CSC 242 - Web Programming

Introduction to HTML

Semantic Markup

- The purpose of HTML is to add meaning and structure to the content
- HTML is not intended for presentation, that is the job of CSS
- When marking up a document, choose the element that provides the most meaningful description of the content

HTML elements

```
<element attribute="value">Content</element>
```

- `< ... >`: is an opening tag
- `</ ... >`: is a closing tag
- `element`: is the name of the element
- `attribute`: is a property of an element, there can be zero or more attributes associated with a tag
- `value`: is the value of an attribute

Facts About Attributes

- Attributes have a name and a value
- Attribute names and values are separated by an equals sign
- Multiple attributes are separated by spaces
- Attributes go after the element name in the opening tag
- When an element has multiple attributes, the order does not matter
- Most attributes take values, but certain attributes can be described with the name
- The attributes available to a given element are pre-defined
- Some attributes are required for a given element

Recommended Basic Document Structure

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>PAGE TITLE</title>
  </head>
  <body>
  PAGE CONTENT
  </body>
</html>
```

Components of the Basic Document Structure

- line 1: the document type declaration
- lines 2-10: the entire document is contained within an html element
- lines 3-6: the head element contains descriptive information about the document
- line 4: This `meta` element provides information about character encoding
- line 5: The `title` element is required in the `head` element an provides a descriptive title for the document
- lines 7-9: the `body` element contains everything that is shown in the browser

Block and inline elements

- **Block** elements start on new lines
- **Inline** elements do not start a new line
- Each type of element has a default value, but this can be modified with CSS

Paragraphs and Headings

- `<p>...</p>` a paragraph
- `<h1>...</h1>` a heading
- There are six levels of headings: `h1`, `h2`, `h3`, `h4`, `h5`, `h6`
- Headings create an "outline" structure to a document

Unordered Lists

- `<ul>...</ul>` an unordered list
- `<li>...</li>` a list item
- example:

```
<ul>
  <li>Item 1</li>
  <li>Item 2</li>
  <li>Item 3</li>
  <li>Item 4</li>
  <li>Item 5</li>
</ul>
```

Ordered Lists

- `<ol>...</ol>` an ordered list
- `<li>...</li>` a list item
- example:

```
<ol>
  <li>Item 1</li>
  <li>Item 2</li>
  <li>Item 3</li>
</ol>
```

- an ordered list can take a `start` attribute to change the starting number:

```
<ol start="3">
```

Description Lists

- `<dl>...</dl>` a list containing name and value pairs
- `<dt>...</dt>` the name or term
- `<dd>...</dd>` the value or description
- example:

```
<dl>
  <dt>Term 1</dt>
  <dd>Description 1</dd>

  <dt>Term 2</dt>
  <dd>Description 2</dd>

  <dt>Term 3</dt>
  <dd>Description 3</dd>
</dl>
```

Tables

- Tables are used to add tabular material (data arranged into rows and columns) to a webpage
- Examples: calenders, schedules, and statistics
- Tables should not be used for layout purposes

Basic Table Elements

- `<table>...</table>` tabular content
- `<tr>...</tr>` table row
- `<th>...</th>` table header
- `<td>...</td>` table cell data

Table Example

```
<table>
  <tr>
    <th>Column 1</th>
    <th>Column 2</th>
    <th>Column 3</th>
  <tr>
  <tr>
    <td>Row 1 Column 1 Data</td>
    <td>Row 1 Column 2 Data</td>
    <td>Row 1 Column 3 Data</td>
  <tr>
  <tr>
    <td>Row 2 Column 1 Data</td>
    <td>Row 2 Column 2 Data</td>
    <td>Row 2 Column 3 Data</td>
  <tr>
</table>
```

Sectioning Elements (HTML5)

- A sectioning element creates a item in the document's outline structure
  - `<section>...</section>` a thematic group of content
  - `<article>...</article>` a self-contained composition
  - `<aside>...</aside>` identifies content related, but tangential to the main content
  - `<nav>...</nav>` primary navigation links

Elements for Organizing Page Content (HTML5)

- `<header>...</header>` introductory material
- `<footer>...</footer>` a footer
- If a header or footer is within a sectioning element, then it only pertains to that element, not the document
- `<address>...</address>` intended to contain contact information for the document's author

Inline Text Elements

- `<em>...</em>` stressed emphasis
- `<strong>...</strong>` strong importance
- `<b>...</b>` visual emphasis
- `<i>...</i>` alternate voice
- `<s>...</s>` incorrect text
- `<u>...</u>` annotated text
- `<small>...</small>` legal text; small print

More Inline Text Elements

- `<abbr title="full text">abbreviation</abbr>`: abbreviations and acronyms
- `<cite>...</cite>`: citations
- `<code>...</code>`: computer code
- `<sub>...</sub>`: subscript
- `<sup>...</sup>`: superscript

Marking Up Quotations

- `<q>...</q>` is for marking up short quotations and is an inline element
- `<blockquote>...</blockquote>` is for marking up long quotations and is an block element

Breaks and Rules

- `<br>` line break
- `<wbr>` word break
- `<hr>` horizontal rule

Generic Elements

- `<div>...</div>` generic block-level element
- `<span>...</span>` generic inline element
- Usually given a `class` or `id` attribute to indicate purpose
- example:

```
<span class="tel">484-646-4389</span>
```

HTML Special Characters

Character	Named Entity	Numeric Entity
&	&amp;	&#038;
<	&lt;	&#060;
>	&gt;	&#062;
©	&copy;	&#169;
®	&reg;	&#174;

Links

- `<a>...</a>` the anchor element (hypertext link)
- Requires an `href` attribute indicating a URL
- example:

```
<a href="http://example.com">Example</a>
```

- The `href` URL value can be an absolute or relative path

Absolute and Relative URLS

- **Absolute URLSs** provide the full URL for a document
- **Relative URLs** describe the pathname to a file *relative* to the current document

External and Internal Links

- An external link is a link to a document outside of your site
- An internal link is a link to a document that is part of your site
- An external link requires the absolute URL including the "`http://`" portion.
- An internal link can be a relative URL

Images

- `<img>` the image element
- Required attributes:
  - `src:` source URL
  - `alt:` alternate text
- example:

```
<img src=/image.gif" alt="an image">
```

- Some additional attributes:
  - `height:` height in pixels
  - `width:` width in pixels

Image Formats

- In order for a web browser to render an image, it must be in one of the following file formats
  - GIF
  - JPEG
  - PNG
- Additionally, the image file must end in the file extension appropriate for the format – *.gif*, *.jpg* (or *.jpeg*), and *.png* respectively

Image Element Facts

- The image element is an *empty* element because it has no content
- The image element is a *replaced* element because it is replaced by an external file when the page is displayed
- The image element is an inline element
- The bottom edge of an image aligns with the baseline of the text

Image Accessibility

- Functions of alternative text
  - Read by screen readers in place of images
  - Displayed in place of images when the file is not loaded or the user has chosen not to view images
  - Provides a semantic meaning that can be read by search engines
- Alternative text can be presented in two ways
  - Within the `alt` attribute of the `img` element
  - Within the context of the surroundings of the image