

Learning HTML

Edward Sharick - Week 2 and 3 (9/4/2023 and 9/11/2023)

Learning HTML (Hyper Text Markup Language)

- standard markup language for Web pages
- uses different 'tags' to create web page elements.

HTML Elements

- `<tagname> content </tagname>`
- Comment tag: `<!-- Write your comments here -->`
- Some tags don't contain content, such as `
` and don't require an end tag
- There are many tags, here are links to some cheat sheets:
<https://web.stanford.edu/group/csp/cs21/htmlcheatsheet.pdf>
<https://www.w3schools.com/tags/default.asp>

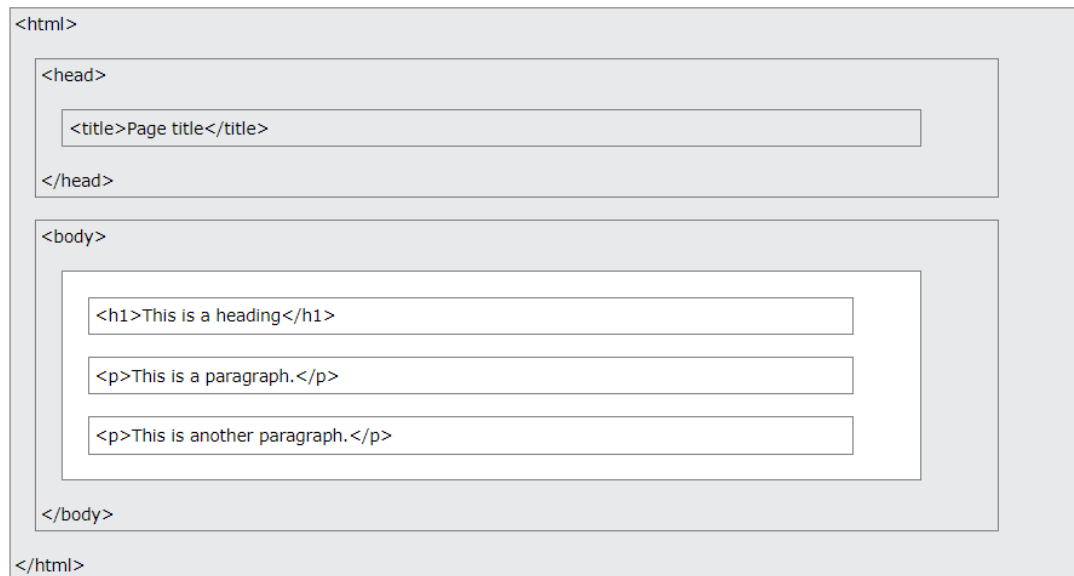
Some commonly used tags:

Tag	Meaning/Usage
<code><!DOCTYPE html></code>	Declares document is HTML5
<code><html> </html></code>	Root element of the html document; Everything is nested inside.
<code><head> </head></code> <code><body> </body></code>	Documents head – metadata, scripts, document title, character set, styles and other Documents body – document tags
<code><h1> heading 1 </h1></code> <code><h2> heading 2 </h2></code>	Text tag for headings (h1 to h6)
<code><p> paragraph </p></code>	Text tag for paragraphs
<code> link text </code>	Link to another page; href is an attribute
<code></code>	An image: src, alt, width, height are all attributes
<code>
</code>	newline

HTML Attributes

- All elements can have attributes of form 'name="value"'
- Some attributes: src, alt, lang, style, title
- Ex: `<h1 style="font-size:60px;">Heading 1</h1>`
- Attribute reference link: https://www.w3schools.com/tags/ref_attributes.asp

HTML Page Structure



HTML Display

- You cannot change the display by adding extra spaces or extra lines in your HTML code; they will be ignored
- To put space between elements, use `<hr>` (horizontal rule) or `
` (line break)
- `<pre>` tag can be used to show preformatted text
- `style` attribute can be used to adjust text color, background color, size, font family, alignment
- text formatting – wrap text elements to show bold, italic, etc.
 - `` - Bold text
 - `` - Important text
 - `<i>` - Italic text
 - `` - Emphasized text
 - `<mark>` - Marked text
 - `<small>` - Smaller text
 - `` - Deleted text
 - `<ins>` - Inserted text
 - `<sub>` - Subscript text
 - `<sup>` - Superscript text
- Colors can also be specified using RGB, HEX, HSL, RGBA, and HSLA values.
 - `<h1 style="background-color:rgb(255, 99, 71);">...</h1>`
 - `<h1 style="background-color:#ff6347;">...</h1>`
- `<picture>` can be used instead of `` to support different devices size or source
- You can scale your page to fit any device with the following line in the `<head>` section:
`<meta name="viewport" content="width=device-width, initial-scale=1.0">`
- Adding a favicon:
`<link rel="icon" type="image/x-icon" href="/images/favicon.ico">`
- You can add a webpage inside a webpage using `iframe`:

`<iframe src="url" title="description"></iframe>`

-

HTML Navigation

- Links are used to navigate between pages; can be text, images, buttons, etc.
 - Hyperlink - `link text`
- You can set the 'target' to specify where the link opens:
 - `_self` - Default. Opens the document in the same window/tab as it was clicked
 - `_blank` - Opens the document in a new window or tab
 - `_parent` - Opens the document in the parent frame
 - `_top` - Opens the document in the full body of the windowEx: `link text`
- URL text can be absolute or relative. You should use relative if you're redirecting to your own site.
- To use an image wrap the element in the `<a>` tag.
 - ``
 - ``
 - ``
- To use a button, use the javascript attribute onclick.
 - `<button onclick="document.location='url'">Button Text</button>`
- Link bookmarks: use the attribute 'id' on an element to bookmark it; then reference it with the href attribute and a #. Ex: `id="something"`, `href="#something"`
- The `<map>` tag can be used to define an image with clickable areas, and the 'usemap' image attribute.

HTML Tables

- `<table>` tag to wrap table, `<tr>` tag to define a table row and wrap cells, `<th>` or `<td>` tags to define headers or data to a cell.
- CSS 'border' property can be used on a table, th, or td elements.
- CSS 'width' and 'height' can be used to set the size of the table and the cells.
- 'colspan' or 'rowspan' property of `<th>` and `<td>` can be used to span multiple cols or rows
- `<caption>` is the table caption
- CSS 'padding', 'padding-top' (bottom, left, right) can be applied to `<th>` and `<td>`
- CSS 'border-spacing' can be applied to `<table>` element

HTML Lists

- Lists can be nested
- Ordered (numbered) versus unordered (bullets)
- `` ordered list wraps `` list items
- `` unordered list wraps `` list items
- `<dl>` description list with `<dt>` term and `<dd>` description
- Ordered lists – use 'type' attribute to select item marker (numbers, letters, roman numerals) and use 'start' attribute to start at a different value
- Unordered lists – use CSS 'list-style-type' to select bullet property

Block and Inline Elements

- Block-level elements always start on a new line and have some margin before and after the element.

Here are the block-level elements in HTML:

```
<address>    <article>    <aside>    <blockquote> <canvas>    <dd>        <div>
<dl>         <dt>         <fieldset> <figcaption> <figure>    <footer>    <form>
<h1>-<h6>    <header>    <hr>       <li>         <main>       <nav>       <noscript>
<ol>         <p>           <pre>      <section>    <table>      <tfoot>     <ul>
<video>
```

- Inline Elements only take up as much width as needed and do not start a new line.

Here are the inline elements in HTML:

```
<a>          <abbr>        <acronym>    <b>           <bdo>        <big>        <br>
<button>     <cite>        <code>       <dfn>         <em>         <i>          <img>
<input>      <kbd>        <label>      <map>         <object>     <output>    <q>
<samp>       <script>     <select>     <small>       <span>       <strong>    <sub>
<sup>       <textarea>   <time>      <tt>          <var>
```

- The `` element is an inline container used to mark up part of a text or document.

The `<div>` Element

- Block element that is commonly used as a container for other elements. Together with CSS, `div` elements can be used to style blocks of content
- You can align multiple `<div>` elements side by side in a few ways:
 - Using the CSS 'float' property
 - Using the CSS 'display: inline-block' property
 - Using the CSS 'display: flex' property
 - Using the CSS 'display: grid' property

The class Attribute

- The class attribute is often used to point to a class name in a style sheet. It can also be used by a JavaScript to access and manipulate elements with the specific class name.
- The class name is case sensitive
- Can be used on any html element, and html elements can have more than one class.
- Syntax:

```
.className {
  background-color: tomato;
  color: white;
  padding: 10px;
}
```

- Can be used by JavaScript to perform certain actions based on elements of that class

The id Attribute

- The id attribute specifies a unique id for an HTML element. The value of the id attribute must be unique within the HTML document (at least it should be unique; testing seems to allow it to be used more than once)
- The id attribute is used to point to a specific style declaration in a style sheet. It is also used by JavaScript to access and manipulate the element with the specific id.
- The syntax for id is:

```
#myHeader {
    background-color: lightblue;
    color: black;
    padding: 40px;
    text-align: center;
}
```

- You can use 'href="#myHeader"' to link to an element
- Can also be used by JavaScript to get an element by ID.

HTML with JavaScript

- The <script> tag define a client-side JS script
- Common uses for JS are image manipulation, form validation, and dynamic change of content
- More on this later

HTML Layout Elements

- HTML has several semantic elements that define the different parts of a web page:
 - <header> - Defines a header for a document or a section
 - <nav> - Defines a set of navigation links
 - <section> - Defines a section in a document
 - <article> - Defines an independent, self-contained content
 - <aside> - Defines content aside from the content (like a sidebar)
 - <footer> - Defines a footer for a document or a section
 - <details> - Defines additional details that the user can open and close on demand
 - <summary> - Defines a heading for the <details> element
- HTML Layout techniques: CSS framework, float property, flexbox and grid
- Using responsive frameworks can help resize and reposition elements to make them look good on any platform/device.
 - Bootstrap
 - W3.CSS

HTML tags to Display special content

- Use certain tags to display certain content:
 - `<code>` for programming code
 - `<kbd>` for keyboard input (ex: Ctrl + s)
 - `<samp>` for program output
 - `<var>` for variables
 - `<pre>` for preformatted text
- To display certain symbols, emojis or other reserved characters, use ‘&’ followed by the abbreviation for the symbol
 - Symbols: [HTML Symbols \(w3schools.com\)](https://www.w3schools.com/html/html_symbols.asp)
 - Emojis: [HTML Emoji Faces \(w3schools.com\)](https://www.w3schools.com/html/html_emoji.asp)

HTML Forms

- Used to collect user input, most of the time to send to a server to process (cover this later with PHP)
- The `<form>` element is a container for different input elements
- The `<form action= "/action_page.php">` defines what happens when the user hits the submit input button.
- The ‘method’ attribute of `<form>` can be set to “get” or “post”
 - NEVER use “get” on sensitive data as it is visible in the URL
 - POST cannot be bookmarked
- The ‘autocomplete=“on”’ can be used to enable autocomplete.
- `<input type=“some_type”>` is used to define what type (text entry, checkboxes, buttons, radio buttons, slider(range), etc.)
 - [HTML Input Types \(w3schools.com\)](https://www.w3schools.com/html/html_input_types.asp)
- `<label>` tag is used to label an input element. The ‘for=“idname”’ attribute should be used to bind the label to it’s input
- `<select>` and `<option>` are used for drop-down list
- `<textarea>` defines multi-line input field
- `<button>` defines a clickable button, with ‘onclick’ attribute to define behavior
- `<fieldset>` is used to group related input fields
- `<datalist>` specifies a pre-defined option list for an `<input>` element
- The ‘oninput’ attribute can define behavior when an input to the form is changed
- The `<output>` element can represent the result of a calculation on form inputs

HTML Canvas

- The canvas element can be used to draw graphics
- In combination with Java script, it can be used to create games and other graphic intensive web applications.
- More info here: https://www.w3schools.com/graphics/canvas_intro.asp

HTML Multimedia

- `<picture>`, `<video>`, or `<audio>` and then set the src attribute
- For video, you can also use `<iframe>` and link to YouTube