HTML Concepts

(Almost) Everything You Need to Know About HTML

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An Introduction to Web Development

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Learning Outcomes

- ✓ Describe the concept of "Semantic Meaning" as applied to HTML
- ✓ Identify and use many of the most common elements used in HTML
- ✓ Explain how HTML handles "whitespace"
- ✓ Be able to link to other HTML pages using anchor elements
- ✓ Describe the difference between block and phrase elements
- ✓ Identify the HTML elements commonly used to structure a document
- ✓ Explain proper nesting of HTML elements
- ✓ Describe the nature and purpose of HTML element attributes
- ✓ Identify a variety of HTML special characters and symbols

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Key Concept – "Semantic Meaning"

- HTML "describes" a document structure
- Most HTML elements correspond to specific layout elements common to document formatting
- You want to use the "right" elements to properly describe your document
  - Even if using the "right" element does not change the formatting
  - AND even if using it makes it have the wrong formatting
- We'll be able to use CSS (Cascading Style Sheets) to make each element look exactly the way we want it to

Key Elements – Headings : <h1> … <h6>

- Headings are numbered
  - <h1>, <h2>, <h3>, <h4>, <h5>, <h6>

- Headings represent different "levels" within a document
  - Think: Title → Chapter → Section
  - NOT necessarily sequential
  - Can have many of the same level of heading within a single document

- <h1> is "big" and <h2> is "smaller" but do NOT use these simply to make bigger text
  - Again, CSS will be used for formatting

Heading Level 1

Heading Level 2

Heading Level 3

Heading Level 4

Heading Level 5

Heading Level 6

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Key Element – Paragraph : <p>

- Paragraphs are as you learned in grammar school…like paragraphs in an essay
  - Groups of related sentences
  - Related to a common concept or thought
- Each separate paragraph in a document belongs in a separate <p> element
- It puts some spacing at the top and bottom of the paragraph
  - But do NOT use a <p> element just to get spacing
  - <p> elements are only for honest-to-goodness paragraphs
  - If you need spacing, it can be added to other elements later…again using CSS

```
<p>
   This is a paragraph.
   It is only a paragraph.
</p>
<p>
   But it isn't the ONLY
   paragraph. 'Cause THIS
   is a second paragraph.
   BOO YAH!
</p>
```

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Key Concept – Ignored "Whitespace"

- Extra spaces and newlines (known as "whitespace") in HTML code is completely ignored by a browser when it renders a page

- REALLY useful for helping us to format our HTML code
  - Can indent without inserting extra spaces in our web page
  - Can add extra lines between sections
  - Etc.

- Nice because the text on your page always "wraps" correctly according to the size of the browser (desktop vs. mobile, etc.)

- BUT can be a bit confusing if you are expecting to have lines in your page break at the same place they do in your HTML code

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Key Element – Line Break :

- If you DO need to force a line break at a specific location within a paragraph, you can use a <br> element

- This is a "void" element
  - JUST an opening tag
  - No content or closing tag

- Do NOT "abuse"
 elements
  - Generally only used inside of other elements
  - Only to override default word wrapping

- Do NOT use just to add extra vertical space
  - We'll use CSS for this later

```html
<p>
  My name is Herman Munster.
  My address is:<br>
  <br>
  1313 Mockingbird Lane<br>
  Mockingbird Heights, CA
</p>
```

My name is Herman Munster. My address is:

1313 Mockingbird Lane
Mockingbird Heights, CA

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Key Element – Blockquote : <blockquote>

- Used to denote a quoted passage of text

- Indents the entire passage

- Remember, this is describing the *semantic meaning* of the text
  - Do not use it simply to indent text that is not actually a quotation

```
<p>
    Abraham Lincoln once said:
</p>
<blockquote>
    Four score and seven years
    ago, our fathers...
</blockquote>
```

Abraham Lincoln once said

    Four score and seven years ago
our fathers...

Key Elements – Bold / Italic Phrase : <b> / <i>

- Used within other blocks of text (e.g., within a paragraph)
- <b> used to highlight a word or phrase in a bold font
    - Can also use <strong> element
- <i> used to highlight a word or phrase in an italicized font
    - Can also use <em> element

```
<p>
   Do you <i>really</i> not
understand? I said
<b>eat your broccoli</b>!
</p>
```

Do you *really* not understand? I said
eat your broccoli!

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Key Concept – Block vs. Phrase Elements

- Block Elements start and end with new line on a page
  - E.g., paragraphs, headings, blockquotes, etc.
  - Each subsequent *block* is "stacked" under the prior one

- Phrase Elements are used to mark up words or phrases, usually *within* a block element
  - Do NOT start and end with new lines

BLOCK

Four score and seven years ago our fathers brought **PHRASE** on this continent, a new nation, ***conceived in Liberty***, and dedicated to the proposition that all men are created equal.

BLOCK

Now we are enga **PHRASE** a great civil war, testing whether *that nation*, or any nation so conceived and so dedicated, can long endure. We are met on a great battle-field of that war. We have come to dedicate a portion of that field, as a final resting place for those who here gave their lives that that nation might live. It is altogether fitting and proper that we should do this.

Key Concept – Proper Nesting (1)

- As noted, elements are often nested inside of one another
- Can be used to add additional semantic meaning or styling

```
<p>This is a <b><i>paragraph.</i></b></p>
```

This is a ***paragraph***.

- The word "paragraph" is:
  - Part of a paragraph,
  - Displayed using a bold font, and
  - Displayed using an italicized font

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Key Concept – Proper Nesting (2)

- BE CAREFUL!!!!
- Remember elements contain other elements, forming a parent/child relationship
- Cannot close a parent element before closing it's children

```
<p>
   This is a
   <b>
      <i>
        paragraph.
      </i>
   </b>
</p>
```

```
<p>
   This is a
   <b>
      <i>
        paragraph.
      </b>
   </i>
</p>
```

WRONG!!

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Key Element – Anchor Tag : <a>

- THE most fundamental element of HTML
  - Puts the "hyper" in Hypertext
- Content of an anchor element is "clickable"
- Clicking the element causes the browser to navigate to a new:
  - Web page on your site
  - Web page on another site
  - Location on the current page (more on this later)

`<a href="education.html">Education</a>`

Education

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Key Concept – Attributes

- Attributes add additional meaning to elements

- Can be used to:
  - Uniquely identify an element
  - Classify an element
  - Supply required or optional information about an element

- An element can have many attributes

- Added to the ***opening tag only***

- (a*lmost*) Always follows convention:
  - attribute_name="attribute_value"

```
<html lang="en">

<meta charset="utf-8">

<a href="education.html">
  Education
</a>
```

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Anchor Tag Attribute – href

- *Hyperlink Reference* attribute

- URL of the resource (page, image, video, etc.) to load when clicked

- MUST BE SPECIFIED to make a link "clickable"

- Commonly one of:
  - **RELATIVE URL** : e.g., `<a href="education.html">`
    - Loads a resource in the same folder on the current web site (more on this later)
  - **ABSOLUTE URL** : e.g., `<a href="http://www.augusta.edu">`
    - Loads a resource from another web site
  - **EMAIL URL** : e.g., `<a href="mailto:paul.york@augusta.edu">`
    - Creates a new email message and fills in the specified address

Anchor Tag Attribute – target

- Controls where the link opens when clicked

- Leave it off to open the link in the current tab
  - Default...replaces the current page
  - Most commonly used when navigating between pages **within** a single site

```
<a href="education.html">
```

- Set to "_blank" to open the link in a new tab
  - Most commonly used when navigating to a page on **another** web site
  - The _ (underscore) is important!!

```
<a href="http://www.augusta.edu" target="_blank">
```

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Key Element – Unordered List : <ul> +

- A **bulleted** list

- Use when order does not matter

- is a "container" element

- are "list items" inside of container

```
<ul>
    <li>John</li>
    <li>Paul</li>
    <li>George</li>
    <li>Ringo</li>
</ul>
```

- John
- Paul
- George
- Ringo

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Key Element – Ordered List : <ol> +

- A ***numbered*** list

- Use when order or rank matters

- is a "container" element

- are "list items" inside of container

```
<ol>
  <li>Green</li>
  <li>Blue</li>
  <li>Red</li>
  <li>Purple</li>
</ol>
```

1. Green
2. Blue
3. Red
4. Purple

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Key Concept – Nested Lists

- Use when you want to
  - Embed one list
  - Inside another list
    - Just
    - Like
    - This...

- Nested list goes INSIDE of an <li> element

- Works for *both* ordered and unordered lists

```
<ul>
   <li>Item 1</li>
   <li>
      Item 2
      <ul>
         <li>Item 2a</li>
         <li>Item 2b</li>
      </ul>
   </li>
</ul>
```

- Item 1
- Item 2
  - Item 2a
  - Item 2b

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QUICK TIP – Unclosed

- Though the list item element DOES have a closing tag…

- …It CAN be skipped

- May make it easier to read or understand a list
  - Especially Nested Lists

- Think of the <li> as the "bullet" or "number"

```
<ul>
  <li>Item 1
  <li>Item 2
    <ul>
      <li>Item 2a
      <li>Item 2b
    </ul>
</ul>
```

- Item 1
- Item 2
  - Item 2a
  - Item 2b

QUICK TIP – **type** attribute for <ol> &

- Use the type attribute to change the numbering scheme for ORDERED lists
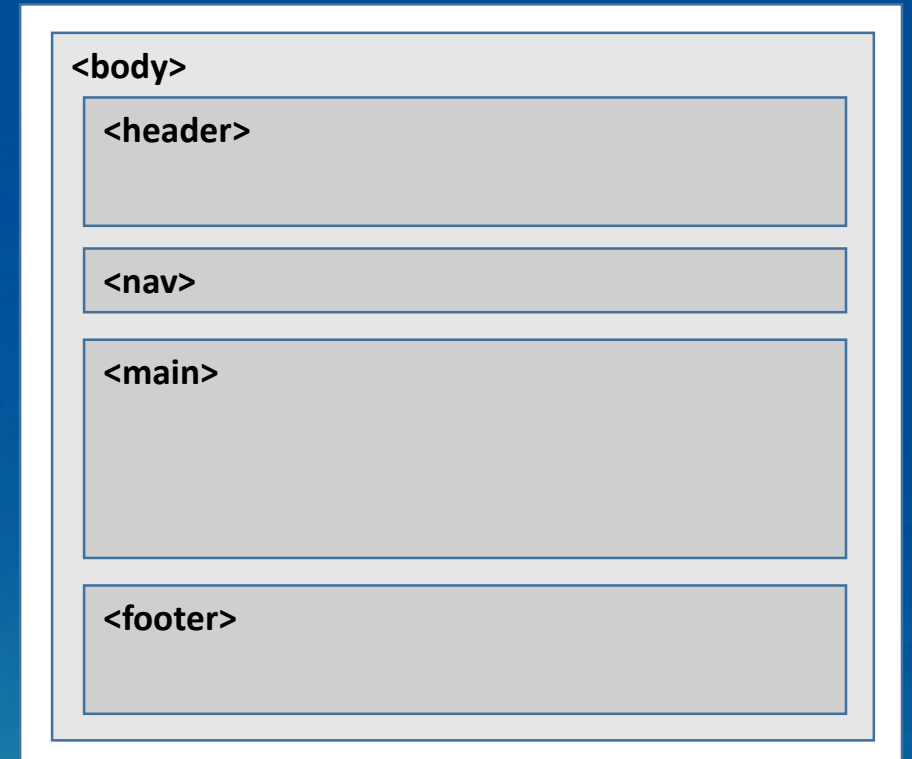 - `<ol type="1">` → 1, 2, 3, 4… (*default*)
  - `<ol type="I">` → I, II, III, IV…
  - `<ol type="i">` → i, ii, iii, Iv…
  - `<ol type="A">` → A, B, C, D…
  - `<ol type="a">` → a, b, c, d…
- Can also use type attribute to control the shape of the "bullet" for UNORDERED lists
  - `<ul type="disc">` → filled round dot (*default*)
  - `<ul type="square">` → hollow box
  - `<ul type="circle">` → hollow circle

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Common Structural Elements (1)

- Commonly used to further subdivide the <body> of an HTML document
- <header>…</header>
  - Contains "visible" page headings
  - Title, banner image, etc.
- <nav>…</nav>
  - Contains the primary site navigation links
- <main>…</main>
  - Contains the main content
- <footer>…</footer>
  - Contains common page footer content
- For basic web sites, all except for the <main> element is likely to be common among all pages

```
<body>
  <header>

  <nav>

  <main>



  <footer>

```

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Common Structural Elements (2)

```html
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <title>Page Title Goes Here</title>
  </head>
  <body>
    <header>
      . . .
    </header>
    <nav>
      . . .
    </nav>
    <main>
      . . .
    </main>
    <footer>
      . . .
    </footer>
  </body>
</html>
```

<header>

John Doe

Home

<nav>

Home   Education

<main>

I am a creative and high-energy software developer specializing in creating web applications that make my smile. I am often praised for my ability to bridge the gap between experts in technology and experts in practice. I have created applications for many Fortune 100 organizations, and though you may not interact with them on a day to day basis, they help run the engines of your lives.

I am currently seeking to offer my services to a new organization that can benefit from my unique set of skills and experiences. Please browse this site and contact me if you are interested.

About Me

Born in Manoa, Hawaii in 1987, I am a proud member of the Milliennial generation. My parents were both members of the faculty at the University of Hawaii; they instilled in me a passion for knowledge, discovery and creativity from a very early age. From 1998 on, my family and I have called Augusta, Georgia home.

I graduated from Augusta State University (now Augusta University) in 2009 with a Bachelor of Science degree in Computer Science. While I tend to travel quite a bit with my job, I still call Augusta home.

I am privileged to have married Mrs. Jane Doe in 2014. We live happily together with our dog, Spot, and our cat, Fuzzy. We enjoy playing tennis, ultimate frisbee (often joined by Spot) and early morning jogs. We also enjoy watching classic movies together and challenging each other with movie trivia.

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Email: jdoe123@augusta.edu
Profile: Facebook

<footer>

Key Elements – <div> and <span>

- A <div> element is a "generic" block element
  - Kind of like the <header> or <main> element
  - Used to group together related content

- A <span> element is a "generic" phrase element
  - Likewise, kind of like an <i> or <b> element, but
  - Can be used to add arbitrary style to a given phrase

- Both of these are used extensively, but

- Hang tight...really only useful when paired with CSS

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HTML "Special Characters" and Symbols

- Some characters are "special" because
  - They are used by HTML itself, or
  - They are symbols not available on your keyboard

- If you want to show them on your web page, you insert them using a specific syntax:
  - &*code*; → Ampersand followed by a code followed by a semicolon

- The most commonly used are:

`<`	<	*(less than)*
`>`	>	*(greater than)*
`&`	&	*(ampersand)*
` `		*(non-breaking space)*

`©`	©	*(copyright symbol)*
`™`	™	*(trademark symbol)*
`®`	®	*(registered symbol)*
`—`	—	*(em dash)*

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Summary

Things we learned:
- ✓ The concept of "Semantic Meaning"
- ✓ A *lot* of HTML elements, including ones that define the basic structure of an HTML document
- ✓ How HTML handles "whitespace"
- ✓ How to link to other HTML pages using anchor elements
- ✓ The difference between block and phrase elements
- ✓ Proper nesting of HTML elements
- ✓ How and why to add attributes to HTML elements
- ✓ A variety of HTML special characters and symbols

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