published up to the live web server (also called the production server) only after testing. Staging servers are usually only available to the design/development team.

- Staging servers are not necessary for simple html/xhtml sites. They are generally used only for sites that include programming and/or database connectivity.

- The staging server should be as similar as possible to the production server. It should have the same operating system and the same software.

- Generally, you will do all design work on a local working computer or server. When you are ready to publish a new site or changes to an existing site, you will need two pieces of information: You will need the IP or URL to publish to and you will need the username and password to authenticate on the web server.

Hosting

- Web site hosting is an important consideration. You need a web server in order to make your web site available to the World Wide Web. You may want to host your own site in-house, or you may want to contract with an outside source referred to as an Internet Service Provider (ISP). If you need e-commerce capabilities or special applications, you may need to contract with an Application Service Provider (ASP). Below you will find an example of an ASP homepage that lists its current pricing.

There are many hosting companies to choose from. If you go to www.google.com and type in "web host-ing" you will get a long list of returns! You will need to learn to comparison shop for the best buy on the features you desire and need.

If you are looking for hosting for an online instant storefront for an e-commerce site, your needs will be con-siderably different, and the options considerably more expensive. Shopping cart features and payment gate-ways are covered in more detail in the CIW E-Commerce courseware and are not addressed on this exam.

DNS

Regardless of where you host your site, you will need a DNS entry.

The Domain Name Systems (DNS) translates web address text into IP addresses. Configurations are done so that users can access Web sites via URLs. For example, the DNS record for www.google.com would look like this:

> google.com IN A 64.233.167.99

This means that the IP address of scobb.com is 64.233.167.99. Obviously, google.com is easier to remember than 64.233.167.99!

Publishing and FTP

Publishing with FrontPage

- If you are using FrontPage and hosting on a server that has the FrontPage server extensions installed, you will publish using a built-in FrontPage functionality that will synchronize with the server and only send up new and changed files.

Dreamweaver FTP

- If you are using Dreamweaver, you will put your files up on the web server using Dreamweaver's built-in FTP client.
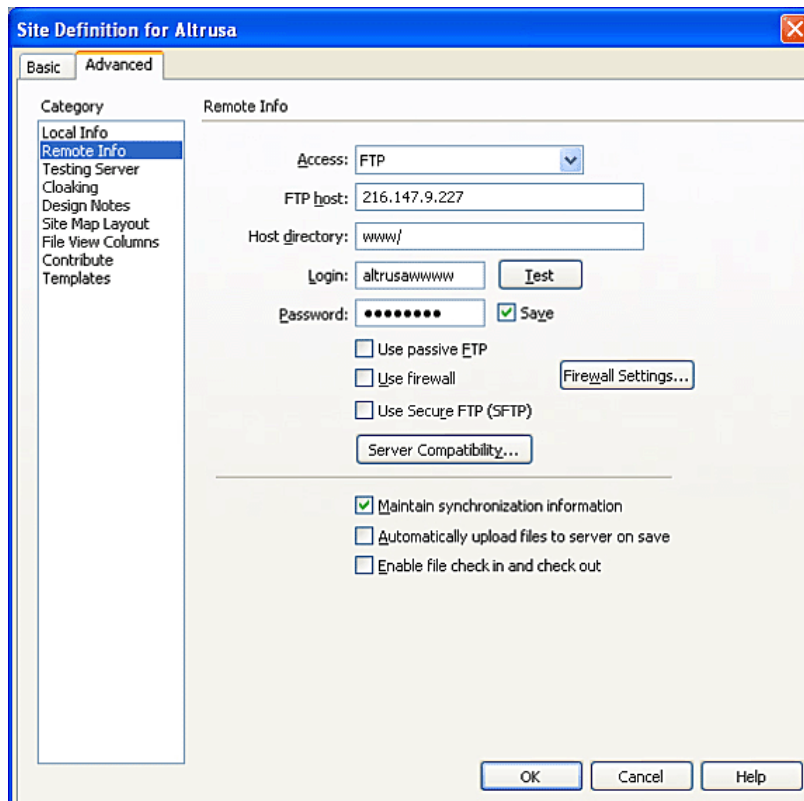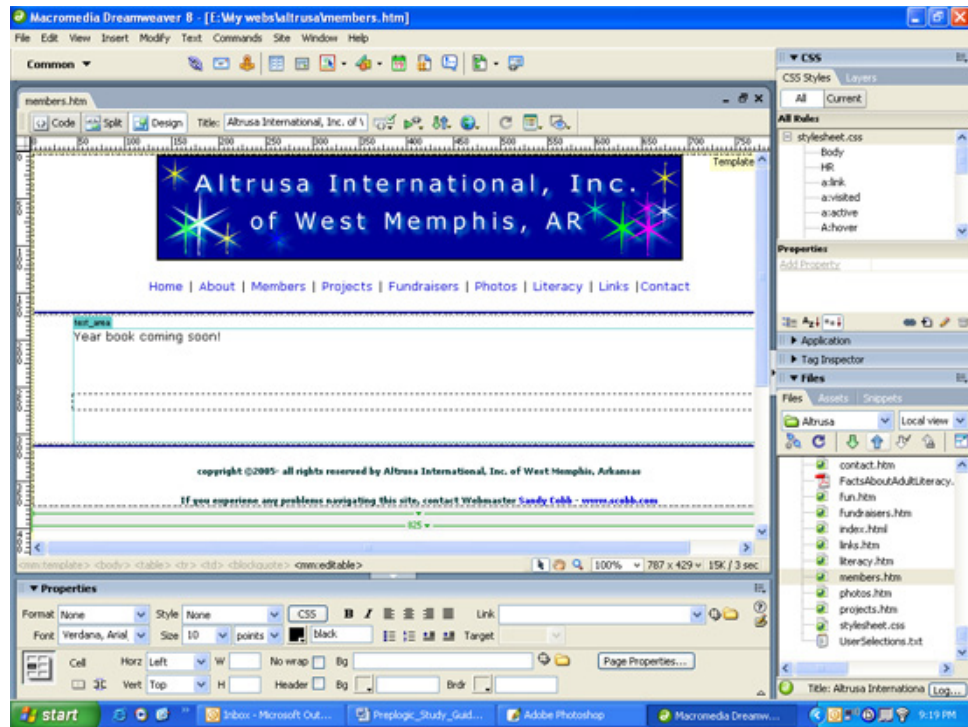
Dreamweaver

- All FTP clients allow for file transfers to and from the FTP server. You will be required to authenticate each time you transfer files.

Maintenance

- A web site is always a work in progress. Some types of sites are more maintenance intensive than others, but they all will need to be maintained on a regular basis. In addition to simply adding new information as it becomes available, you will want to pay close attention to user feedback and server logs. You want to stay on top of issues such as broken links, most popular pages, least popular pages and navigation sequences.

- Sometimes, a web site needs revision simply because it looks out of date, or its content is out of date! Other reasons for revision include:

  ▸ The company has outgrown the site.

  ▸ Old or proprietary technology needs to be updated.

  ▸ The site was poorly constructed to begin with and thus has become difficult to maintain.

  ▸ The site does not work well.

- After a site has been changed, the changes should be documented. It is also advisable to keep a backup copy of the old site.

Security issues

- Web site security issues need to be considered. Web servers are vulnerable to all kinds of attacks. Types of security risks to be aware of include:

  ‣ Social engineering: Hackers try to trick people into divulging sensitive information, such as usernames and passwords. EBay is subject to a lot of this type of hacking. Email messages made to look like legitimate email from EBay are sent to thousands of people with some kind of message aimed at tricking people into divulging their usernames and passwords.

  ‣ Denial-of-service attacks: These occur when a site is blasted with so much traffic that the bandwidth is all used up. This is similar to causing a traffic jam on a highway! The site may be taken down or it may just slow down to the point of appearing to be down.

  ‣ Brute-force attacks: These are the least sophisticated and the most common types of attacks on servers. One method is the use of dictionary programs that will just keep trying to logon by trying one word after another until a correct password is randomly generated. This is why companies generally encourage users to create passwords that include combinations of case, letters and numbers.

Sever logs

- Server logs help keep the web site designer informed about:

  ‣ Most popular pages

  ‣ Least popular pages

  ‣ Browsing times

  ‣ Navigation sequences

  ‣ Demographics

  ‣ Downloadable software

  ‣ Repeat visitors

Domain 4: Advanced Web Technologies

There will be *twenty* questions on the CIW Site Design certification exam dealing with Advanced Web Technologies.

4.1 Use multimedia and plug-in technologies to enhance a Web site.

Multimedia web design principles need to be considered. What is Multimedia? Technically, a web page that contains a picture is multimedia, although we tend to think in terms of movement or sound as ingredients of multimedia. Any form of graphics, animation, audio or video on a web page should be considered multimedia.

Multimedia Web-enabling technologies

- For multimedia to work on the web there needs to be enough bandwidth and the proper plug-ins. Plug-ins enable the multimedia file to be played or activated onthe user's Brower. The following are some examples of multimedia and the required plug-in;
    - Flash movie and animation – Flash Plug-in
    - Video / Streaming Video – A media Player such as Real Player
    - PowerPoint Presentations – PowerPoint Viewer

Multimedia design principles

- Consider all of the following when using multimedia:
    - What is the navigation structure of the Site?
    - Will frames be used?
    - What is your target audience's viewing capability?
    - What speed are your visitors connecting at?
    - Will a text only or low-resolution alternative by provided?
    - Are necessary plug-ins readily and easily available?
    - Where on the page will you place the link to the plug-ins?
    - How will the user return to your site after downloading the plug-in?
- Dazzling your visitors with flashy multimedia is not the goal of a good Web site designer! Multimedia should only be included when it is logical and enhances the usability of the site. It should not be used for simply showing off!
- The primary goal of a well designed Web site is to give visitors what THEY want by applying a balance of:
    - Well-planned design
    - High-quality content
    - Appropriate use of media

Flash

- Flash is a popular application for creating Web multimedia. Flash combines four elements that define its functionality: vector graphics, streaming capability, a timeline and layers.

- Graphics created with Flash are vector graphics. The native file format for Flash is FLA. The FLA file is converted to SWF which is then inserted into HTML / XHTML code using the <object> tag.

- Although you could develop an entire Web site with Flash, it is not usually advisable. Flash development and updating is time-consuming and requires special skill. If the site you are designing is going to need to be updated frequently, or if inexperienced Flash developers will be performing the updates, it is not wise to use Flash to create the entire site.

- Flash can be used to create automatic tweening, if you supply the before and after objects and/or the path they will travel.

- The <object> or <embed> tag is required to insert Flash movies into Web pages. The easiest method is to let Flash generate the code for you!

- Dreamweaver has a feature that can test browsers for the Flash plug-in. If the user does not have the plug-in – there can be an automatic redirect to an alternate page. Dreamweaver does this by generating JavaScript code that runs client-side.

- A mask is a type of layer that covers part of a stage and allows another part to show through.

- Flash is often used in the **instructional design** field to create multimedia tutorials or simulations for online learning.

- Flash movies may not be accessible for everyone. It is advisable to include a note on the homepage informing visitors that Flash is used on the site. An XHTML or HTML alternative should be provided. A text alternative is especially important for mobile devices. Audio content should be captioned to accommodate the hearing impaired.

- Flash buttons can be used in Flash movies to trigger events. You can use default buttons from the Flash library or you can create custom buttons. Buttons are triggered by mouse events such as mouse-over or mouse-click.

- You can use ActionScript, which is a client-side scripting language similar to JavaScript, but proprietary to Flash, to trigger events.

Java Applets

- One way to create animation is to use Java applets. The Web designer is not usually the one to create the Java applet, but rather will use one that a Java programmer has previously created. The Web designer will simply embed the Java applet into a Web page and tweak the parameters.

4.2 Use client-side and server-side programming to enhance Web site functionality.

XML

XML enables designers to create documents containing more specific data about content. These are considered "intelligent" documents. For example, you could create a custom tag called <movie> and use that tag to identify information about the movie "DaVinci Code." You might create another custom tag called <book> and use it to describe the content found on a page about books written on the DaVinci Code. Someone searching your XML site could expect to search for DaVinci Code using the identifier tags to get only information about the movie or only results related to books about DaVinci Code.

- The W3C lists standards for XML.

- XML stands for Extensible Markup Language. This new language will enable users to create documents that contain more specific information about content than ever before. XML is taken from the Standard Generalized Markup Language (SGML). SGML is called a meta-language, which is a language for creating other languages.

- Markup languages are designed to instruct computers how to process data. Markup instructions are referred to as tags, and the process of marking up a document is sometimes called "tagging." Today most tagging in programs happens transparently, and usually takes place using a proprietary system.

- Markup designed to affect the appearance of a document is commonly called "procedural" markup because it instructs the computer how to render the text.

- XML is a subset of SGML. HTML is for display, and XML is for content. **XML is not HTML**. Many people think XML is an addition of tags to HTML. This assumption is not correct. Unlike HTML, XML is not an application but a subset of SGML. XML is SGML made simpler and more accessible; it is sometimes referred to as "SGML Lite."

- XML qualifies as a meta-language and can be used to write other languages. XML offers users the ability to define their own set of markup tags to write their own version of HTML. HTML is an application created in SGML. It is not extensible. There is a finite set of HTML elements, which are entered into pages as tags. HTML was originally created to define structure, not formatting.

- With the commercialization of the Internet, the number of Web page creators grew exponentially, and not all users cared about the original version of HTML. Users wanted the ability to make type bold, change the font size or face, and add color. Netscape responded to users who were frustrated with HTML's limitations by creating extensions to the language.

- Well-formedness is essential in XML. Documents that are not well-formed will not load in the browser, according to the XML Recommendation. The W3C instructs us that "violations of well-formedness constraints are fatal errors." Therefore, the page will not appear in the browser at all unless this minimum requirement is met.

- Currently only Microsoft Internet Explorer 5.0 and higher natively supports XML pages. Netscape has announced its support for XML, and Navigator 6.x will provide native XML support. Will XML replace HTML? The short answer is no, but it might over time.

- HTML presents severe limitations to page authors. For data that needs persistence over time, XML will better serve the purposes of those looking to retrieve and reuse that data. XML will redefine the way we code HTML. In the short run, XML will be used in conjunction with HTML.

- As browsers develop and style technologies progress, XML may be used without HTML. But HTML and XML are separate and different, and one technology is not necessarily better or worse than the other. Both tools have appropriate and inappropriate uses. The more you know about both, the better equipped you are to choose the best tools to meet your enterprise's needs.

- XHTML is the latest recommendation from the W3C. XHTML combines HTML and XML to create a transition from HTML toward XML, while still providing current browsers with backward-compatibility.

- This means that the XHTML developer who adheres to the requirements of XML well-formedness can use HTML tags and XML tags within the same document and have it be valid. XHTML is also designed to make Web documents accessible and interoperable across platforms, partly due to the strictness of XML.

- Short for Extensible Markup Language, a specification developed by the W3C. XML is a pared-down version of SGML, designed especially for Web documents. It allows designers to create their own customized tags, enabling the definition, transmission, validation and interpretation of data between applications and between organizations.

- Whether XML eventually supplants HTML as the standard Web formatting specification depends a lot on whether it is supported by future Web browsers. Microsoft Internet Explorer version 5 handles XML, but renders it as CSS, and Mozilla (Netscape) is still in experimenting with XML support.

- A Few Things You Should Know About XML

  - XML stands for Extensible Markup Language.

  - XML is derived from the Standard Generalized Markup Language (SGML).

  - SGML is a meta-language (a language for creating other languages).

  - XML is a subset of SGML (SGML Lite).

  - HTML is display.

  - XML is content.

  - XML is not HTML or an addition of tags to HTML.

  - XML offers users the ability to define their own set of markup tags.

- Rules for XML

  - Tags must be explicit: they cannot be inferred. All opening tags must have corresponding closing tags.

  - Empty tags require a forward slash (/) character before the closing angle bracket.

  - All attribute values must be enclosed in single or double quotation marks.

  - Tags must be properly nested.

  - Tags are case sensitive and must match each other in every implementation.

- XML Features:

  - Explicit tags

  - Case sensitive

  - No empty tags

  - All attribute values must be enclosed in quotation marks

  - Must contain DTD

- The 10 design goals for XML are:

1. XML shall be straightforwardly usable over the Internet.
2. XML shall support a wide variety of applications.
3. XML shall be compatible with SGML.
4. It shall be easy to write programs which process XML documents.
5. The number of optional features in XML is to be kept to the absolute minimum, ideally zero.
6. XML documents should be human-legible and reasonably clear.
7. The XML design should be prepared quickly.
8. The design of XML shall be formal and concise.
9. XML documents shall be easy to create.
10. Terseness in XML markup is of minimal importance.

Source: http://www.w3.org/TR/xml11/#sec-origin-goals

This is why HTML is called the lazy programmers dream, and XML is called the lazy programmers nightmare!

Benefit of XML

One of the primary benefits of XML is the ability to define a language that allows different types of presentation. Companies can make up their own meaningful tags. For example, <letterhead>, <product> or <greeting>. In XML you can make up tags by any name at all! The hope is that in the near future, search engines will search on a more intelligent level, thus returning results based on contextual meaning. Using XML to create tags that define content will aid in this venture.

HTML	Display
XML	Content and structure
XHTML	The transition between HTML and XML

- Secure XML is used to securely transfer data between programs and servers. The data is encrypted and then sent over the web using digital signatures to ensure integrity.

JavaScript

- JavaScript is a client-side scripting language that is most often used within HTML/STHML pages. Since this is a client-side technology, when the Web pages is closed, the result of the code is gone – verses being sent and stored somewhere.

- JavaScript and Java are two distinct programming languages. Java is a full-fledged object-oriented, server-side programming language and was developed by Sun Microsystems, Inc. JavaScript is an object-based, client-side scripting language and was developed by Netscape.

- VBScript is a scripting language very similar to JavaScript that was developed by Microsoft, and is a subset of Visual Basic.

- Both VBScript and JavaScript are interpreted languages that are interpreted by the browser. They are NOT compiled.

- ECMAScript is a newer option that works very well with all Web browsers. Generally speaking, JavaScript will pretty work well in both Netscape and Internet Explorer but not all of the Jscript functions and features will work with Netscape browsers. In a joint effort to standardize, Netscape and Microsoft are both moving toward the European Computer Manufacturing Association (ECMA).

- ECMAScript and JavaScript are essentially the same. It is becoming common to use the terms ECMAScript and JavaScript interchangeably.

- The first edition of ECMAScript was adopted by the ECMA general Assembly in June of 1997.

- JavaScript uses dot notation to associate an object name with properties or methods.

- One well know simple method is the alert() method which causes a pop-up message to occur when the page is loaded in the browser. Following is an example of an alert pop-up message:
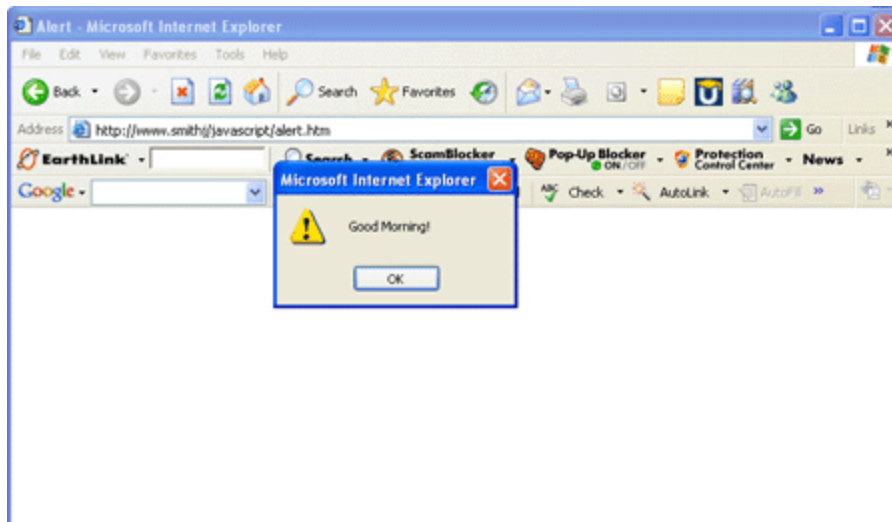
- The alert() method can be used to create either pop-up or pop-under messages for advertising. Here is the code for the alert() method:

  ```
  <!--
  alert("Good Morning!")
  // -->
  </SCRIPT>
  ```

- The JavaScript prompt() method is used to get information from the user through a text field in a pop-up input box. Following is an example of the prompt() method:
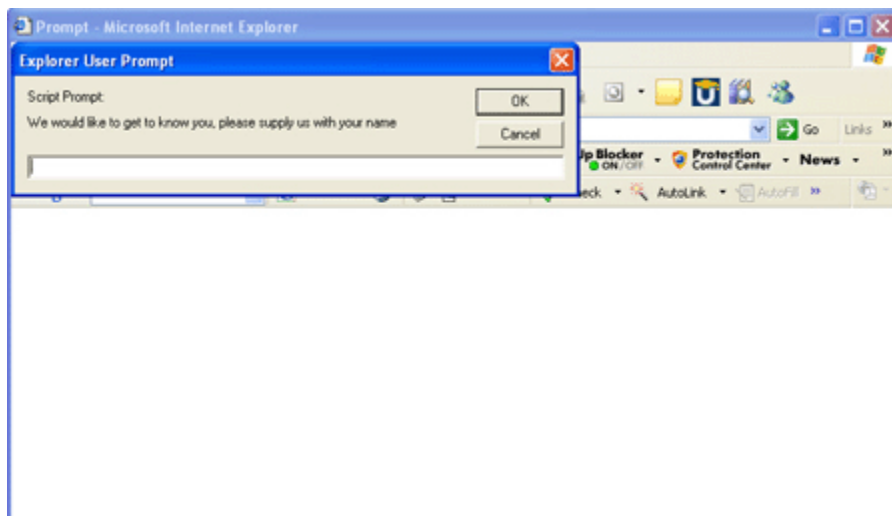
Here is the code for the prompt(0 method:

```
<SCRIPT>
<!--
alert("Good Morning, " + prompt("We would like to get to know you, please supply us
with your name",""))
// -->
</SCRIPT>
```

- Concatenation is often used with the alert() and prompt() methods in JavaScript to combine text strings. I typed my name into the input text box above. The pop-up greeting that was returned included my name via the concatenation feature.

- The open() method is used to open new browser windows and populate them. The window is an object, and the object window has properties with attributes that can be manipulated by setting the value on the right side of the equal sign, like this: "toolbar=1" means include the toolbar on the new window. This page has the code for the open() method:

If you click the button, this window will open:
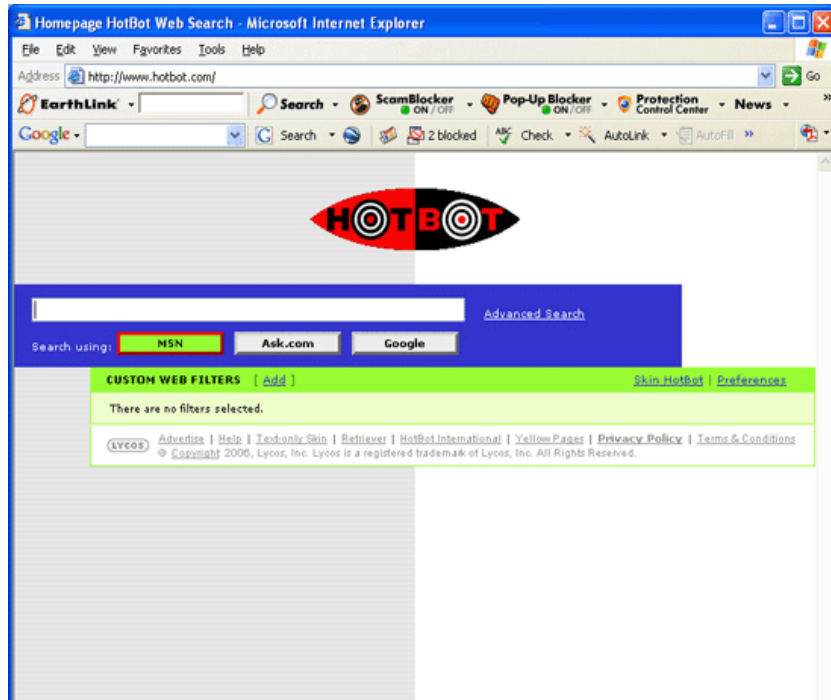
Here is the code for the open() method:

```
<FORM>
  <INPUT TYPE="button" VALUE="Open a HotBot Search Window"
onClick="newWindow=open('http://www.hotbot.com','HotBotWin',
'toolbar=0, location=1, menubar=1, scrollbars=1, resizable=1')">
  </FORM>
```

Window object attributes that can be manipulated
Toolbar
Location
Directories
Status
Menubar

Scrollbars
Resizable
Width
Height
Top
left

After clicking the Test Your Browser button, data will populate the input boxes:
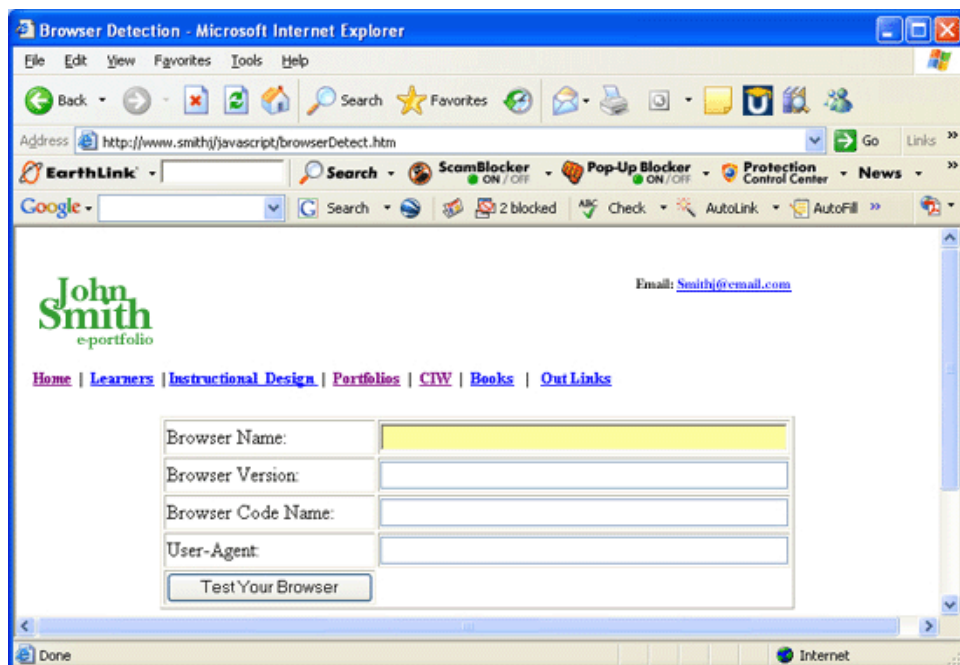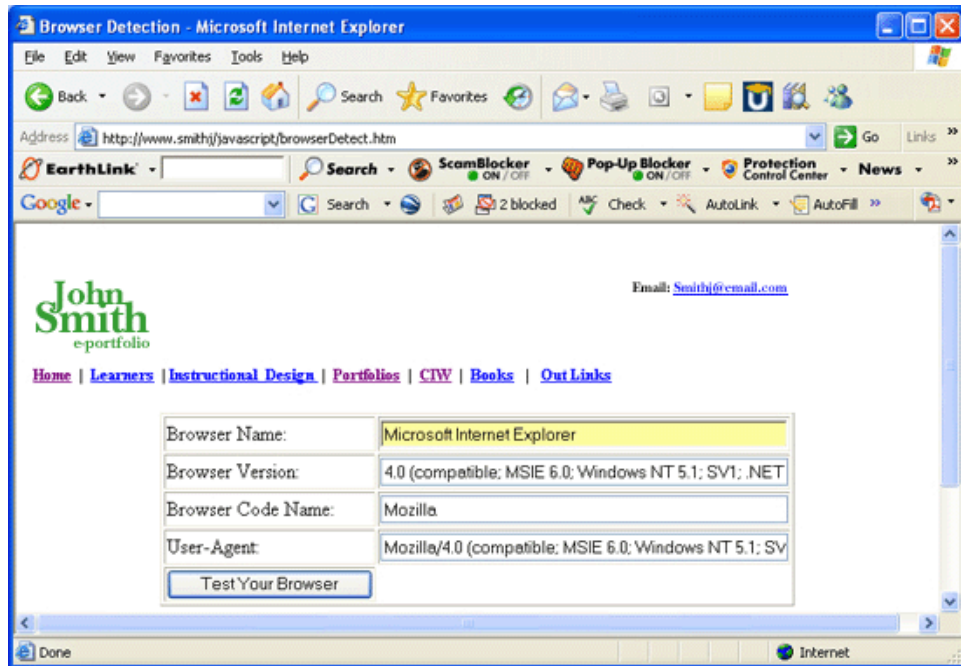
Here is the code for the yourBrowser function: This function script goes into the html head:

```
<SCRIPT>
<!--
function yourBrowser() {
document.details.Name.value=navigator.appName;
document.details.Version.value=navigator.appVersion;
document.details.Code.value=navigator.appCodeName;
document.details.Agent.value=navigator.userAgent;
}
// -->
</SCRIPT>
```

Then, this code goes into the html body:

```
<DIV ALIGN="center">
 <TABLE BORDER>
  <FORM NAME="details">
   <TR><TD> Browser Name: </TD>
    <TD> <INPUT TYPE="text" NAME="Name" Size="50"></TD>
   </TR>
   <TR><TD> Browser Version: </TD>
    <TD> <INPUT TYPE="text" NAME="Version" Size="50"></TD>
   </TR>
   <TR><TD> Browser Code Name: </TD>
    <TD> <INPUT TYPE="text" NAME="Code" Size="50"></TD>
   </TR>
```

```
<TR><TD> User-Agent: </TD>
 <TD> <INPUT TYPE="text" NAME="Agent" Size="50"></TD>
</TR>
<TR>
 <TD><INPUT TYPE=BUTTON VALUE="Test Your Browser"
ONCLICK="yourBrowser()"></TD>
</TR>
</FORM>
</TABLE>
</DIV>
<p><a href="start.htm">Return to JavaScript Samples</a></p>
```

Rollover images

- A rollover occurs when the user rests the mouse over an image, which then switches to another image. A minimum of two images are involved in a rollover event. The user sees the first image when the page loads. The second image appears when the mouseover event occurs. JavaScript is most commonly used to code rollovers, but many applications, such as Dreamweaver and Fireworks, can write the needed code, saving designers the coding time.

Pop-up and pop-under

- Pop-up and pop-under windows should be used sparingly and only upon user request by clicking a link to view supportive content. Pop-ups and pop-unders that appear on their own and display advertising are not desirable. When programming pop-up or pop-under windows, consider the fact that many users will have pop-up blockers installed and will not see the content.

Dynamic HTML (DHTML)

- DHTML refers to a group of technologies that work together to create interactivity on Web pages. These technologies include scripting, DOM and XHTML/HTML and CSS. DHTML effects are more for entertainment than they are functional. DHTML executes on the client-side, and thus is sometimes used as an alternative to some server-side technologies, such as ASP. DHTML is generally defined as a combination of technologies that provides Web page interactivity.

    ‣ A Few Things You Should Know About DHTML

        ▪ Extends HTML.

        ▪ Is a group of interrelated technologies (rather than a single technology).

        ▪ Group includes: Scripting language, DOM, HTML4.0 and CSS.

        ▪ Provides dynamic content to the browser.

        ▪ Alternative to some server-side technologies.

    ‣ DHTML Limitations

        ▪ Only partial browser support.

        ▪ Inconsistencies between Netscape and Internet Explorer regarding DHTML performance.

‣ DOM & DHTML

- The DOM is a key component in DHTML. DOM stands for "Document Object Model," and was developed by Netscape. It is a specification, or "instance hierarchy" of JavaScript objects.

- To help you understand this, consider that JavaScript is an object based programming language, and it is event-driven. Therefore, there needs to be a hierarchy of all objects within the browser window.

‣ CSS & DHTML

- CSS allows you to define tag properties to create your own text effects, as well as control absolute positioning of elements on a page. CSS are a part of DHTML.

‣ Scripting

- HTML and CSS enables you to control page structure, but it is scripting that enables you to interact with tags and styles. You can use VBScript or JavaScript to interact with the DHTML DOM.

‣ FrontPage and Dreamweaver

- Both FrontPage and Dreamweaver include some canned, easy to implement DHTML. You can feel fairly safe using the DHTML that comes with these 2 programs. They have only included methods that are deemed safe in Netscape and Internet Explorer.

Document Object Model (DOM)

- The Document Object Model (DOM) is something web designers need to understand when working with scripting and DHTML.

- According to www.w3.org/DOM/, the Document Object Model is a platform- and language-neutral interface that will allow programs and scripts to dynamically access and update the content, structure and style of documents. The document can be further processed and the results of that processing can be incorporated back into the presented page.

Plug-in technology

Web designers MUST understand which technologies require browser plug-ins in order to use them effectively. It wouldn't make much sense to use some flashy "wow factor" content on a page if most users would never be able to see it because of the need for propriety plug-ins. For example: Flash requires the flash player plug-in and today most browsers have the flash player plug-in. The key word there is "most." You would not want to depend on Flash to deliver a mission critical message on a Web site, knowing that "some" visitors would never see the message. You could, however, feel safe to use Flash to deliver mission critical employee training if you knew it would be delivered exclusively over a company Intranet and knew that all employee computers ran recent versions of Internet Explorer with the Flash player plug-in installed.

- A partial list of some common Web plug-ins:
  - Flash Player – needed to play Flash movies
  - Acrobat reader – needed to view PDF documents
  - RealPlayer – needed to view some types of video
- Plug-ins are generally obtained as free downloads.

Creating downloadable files

- When a file type that is not natively supported on the Web (by the browser or a common plug-in) is requested by a user click, the user is prompted to download it. Generally, a pop-up will prompt the user to either open or save the file. If the user chooses the "Open" option, the file will either open in the browser if the appropriate viewer is installed or the user will be prompted again to indicate what application to use to open the file. For example, if the file is a PowerPoint presentation and the user clicks the "Open" option, the presentation will open in the browser if the user has PowerPoint installed or has the PowerPoint viewer installed and is using the Netscape Browser. Otherwise, the user will be asked to identify an application to use to open the file, and in this case, there would be no application to open the presentation.

- If the user clicks the "Save" button, he/she will be prompted to indicate where to save the file. He/she can later retrieve the file from that location.

- In a nutshell, to create a downloadable file on a Web page, just set a link to any non-supported file type. Clicking that link will invoke the File Download prompt.
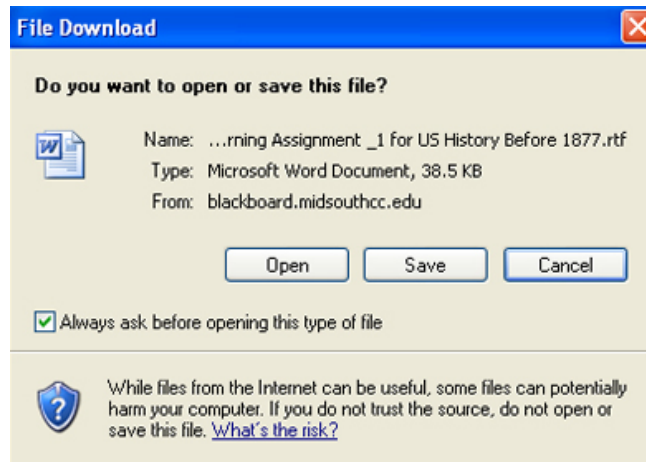
Server-side technologies

- Some examples of Sever-side technologies include:
    ‣ Active Server Pages (ASP) – developed by Microsoft
    ‣ JavaServer Pages (JSP) – developed by Sun Microsystems
    ‣ Common Gateway Interface (CGI). CGI allows HTML pages to interact with programming applications
- Server-side technologies like ASP and JSP include code within XHTML/HTML pages the runs on the server. Once processed, the code is removed and the client browser receives only XHTML/HTML.

- CGI is a protocol for communication between Web forms and application code. CGI is commonly used for forms processing. Typically, form results are sent to a script (usually Perl script) that resides inside a folder called CGI-BIN, processed by the code. The results are then sent to some database, to some person via email or to a browser window.

Cookies

- Cookies are small text files that have a variety of uses. Cookies are sent from a server to the user's browser in the HTTP response header. The client browser accepts the response from the page assigning the cookie, then accepts (or gives the user the chance to accept or reject) the cookie. Once the cookie has been accepted, the browser program stores the cookie information in a file on the user's system.

- When the http request is generated, any cookies on the user's system with a path and domain name matching the current http request will be passed along in the request header. Then, the server can test for, and evaluate, the contents of incoming cookies.

- One use of a cookie is when a site visitor returns to a site. A cookie can pass the visitors name to the browser for a greeting, as in the example below:
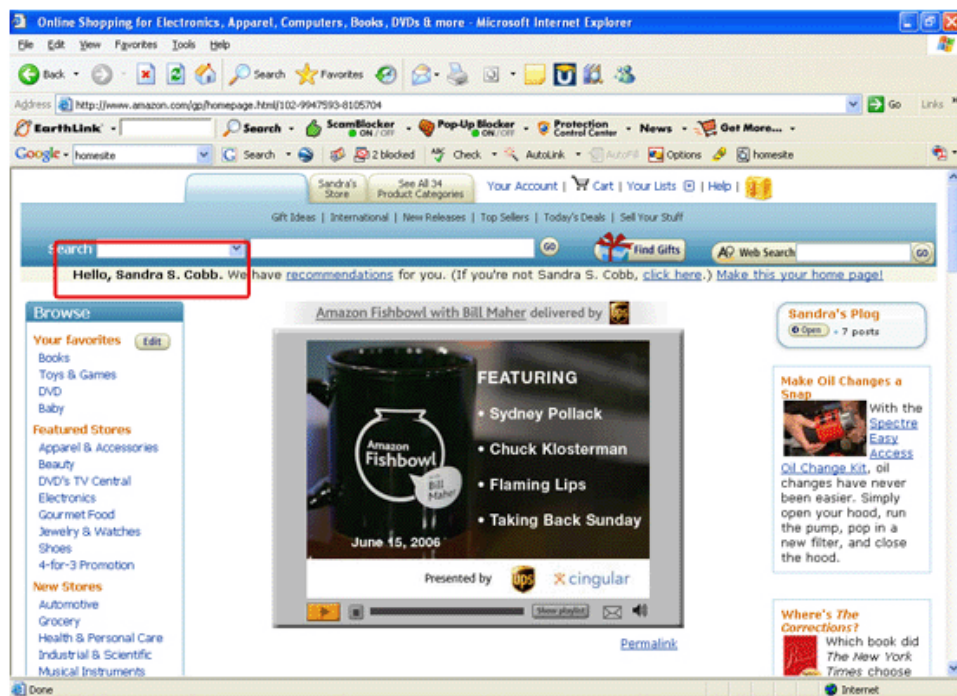
- Cookies are harmless. They invoke things like your name and preferences.

- Currently a server can pass no more than 20 cookies to a user's computer, and a user can store no more than 300 cookies total.

- The server does not see any information other than the name=value pairs. Only URLs matching the path and domain values in the cookie file can be read again and evaluated by the server.

- A cookie header appears to your browser as follows:
  Set-Cookie: name=value; expires; path=path; domain=domain; secure
  Not all these parameters must be assigned to use cookies.

- Name=value
  The name/value pair is the only information required to generate a cookie. All other cookie at-tribute are optional.

- Expires=date
  The expires/date pair determines when the cookie will expire. If this attribute is not present, the cookie will expire at the end of the browser session.

- To set expiration dates for cookies, the date must be formatted as follows:
  weekday, DD-Mon-YY HH:MM:SS GMT (GMT stands for Greenwich Mean Time.)

- Paths and Domains: path=path; domain=domain
  The path and domain pairs contain the path portion and domain name of the URL that is-sued the cookie. When an HTTP request header is formed, the path and domain name pairs are checked; if they match the page being requested, any cookies pertaining to that path (and higher) are passed back to the server for evaluation.

- Safety of cookies: The server does not see any information other than the name=value pairs. Only URLs matching the path and domain values in the cookie file can be read again and evalu-ated by the server.

- Secure: If this parameter is present, the cookie is sent only when a secure protocol, such as SSL, is present.

4.3 Connect Web pages to a database

There are multiple options and technologies that enable data connectivity on the Web. ASP, JSP, CGI, Cold Fusion and Perl script are a few well-known options.

Active Server Pages (ASP)

Active Server Pages (ASP) is a technology developed by Microsoft that used the server to run scripts to process data and pass the output back to a database and/or back to the browser.

Terms and tidbits

- Open database connectively (ODBC) – supports both SQL and non-SQL languages. ODBC en-ables Windows applications to communicate with databases on a network.

- Java Database Connectivity (JDBC) – similar to ODBC but was developed by JavaSoft, a subsid-iary of Sun Microsystems. JDBC executes SQL statements via Java programming to communi-cate with any SQL-compliant database.

- Computer Output to Laser Disk (COLD) – used to store data on CD ROMs.

- Binary Large Object (BLOB) – stores binary data in a single entry. Used mainly for multimedia objects.

- Virtual Sequential Access Method (VSAM) – used on IBM mainframes.

- Indexed Sequential Access Method (ISAM) – for management of information storage and access on hard drives.

- Online Analytical Processing (OLAP) – used to analyze data and for organization.

- Report Program Generator (RPG) – used for reports and other output.

- ActiveX Data Objects (ADO) – used to access spreadsheets, databases and other files using ADO.

- CGI stands for Common Gateway Interface. CGI allows HTML pages to interact with programming applications. CGI can be instrumental in passing input to databases.

- Schema refers to the structure of a database system. This term defines tables and files and the relationship between them.

- In a database, a field is a column, and a row is one record of one person, place or thing. The database can contain many records.

- Queries are used to filter/return records that meet given criteria, and to perform some other functions. There are three basic types of queries:

  ‣ Menu query – Options can be selected from a menu list.

  ‣ Query by example – The user selects the fields and criteria he/she wants to find by using one record as an example.

  ‣ Query language – Structured query language (SQL) which is used to retrieve or manipulate data in a database.

- Structured Query Language (SQL) was developed by IBM in 1974. Today it is the standard for accessing information from a database. The four main types of SQL queries are:

  ‣ SELECT statements – used to retrieve data from databases.

  ‣ INSERT statements – used to create new records.

  ‣ UPDATE statements – used to modify records.

  ‣ DELETE statements – used to remove records.

- Database Management System (DBMS) is the general term used to describe applications used to manipulate information in a database. There are three types of DBMS:

  ‣ Flat-file DBMS – one single file stores all the information.

  ‣ Relational DBMS (RDMS) – can contain multiple tables and tables can be related by common fields.

  ‣ Multidimensional DBMS – usually generated by a RDMS. MDBMS stores information in organized groups of records based on common field values.

  ‣ Microsoft Access is considered a Relational Database Management System because many tables can be created and related within one file. Access can be used for Web data connectivity for small to medium sized database needs. It is especially well suited to working with FrontPage ASP because these are all Microsoft products and technologies.
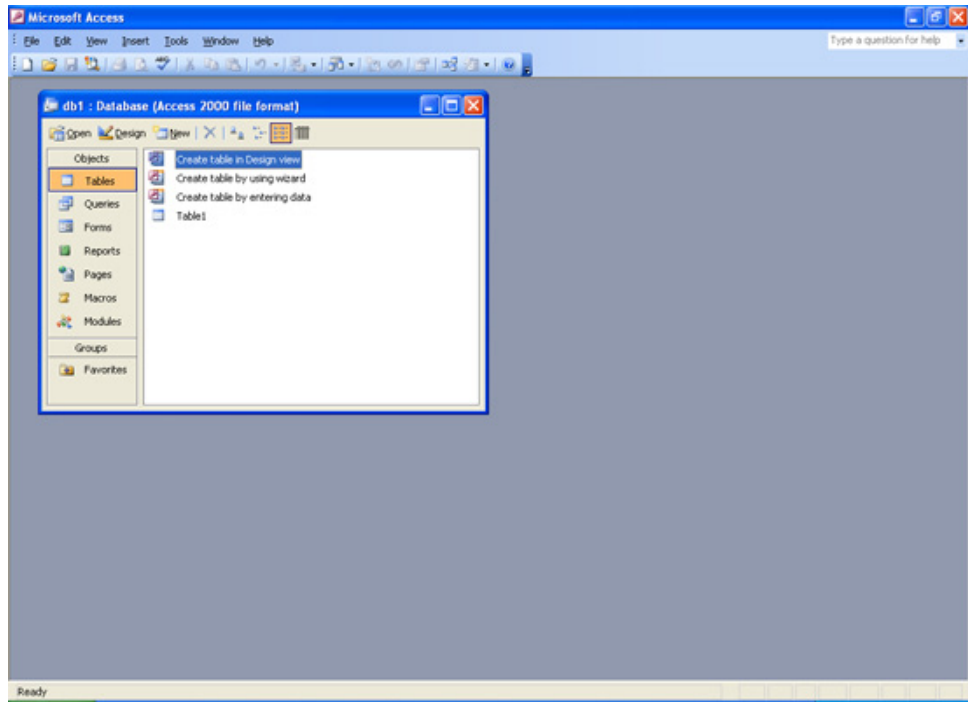
Practice Questions

Chapter 1 Site Development Essentials

1.   A web site development team will typically encompass the following roles:

Select the best answer.

    ❍ A.   Project management, Information architecture, Graphic design, Information technology, marketing and writing and editing.
    ❍ B.   Project management, Graphic design, Information technology, marketing and writing and editing.
    ❍ C.   Project management, Information architecture, Graphic design, marketing and writing and editing.
    ❍ D.   Project management, Information architecture, Graphic design, Information technology and writing and editing.

2.   The Web development team at ABC company is about to begin a new project. The team is dispersed over three cities and needs to arrange the best possible means of collaborative communication while working together on the project. Which of the following communication strategies will work best to meet their needs?

Select the best answer.

    ❍ A.   Email and telephone
    ❍ B.   Instant messaging, email, telephone and a Wiki Site
    ❍ C.   FedEx, UPS, email and telephone
    ❍ D.   Weekly face-to-face meetings at one location, email, telephone and Fedex

3.   Jane is just finishing up her training as a web site designer and she is ready to launch a new career. She has been told that having an online portfolio (or e-portfolio) would help her find a job as a web site designer. Which of the following lists represents the best selection of items she should include in her online portfolio?

Select the best answer.

    ❍ A.   Resume, samples of custom graphics she has created, links to web sites she has designed or contributed to and samples of other web work, such as programming, Flash, video, etc.
    ❍ B.   Resume, samples of custom graphics she created, links to her favorite websites and letters of recommendation.
    ❍ C.   Samples of custom graphics she has created, links to web sites she has designed or contributed to, samples of other web work such as programming, Flash, video, etc.
    ❍ D.   Samples of custom graphics she has created, links to web sites she has designed or contributed to, samples of her work with JavaScript and samples of her work with Flash.

4.   When a project plan is completed, there is a projected timeframe for each phase. Sometimes things go wrong and the project becomes in danger of not being completed on time unless other, unplanned steps are implemented. What is the common term used to refer to this type of problem?

Select the best answer.

○   A.   Scope creep.
○   B.   Project extension.
○   C.   Over extension or resources.
○   D.   Over extension of the project scope.

5.   The first thing a Web site designer should investigate, before forming any ideas about a new site, is the audience the site is going to target and the needs of those potential customers. Only after being armed with this information should the designer begin the design the look and feel of the site. What term describes this approach?

Select the best answer.

○   A.   Audience investigation
○   B.   Customer discovery approach
○   C.   Target marketing approach
○   D.   Bottom-up approach

6.   Which of the following statements best describes how the vision statement of a new web site will be supported?

Select the best answer.

○   A.   Tactics support the vision statement and strategies support the tactics.
○   B.   The strategy supports the vision and the tactics support the strategy.
○   C.   The vision statement supports the strategies and the tactics support the strategies.
○   D.   The vision statement supports the tactics and the strategies support the tactics.

7.   Julie wanted to ensure a consistent look and feel for the new web site she was designing for a southern pecan reseller. She wanted to design the layout and color scheme first, and then add many pages with the same theme quickly. What tactics should she use to do this?

Select the best answer.

○   A.   She should design a template with the layout, colors, navigation and graphics she wants and then design a CSS with the font styles she wants to use on the site. She should attach the CSS to the template and then base all the pages in the site on the template.
○   B.   She should design a page that has all the features she wants to apply to every page and then copy/paste the code to all the new pages.
○   C.   She should design one page exactly the way she wants all the pages to look, and then click file/save as to create many similar pages with different file names.
○   D.   After designing one page just exactly the way she wants all the pages to look, she should right click on the on the file name and then click copy, then click off the file and click paste to make a copy. She should repeat this process as many times as necessary to create all the pages in the site.

Chapter 2 Web Design Elements

1.	The main and most significant difference between Web design and design for traditional media, such as print or television, is:

	Select the best answer.

	○	A.	Interactivity.
	○	B.	The use of metaphors.
	○	C.	Newspapers use the Inverted Pyramid page layout format but this style is rarely used on web pages.
	○	D.	The inexpensive use of color.

2.	Julie wants to ensure delivery of important information on the new Web site she is designing for a southern pecan reseller. She has reviewed the printed brochures and catalogs the company has successfully used for mail order sales over the years. Her client has stressed the fact that these materials have a proven track record of being successful, so the text the new web site delivers must be effective. What does Julie need to help her new client understand about the difference between print and Web text?

	Select the best answer.

	○	A.	Research confirms that as many as 80 percent of Web users merely scan Web page content. The average site visitors reads 25 percent slower from a computer monitor than from print. Therefore, it is imperative that only the most important text be included on the web pages she is designing.
	○	B.	A Web site should mirror printed brochures used by businesses as much as possible. Color is free on the Web as opposed to being very expensive for print media; also, space is not an issue on the Web.
	○	C.	Space is not an issue on the Web. Therefore, the Web pages should contain much more descriptive text.
	○	D.	Web users don't read. Therefore, text should be omitted and replaced with graphics in almost all cases.

3.	Which of the following does not contribute to the visual consistency of a Web site?

	Select the best answer.

	○	A.	Placing the company logo on every page.
	○	B.	Using style guides.
	○	C.	Using templates.
	○	D.	Using white space appropriately, and avoiding clutter.

4.   Julie wants to ensure delivery of important information on the new Web site she is designing for a southern pecan reseller. She has reviewed printed brochures and catalogs the company has successfully used for mail order sales over the years. Her client feels strongly that these materials have a proven track record of being successful, and suggests that the company's brochure be included in or on the website in some manner. What would be the best way for Julie to include the current brochure on the new Web site?

Select the best answer.

○ A.   Julie should recreate the brochure on a new Web page on the site.
○ B.   Julie should convert an exact copy of the brochure to PDF and provide a link to the printable brochure.
○ C.   Julie should scan the brochure and save it as a .jpg image for posting on the Web site.
○ D.   Julie should get the original electronic file from the designer of the brochure and post a link to it as is on the Web site.

5.   Julie is just beginning a new Web site design project. Which of the following options represent the best tactics to support the strategy of consistent navigation?

Select the best answer.

○ A.   Julie should design a template that includes navigation buttons that link to all top level pages, including the home page. She should use the template for all top-level pages in the site except for the Home page. The Home page should not include a link to "Home" and will probably have a different layout.
○ B.   Julie should create links to the top-level pages on most pages, but some pages should only include a link to the Home page.
○ C.   She should think about how she wants to guide the visitor through the site and only provide one link on each page to the next page she wants them to go to.
○ D.   She should consistently provide three links on every page and one of the three links should be to the Home page.

Chapter 3 Basic Web Technologies

1.   Julie has just finished designing a new web site to sell gift packaged pecans. She now wants to ensure that the search engines will return this site in the hit list when users type in search words and phrases such as pecans, gift packaged pecans and pecan gifts. What tactic should she use to support this strategy?

Select the best answer.

○ A.   She should tell her client to include the URL of the new web site on all printed advertising material.
○ B.   She should use the words (and phrases) pecans, pecan, pecan gift packages and gift package in the metadata tags description and keywords and then she should submit the web site to the major search engines.
○ C.   She should encourage her client to take out new radio and newspaper ads to promote the new web site.
○ D.   She should advise her client to be patient because it takes at least a year for the search engines to find and index new web sites.

2.   Which of the following is the correct hexadecimal code for the color white?

Select the best answer.

○ A.   FFFFFF
○ B.   000000
○ C.   255,255,255
○ D.   0,0,0

3.   Julie has published the new Web site she has just completed to a staging server. She wants to test the new Web site on various browsers, and in several versions of each browser, before publishing to the live Web server. Why is this good idea?

Select the best answer.

○ A.   Because, if she can identify any obvious issues at this point, she can fix them before going live.
○ B.   Because not all browsers render all content the same way. She needs to see how her pages look on various browsers in several versions. If there are any obvious problems with any particular browser, she can resolve them before going live.
○ C.   To see which browser renders her work best, so she can recommend the use of that browser to site visitors.
○ D.   Because she does not know which technologies will work and which ones will not work on the live Web.

4.   Which of the following would be the best file format for color photographs on the Web?

Select the best answer.

○ A.   GIF
○ B.   PNG
○ C.   PSD
○ D.   JPEG

5.   A Web page that defines a set of frames in which other web pages are displayed is called
_____.

Select the best answer.

○ A.   A table
○ B.   A frameset.
○ C.   A frame viewer
○ D.   A pop-up

6.   Which method of applying CSS styles to Web pages should you use if you wanted to be able to update many pages in a web site by making changes to just one file?
Select the best answer.

○ A.   Importing
○ B.   Embedding
○ C.   Linking
○ D.   Inline

7.   How would you link an external style sheet file named styles.css to a Web page?

Select the best answer.

- ○ A.   By placing this in the head section of the Web page: <link href="styles.css" rel="stylesheet" type="text/css"/>
- ○ B.   By placing this in the body section of the Web page: <link href="styles.css" rel="stylesheet" type="text/css"/>
- ○ C.   By placing this in the head section of the Web page: <link A href="styles.css" rel="stylesheet" type="text/css"/>
- ○ D.   By placing this in the body section of the Web page: <link href="styles.css" rel="stylesheet" type="text/css">styles.css</link>

Chapter 4 Advanced Web Technologies

1.   Tina has just been asked to redesign a section of the company website for the human resources department. The goal is to make forms and benefit information easily available to all employees from anywhere. Tina is fairly new with the company and this is her chance to make a good impression. Should Tina:

Select the best answer.

- ○ A.   Design this new section of the web site entirely with Flash so that everyone will know how talented she is and praise her for her multimedia skills.
- ○ B.   Design this new section of the web site with a bright and cheery color scheme and add many graphics, including animation, so that the employees will be dazzled and feel happy while using the site.
- ○ C.   Stick with the same styles used on the rest of the company web site for consistency and make the site as user-friendly as possible by applying a complex balance of well planned design, high-quality content and proper use of available media, so that the employees can find what they need quickly.
- ○ D.   Stick with the same styles used on the rest of the company web site but change the color scheme to add some variety and integrate some new, cutting edge technology to make the site unique.

2.   Julie's client suggested that she program pop-up windows to advertise special offers. He thinks this strategy will increase sales. How should Julie respond?

Select the best answer.

- ○ A.   Julie should explain to her client that new browsers now feature pop-up blockers and many users are annoyed by pop-ups that they didn't request or expect. She should explain that it would be better to offer visitors the choice to click a link to "Special Offers" instead.
- ○ B.   The client is the boss so Julie should agree to program the pop-up advertisements without discussion.
- ○ C.   She should listen politely but avoid programming the pop-ups because she knows many users avoid sites with pop-ups and many browsers block them.
- ○ D.   She should encourage her client to consider the use of pop-under windows instead.

3.   Which graphic format does the following describe?

- It is a vector graphic and is scalable.
- It is best for working with two-dimensional line areas and shapes.
- Uses XML to describe certain shapes.

   Select the best answer.

   ○ A.   SVG
   ○ B.   JPG
   ○ C.   GIF
   ○ D.   PNG

4.   What two major factors limit the use of multimedia on Web sites by inhibiting technology adoption?
        Select the best answer.

   ○ A.   User tolerance and browser plug-in support
   ○ B.   User tolerance and lack of bandwidth
   ○ C.   Bandwidth and browser plug-in support
   ○ D.   Plug-in support and browser versions

5.   Julie has placed many GIF and JPG images on a new Web site that she has just designed for a southern pecan reseller. What must she do in order to maximize accessibility for all users, including those with sight disabilities?
        Select the best answer.

   ○ A.   Julie needs to include alternative text for all images so that screen readers can read the descriptive text to the visually impaired users.
   ○ B.   Julie needs to include audio files that describe the images.
   ○ C.   Julie should just make sure the images she includes are not very important to the context of the page.
   ○ D.   Nothing. If someone can't see the graphics, they won't know what they are missing anyway.

6.   Which of the following is a relatively new language that enables developers to design "intelligent" Web documents containing more specific information about content then ever before?
        Select the best answer.

   ○ A.   XML
   ○ B.   XHTML
   ○ C.   DHTML
   ○ D.   WSDL

Answers and Explanations

Chapter 1

1. Answer: A
Explanation A. Correct.

Explanation B. Incorrect. Information architecture is not represented on this list.

Explanation C. Incorrect. Information technology is not represented on this list.

Explanation D. Incorrect. Marketing is not represented on this list.

2. Answer: B
Explanation A. Incorrect. There will be times when the development team will need to converse in real-time and be able to exchange files as they discuss issues. Email is not real-time and the telephone does not enable visual sharing of files.

Explanation B. Yes. This would be a good combination of collaborative communication tools because: instant messaging enables real-time discussion and file sharing, email is good when an immediate response is not needed and is also a good way to exchange files. The telephone is always a good fall back, and a Wiki site would allow all the team members to post anything they wanted for sharing with the team.

Explanation C. Incorrect. FedEx and UPS are too slow for the pace at which most web development teams want to work, and because they will be dealing strictly with electronic media, they wouldn't have any reason to send much in the way of hard copies.

Explanation D. No. In an ideal situation, travel should not be necessary. The better options would be to be able to collaborate from their own locations.

3. Answer: A
Explanation A. Correct. This list is the best representation of her abilities as a web site designer.

Explanation B. No. Web sites she really likes or admires are not reflections of her own work. Letters of recommendation could be included, but it would be more important to include more samples of her work with Flash, programming and other web technologies.

Explanation C. No -only because this list does not include a professional resume, therefore it represents an incomplete portfolio.

Explanation D. No -mainly because this list does not include a professional resume, therefore it represents an incomplete portfolio. Also, she may have samples of programming work other than JavaScript to display.

4. Answer: A

Explanation A. Correct. Scope creep indicates that the scope of the project is creeping into a bigger project than anticipated.

Explanation B. Incorrect. This is not the common term.

Explanation C. Incorrect. This is not the common term.

Explanation D. Incorrect. This is not the common term.

5. Answer: D

Explanation A. Incorrect.

Explanation B. Incorrect.

Explanation C. Incorrect.

Explanation D. Correct.

6. Answer: B

Explanation A. Incorrect.

Explanation B. Correct. Once you have a vision statement that describes the expected outcome, you need a strategy to determine how you will achieve the vision. Next, you need to define the tactics or methods you will use to implement the strategy.

Explanation C. Incorrect.

Explanation D. Incorrect.

7. Answer: A

Explanation A. Correct. If she decided to make changes to the color or layout in the future, she would only have to change the template. Any changes to font or text styles should be made to the CSS. Any pages attached to the template would be automatically updated!

Explanation B. Incorrect. That would be very labor intensive plus if she decided to make a change later; she would have to tweak the code on every single page again.

Explanation C. Incorrect. This would work to an extent but if she decided to make design changes in the future, she would have to tweak every page in the site.

Explanation D. Incorrect. This would work to an extent but if she decided to make design changes in the future, she would have to tweak every page in the site.

Chapter 2

1. Answer: A

Explanation A. Correct. Visitors on a web site can easily just click away from the site, or navigate through the site, at the users own discretion. Print, radio and television advertising is presented at the advertiser's discretion.

Explanation B. Incorrect. Metaphors are used in all types of marketing and advertising.

Explanation C. Incorrect. The Inverted Pyramid is the most common page layout format for both web pages and newspapers. This style offers the user a list of story summaries first, then links or references to the details for those who are interested.

Explanation D. Incorrect. Although it is less expensive to use color on web pages than on print ads, this would not apply to radio and television.

2. Answer: A

Explanation A. Correct. On the Web, less is more when it comes to text. It is unrealistic to think that visitors are going to read much of what is written. They will scan for the keywords that are meaningful to them and then read the parts that grab their attention.

Explanation B. Incorrect. Web sites should not mirror printed brochures because Web site visitors rarely read much of the text, plus they read much slower from the computer monitor. It is true that color is free on the Web and space is not the same kind of issue but these are not the differences this question is seeking.

Explanation C. Incorrect. Web pages should contain less text because Web users read less and read slower from the computer monitor than they do from print media.

Explanation D. Incorrect. This is overkill! You need some text, just not as much text!

3. Answer: D

Explanation A. Incorrect. Placing the company logo on every page in a site helps the visitors to know they are still in the same website!

Explanation B. Incorrect. Use of company style guides is an excellent way to ensure visual consistency.

Explanation C. Incorrect. Use of templates is an excellent way to ensure visual consistency.

Explanation D. Correct. Although this is an important strategy, it has nothing to do with visual consistency.

4. Answer: B

Explanation A. Incorrect. This would not be the best choice because Web pages are not print friendly by default. When the user clicks the print button, the browser will attempt to scale the width of the current Web page to paper size. The output will be unpredictable, depending on several factors.

Explanation B. Correct. PDF is an excellent way to provide an printable copy of documents in exactly the same format as the print version of same.

Explanation C. Incorrect. This would create a very large image and a two sided brochure would have to be converted to two very large images! Loading these large images in the browser could be very cumbersome to many users and printing would have to be done twice -once for each of the two images.

Explanation D. Incorrect. When a link is provided on the Web to a file type that is not supported by the browser, the user is prompted to download the file. The original file would most likely have been created with some application that many users would not have to open it.

5. Answer: A

Explanation A. Correct. This is a familiar navigation strategy and when it comes to navigation, familiar is a good thing!

Explanation B. Incorrect. This tactic does not support the strategy of consistent navigation.

Explanation C. Incorrect. This tactic does not support the strategy of consistent navigation. It also seriously limits the visitor's choices. Also, every page should have a link back to the Home page.

Explanation D. Incorrect. This tactic does not support the strategy of consistent navigation.

Chapter 3

1. Answer: B

Explanation A. Incorrect. This is a good strategy but is has nothing to do with search engines on the Internet.

Explanation B. Correct. Many search engines index web pages based on words in these meta tags. Submitting new web sites to the search engines will get the pages indexed sooner, verses just waiting to be found. Some search engines accept free submissions and some require payment.

Explanation C. Incorrect. This would not have any effect on search engines on the Internet.

Explanation D. Incorrect. It does take some time from search engines to find new web sites and index them by crawling or sending spiders to follow hyperlinks, there are some things the designer can do to get the pages on the site indexed sooner. Just waiting is too passive of an approach.

2. Answer: A

Explanation A. Correct.

Explanation B. Incorrect. This would be black.

Explanation C. Incorrect. This would give you white but it is in RGB not Hexadecimal.

Explanation D. Incorrect. This would be RGB for black.

3. Answer: B

Explanation A. Incorrect. This is too vague. There was no mention of why she wanted to test on various browsers.

Explanation B. Correct. It may not always be possible to test a new site on various versions of browsers but everyone should at least be able to test the site on at least two current browsers.

Explanation C. Incorrect. It is unrealistic to think that visitors are going to change to another browser just because you recommend doing so on your home page.

Explanation D. Incorrect. This answer is too vague. As a professional designer she should have a good idea which technologies will and won't work on different browsers and should only use technology that she expects to work on all browsers. She should test to see if there are any unexpected problems.

4. Answer: D

Explanation A. Incorrect. GIF is limited to 256 colors and is not recommended for photographs.

Explanation B. Incorrect. PNG is not yet fully supported by all browsers, however, it is up and coming!

Explanation C. Incorrect. PSD is not a Web browser supported format.

Explanation D. Correct. JPEG or JPG can render millions of colors and is a file format that works well with all Web browsers. Color photographs typically include more colors than a GIF could render, and GIF is the only other acceptable Web file type supported by all browsers at this time.

5. Answer: B

Explanation A. Incorrect.

Explanation B. Correct.

Explanation C. Incorrect.

Explanation D. Incorrect.

6. Answer: C

Explanation A. Incorrect. This method could work as stated, but since it is not supported by all browsers, it should be avoided for now.

Explanation B. Incorrect. With this method you have to type the style definitions in the head section of every web page you want to apply the styles to. To make changes to many pages, you would have to edit the definitions on every page.

Explanation C. Correct. With this method, you define one external style sheet and link many Web pages to it by including the <link rel> tag in the head section.

Explanation D. Incorrect. With this method you have to type the style definitions in the body of every web page you want to apply the styles to, inline with the text you want to affect (either within existing tags or by using <span> tags). To make changes to many pages, you would have to edit the definitions on every page.

7. Answer: A

Explanation A. Correct.

Explanation B. Incorrect. You would place the code in the head section of the Web page.

Explanation C. Incorrect. This would be correct: <link href="styles.css" rel="stylesheet" type="text/css"/>.

Explanation D. Incorrect. The code is incorrect and the correct code would need to be placed in the head, not the body of the Web page.

Chapter 4

1. Answer: C

Explanation A. Incorrect. It is not usually advisable to design entire sites with Flash because the maintenance and updating requirements will be labor intensive and require highly skilled Flash designers to do it.

Explanation B. Incorrect. The goal of the site is not to dazzle the employees and make them feel happy. The goal is to make it easy for them to find what they need and not what you think they need or want!

Explanation C. Correct. Remember, the primary goal is to give users what they want, not want you think they want.

Explanation D. No. It is rarely a good idea to integrate new, cutting edge technology on a site that needs to be functional and user-friendly. The new technology may require plug-ins or version that not everyone is likely to have. Never use technology that may prevent some users from viewing essential content.

2. Answer: A

Explanation A. Correct. This would be the best advice she could offer.

Explanation B. Incorrect. A Web designer is responsible for keeping stakeholders informed. She should explain that new browsers now feature pop-up blockers so many visitors would never see the advertisements. Many users are annoyed by pop-ups that they didn't request and avoid Web sites known for pop-ups.

Explanation C. Incorrect. A Web designer is responsible for keeping stakeholders informed. She should explain that new browsers now feature pop-up blockers so many visitors would never see the advertisements. Many users are annoyed by pop-ups that they didn't request and avoid Web sites known for pop-ups.

Explanation D. Incorrect. Pop-under windows are not seen until the current window is closed and would not serve the intended purpose.

3. Answer: A

Explanation A. Correct.

Explanation B. Incorrect.

Explanation C. Incorrect.

Explanation D. Incorrect.

4. Answer: C

Explanation A. Incorrect. The two major factors that inhibit rapid technology adoption are bandwidth and browser support.

Explanation B. Incorrect. The two major factors that inhibit rapid technology adoption are bandwidth and browser support.

Explanation C. Correct. To enjoy the full effect of many new technologies, a high bandwidth connection and browser plug-in or third-party application support is usually required.

Explanation D. Incorrect. The two major factors that inhibit rapid technology adoption are bandwidth and browser support.

5. Answer: A

Explanation A. Correct. This is an important accessibility issue.

Explanation B. Incorrect. There are screen readers that will read all text on pages for visually impaired users.

Explanation C. Incorrect. Images should always support the context of the page they are placed on. Julie just needs to provide descriptive alternative text.

Explanation D. Incorrect. This is an exceptionally callous mode of thinking, and doesn't provide a way for those with vision impairments to adequately experience the site. Julie should use descriptive alternative text for her images.

6. Answer: A

Explanation A. Correct.

Explanation B. Incorrect. XHTML is intended to be a transition between HTML and XML.

Explanation C. Incorrect. DHTML is the use of three technologies that enables, among other things, the inclusion of small animations and dynamic menus in Web pages.

Explanation D. Incorrect. WSDL is an XML format for describing network services.