21CSCI03P
Web Programming

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Chapter 3
# Web Design Basics
Key Concepts

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Learning Outcomes

- Describe the most common **types of website organization**
- Describe principles of **visual design**
- Design for your **target audience**
- Create clear, easy-to-use navigation
- Improve the **readability** of the **text** on your web pages
- Use **graphics** appropriately on web pages
- Apply the concept of **Universal Design** to web pages
- Describe **web page layout design** techniques
- Describe the concept of responsive web design
- Apply best practices of web design

Design for Your Target Audience
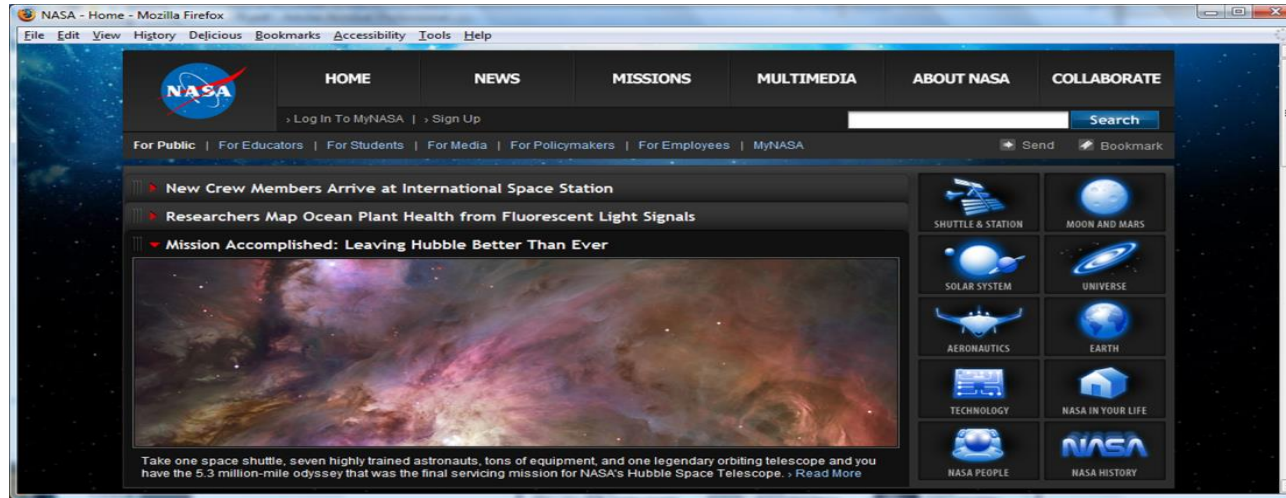
Consider the **target audience**- people who will use your site.

The **purpose** and **goals** of your visitors will **vary**.

The **design** of a website should **appeal** to and **meet** the **needs** of the target audience.

Web Page Design Browser Compatibility

- Web pages do **NOT look** the same in all the major browsers
- Test with **current** and **recent** versions of:
    - Internet Explorer
    - Firefox, Mozilla
    - Opera
    - Safari
- Try to **test** your pages with the most popular **versions** of browsers on both PC and MAC operating systems.

Web Page Design Screen Resolution

- Test at various screen resolutions
  - Most widely used: 1024x768, 1366x768, and 1280x800

- Design to look good at various screen resolutions
  - **Centered** page content
  - Set to either a **fixed** or **percentage** width

Website Organization

- **How** will visitors **move** around your site?

- **How** will they **find** what they need?

This is largely determined by the website's organization or architecture.

- **Site map :** A **diagram** of the **organization** of a website**.**

Creating the site map is one of the **initial** steps in developing a website.

Website Organization:

- Hierarchical

- Linear

- Random *(sometimes called Web Organization)*

Hierarchical Organization

- A clearly **defined home page**

- Navigation **links** to **major site sections**

- The **home page** plus the **first level** of pages in a hierarchical site map typically indicates the **hyperlinks** on a main navigation bar of each web page.

- Often used for **commercial**

  and **corporate websites**
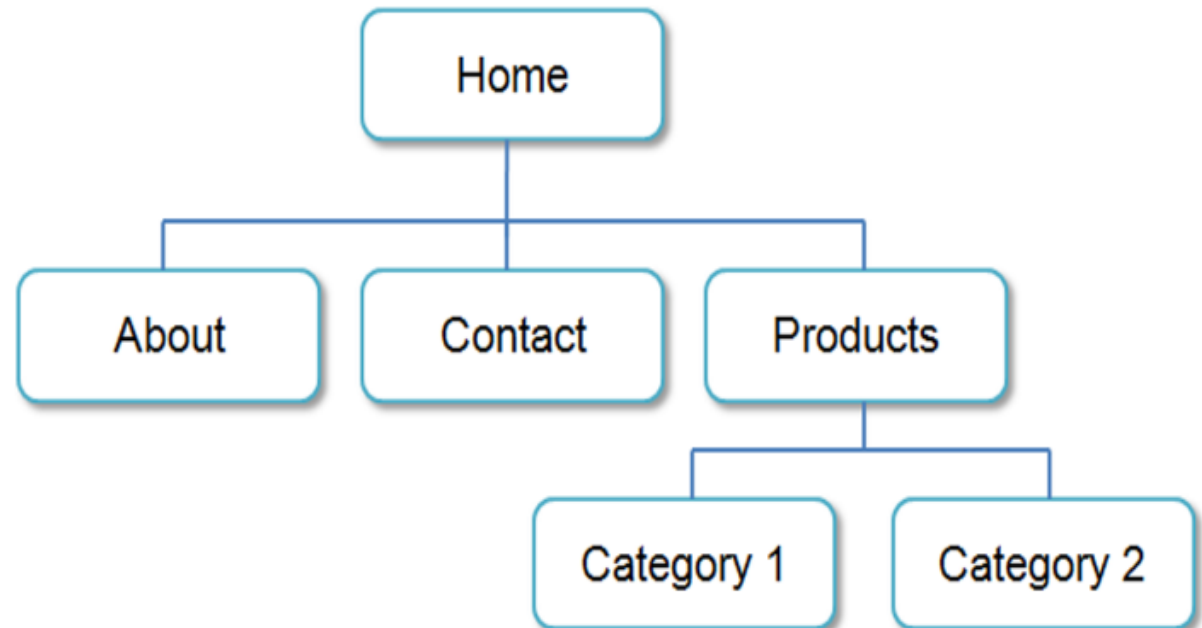
Hierarchical: Too Shallow

- Be careful that the organization is **not too shallow**.
- Too many **immediate** choices → a **confusing** and **less usable** website.
- **Group**, or "**chunk**", related areas
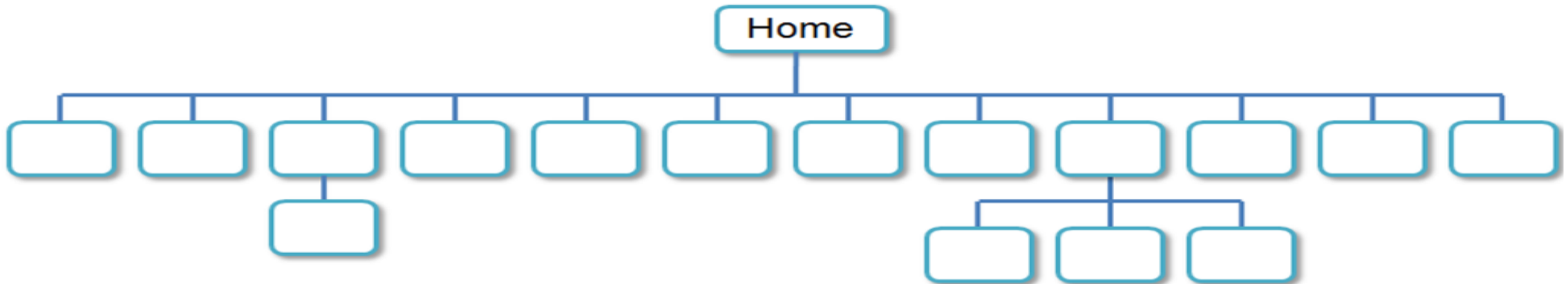
Hierarchical: Too Deep

- Be careful that the organization is **not too deep**.
    - This results in **many "clicks"** needed
      to drill down to the needed page.

    - User Interface "**Three Click Rule**"
        - A web page visitor should be able
          to get from any page on your site to
          any other page on your site with a **maximum**
   of **three hyperlinks**.
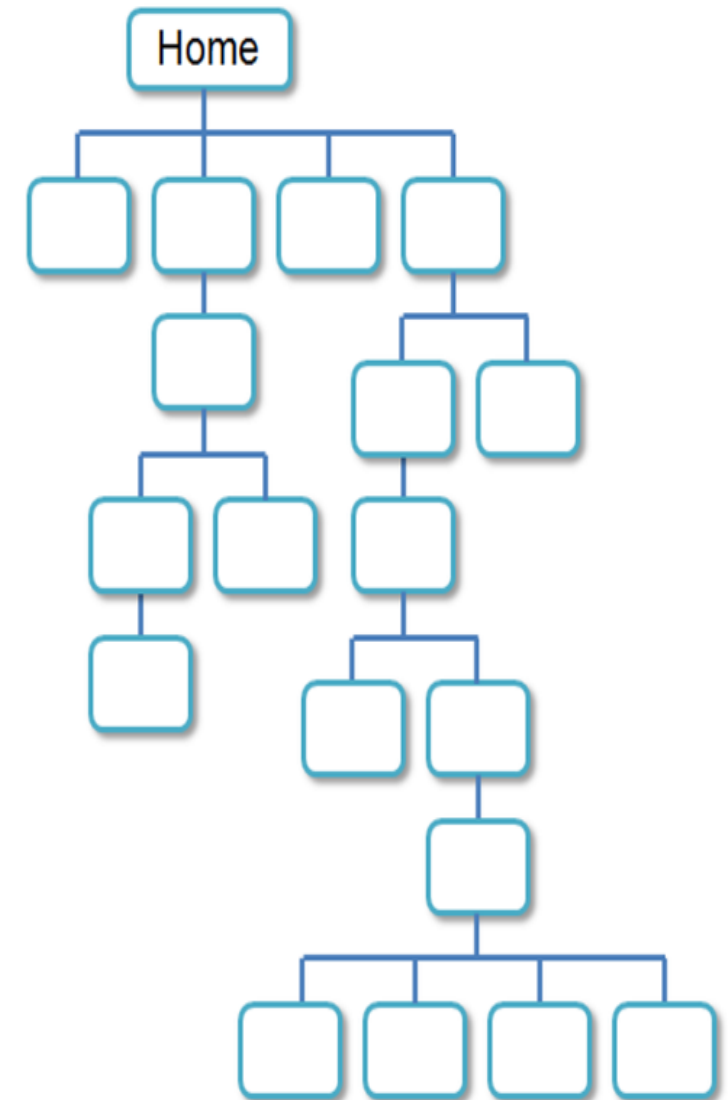
Linear Organization

- A series of pages that provide a **tutorial**, **tour**, or **presentation**.
- **Sequential viewing**

Home Page → Lesson 1 → Lesson 2 → Lesson 3 → Summary

Random Organization

- Sometimes called "**Web**" Organization

- Usually there is **no clear path** through the site

- May be used with **artistic** or **concept sites** that strive to be especially different and original.

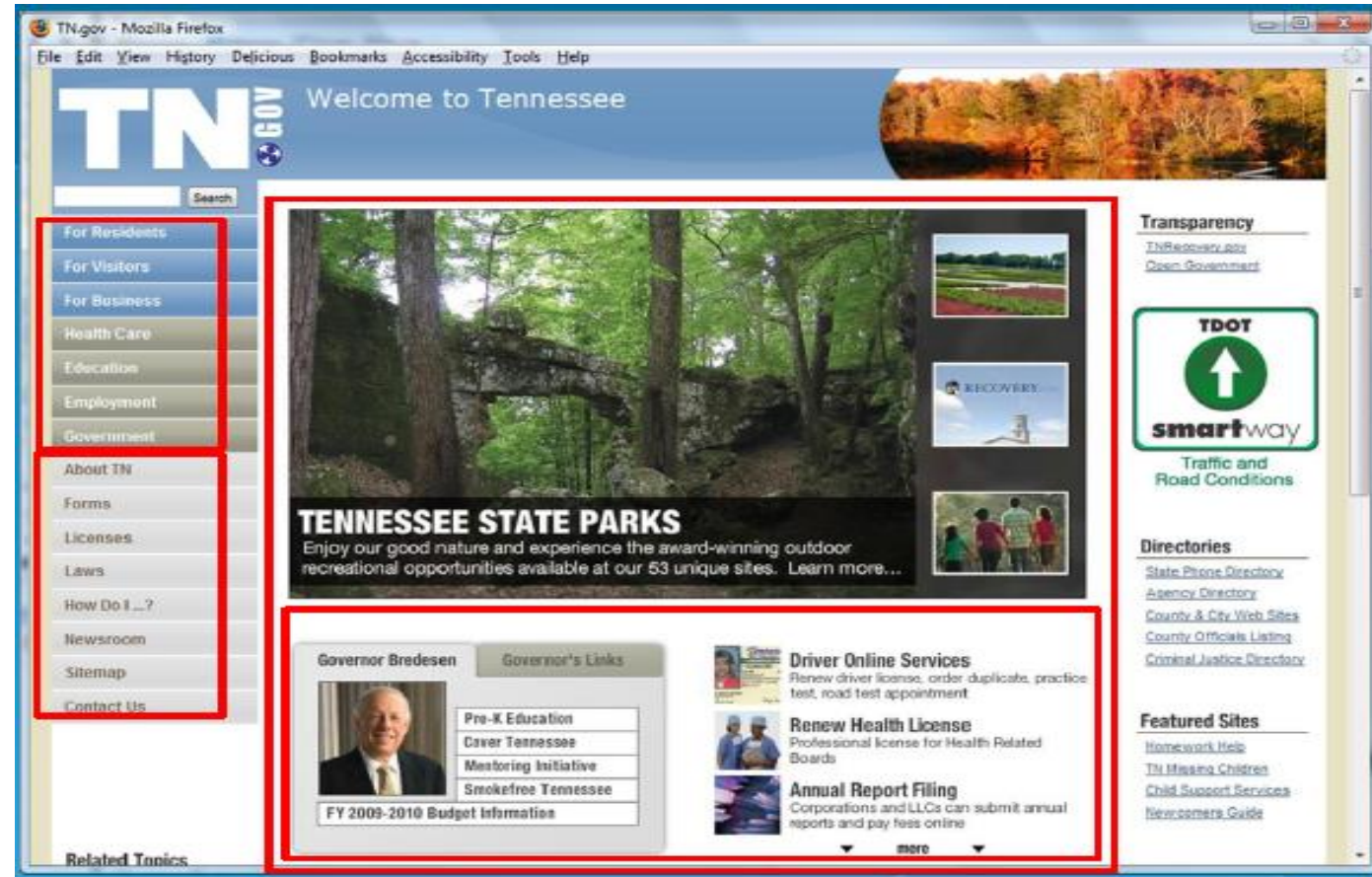- Not typically used for commercial sites
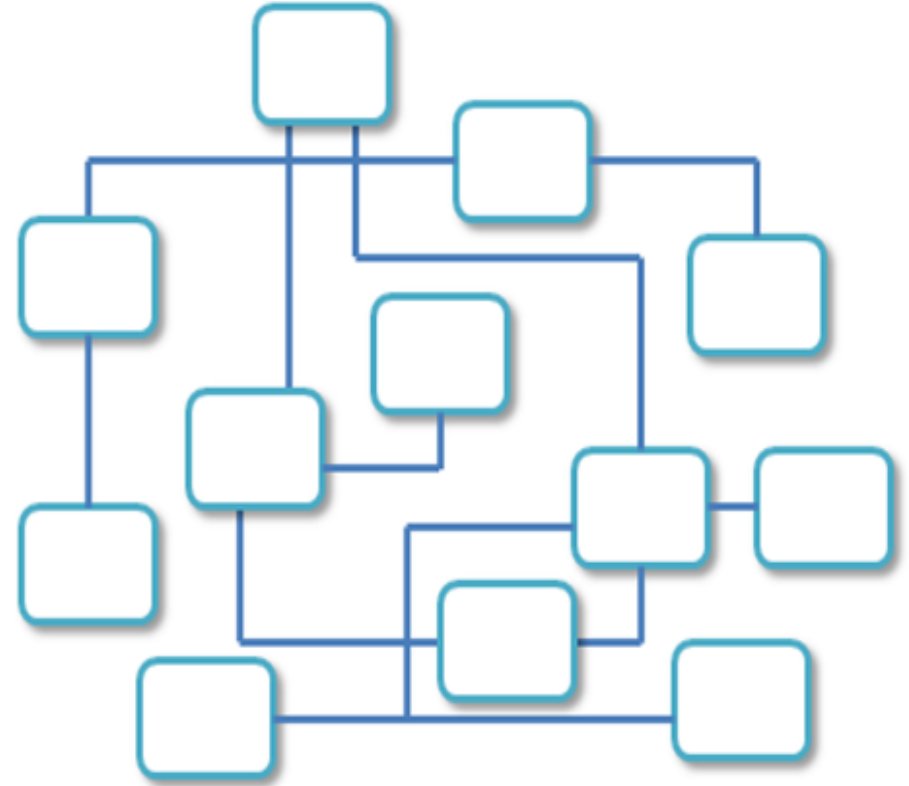
Visual Design Principles

- **Repetition**
  - Repeat visual elements throughout design
- **Contrast**
  - Add visual excitement and draw attention
- **Proximity**
  - Group related items
- **Alignment**
  - Align elements to create visual unity
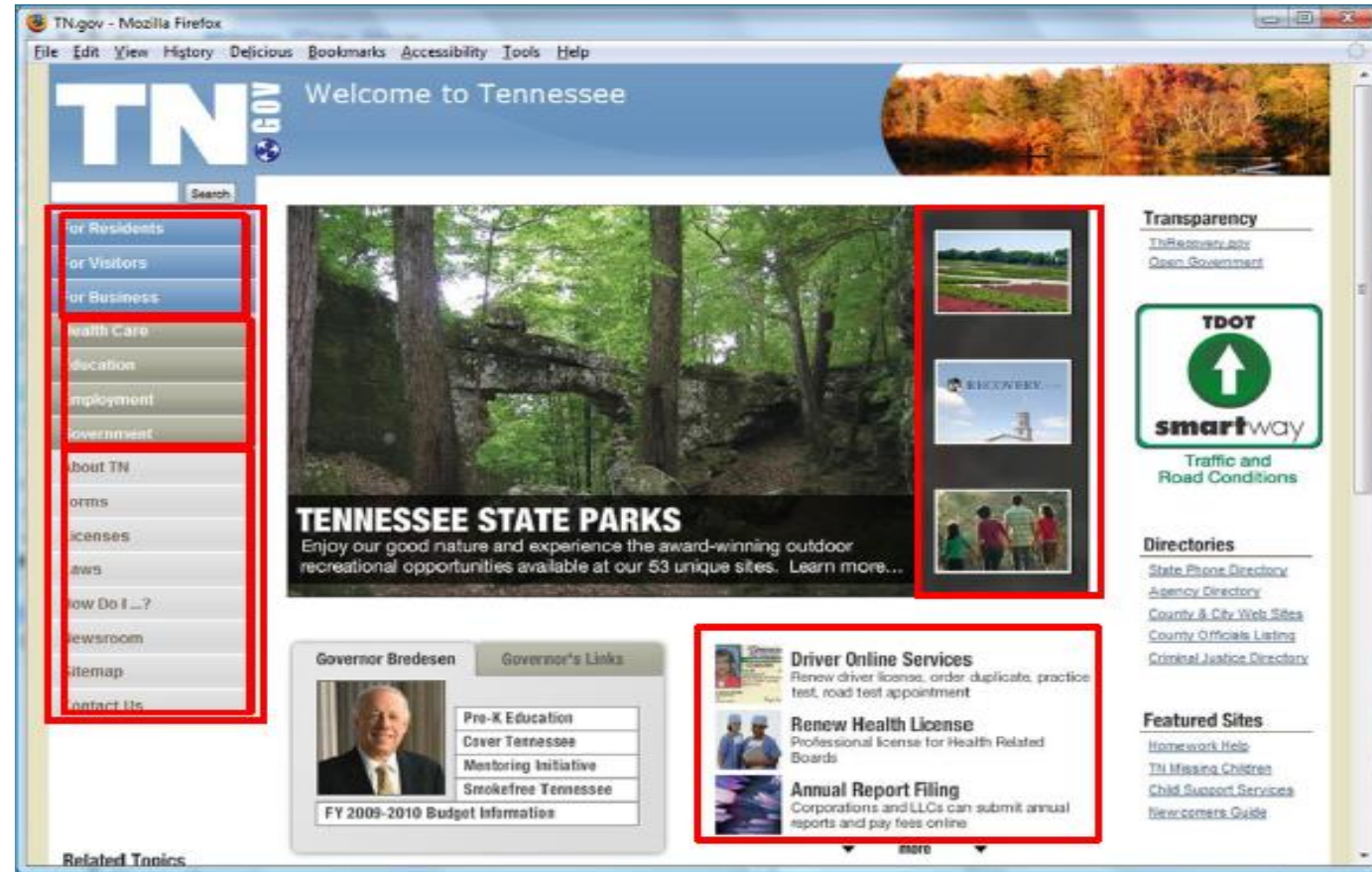
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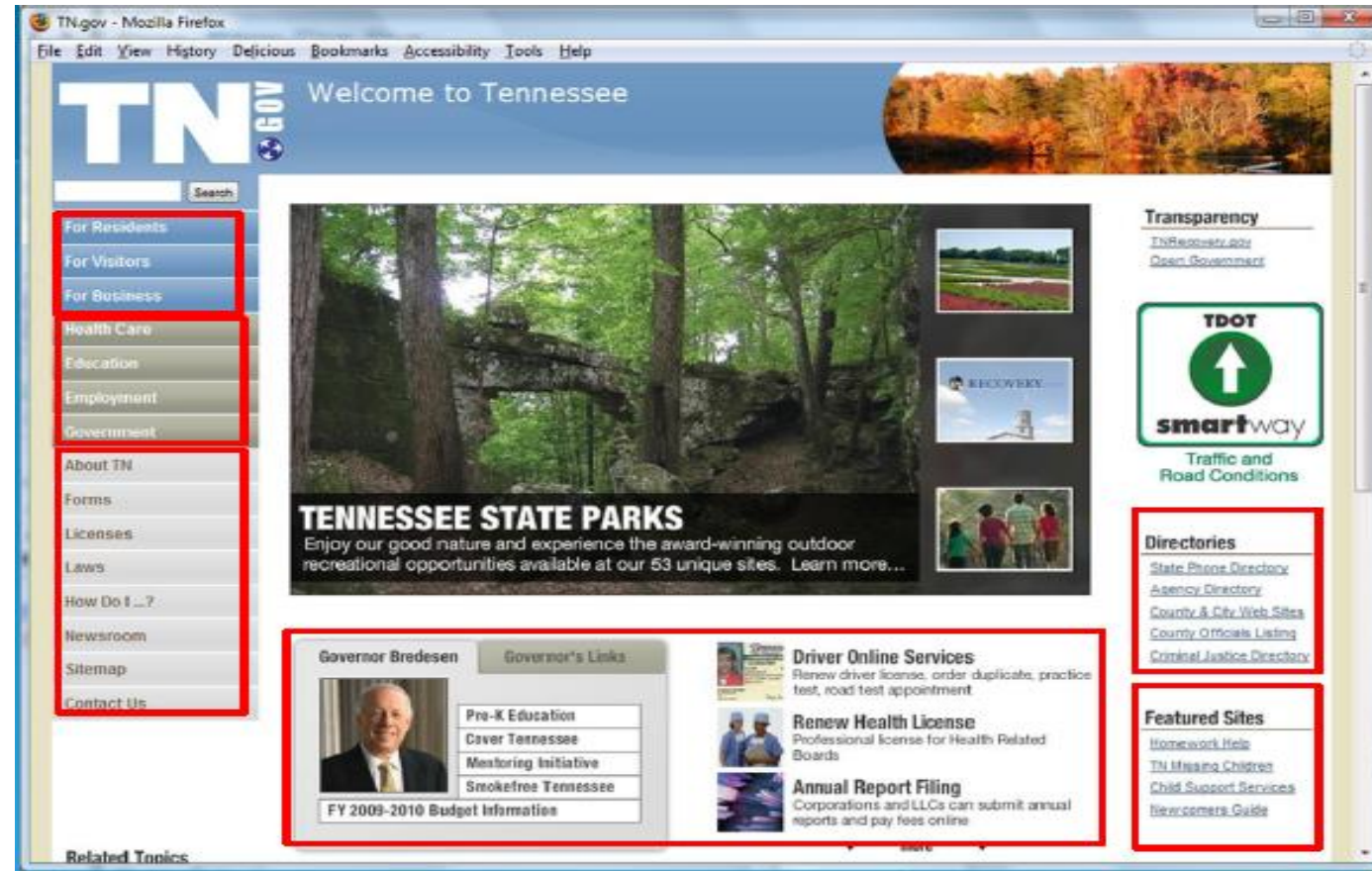 - Align elements to create visual unity

Visual Design Principles

- **Repetition**
  - *Repeat visual* elements throughout design
- **Contrast**
  - Add visual *excitement* and *draw attention*
- **Proximity**
  - *Related* items are placed *physically* close together
- **Alignment**
  - *Align* elements to create visual unity

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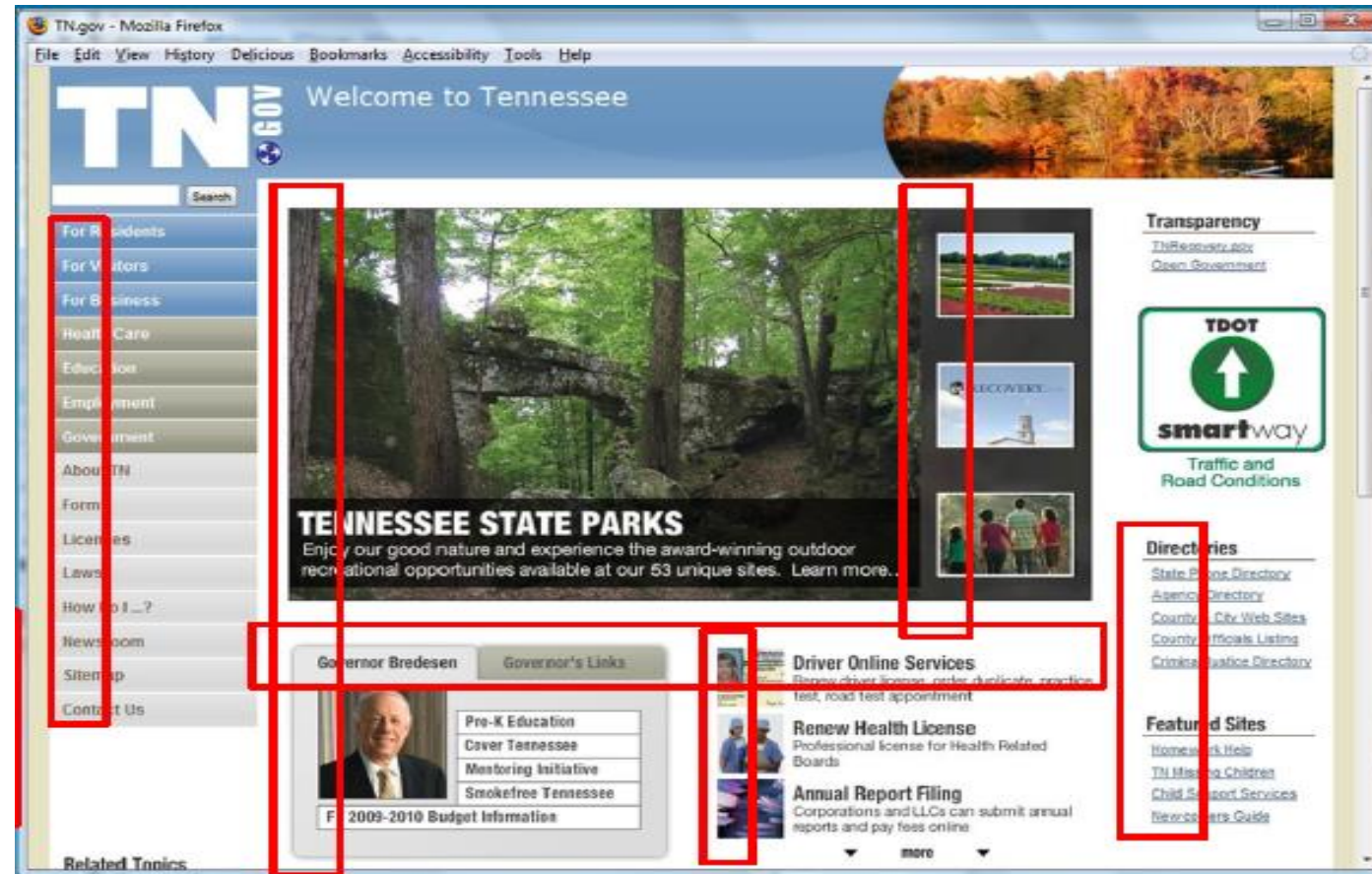 - Align elements to create visual unity

Design to Provide for Accessibility

"The power of the Web is in its **universality**. Access by everyone **regardless** of **disability** is an essential aspect." – Tim Berners-Lee

- Who benefits from increased accessibility?
    - A person with a **physical disability**
    - A person using a **slow Internet connection**
    - A person using an old, **out-dated computer**
    - A person using a **mobile phone**

Design for Accessibility

Based on Four Principles (POUR)

1- Perceivable

Content must be **easy to see or hear** (ex: Text description of images, and transcripts for audio)

2- Operable

Interface components in the content must be **operable by both mouse and keyboard**

3- Understandable

Content and **controls** must be **easy to read and well-organized, helpful error messages.**

4- Robust

Content should work with current and future user agents and function on popular **operating systems**, **browsers**, and **assistive technologies**.

Writing for the Web

- Avoid long blocks of text

- Use bullet points

- Use headings and subheadings

- Use short paragraphs
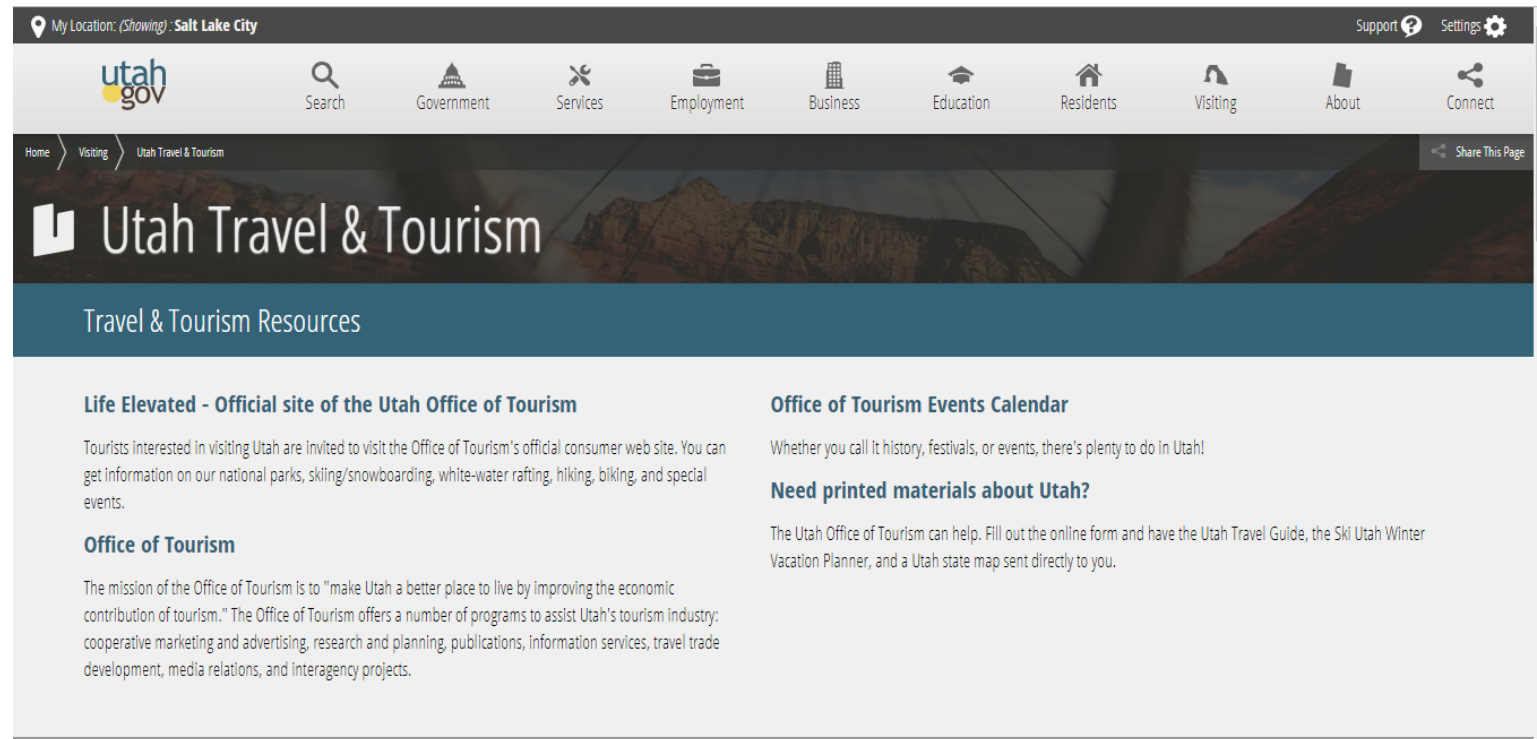
Design "Easy to Read" Text

- Use common fonts:
  - Arial, Helvetica, Verdana, Times New Roman

- Use appropriate text size:
  - medium, 1em, 100%
- Use appropriate line length
  - Between 50-75 characters is recommended

- Use strong contrast between text & background

- Use columns instead of wide areas of horizontal text
- Check Alignment

More Text Design Considerations

- Carefully choose text in hyperlinks

  - Avoid "click here"
  - Hyperlink key words or phrases
  - Do not hyperlink **not entire sentences**

- Chek yur spellin (Check your spelling)

Using Color on Web Pages

- Computer monitors display color as **intensities** of **red**, **green**, and **blue** light (RGB Color)

- The values of red, green, and blue vary from 0 to 255.

- Hexadecimal numbers (base 16) represent these color values.

#FFFFFF	#FFFFCC	#FFFF99	#FFFF66	#FFFF33	#FFFF00
#FFCCFF	#FFCCCC	#FFCC99	#FFCC66	#FFCC33	#FFCC00
#FF99FF	#FF99CC	#FF9999	#FF9966	#FF9933	#FF9900

Hexadecimal Color Values

- # indicates a hexadecimal value

- Hex value pairs range from 00 to FF

- Three hex value pairs describe an RGB color
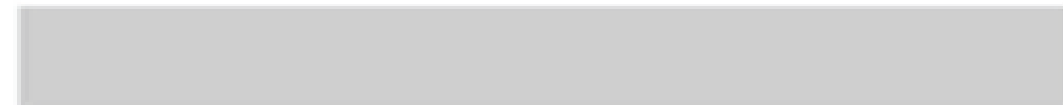
Red: #FF0000

Green: #00FF00

Blue: #0000FF

Black: #000000

White: #FFFFFF

Grey: #CCCCCC

Web Color Palette

#FFFFFF	#FFFFCC	#FFFF99	#FFFF66	#FFFF33	#FFFF00
#FFCCFF	#FFCCCC	#FFCC99	#FFCC66	#FFCC33	#FFCC00
#FF99FF	#FF99CC	#FF9999	#FF9966	#FF9933	#FF9900
#FF66FF	#FF66CC	#FF6699	#FF6666	#FF6633	#FF6600
#FF33FF	#FF33CC	#FF3399	#FF3366	#FF3333	#FF3300
#FF00FF	#FF00CC	#FF0099	#FF0066	#FF0033	#FF0000

- A collection of 216 colors

- Display the most similar on the Mac and PC platforms

- Hex values:
  00, 33, 66, 99, CC, FF

- Color Chart : http://webdevbasics.net/color

Making Color Choices

- How to choose a color scheme?
  - Monochromatic
    - http://meyerweb.com/eric/tools/color-blend
    - http://www.0to255.com

  - Choose from a photograph or other image
    - http://www.colr.org

  - Begin with a favorite color
    - Use one of the sites below to choose other colors
      - http://www.colorschemedesigner.com
      - http://www.colorsontheweb.com/colorwizard.asp

Use of Color

Appealing to Kids & Preteens

Appealing to Everyone

Appealing to Young Adults

Appealing to Older Adults

Use of Graphics & Multimedia

- File size and dimension matter
  - Keep both the *file size* and the *dimensions* of images *as small as possible*
  - *crop* an *image* or create a *thumbnail image* that *links* to a *larger version* of the image

- Provide *alternate text* to images (Mobile devices, slow connection, Disabilities)

- Use *animation* and *multimedia only necessary*.
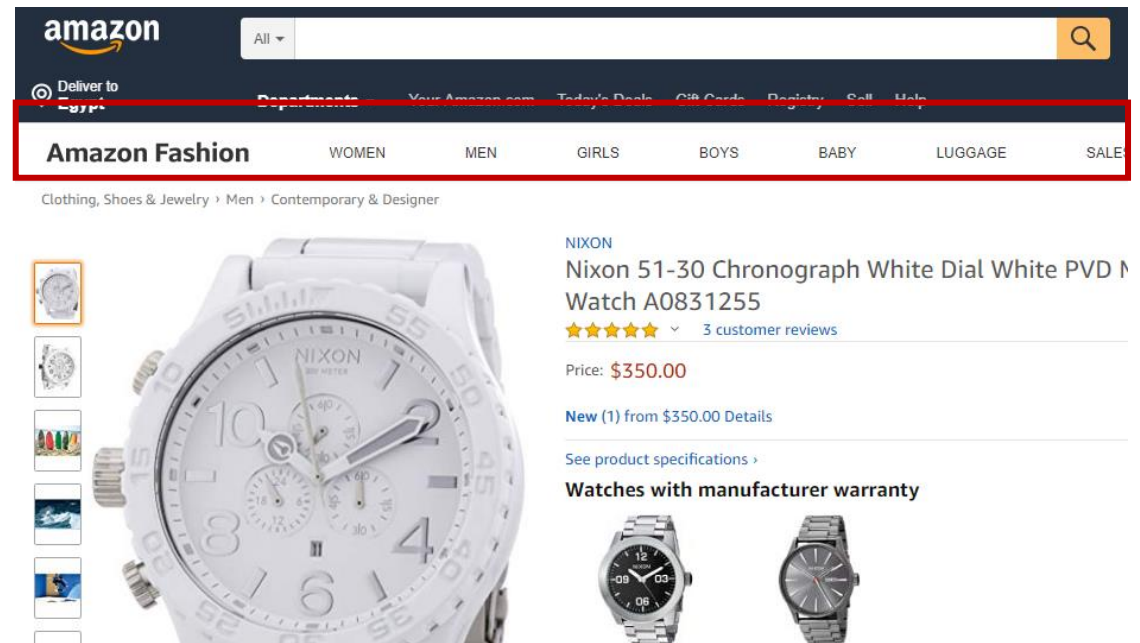
- Antialiased/aliased text considerations

Navigation Design

- Make your site **easy to navigate**
  - Provide **clearly labeled navigation** in the same location on each page
  - Most common – **across top** or **down left side**
- Consider:
  - Navigation Bars
  - Breadcrumb Navigation
  - Using Graphics for Navigation
  - Dynamic Navigation
  - Site Map
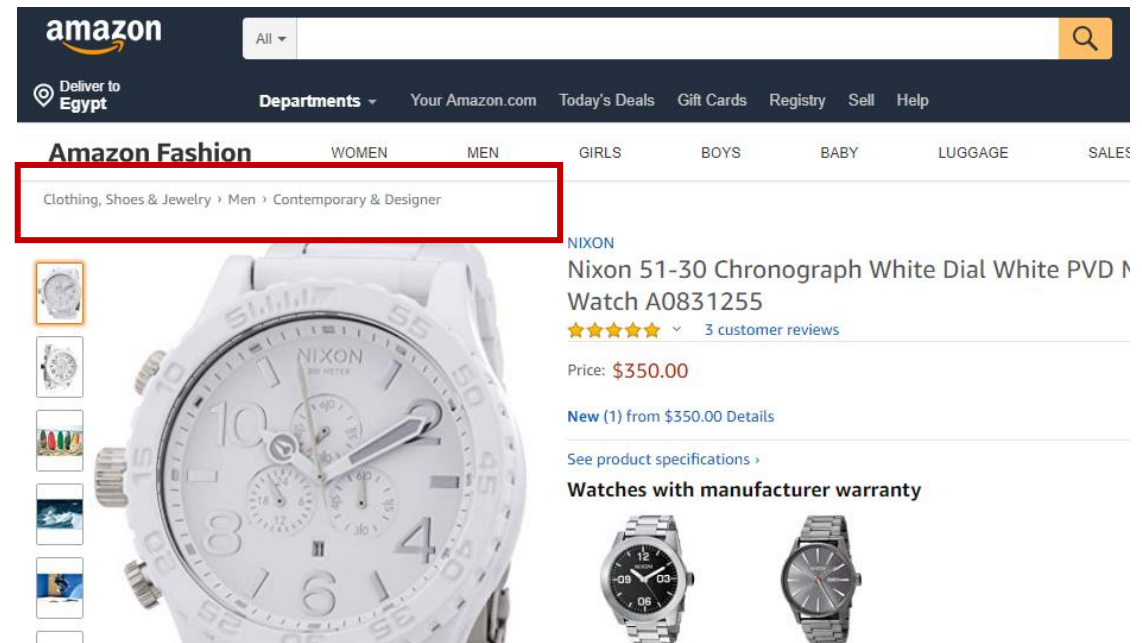 - Site Search Feature

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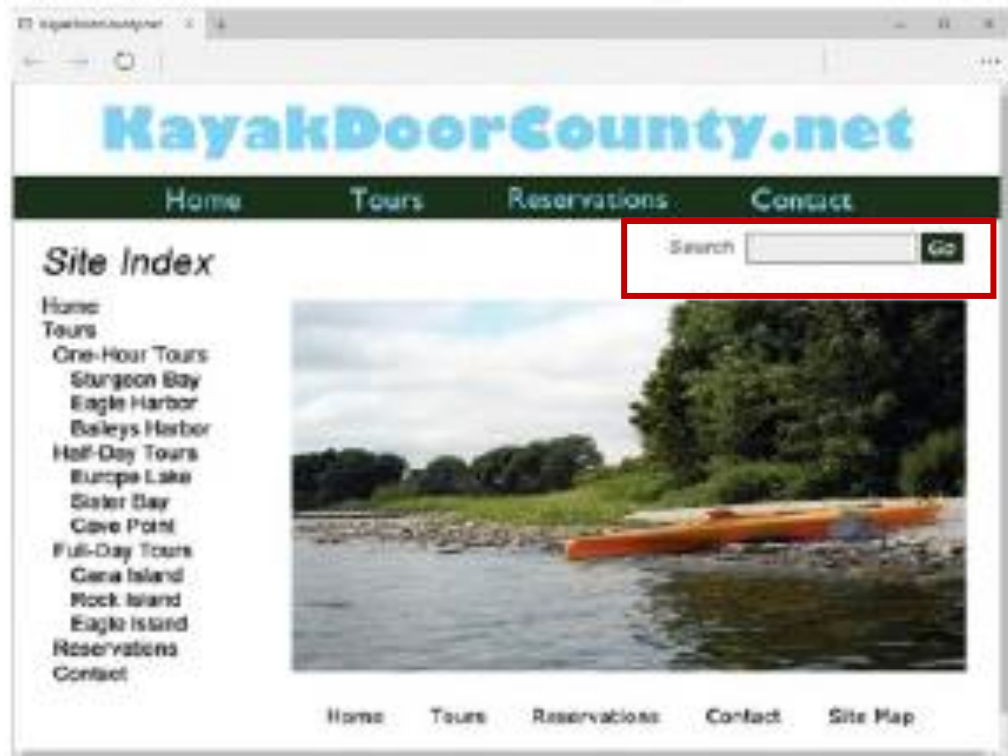 - Site Map
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Wireframe

- A **sketch** of **blueprint** of a web page

- Used as **part of the design process** to experiment with various pages layout.

- **Exact content does not need** to be placed in the wireframe diagram.

- Shows the **structure** of the **basic page elements**, including:
  - Logo
  - Navigation
  - Content
  - Footer

Web Page Design Page Layout

- Place the most important information "**above the fold**"
- Use adequate "white" or blank space
- Use an interesting page layout

This is **usable**, but a little **boring**.
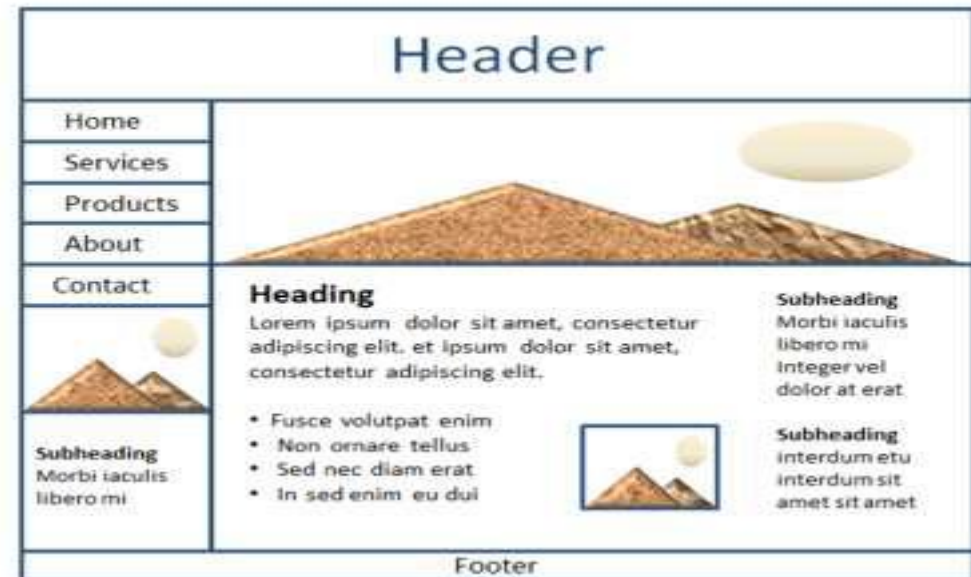
Web Page Design Page Layout (Cont.)

Better

Columns make the page more interesting and it's easier to read this way.

Web Page Design Page Layout (Cont.)

Best

Columns of **different widths** interspersed with graphics and headings create the most interesting, easy to read page.

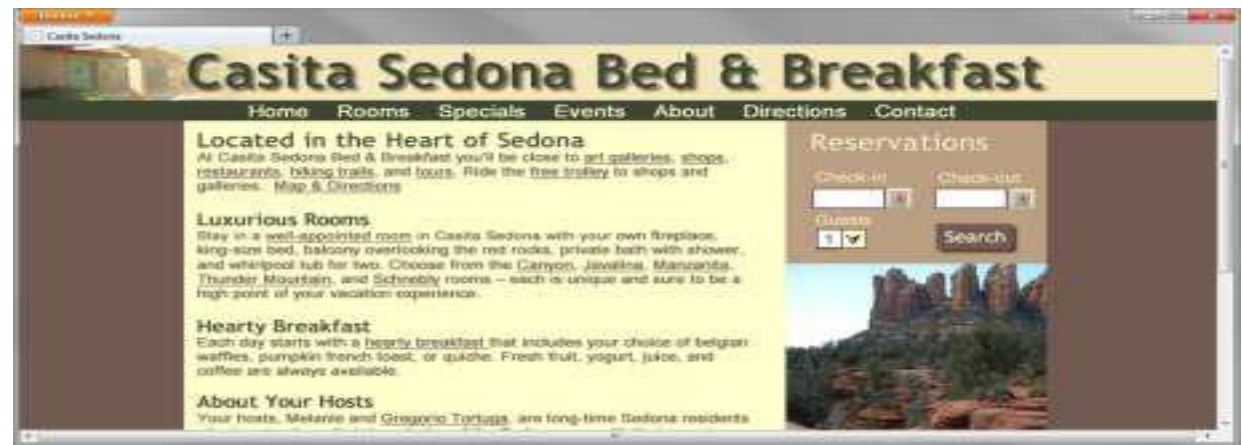# Page Layout Design Techniques

Fixed Layout

◦ AKA rigid or "ice" design

◦ Fixed-width often
at left margin

◦ More appealing if
fixed with content is centered
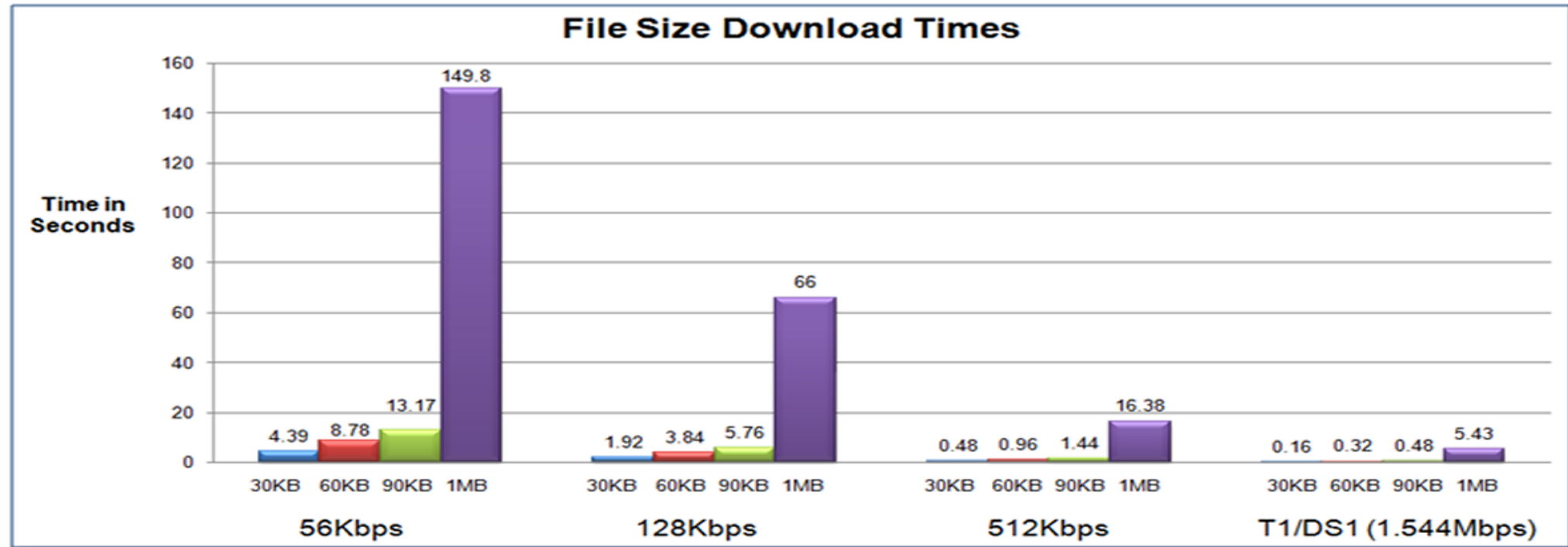
Page Layout Design Techniques

Fluid Layout

◦ AKA "liquid" design

◦ Expands to fill the browser at all resolutions.

◦ Adaptation:
  ◦ Page content typically centered and often configured with a percentage width such as 80%

Web Page Design Load Time

File Size Download Times

- Watch the load time of your pages
- Try to limit web page document and associated media to under 60K on the home page

More Design Consideration

- **Perceived Load Time**

is the amount of time a web page visitor is **aware** of waiting while your page is loading.

- **Above the fold**

Arrange interesting information "above the fold"- the area the visitor sees before scrolling down the page.

More Design Consideration (Cont.)

- **Adequate white space**

- Placing blank or white space in areas **around blocks** of text **increases readability** of the page.

- Placing white space **around graphics** helps them to stand out.

- Allow for some blank white space between blocks of text and images

- **Horizontal scrolling**

Avoid creating pages that are **too wide** to be displayed in the browser window. These pages require the **user** to **scroll horizontally**.

Design for the Mobile Web

- Usage of mobile devices continues to grow. It is important to design web pages that are **appealing** and **usable** for your **mobile** visitors.

- Three Approaches:
  - Separate .mobi mobile site
  - Host the mobile site within your current domain
  - Configure your current website for mobile display using responsive web design techniques

Mobile Design Quick Checklist

- Small screen size
- Bandwidth issues
- Single-column layout
- Maximize contrast
- Optimize images for mobile display
- Descriptive alternate text for images
- Avoid display of non-essential content

Responsive Web Design

- Progressively enhancing a web page for different viewing contexts (such as smartphones and tablets) through the use of coding techniques, including **flexible layouts** and **media queries**.

Web Design Best Practices Checklist

http://terrymorris.net/bestpractices

- Page Layout
- Browser Compatibility
- Navigation
- Color and Graphics
- Multimedia
- Content Presentation
- Functionality
- Accessibility

Summary

- This chapter introduced you to best practices of web design.

- The choices you make in the use of color, graphics, and text should be based on your particular target audience.

Thank You