

Questions?

- Term Project Proposal information due Monday
- After 9/26, HOF/S presentations may not be on sites covered by Critiques
- I will not remind you about homeworks & readings
- HOF/S presentation ...

Accessibility

CMSC 434 – Intro to HCI
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Universal Usability

- Many accessible features help everyone
- Many disabilities:
 - Visual impairment
 - Color blindness
 - Blind
 - Hearing impairment
 - Repetitive stress injury
 - Dyslexia
 - Aging-related conditions
 - Cognitive disabilities
 - ...
- Supposedly accessible technologies often have holes
 - Early Kindle menus (and numerous current Kindle books)
 - Incomplete keyboard access
- JAWS common. Try <http://webanywhere.cs.washington.edu/>



The Law

- ADA – Americans with Disabilities Act (1990)
 - Application to websites currently unclear
 - Concern about cost and design limitations
 - Concern about chilling effect
 - But what if it was your brother – or you...
 - *Separate but equal?*
- ADA applies broadly
- Compliancy tools inconsistent
- Section 508 – Federal amendment to Rehabilitation Act (1998)
 - Applies to IT developed, procured, or maintained by U.S. Fed Gov't.
 - <http://www.section508.gov/>

Strategies

- Follow basics:
 - Font controls (size, color, contrast, extraction, ...)
 - Image “alt” tags
 - Audio / Video transcriptions
 - Keyboard access
 - Don’t use Flash
 - OCR’d PDFs
- Offer data in basic format
 - Visualizations should come with .csv files
 - E-books should come in an open format
 - => Let users choose the reading technology
- Industry creates tools that generates accessible content ...

Section 508 Standards

http://www.access-board.gov/sec508/standards.htm#Subpart_b

§ 1194.22 Web-based intranet and internet information and applications.

- (a) A text equivalent for every non-text element shall be provided (*e.g.*, via “alt”, “longdesc”, or in element content).
- (b) Equivalent alternatives for any multimedia presentation shall be synchronized with the presentation.
- (c) Web pages shall be designed so that all information conveyed with color is also available without color, for example from context or markup.
- (d) Documents shall be organized so they are readable without requiring an associated style sheet.
- (e) Redundant text links shall be provided for each active region of a server-side image map.
- (f) Client-side image maps shall be provided instead of server-side image maps except where the regions cannot be defined with an available geometric shape.
- (g) Row and column headers shall be identified for data tables.
- (h) Markup shall be used to associate data cells and header cells for data tables that have two or more logical levels of row or column headers.

Section 508 Standards

- (i) Frames shall be titled with text that facilitates frame identification and navigation.
- (j) Pages shall be designed to avoid causing the screen to flicker with a frequency greater than 2 Hz and lower than 55 Hz.
- (k) A text-only page, with equivalent information or functionality, shall be provided to make a web site comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.
- (l) When pages utilize scripting languages to display content, or to create interface elements, the information provided by the script shall be identified with functional text that can be read by assistive technology.
- (m) When a web page requires that an applet, plug-in or other application be present on the client system to interpret page content, the page must provide a link to a plug-in or applet that complies with §1194.21(a) through (l).
- (n) When electronic forms are designed to be completed on-line, the form shall allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.
- (o) A method shall be provided that permits users to skip repetitive navigation links.
- (p) When a timed response is required, the user shall be alerted and given sufficient time to indicate more time is required.

Example: Recovery.gov

The screenshot shows the Recovery.gov website with a navigation bar at the top containing links for 'REPORT FRAUD, WASTE & ABUSE', 'Connect With Us' (with social media icons), and a search bar. Below the navigation bar is a main header with the Recovery.gov logo and the tagline 'TRACK THE MONEY'. A secondary navigation bar includes links for 'Looking For?', 'HOME', 'ABOUT', 'ACCOUNTABILITY', 'WHERE IS THE MONEY GOING?', 'OPPORTUNITIES', 'NEWS', 'FAQS & RESOURCES', 'CONTACT US', and 'SITE INDEX'. The main content area features a section titled 'ACCESSIBILITY' with the following text:

Recovery.gov is routinely tested for compliance with Section 508 of the Rehabilitation Act. For more information on Section 508, visit www.section508.gov.

Prior to the launch of Recovery.gov 2.0, one-on-one sessions were conducted with perception- and motor-impaired participants to identify and correct any accessibility barriers. These usability sessions are conducted on an ongoing basis to ensure that all changes made to Recovery.gov 2.0 are 508 compliant. The site is also reviewed on a monthly basis using Watchfire WebXM to identify instances that fail to meet one or more of Section 508's 16 compliance standards. PDF files are reviewed manually to ensure they meet the same standards. For information on making Adobe PDFs accessible, visit www.adobe.com/accessibility.

To help visually impaired users more easily distinguish content, contrast and color schemes are tested regularly using tools such as <http://colorfire.aridvision.com/> and <http://listapedia.com/accessibility/contrast.asp>. For blind users, the site is evaluated on a monthly basis using Jaws to check the accuracy and quality of the content and navigation. Techniques, such as providing methods for skipping repetitive navigation and avoiding non-distinct link labels, in addition to proper header tags, alternate text and table headers, have been implemented throughout the site and are reviewed frequently.

In addition, the following have been incorporated throughout the site:

- Text equivalents provided for non-text elements
- Closed captioning available for multimedia presentations
- Text versions supplied for flash maps
- Colored information made available without color
- Documents can be read without a style sheet
- Data table rows and column headers are identified as data tables
- Scope attributes are assigned to associate data cells and header cells for data tables with two or more logical levels of rows or column headers
- Frames are titled with text
- Design avoids screen flicker with a frequency greater than 2 Hz and lower than 55 Hz
- Text only versions of data provided where needed to comply with Section 508 standards
- Information provided by scripting languages is identified with text that can be read by assistive technology
- Information and functionality are available with JavaScript enabled and made available where necessary
- Links are provided to required plug-ins
- Forms are formatted to work with assistive technology to access the information, field elements, and functionality required to complete and submit forms

[Contact Us](#) if you have any difficult accessing information on Recovery.gov.

Challenges

- Technological diversity
- User diversity
- Gaps in user knowledge

Resources

- <http://www.w3.org/WAI/>
- <http://usability.gov/pdfs/chapter3.pdf>
- Web Content Accessibility Guidelines
<http://www.w3.org/WAI/intro/wcag.php>
- <http://www.section508.gov/>
- <http://jimthatcher.com/webcourse1.htm>

- Compare Section 508 and WCAG:
<http://jimthatcher.com/sidebyside.htm>

Try out some tools

- WAVE – Web Accessibility Evaluation Tool
 - <http://wave.webaim.org/>
- iOS
- Screen readers
 - Mac - <http://www.apple.com/accessibility/voiceover/>
 - Windows – [JAWS](#)
 - Web - <http://webanywhere.cs.washington.edu/>