

1 HTML5 and CSS3

WEB DESIGN AND DEPLOYMENT

2 What Website Users Want

- *Usability* refers to how easy a website is to use
 - ✦ Critical requirement for an effective website
- To find what they want as quickly and easily as possible
- To get the information and/or do the task as quickly and easily as possible

3 How Users Interface with Your Website

- They *scan* the page to find:
 - What they are looking for
 - Or a *link* to what they are looking for
 - They often click on links and buttons "hoping" to find what they are looking
 - They often click the <Back> if they do not find it
- Users do not like to scroll up and down
- If they get frustrated, they leave the website

4 Three Guidelines for Better Usability

1. Present all critical information "above the fold" (content visible on the screen when a new page is displayed)
 - So most times the user does not have to scroll
2. Group related items together into separate components (limit number of components on page)
 - Makes the page more manageable and information easier to spot
3. Adhere to "current website conventions" for usability (*next slides*)

5 Current Conventions for Usability

- When websites implement current conventions for usability, users can implement the same techniques on your site as they do on others
- Current conventions should include:
 1. Header conventions
 2. Navigation convention

6 Header Conventions

- The header should consist of:
 - A logo
 - A "tag line" which identifies what is unique about website
 - *Utilities* like creating and/or signing into an account
 - A search function which would consist of a text box followed by a search button (*optional*)
 - A navigation bar with links that divide site into its major sections

7 **Navigation Conventions**

- Navigation conventions include:
 - Underlined text always is a link (do not underline anything else)
 - Images that are close to short phrases are clickable
 - Short text phrases in columns are clickable (like a rollover menu)
 - Clicking on a “cart” symbol should take the user to the shopping cart
 - Clicking on the logo in header on any page should take user to the homepage

8 **Responsive Web Design**

- Responsive Web Design (RWD) refers to the practice of creating websites that adapt easily to all viewing mediums
- The overall look-and-feel of the website remain consistent from one screen size to another
- The three components of RWD are:
 1. Use a fluid layout to adjust width of web pages and their structural elements to the size of the screen
 2. Use “media queries” (website queries device to see what type it is and moves elements around accordingly)
 3. Use scalable images so that the images scale to the size of the element in which they are contained

9 **Think “Mobile” from the Start**

- Either use Responsive Web Design or build a separate website for mobile devices
 - For new websites, RWD is the best solution
 - For older large legacy websites, a separate mobile website may be a better solution at least in the short term

10 **“Sell the Site” on Your Homepage—Page 1**

- Nine guidelines for an effective homepage:
 1. Most important is to emphasize what your site offers that is valuable and how your site differs from other site
 2. Emphasize the highest priority tasks so users have clear understanding what they can do
 3. It is a waste of space to “welcome” users to the site
 4. Group similar items in the navigation area
 5. Only use icons for navigation if users will understand and recognize them clearly

11 **“Sell the Site” on Your Homepage—Page 2**

- Nine guidelines for an effective homepage (*con.*):
 6. Design the homepage so that it is different from all other pages on the site
 7. Do not include an “active” link (looks purple) to the home page on the home page
 8. Code the “title” element as the organization name followed by a short description (eight or fewer words and 64 or fewer characters)

9. If the site provides shopping, include a link to the “shopping cart”

12 **Let Users Know where They Are**

- Letting users know “where they are” is one of the current conventions for websites
 - Especially when the site gets more complicate
 - Important to remember that many users reach your site via a search engine and may not arrive at the home page
- Highlight links that led the user to current page
- The heading for the page should be the same as the link that led to it
- Provide “breadcrumbs” in the format:
 - Prof. Struck’s Homepage > CST161 > Schedule of Topics

13 **Make the Best Use of Space**

- Keep the header relatively small
- The most valuable space on each web page is the space above the fold
 - Prioritize the components for each page
 - Give most important components the primary locations (above the fold)

14 **Divide into Smaller Chunks**

- Remember that users do not like to “scroll”
 - Limit the amount of scrolling to 1½ to 2 times the height of the output window
- *Chunking* refers to the division of content into smaller chunks:
 - Using links to separate web pages
 - Or in separate components on the same page commonly using JavaScript features like accordions and/or tabs
 - https://www.w3schools.com/howto/howto_js_full_page_tabs.asp

15 **Principals of Graphics Design—Page 1**

- Even designers who are not graphics designers should know basic graphics design principals and typography
- The four basic principals of graphics design are:
 1. *Alignment*—related items on the same page should line up with each other
 2. *Proximity*—related items should be close together
 3. *Repetition*—repeat some elements from page to page to give them continuity
 4. *Contrast*—stands out so that it draws the user’s eye to what is different on each page

16 **Principals of Graphics Design—Page 2**

- Typographical guidelines include:
 - Limit the line length of paragraphs to 65 characters
 - Use a sans serif font with a size that is large enough for easy reading
 - Show the relationship between headings and following text by keeping them close
 - Use dark text on a light background (do not use *reverse typing*, e.g. white type on

colored background)

- Do not use an image for the background
- Exclusive of page headings, do not center or justify text

17 **Write for the Web—Page 1**

- Instead of reading it, users skim and scan the website
- Principals for writing for the web:
 - The quickest way simply is to use fewer words
 - Use an “inverted pyramid” style so the most important information appears first
 - Use headings and subheadings to identify portions of text
 - Use bulleted and numbered lists to make information more accessible (as opposed to paragraphs)

18 **Write for the Web—Page 2**

- Principals for writing for the web (*con.*):
 - Use tables for “tabular” information
 - Do not use all caps for headings (best to capitalize the first letter plus any required capitalization)
 - Make the text for all links as explicit as possible
 - Limit the line length of paragraphs to 65 characters

19 **Lifecycle of a Website**

- The lifecycle of all systems including a website is:
 - Design—define the overall layout and create the critical web pages
 - Implement—develop the rest of the web pages, deploy to web server, test and launch
 - Maintain—often maintaining involves much more time than developing it, usually for many years

20 **Procedure for Design—Page 1**

- The general procedure for designing a website:
 1. Define the audience and set the goals for the website
 - ✦ Start by learning about the company or organization
 - ✦ Market research to learn about target audience
 2. Develop a site map
 - ✦ Shows all the pages required by the website
 - ✦ The second level represents links in the homepage’s navigation bar in the header
 - ✦ Contents below that level are pages accessed by links on the second level
 - ✦ Can be created using free or commercial software

21 **Procedure for Design—Page 2**

- The general procedure for designing a website (*con.*):

3. Critical pages are *wireframed* (sketched) in black and white, either drawn by hand, or using free or commercial software
 - ✦ Start with homepage and one primary content page
 - ✦ Once approved move on to other critical pages
4. Illustrate the critical pages in full color by either:
 - ✦ Using a software program like Photoshop
 - ✦ Create pages using HTML and CSS with a software program like Dreamweaver (gives a head start on implementing pages)

22 Procedure for Implementation

- The general procedure for implementing a website:
 1. Develop the HTML and CSS templates for the pages
 - ✦ The *template* is the basic structure the majority of documents should follow, as well as other extra elements to help manage the documents
 2. Develop the web pages
 3. Deploy the site to a web server
 4. Test and launch the website

23 Procedure for Maintenance

- The general procedure for maintaining a website:
 1. Plan the changes
 2. Design the changes
 3. Implement the changes
 4. Test and launch the changes

24 Making Websites Easier to Maintain

- Websites can be made easier to maintain:
 - Use HTML for content and CSS for layout and formatting
 - Use tables only for “tabular” information, not for layout
 - Not using frames
 - Getting the design correct before starting implementation

25 Development Teams—Page 1

- In a large organization a website usually is designed and implemented by a team
 - In a small organization, one person often does everything
- The development team often works with others who review and evaluate their work, such as managers, marketing specialists, customers and/or potential users

26 Development Teams—Page 2

- The term *web designer* often is confused with the term *graphics designer*
 - Web designer—participates in all phases of web design
 - Graphics designer—involved in a relatively small part of web design focusing on the graphics that make web pages look more inviting and work better

27 **Development Teams—Page 3**

- 1 • Members of the *design* team for may include:
 - Web designers
 - Writers
 - Marketing specialists
 - Graphic designers
- 2 • Members of the *implementation* team may include:
 - HTML and CSS specialists
 - Client-side programmers
 - Server-side programmers
 - Database administrator
 - Network administrator

28 **Top-Down Design**

- When *top-down designing* a website, design the most critical pages first, get approval for those, then the next most critical and get approval, and so forth
 - Work on one set of pages at a time
 - For example the most critical pages for a commercial site often are the home page and product pages, followed by the “Shopping Cart” and “Checkout” pages
 - Implies that a site map for the entire site does not have to be completed before design begins on the critical page

29 **Prototyping Web Pages**

- *Prototyping* involves developing a “working model” of the critical pages early in design process (incomplete pages)
- Reviewers then can “run” the pages and see how they work
 - Catches errors and concerns early in design process
- Often used in combination with top-down design so that the most important pages are prototyped first
- When design is complete and approved, the prototype can be built into the actual website, or discarded and website built in a more permanent way

30 **Web Hosting Services—Page 1**

- A *web host* is a server computer connected to the Internet
- For a monthly fee, the web host is used to make a website accessible via the Internet
 - Find one that fits your needs by doing a web search (could be as little as \$5 per month or more, some free)
 - Besides disk space, you may need a database server and a server-side programming language, e.g. PHP, JSP (Java Server Pages) or ASP.NET
 - Also provided may be access to an FTP (File Transfer Protocol) account that provides a way to upload (and download) your files to and from the web host

31 **Web Hosting Services—Page 2**

- Once you have a web host, you will be given an *IP address* in the format 64.46.106.120 which can be used initially to access the website
- Later you will receive a *domain name* which most people use to access websites
- The Internet uses IP addresses for accessing websites

32 **Domain Names—Page 1**

- The *domain name* is a user-friendly name for locating a resource on the Internet, e.g. "www.google.com"
- The domain name can have one or more subdomains, e.g. "mail.google.com"
- Popular extensions for domain names:
 - .com—originally intended for commercial websites
 - .net—intended for network infrastructure websites
 - .org—to be used for other types of organizations
 - .edu—designed for educational institutions
 - Many countries have extensions for website within their boundaries, e.g ".uk" is Great Britain

33 **Domain Names—Page 2**

- The domain name is linked to the IP address in the domain name registry which is a database of all domain names
 - Stored in multiple servers around the world
- Start by searching for a domain name that has not yet been registered and then have your web hosting service register the name for you

34 **File Transfer Protocol**

- FTP (File transfer protocol) is the protocol designed for transferring file to and from the Internet
 - Just like HTTP (Hypertext Transfer Protocol) is used for accessing documents on the World Wide Web
- An FTP program carries out the work of transferring files
 - May be a simple stand-alone application that runs in Windows, Mac and Linux like WS-FTP or FileZilla
 - Some IDEs like DreamWeaver and VisualStudio have their own FTP client build into the application

35 **FTP Applications**

- Most FTP programs have a dialog window for connecting to the website, define the host name, and set up a username and a password
 - Additional settings can be configured here as well
- Then there will be a two windows, usually the one on the left showing the directories on your local computer and the one on the right your website folders
 - Drag files back and for to upload and download them
 - You have access to most file processing activities, copy, move, delete, rename, etc.

36 **Testing an Updated Web Document**

- For a web document that has just been added to the site:
 - In a Web browser, go to the home page and navigate to the web document using every route available to reach it
 - Review it is there and that all content is working including images as well as JavaScript and jQuery features
 - Test all links to see that they work correctly
 - Retest in multiple browsers to make sure it works correctly there as well

37 **Testing a New Website**

- For a website:
 - Methodically review all the pages and test all the links one at a time
 - Retest in every browsers that your users might be using to make sure it all works correctly there as well

38 **Getting into Search Engines—Page 1**

- Most major search engines have a search engine directly where you can submit your website:
 - Google—“<http://www.google.com/addurl/>”
 - Bing—“<http://www.bing.com/webmaster/SubmitSitePage.aspx>”
- Just submit the homepage URL
 - Then the *robot* (or *spider*) for that engine will “crawl” though the pages of your website and index them
 - The robot periodically will crawl through your site again and re-index it to reflect your updates

39 **Getting into Search Engines—Page 2**

- Each search engine has its own algorithm for “scoring” pages which determine how high a page will be placed in the search engine based on specific keywords
- At each search engine site, you can get information to help your pages do better in search results
- Most web hosting services have statistical packages that track which sites and search engines send the most visitors
- *Note:* Yahoo is part of the Bing network so it only will be necessary to submit your site to Bing

40 **Controlling Pages Visited and Indexed—Page 1**

- There may be pages that should not be indexed and visited directly, e.g. the shopping cart and/or checkout page
- Also you do not want deleted pages to remain indexed

41 **Controlling Pages Visited and Indexed—Page 2**

- You can set up a “robots.txt” file in the website root folder which specifies which of the folders or even single files that should not be indexed

➤ The following example tells search engines not to index one folder and one file:

User-agent: *

Disallow: /cart/

Disallow: /backlist/private.html

42 **Controlling Pages Visited and Indexed—Page 3**

• Another way of stopping a robot from indexing a page is to set up a robots meta tag with a content attribute set with the following values included:

➤ "noindex"—do not index the page

➤ "nofollow"—do not follow links on the page

<meta http-equiv="robots" content="noindex, nofollow">

43 **Controlling Pages Visited and Indexed—Page 4**

• To redirect a user from a deleted page to a current page (until site is re-indexed) add a "refresh" meta tag, e.g.

<meta http-equiv="robots" content="0" url="..currentpage.html">

➤ The attribute and value content="0" means that the redirection is to be done immediately

➤ Not all browsers support the "refresh" meta tag

44 **Maintain a Healthy Website—Page 1**

• Even for tested and deployed websites, more can be done to improve their effectiveness, e.g.

➤ Improve search engine rankings

➤ Improve use accessibility

45 **Maintain a Healthy Website—Page 2**

• There are a number of free and commercial web-based tools to check and maintain website "health"

➤ Google Webmaster—free tool that analyzes and reports on the site's search appearance, traffic, crawl statistics, security issues and more

✦ www.google.com/webmasters/tools/home?hl=en

➤ SiteImprove—a commercial service for larger websites that check for accessibility issues, spelling errors, broken links, site downtime and more

✦ www.siteimprove.com

46 **Maintain a Healthy Website—Page 3**

• Tools to check and maintain website "health" (*con.*)

➤ Hubspot's Marketing Grader—free tool reports on site's social media presence, blog activity, email marketing campaigns and even mobile responsiveness

✦ marketing.grader.com

➤ Nibbler, FreeGrader and Woorank—sites that provide free scores on accessibility, user experience, marketing and technology with suggestions for improvement

✦ www.freegrader.com

- ✦ nibbler.silktide.com
- ✦ www.woorank.com

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