Defining a Website
First Step in Website Development

Process - Define
- To define a website we must ask ourselves questions and define various aspects of the site
  - What's the purpose of the website?
  - Who is the intended audience?
  - What is the primary content?
  - What kind of interaction with readers is needed?
  - Who is responsible for what?
  - What are the technical requirements?

Purpose
- Why is the website needed?
- What is the main goal of having a website?
- Are there other objectives?
- What is the primary message?

Audience
Define the audience by answering questions:
- Who is going to access the website?
  - Is there any demographical information available?
  - What generalizations can be made about the audience?
    - Age, location, education level, types of computer, connection speeds, interests
  - What relationship do they have with the organization?
  - Employee, customer, student, fan...
  - Why will people access the site?
  - Will they be able to find the needed information?
  - What issues may come up with usability & accessibility?

Primary Content
- Define the content by answering questions
  - What information will be needed?
  - Which information already exists?
    - In what format is the information currently available?
  - What information will change and how often?
  - Will information from a database be needed?
  - Will any media be needed?
    - Images, video, sound?

Interaction with audience
- Is interaction between audience and organization needed?
- What types of interaction?
  - Email
  - Inquiry input forms
  - Multimedia interaction
  - Chat
  - Discussion/Forum area
**Who is responsible for what**

- Someone needs to be responsible
  - No one assigned quickly outdated.
- Responsibility broken down between content, structure and visual design
  - Web master – designs and maintains the technological structure of the web site
  - Content master – provides and maintains the content
  - Graphic artist – creates the visual appeal
- Sometimes these are the same person.
- Small websites may have one person
- Larger websites may need many people
  - Some maintain different sections

**Technology Aspects**

- Which server is being used?
  - In-house
    - Does current computing power meet the needs?
    - Anything new needed?
    - What costs are involved?
  - Out-sourced to an ISP or web host?
    - Which one?
    - What does it cost?
- Are domain names needed?
- What server technologies are needed
  - Is database integration needed?
  - Are server generated pages needed?
  - Can those capabilities be handled by the server?

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**Planning a Website**

Second Step in Website Development

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**Process: Plan**

- Establish a timeline for completion
- Outline content organization
- Determine navigational needs
- Design layout & visual appeal
- Define legal aspects
- Determine tools needed
- Collect content

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**Timeline**

- Determine:
  - How much time is needed to develop the site?
  - When is the rollout date?
  - What needs to be accomplished when?
- Create a timeline that maps out when each step should be completed
- For class our timeline is defined by the dates of the course and due dates of the milestones

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**Organization of site**

- Assists with determining navigation
  - Navigation often reflects organization
- Determine general categories for organization of information
- List pages needed for site.
  - For small sites, list each page needed
  - Larger sites list the major pages /categories
- Organization considerations
  - emphasis of purpose
  - Who is the primary audience & secondary audience
    - the needs of the audience
    - content
**Visual Aspects**
- Will a graphics artist be needed?
- Start planning visual appeal
  - Create a rough layout of the screen
- Visual elements needed
  - Banner
  - Logo
  - General visual layout
  - Graphics
  - Color scheme
- Visual appeal should be geared to the audience and help emphasizes the main message.

**Legal Aspects**
- What legal issues are involved?
  - Copyright of content
  - Avoid infringing on the copyright of others
    - Royalties on graphics, photos, music, video, etc.
- Are there any legal requirements?
  - Participation of minors
    - May need parental consent
  - Notifications needed
  - Protecting any data collected
  - Legality of activities

**Tools Needed**
- Hardware
  - Computer
  - Scanner
  - Camera
  - Video recorder
  - Various platforms, monitors sizes to test websites
- Software
  - Web page creation
    - High end - site management
    - Simple editing
  - Image creation & editing
  - Other media
  - File transfer
    - Often included in the high end web software
  - Various browsers

**Advanced tools**
- Server generated pages & database integration
  - Active Server Pages
  - PHP
  - ColdFusion
- Programming
  - Javascript
  - Java
  - Visual Basic

**Content**
- Content is crucial. Without it - you have no reason for a site.
- As soon as possible:
  - Pre-existing content
    - Collect
    - Edit pre-existing text for web use
  - New content
    - Write text
    - Create graphics and other media

**Content: Hardest part**
- Coming up with content is one of the hardest parts of website creation
  - Often businesses know they need a website and don’t know what content to put on it or can’t agree what to put on it.
  - For this class, content will be turned in early or request to be assigned a project & I will provide the content.
More on HTML & Brief Look at CSS
Separating Structure & Design

More about HTML
❖ W3C* oversees standardization of HTML and establishes rules
 ➢ Led by Tim Berners-Lee who first developed the web
❖ Newest version is HTML 5
 ➢ New elements
 ➢ Easier media integration
 ➢ More interactivity

*W3C – World Wide Web Consortium

Example code
❖ HTML 4.01
  ➢ <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
  ➢ <html>
❖ XHTML
  ➢ <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
  ➢ <html xmlns="http://www.w3.org/1999/xhtml" lang="en">
❖ HTML 5
  ➢ <!DOCTYPE HTML>
  ➢ <html lang="en">
❖ Recommended to have the language attribute specified “en” is for English
❖ Website development software does this.

Coding Validation
❖ If you are writing HTML code instead of using a program like Dreamweaver, consider using a validator to ensure your HTML is correct - W3C’s Validator
  ➢ Finds tags that are not closed
    ➢ <p>This is my paragraph.
    ➢ <p>This is another paragraph
    ➢ both are missing <p>
  ➢ Finds tags that are improperly closed
    ➢ <p>This is my <em>paragraph</p></em>
    ➢ Tags contained within another tag must close first
    ➢ <p>This is my <em>paragraph</em></p>
  ➢ And many other coding errors

HTML Code Ordering
❖ When you have codes embedded in other codes, closing order should be properly completed
❖ Codes contained within another code must close first - last used tag should be closed first
❖ Correct order
  <p>This is <strong>text</strong></p>
❖ Incorrect order
  <p>This is <strong>text</strong></p>
HTML Attributes

- Some HTML tags allow various attributes which can affect the tag.
- Attributes are included after the tag name
  - `<ol type="A">`
  - `<a href="mypage.html">`
- More than one attribute can be included
  - `<ol type="A" start="5">`
  - `<a href="mypage.html" target="_blank">`
- Of course, most attributes can be implemented in software as well!

List Attributes

- Unordered list type attribute
  - type = "disc" (filled circle)
  - type="circle" (circles)
  - type="square" (squares)
- Ordered list type
  - type="I" (Large Roman numerals)
  - type="A" (Large alphabet)
  - type="i" (small Roman numerals)
  - type="a" (small alphabet)
  - type="1" (default - numbers)

More list attributes

- Ordered list start attribute
  - start="n" (n can be any number and it starts the order with that number or corresponding letter, numerals)
    - Start="5" will yield
      - 5 for number list
      - E for large alpha
      - V for roman numerals

Anchor attributes

- Anchors (a tag) are used in two ways. Specifying which way is an attribute.
  - One is to name a point in the page
    - name="anchorname" (no spaces are allowed in the name of the anchor)
  - Another is to create a link
    - href="link"
- Another attribute used with links is target
  - Specifies where link will open

Links

- To link to an named spot on the page – use 
  & anchor name
    - `<a href="#tea">Teas</a>`
- To link to page within same site & folder – use filename only
  - `<a href="pagename.html">My page</a>`
- To link to another site – use the full URL
  - `<a href="http://www.wcc.hawai.edu">Windward CC</a>`
- This methods can be combined to go to a specific spot on a specific page on another site

Targets

- target="_self"
  - Opens a link in the same tab/window (default)
- target="_blank"
  - Opens a link in a new window or tab
- target="namedwindow"
  - Opens a page in a new tab/window and give the tab/window a name. Any other pages which specify that same name will open in that same tab/window (providing it hasn't been closed.)
    - Example
Special characters

- Special codes are needed to display certain characters
  - Extra space: &nbsp;
  - Left Bracket: &lt;
  - Right Bracket: &gt;
  - Quote: " &amp;quot;
  - Curly Quotes: " &amp;ldquo; &amp;rdquo;
- Comments – to add documentation to coding, but not to be displayed

Structure vs Design (Styling)

- As web developers we need to keep these two separate in our minds and in our coding.
- Our audience, however, sees a web page with the two tightly integrated into one.
- Keeping structure & styling separate allows for
  - Accessibility
  - Ease of updating
  - Quicker redesign

  Visual design can be changed without affecting the content within the site.

In web construction

- Structure created with a markup language such as HTML defines structural elements such as paragraphs, lists, headings, tables, divisions, layout elements, and more
- Visual design is added to the structure through the use of Cascading Style Sheets (CSS) to add color, layout, backgrounds, margins, spacing, and other design elements

Defining Structure

- Within the body we may have divisions (div tag) or other layout elements
- Organize the page
- Allow for layout
- Incorporate visual design elements
- Specify an ID to identify each division
- Within layout elements we can have
  - Other layout elements
  - Basic elements

Basic Page Sections

- Place each section in a division or other layout element
  - Banner or Site identity
  - Navigation
  - Site navigation
  - Search capability
  - Contents
  - Side bars
- The whole page can be also be placed in a division
- Helpful in limiting the width of the page

Example of Division Coding

```xml
<body>
  <div id="wholepage">
    <div id="banner">
      <h1>This is the Banner</h1>
    </div>
    <div id="pagecontent">
      <div id="nav">
        Site Navigation goes here
      </div>
      <div id="content">
        <h1>Heading</h1>
        Text for content goes here
      </div>
    </div>
    <div id="footer">
      footer info
    </div>
  </div>
</body>
```
Different styles for each division

- Screen shot shown below has two divisions.
  - Each division has a H1 heading and an unordered list
  - CSS is set to style each division differently

<table>
<thead>
<tr>
<th>Topic List</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTML, CSS, Design, &amp; Code</td>
</tr>
<tr>
<td>HTML</td>
</tr>
</tbody>
</table>

- Everything that displays on the page is within the body section of the HTML
- Within the body we may have divisions (div tag)
  - Organize the page
  - Allow for layout
  - Incorporate visual design elements
  - Specify an ID to identify each division
- Within divisions we can have
  - Other divisions

The Beauty of CSS

- To understand the wonder of CSS we will look at a site called CSSZen Garden
  - This site invites designers to take the same basic structure of a page and add design via a separate CSS style sheet.
- This site demonstrates why we separate structure from visual design.
- Hopefully you will begin to understand the beauty of keeping design & structure separate.

First look at the structure

- Screen shot of structure – no styles

CSS Zen Garden

No Heads or H1 Design

- Structure is kept simple by avoiding H1 or headings, allowing easy editing in a text editor

No External CSS

- Screen shot of structure with no styles

Next explore the designs

- All pages have the exact same structure.
- Changes are only to the external CSS style sheet.
- CSS Zen Garden then click on links to other pages such as
  - Under the Sea
  - Apocarthy
  - A robot named Jimmy
  - Kyoto forest
Web Development Ethics
Responsibility in creating websites

What is Ethics?
- Ethics is thinking about the effects of your actions and doing what helpful rather than hurtful.
- How do we know if something is ethical or not?
- Apply the ethical tests of
  - Universality
  - Reversibility
  - Transparency
- As part of these, think of the consequences for everyone involved

What are those ethical tests?
- Universality - Do you think it is okay for everyone to behave like that?
  - Consequences - What if everyone did this? What would be the consequences for everyone else?
- Reversibility - If someone did this to you, would you be okay with it?
- Transparency - Would you still do this if everyone knew about it?
  - If a TV camera was pointed at you, would you still do this action?

Web Development Ethics Topics
- Copyright infringement & fair use
- Being aware of laws
- Creating websites responsibly
  - Responsible Search Engine Optimization (SEO)
- This is not a comprehensive list of ethical topics related to website development, but it highlights some areas to think about when developing your sites.

Copyright Infringement
- Copyright infringement is illegal.
- Copying any copyrighted element from another website without express permission from the owner is infringing on copyright.
- Elements may be
  - Text
  - Graphics
  - Animation
  - Music in any form
  - Videos
  - Design
  - Any other item which is copyrighted

Protecting site with copyright
- Sites can be protected by adding a copyright notice. Required elements
  - Word copyright or the symbol ©
  - Year
  - Copyright owner (Can be an organization or an individual)
- Copyrights should be registered. For information about registering a copyright see the US Copyright Office
**Fair Use**
- Certain elements may be quoted under fair use under certain conditions
  - Purpose – such as non-commercial, educational, comment, critic
  - Amount used – for text 10% or 1000 words whichever is less
  - Also this cannot be your complete work.
- Always cite references when quoting the works of others or using images from other sources.

**Keep it Legal**
- Be aware of any laws governing web sites
  - Data collection
  - Dealing with minors
  - Privacy statement
  - Accessibility compliance
- Any other area of the law should be considered
  - Be aware of the laws in general of which activities are legal and which are not.

**Legal areas**
- Any illegal activities that break other laws not specifically related to websites
- Examples
  - First amendment protects free speech, but that doesn't include the right to liable, slander, or otherwise defame another individual, company, organization or other entity.
  - Gambling is illegal in Hawaii, so sites originating in Hawaii should not contain gambling

**Create Websites Responsibly**
- Not necessarily against any laws, but a good idea to be responsible.
- Use accurate information on your sites.
  - Avoid spreading rumors and hoaxes
  - Verify information
- Be considerate of others
  - Consider usability
  - Use accessibility standards

**Responsible SEO**
- SEO (Search Engine Optimization)
- Black Hat versus White Hat SEO
  - Black Hats
    - Use whatever means possible to get sites listed higher in search engine listings
    - Also called spamdexing
  - White Hats
    - Use search engine optimization responsibly and don't bend the rules to get a higher listing
- Develop websites responsibly!
Web Site Tools

- When creating consistent websites use tools which will help standardize the web sites
  - Cascading Style Sheets (CSS)
    - Visual display of elements
  - Templates
    - Structural design
  - Library Items
    - Elements or code within a site
  - Snippets
    - Elements or code available to all of your sites

Consistent Elements

- Templates contain consistent basic design, layout and elements for a site that can consist of
  - banners/logo
  - navigation
  - layout specifications
  - embedded (in document) styles
  - text portions of pages which remain the same
  - copyright notices
  - site URL
  - other items which repeat on each page

Working with Templates

- Templates do not contain the information, graphics or other items which change with each page.
  - Templates only contain the consistent elements which appear on every page

- Using templates
  - Create a basic template with editable regions
  - Create individual pages based on the template
  - Add content for each page into the editable regions

Dynamic Templates

- Both Dreamweaver and Expressions Web use dynamic templates.
  - When a template is updated, ALL of the pages created by this template can be updated
    - Saves much time.
  - When creating a page with a template, only the designated editable areas can be changed.
  - If changes are needed to the template areas, the template must be changed separately.
  - Template file MUST be in the template folder to work properly

Dreamweaver Library Items

- Library items are items which can be used over and over again on numerous pages within a site

- Library items
  - Simplify input and updating by storing any elements which may be used more than once.
  - Speed input by merely insert a library item into a page instead of reentering the information and formatting
  - Ensure when the library item is updated all occurrences of the item throughout the site are updated.
Library items may be
- Content with formatting and layout
- Links to other pages
- Logos
- Anything that is used more than once and has the possibility of changing
- If library item is changed, changes are made throughout the site.

Snippets
- Snippets are similar to library items in that they store items that are used over and over again.
- Difference between library items and snippets
  - Library items
    - Accessible to just one site.
    - When changed, will update all items within the site
  - Snippets
    - Accessible to any number of sites
    - Will NOT update all items within the site