CGS 3175: Internet Applications
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Web Site Design – Part 2

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Web Site Design – Best Practices

- The major components of Web page design are:

  – Page layout design

  – Text design

  – Graphic design

  – Accessibility considerations

- Web sites that look great and are easy to use don't happen by accident. Outstanding Web sites are carefully planned and created by using recommended design practices.

- There are a number of factors to consider when designing a Web page. Some factors relate to the usability, accessibility, and appeal of the site to the target audience – use of color, text, graphics, and animations.

- Other factors relate to the medium of the Web itself – load time issues, browser support, and monitor screen resolution.

Load Time

- The last thing you want to happen is for your visitors to leave your Web page before it has even finished loading!

- Make sure that your pages load as quickly as possible. How long do you generally wait for a page to load? Many Web page visitors will not wait more than several seconds.

- It's a good practice to limit the total file size of a Web page and all of its associated images and media files to under 60KB. It takes about 8 seconds at 56Kbps for a browser to display a Web page and associated files of 60 KB.

- It's also a good idea for the home page and associated files to be well under this number to ensure the home page loads very fast. Go over the limit on content pages only when you're sure your visitors will be interested enough to wait and see what your site is presenting.

Above The Fold

- Placing important information "above the fold" is a technique borrowed from the newspaper industry. When newspapers are placed on counters and in vending machines waiting to be sold, the portion above the fold in the page is viewable. Publishers noticed that more papers were sold when the most important, attention-getting information was placed in this location.

- Web designers use this technique to attract and keep visitors on their Web pages. Arrange interesting content above the fold – the area the visitor sees before scrolling down the page.

- At a screen resolution of 800 x 600 pixels, the viewable amount of the screen, after subtracting browser menus and controls is about 410 pixels in height. Other common resolutions are 1024 x 768 and 1280 x 1024 with display areas of proportional sizes available.

Web Page "Real Estate"

- There is a saying in the real estate field that the three most important factors about a property are location, location, and location.

- The Web page location you choose for high-profile components such as logo banners, page heading, and navigation is also important.

- Web page visitor eye tracking studies have determined that a visitor's eyes "most often fixated first in the upper left of the page, then hovered in that area before going left to right."

- This makes the most valuable Web page "real estate" the upper-left side and top center of the page.

- Avoid placing important information and navigation on the far right side – as we'll see later, this area may not be initially displayed by browsers at some screen resolutions.

Horizontal Scrolling

- In order to make it easy for visitors to view and use your Web pages, avoid creating pages that are too wide to be displayed in the browser window.

- These pages require the user to scroll horizontally. Using a screen resolution of 800 x 600 pixels, the amount of viewable screen is about 760 pixels in width.

- If you expect that the page will be printed often, it is a good idea to keep the width of the page to less than 560 pixels.

An aside on screen resolutions – A recent survey by The Counter (http://www.thecounter.com) regarding Web visitors for sites monitored by their service reported 1027 x 768 as the most popular screen resolution with 57% of the visitors reporting this resolution. 17% use 1024 x 768, 16% use 1280 x 1024 and 3% use 1152 x 864 and fewer than 1% use 640 x 480.

Use Of Color

- Younger audiences, such as children and preteens, prefer bright lively colors. Older audiences tend to prefer high contrast in colors.

- For instance compare the two Web pages shown in the next two pages.   Can you guess the intended user group for each page?

An aside on browsers – A recent survey by Janco Associates' IT Productivity Center indicates that 83% of the Web users utilize Internet Explorer with 12.6% using Firefox, and about 2% using Netscape. A lot of Web statistics such as these can be found at http://www.clickz.com/stats.

Page Layout

- Using tables and style sheets to create interesting page layouts can keep visitors interested in your Web site.

- Look at the page layout designs on the next three pages.

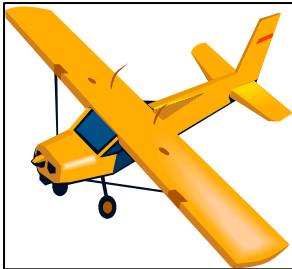- Which is the most interesting layout? Why?

Page Layout

Site Logo

| Home | Products | Services | Order | Contact |

This is web page content. This is web page content. This is web page content.   This is web page content. This is web page content. This is web page content. This is web page 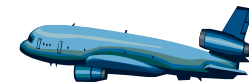content. This is web page content. This is web page content. This is web page content. This is web page content. This is web page content. This is web page content. This is web page content. This is web page content. This is web page content.   This is web page content. This is web page content. This is web page content. This is web page content. This is web page content. This is web page content. This is web page content. This is web page content. This is web page content. This is web page content. This is web page content.

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Page Layout

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This is web page content. This is web page content.

Page Layout

- The first layout is adequate, and may be appropriate for some content, but it is not a very interesting layout.

- The second layout contains the same content but uses a tabular format in three columns. Visually it is an improvement over the first layout, but something is still missing.

- The third layout, contains the same content as the first two layouts, but includes interspersed graphics. This is the most interesting of the three layouts. Notice how the images and columns make the same content more appealing.

- Often the page layout (storyboard) for the home page is different from the page layout used for the content pages. When this occurs, a consistent logo and color schemes will produce a more cohesive Web site.

Page Layout Design Techniques

- There are three very popular Web page layout designs:

  - Ice

  - Jello

  - Liquid

- We'll look briefly at each of these layout designs.

Ice Design

- The ice design technique is sometimes referred to as a solid or fixed design. The page hugs the left margin and generally a fixed width table is used to format the page.

- Due to the fixed width, the design has much control over the layout and formatting – configuring the page to look best at certain screen resolutions (have you ever visited a site with a message to the effect that "this site best viewed at XX x XX resolution?"). The display will degrade gracefully at other screen resolutions.

- The right-hand side of the screen will often contain much empty space – especially at higher screen resolutions.

- The National Pro Fastpitch softball site (http://www.profastpitch.com) is an example of the ice design.

unused space!

Jello Design

- The jello design technique is similar to the ice design in that the content is generally contained within a layout table. In this case, the table is centered and may be of either fixed width or a percentage width such as 80%.

- Jello design pages are typically more pleasing to view at higher screen resolutions than ice designs.

- No matter the screen resolution, the content is centered in the page with even margins on both sides.

- The Department of Energy site (http://www.energy.gov) uses the jello design.

Liquid Design

- The liquid design technique results in a fluid Web page with content that takes up 100% of the browser window no matter the screen resolution.

- There is no blank margin of the left or the right – the content will flow to fill whatever size window is used to display it.

- This type of design can be created with XHTML using a table with the width set to 100%.

- The State of Illinois uses the liquid layout design on their state web site at http://www.illinois.gov. You will find many other Web sites using this very popular page layout technique.

```
messages[0]=NoOfTips;
//load the array with messages
messages[1]="<img src='/images/govhd_montage_section.jpg' alt='' width='275' height='60'>";
messages[2]="<img src='/images/govhd_montage_section2.jpg' alt='' width='275' height='60'>";
messages[3]="<img src='/images/govhd_montage_section3.jpg' alt='' width='275' height='60'>";
//calculate the tip to show
y=1/NoOfTips;
for(x= 1; x <= NoOfTips; x++) {
while(sid!="illinois"){};
if ( testNum > ( NoOfTips- x ) * y ) {
document.write("" + messages[x]+ "");
break; }
} }
PhotoRotate();
//End Script -->
</script><noscript><img src="/images/govhd_montage_section.jpg" alt="" width="275" height="60"></noscript></td>
    <td class="tmpl_headerbackgroundcolor"  height="60" rowspan="2" align="left" valign="bottom" width="275"><a href="/defa
    <td class="tmpl_headerbackgroundcolor"  height="60" rowspan="2" align="left" valign="middle" width="100%"> </td>
    <td class="tmpl_headerbackgroundcolor" height="40" width="255" colspan="2" align="right" valign="middle"><img src="imag
      <a href="/default.cfm"target="_parent"><img src="images/hd_url_section.gif" alt="www.illinois.gov" border="0" width="
    </td>
  </tr>
  <tr>
    <td class="tmpl_headerbackgroundcolor" align="right" valign="bottom" height="20" width="20"><img src="images/hd_tabtria
    <td class="tmpl_tabbackgroundcolor" align="center" valign="bottom" width="205" height="20"><img src="images/blank.gif"
      <a href="/gov/"class="tmpl_Governor">Rod R. Blagojevich, Governor </a> </td>
  </tr>
</table>
<table width="100%" border="0" cellspacing="0" cellpadding="0" >
  <tr>
    <td class="tmpl_tabbackgroundcolor"><img src="images/blank.gif" width="5" height="8" alt=""></td>
  </tr>
</table>




<table class="tmpl_brdrclr" width="100%" border="0" cellspacing="1" cellpadding="1" height="85%">
  <tr>
    <td  width="125" class="tmpl_sidebackground" valign="top">
      <table width="100%" border="0" cellspacing="1" cellpadding="1" class="tmpl_brdrclr" >
    <tr>
    <td class="tmpl_tabbackgroundcolor">
      <h1 class="tmpl_h1"><img src="images/blank.gif" alt="" border="0" width="1"><strong>State Links</strong> <a href="#content"><img src="i
      <a href="#state"><img src="images/blank.gif" alt="Skip to State Links" border="0" width="1" height="1"></a></h1>
    </td>
    </tr>
```

Page Layout And CSS

- The newer trend when designing pages is to use CSS to format the XHTML elements and configure the page.

- Rather than using tables to position the elements on the page and then setting the table to be 100% of the page width, CSS is used to position the elements on the page.

- As we will see soon, CSS has a number of advantages compared to using a table to format a page, including smaller Web page document files sizes, quicker loading of pages, and more accessible pages that are easier for screen readers to access.

- The home page of the NSA (http://www.nsa.gov) uses CSS to configure the page layout.

NSA Homepage – XHTML code

```
www.nsa[1] - Notepad
File  Edit  Format  View  Help

<?xml version="1.0" encoding="iso-8859-1"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/
<html xmlns="http://www.w3.org/1999/xhtml">
    <head>
        <title>National Security Agency/Central Security Service (NSA/CSS) -- Site Start Page</tit
        <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
        <style type="text/css" media="all">
            body {
                background-color: #000000;
                color: #FFFFFF;
                text-align: center;
            }
            img {
                border: none;
            }
            #ContentContainer {
                width: 760px;
                margin-bottom: 0%;
                margin-left: auto;
                margin-right: auto;
                margin-top: 0%;
                padding: 0%;
            }
        </style>
    </head>
    <body>
        <div id="ContentContainer">
            <img src="/images/index.jpg" width="760" height="420" alt="Image: National Security Age
            <map name="IndexMap" id="SiteStartPageNavigation">
                <area shape="rect" alt="Link: View the HTML version of the home page." coords="494,3
                <area shape="rect" alt="Link: View the Flash version of the home page." coords="587,
                <area shape="rect" alt="Link: Download the current version of the Macromedia Flash F
            </map>
        </div>
    </body>
</html>
```

Page Layout – Best Practices Checklist

❑ 1. Appealing to target audience.

❑ 2. Consistent site header/logo.

❑ 3. Consistent navigation area.

❑ 4. Informative page title that includes the company/organization/site name.

❑ 5. Page footer area – copyright, last update, contact e-mail address.

❑ 6. Good use of basic design principles: repetition, contrast, proximity, and alignment.

❑ 7. Displays without horizontal scrolling at 800x600 resolution.

❑ 8. Balance of text/graphics/white space on page.

❑ 9. Good contrast between text and background.

❑ 10. Repetitive information (header/logo and navigation) takes up no more than ¼-1/3 of the browser window at 800x600resolution.

❑ 11. Homepage has compelling, interesting information "above the fold" before scrolling down at 800x600 resolution.

❑ 12. Home page downloads in 10 seconds on dial-up connection.

Browser Compatibility – Best Practices Checklist

❑1. Displays on current versions of Internet Explorer (6+).

❑2. Displays on current versions of Firefox.

❑3. Displays on current versions of Netscape (7+).

❑4. Displays on current version of Opera.

❑5. Displays on current version of Safari.

❑6. Displays on both PC and Mac platforms.

Navigation – Best Practices Checklist

❑ 1. Main navigation links are clearly and consistently displayed.

❑ 2. Navigation is easy to use for the target audience.

❑ 3. If image, Flash, or DHMTL is the main navigation, clear text links are in the footer section of the page (accessibility issue).

❑ 4. Navigational aids, such as a site map, skip navigation link, or breadcrumbs, are used.

❑ 5. All navigation hyperlinks work.

Color and Graphics – Best Practices Checklist

- ❑ 1. Use of different colors in page background/text is limited to a maximum of three or four.

- ❑ 2. Color is used consistently.

- ❑ 3. Color has good contrast with associated text.

- ❑ 4. Color is not used alone to convey meaning (accessibility issue).

- ❑ 5. Use of color and graphics enhances rather than distracts from the site.

- ❑ 6. Graphics are optimized and do not slow download significantly.

- ❑ 7. Each graphic serves a clear purpose.

- ❑ 8. Image tags use the `alt` attribute to configure alternate text to display if the browser or user agent does not support images (accessibility issue).

- ❑ 9. Animated images do not distract from the site and either do not repeat or only repeat a few times.

Multimedia – Best Practices Checklist

❑1. Each audio/video/Flash file used serves a clear purpose.

❑2. The audio/video/Flash files used enhance rather than distract from the site.

❑3. Captions are provided for each audio or video file used (accessibility issue).

❑4. Download times for audio or video files are indicated.

❑5. Links to downloads for media plug-ins are provided.

Content Presentation – Best Practices Checklist

- 1. Common fonts such as Arial are used.

- 2. Techniques of writing for the Web are used: headings, bullet points, short sentences in short paragraphs, use of white space, and so on.

- 3. Fonts, font sizes, and font colors are consistently used.

- 4. Content provides meaningful, useful information.

- 5. Content is organized in a consistent manner.

- 6. Information is easy to find (minimal clicks).

- 7. Timeliness: The date of the last revision and/or copyright date is accurate.

- 8. Content does not include outdated material.

- 9. Content is free of typographical and grammatical errors.

- 10. Content provides links to other useful sites.

- 11. Avoids the use of "Click here" when writing text for hyperlinks.

- 12. If standard link colors are not used, all links use a consistent set of colors to indicated visited/nonvisited status.

- 13. If graphics and/or media is used to convey meaning, the alternate text equivalent of the content is provided (accessibility issue).

Functionality – Best Practices Checklist

❑ 1. All internal hyperlinks work.

❑ 2. All external hyperlinks work.

❑ 3. All forms function as expected.

❑ 4. No Javascript errors are generated by the pages.

Accessibility – Best Practices Checklist

❑ 1. If image, Flash, or DHTML is the main navigation, clear text links are in the footer section of the page.

❑ 2. Color is not used alone to convey meaning.

❑ 3. Image tags use the `alt` attribute to configure alternate text to display if the browser or user agent does not support images.

❑ 4. Captions are provided for each audio or video file used.

❑ 5. Use attributes designed to improve accessibility such as `longdesc`, `title`, and `summary` where appropriate.

More On Accessibility

- The Internet and Web are such a pervasive part of our culture that accessibility is protected by laws in the United States. Section 508 of the Rehabilitation Act requires electronic and information technology, including Web pages, used by federal agencies to be accessible to persons with disabilities.

- The W3C is also very active in this cause and has created the Web Accessibility Initiative (WAI) (see it at http://www.w3.org/WAI) to create guidelines and standard applicable to Web content developers, authoring tool developers, and browser developers.

- The Web Content Accessibility Guidelines 1.0 (WCAG 1.0) created by the WAI are organized into three groups of checkpoints – Priority 1, Priority 2, and Priority 3.

  – Priority 1 guidelines must be met by Web developers to ensure accessibility of page content.

  – Priority 2 guidelines are stricter in nature – they should be met by Web developers to ensure that all visitors can access their pages.

  – Priority 3 guidelines are the most stringent and may be met by Web developers.

Evaluating Accessibility

WAI Groups

About WAI

- WAI Site Map
- Help with WAI Site
- áβ६本क Translations
- RSS About RSS
- Search

Quick Tips are available as a free **business-card-size reference card** in 11 languages, through the order form below. The previous online version is available in over 40 languages.

10 Quick Tips

The links in the Quick Tips below mostly go to the techniques documents that provide implementation guidance - including explanations, strategies, and detailed markup examples.

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 of audio, and descriptions of video.
4. Hypertext links. Use text that makes sense when read out of context. For example, avoid "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, & plug-ins.** Provide alternative content in case active features are inaccessible or unsupported.
8. **Frames.** Use the **noframes** element and meaningful titles.
9. Tables. Make line-by-line reading sensible. Summarize.
10. Check your work. Validate. Use tools, checklist, and guidelines at http://www.w3.org/TR/WCAG

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How to Order

Complete the form below to order the Quick Tips on a vinyl business-card-sized reference card, in large print, and in braille. If you cannot use the form, please e-mail all of the information from the form to wai-quicktips@w3.org.

More On Accessibility

- The WAI is currently working on the WCAG 2.0 which aims to address the variety of new Web technologies now available, to be easier to understand, and be more precisely tested.

- Watchfire's WebXACT is a free validator that will check your web page for common accessibility issues. You can use it at: (http://webxact.watchfire.com).

- The Cynthia Says Portal (http://www.cynthiasays.com) also provides a free accessibility validation service. The next page, shows part of the output from validating my About Me page on the Pegasus site. Note: that it validates against a lot of areas, some of which are not applicable to this document.

HiSoftware® Cynthia Says™ - Web Content Accessibility Report
Powered by HiSoftware Content Quality Technology

Verified File Name: http://pegasus.cc.ucf.edu/~mllewell/About Me.html
Date and Time: 10/1/2007 3:25:16 PM
Passed Automated Verification

HiSoftware can help you meet all of your accessibility needs and more. Our industry leading enterprise and desktop products provide you with an automated, full-featured Accessibility monitoring, testing, and repair solution to make sure your ever-changing Web content is always compliant. Visit www.hisoftware.com to find out more about how HiSoftware solutions can help you meet your Web compliance goals and request a trial copy.

Read Understanding Accessibility today! Download Now

The level of detail setting for the report is to show all detail.

Verification Checklist

Checkpoints	Passed		
508 Standards, Section 1194.22	Yes	No	Other
A. 508 Standards, Section 1194.22, (a) A text equivalent for every non-text element shall be provided (e.g., via "alt", "longdesc", or in element content).	Yes		

    o Rule: 1.1.1 - All IMG elements are required to contain either the alt or the longdesc attribute.
        o No IMG elements found in document body.
    o Rule: 1.1.2 - All INPUT elements are required to contain the alt attribute or use a LABEL.

http://www.cynthiasays.com/mynewtester/cynthia.exe

File   Edit   View   Favorites   Tools   Help

WAI QuickTips Ordering results | Cynthia Says Report

(k) Option A - Check for the string 'Text Version' within the document.			N/V
(k) Option B - Check for a Global Text Version Link within the document.			N/V
(k) Option C - Check for an Accessibility Policy Link within the document.			N/V

L. 508 Standards, Section 1194.22, (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.   Yes

- Rule: 6.3.1 - Anchor elements are required not to use javascript for the link target when the NOSCRIPT element is not present in the document. These elements will not cause a failure of the checkpoint if the NOSCRIPT element is found, however, they will be identified.
  - No Anchor Elements found in document body.
- Rule: 6.3.2 - AREA elements are required not to use javascript for the link target when the NOSCRIPT element is not present in the document. These elements will not cause a failure of the checkpoint if the NOSCRIPT element is found, however, they will be identified.
  - No AREA Elements found in document body.
- Rule: 6.3.3 - Locate elements that use HTML event handlers.
  - No elements that use HTML event handlers were found in document body.
- Rule: 6.3.4 - When SCRIPT Elements are used, the NOSCRIPT element is required in the document.
  - No SCRIPT elements found in document.

M. 508 Standards, Section 1194.22, (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).   Yes

- Rule: 6.3.5 - All OBJECT elements are required to contain element content.
  - No OBJECT elements found in document body.
- Rule: 6.3.6 - All APPLET elements are required to contain both element content and the alt attribute.
  - No APPLET elements found in document body.
- Rule: 6.3.7 - When EMBED Elements are used, the NOEMBED element is required in the document.
  - No EMBED elements found in document body.
- Rule: 6.3.8 - All pages that have links to files that require a special reader or plug-in are required to contain the specified text indicating a link to the reader or plug-in.
  - Note: This rule has not been selected to be verified for this checkpoint.

N. 508 Standards, Section 1194.22, (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.   N/A

Things to Try Yourself

10. Visit the following sites and determine what layout design they are using: ice, jello, or liquid:

- http://www.nps.gov

- http://www.census.gov

- http://www.officedepot.com

- http://www.velonews.com

- http://wwwcfnews13.com

11. Use one of the accessibility validators listed on the previous page and check your About Me page on Pegasus for accessibility issues.