Lecture No: 2
Topic: HTML Structures

Before you start creating websites…
- *You must first ask these questions:*
    - *What are the tools the professionals use?*
    - *What will my website look like?*
    - *What are the important files that I should have?*

What Professionals Use?
- *A Computer.*
- *Text Editor, to write the code in.*
- *Web Browsers, to test the code in.*
- *Graphic Editing Software to make and edit the graphics on your web pages. Ex: Gimp, Figma, Photoshop*
- *Version Control System, to manage files on Servers. Ex: GitHub, GitLab*
- *FTP program, for older version or old web hosting accounts to manage file on servers (optional, because Git is increasingly replacing FTP) Ex: Cyberduck, FileZilla*
- *Automation System to automatically perform repetitive tasks such as running tests.*
- *Libraries, frameworks… etc.*

What you need to prepare:
- *Computer*
- *Any specs will do, but for serious web development, be sure to invest on your computer.*
- *Text Editor*
- *Default Notepad, but you can start with Notepad++*
- *Web Browser*
- *Chrome, Firefox, Opera, Microsoft Edge, Safari, Brave*

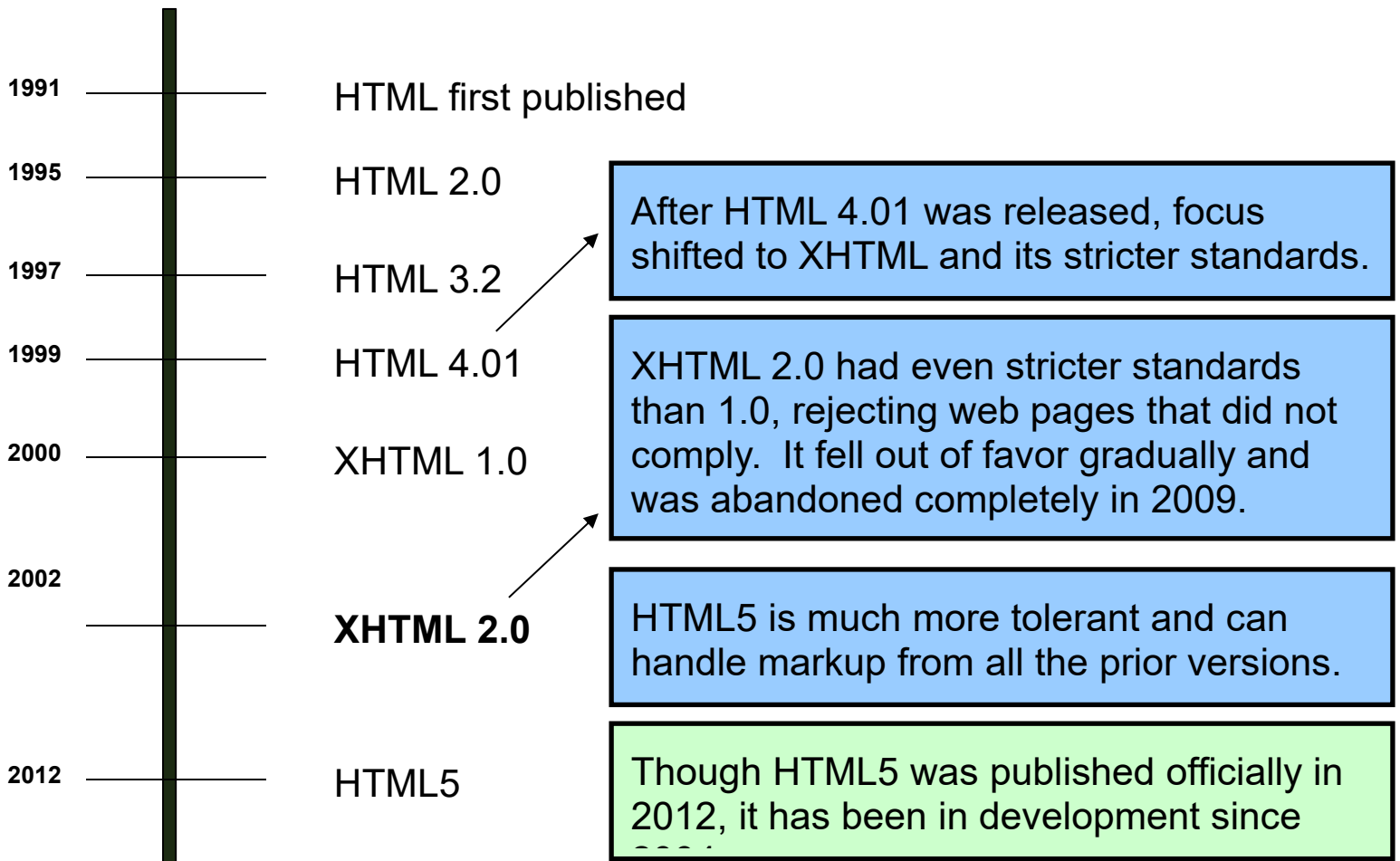*What will my website looks like?*
- *Web Design Principle:*
  Plan Your Site Before You Build It
- *Clearly Define your site's purpose.*
- *Consider your audience.*
- *Decide what your site needs to be a success.*
- *Study sites of similar purpose.*
- *Storyboard your site before you construct it.*

What are the important files and folders I need to have?
- *The basic structure of your website FOLDER should have at least the following:*
    - *index.html (your homepage content goes here)*
    - *images folder*
    - *styles folder*
    - *scripts folder*

Introduction to Web Development

Timeline of HTML

1991	HTML first published
1995	HTML 2.0
1997	HTML 3.2
1999	HTML 4.01
2000	XHTML 1.0
2002	
	XHTML 2.0
2012	HTML5

After HTML 4.01 was released, focus shifted to XHTML and its stricter standards.

XHTML 2.0 had even stricter standards than 1.0, rejecting web pages that did not comply. It fell out of favor gradually and was abandoned completely in 2009.

HTML5 is much more tolerant and can handle markup from all the prior versions.

Though HTML5 was published officially in 2012, it has been in development since

What is HTML?
- **HTML (Hypertext Markup Language)** is not a programming language. It is a *markup language* that tells web browsers how to structure the web pages you visit. It can be as complicated or as simple as the web developer wants it to be.

What is HTML5?
- HTML5 is the newest version of HTML, only recently gaining partial support by the makers of web browsers.
- It incorporates all features from earlier versions of HTML, including the stricter XHTML.
- It adds a diverse set of new tools for the web developer to use.
- It is still a work in progress. No browsers have full HTML5 support. It will be many years – perhaps not until 2018 or later - before being fully defined and supported.

Goals of HTML5
- Support all existing web pages. With HTML5, there is no requirement to go back and revise older websites.
- Reduce the need for external plugins and scripts to show website content.
- Improve the semantic definition (i.e. meaning and purpose) of page elements.
- Make the rendering of web content universal and independent of the device being used.
- Handle web documents errors in a better and more consistent fashion.

New Elements in HTML5

<article>	<figcaption>	<progress>
<aside>	<footer>	<section>
<audio>	<header>	<source>
<canvas>	<hgroup>	<svg>
<datalist>	<mark>	<time>
<figure>	<nav>	<video>

These are just some of the new elements introduced in HTML5. We will be exploring each of these during this course.

Other New Features in HTML5
- Built-in audio and video support (without plugins)
- Enhanced form controls and attributes
- The Canvas (a way to draw directly on a web page)
- Drag and Drop functionality
- Support for CSS3 (the newer and more powerful version of CSS)
- More advanced features for web developers, such as data storage and offline applications.

First Look at HTML5

Remember the DOCTYPE declaration from XHTML?
**<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">**

In HTML5, there is just one possible DOCTYPE declaration and it is simpler:
<!DOCTYPE html>

NOTE: The DOCTYPE tells the browser which type and version of document to expect. This should be the last time the DOCTYPE is ever changed. From now on, all future versions of HTML will use this same simplified declaration.

The <html> Element
This is what the <html> element looked like in XHTML:
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">

Again, HTML5 simplifies this line:
<html lang="en">

NOTE: The **lang** attribute in the <html> element declares which language the page content is in. Though not strictly required, it should always be specified, as it can assist search engines and screen readers.

Each of the world's major languages has a two-character code, e.g. Spanish = "es", French = "fr", German = "de", Chinese = "zh", Arabic = "ar".

The <head> Section
Here is a typical XHTML <head> section:
**<head>
  <meta http-equiv="Content-type" content="text/html; charset=UTF-8" />
  <title>My First XHTML Page</title>
  <link rel="stylesheet" type="text/css" href="style.css" />
</head>**

And the HTML5 version:
**<head>
  <meta charset="utf-8">**

```
  <title>My First HTML5 Page</title>
  <link rel="stylesheet" href="style.css">
</head>
```
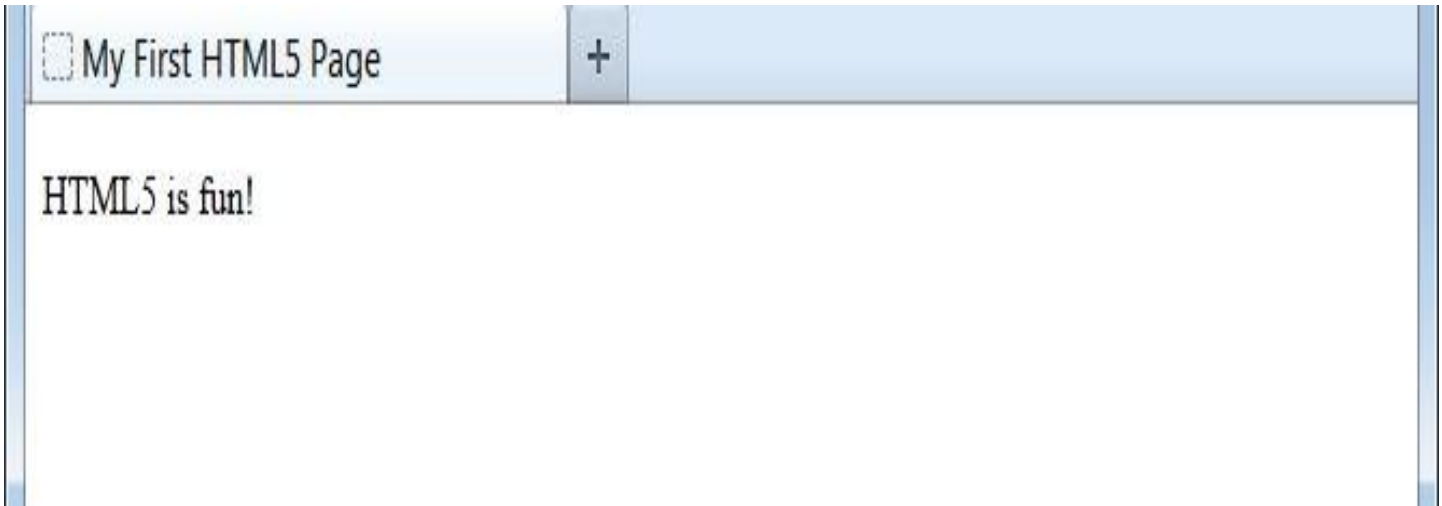
Notice the simplified character set declaration, the shorter CSS stylesheet link text, and the removal of the trailing slashes for these two lines.

Basic HTML5 Web Page

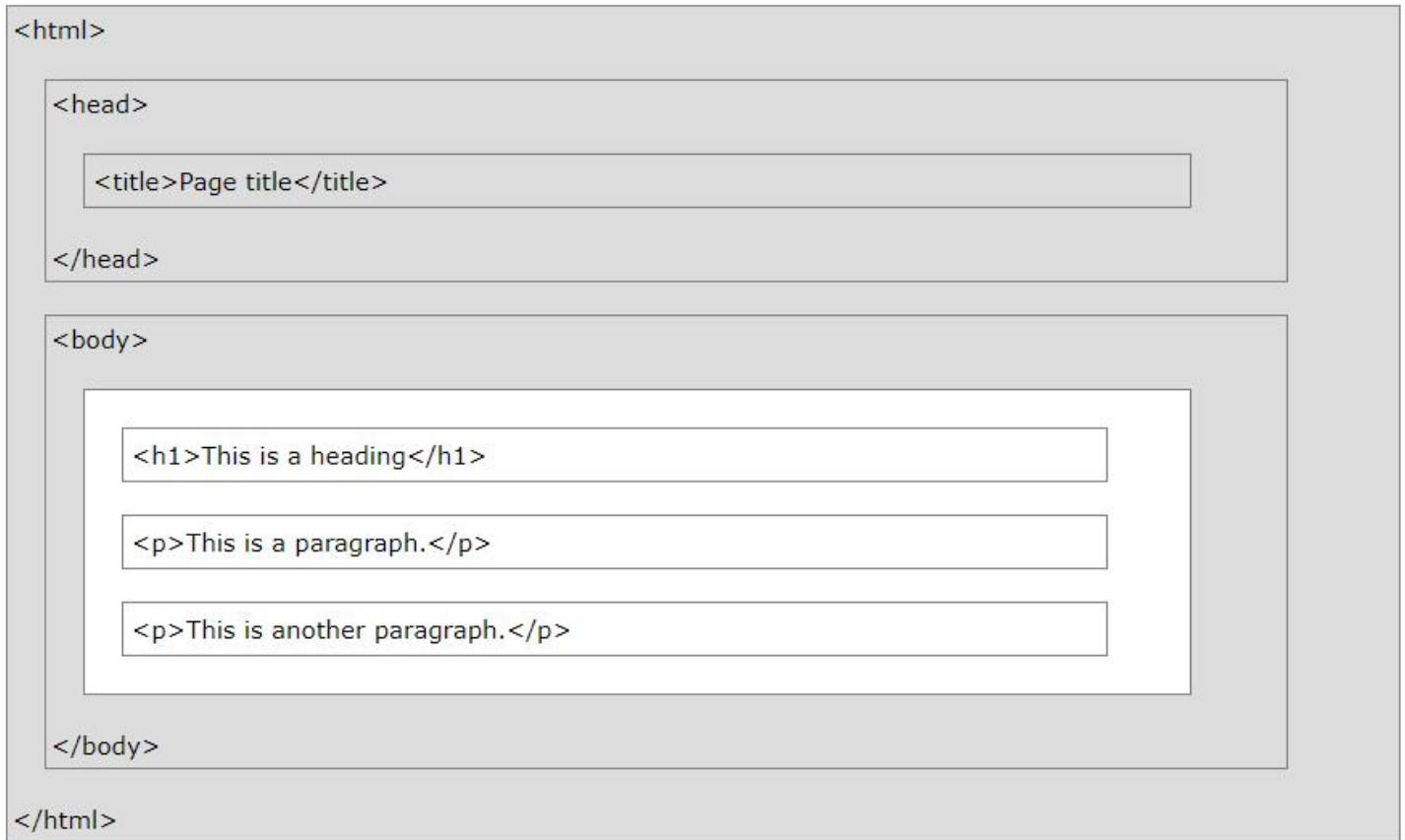Putting the prior sections together, and now adding the <body> section and closing tags, we have our first complete web page in HTML5:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <title>My First HTML5 Page</title>
  <link rel="stylesheet" href="style.css">
</head>
<body>
  <p>HTML5 is fun!</p>
</body>
</html>
```

Viewing the HTML5 Web Page

HTML Page Structure

```
<html>

    <head>

        <title>Page title</title>

    </head>

    <body>

        <h1>This is a heading</h1>

        <p>This is a paragraph.</p>

        <p>This is another paragraph.</p>

    </body>

</html>
```

<!DOCTYPE html>
- The doctype. When HTML was young (1991-1992), doctypes were meant to act as links to a set of rules that the HTML page had to follow to be considered good HTML.
- This declaration defines that this document is an HTML5 document
- **<html></html>** This element wraps all the content on the page. It is sometimes known as the root element.
- **<head></head>** This element acts as a container for everything you want to include on the HTML page, that **isn't the content** the page will show to viewers.
- **<meta charset="utf-8">** This element specifies the character set for your document to UTF-8, which includes most characters from the vast majority of human written languages.
- **<title></title>** This sets the title of the page, which is the title that appears in the browser tab the page is loaded in. The page title is also used to describe the page when it is bookmarked.
- **<body></body>**This contains **all the content** that displays on the page, including text, images, videos, games, playable audio tracks, or whatever else.

Four Key Concepts
1. **Elements**: all HTML pages are made up of elements. Think of an element as a container in which a portion of a page is placed. Ex: <h1>Text Here</h1>

2. **Tags**: is an HTML codes that are enclosed in angle brackets and are used to format the text. Ex:<p>
   - ▶ Often elements and tags are used interchangeably.
   - ▶ An element is made up of two tags: an opening tag and a closing tag.

Empty HTML Elements
   - ▶ HTML elements with no content are called empty elements.
   - ▶
 is an empty element without a closing tag (the <br> tag defines a line break)

3. **Attributes and Values**:

- Attribute is used to define the characteristics of an element and is placed inside the elements opening tag. Ex: *align* attribute of paragraph.

<p *align*="">This is a paragraph</p>

- Values work together with attributes to complete the definition of an element's characteristics.
  - ⊕ An attribute names a characteristic; a value describes it.

NOTE: Not all attributes and values work together with all elements. If you include a color attribute in the paragraph<p> element above, the browser will ignore it.

Tip: Always <u>enclose your values</u> in <u>quotation marks</u>.

4. **<u>Nesting:</u>**
   - Often, you will want to apply more than one element to a portion of your page.
   - Nesting simply means that elements must never overlap.
   - Although HTML, can be pretty forgiving if your elements are not properly nested, if you overlap elements when you are working on more complicated constructions such as frames or tables, your page might not display properly. Ex: **<p aligns= "center"><h1>Incorrect</p></h1>**

HTML Is Not Case Sensitive
   - HTML tags are **not case sensitive**: <P> means the same as <p>.
   - The HTML5 standard does not require lowercase tags, but W3C recommends lowercase in HTML, and demands lowercase for stricter document types like XHTML.

Add Comments to your HTML document
   - Comments function as little notes to yourself.
   - Comments are represented through
     - **<! --Add your Comment Here-->**
   - Comments are not displayed in the browser; they are sometimes called non printing lines.

Removed Elements in HTML5
   - The following HTML4 elements have been removed in HTML5:

Removed Element	Use Instead
<acronym>	<abbr>
<applet>	<object>
<basefont>	CSS
<big>	CSS
<center>	CSS
<dir>	
<font>	CSS
<frame>	
<frameset>	
<noframes>	
<strike>	CSS, <s>, or <del>
<tt>	CSS

Last but not the least!
   - Saving your pages
     – You can save the file with .html file extension.
     – .htm or .html?
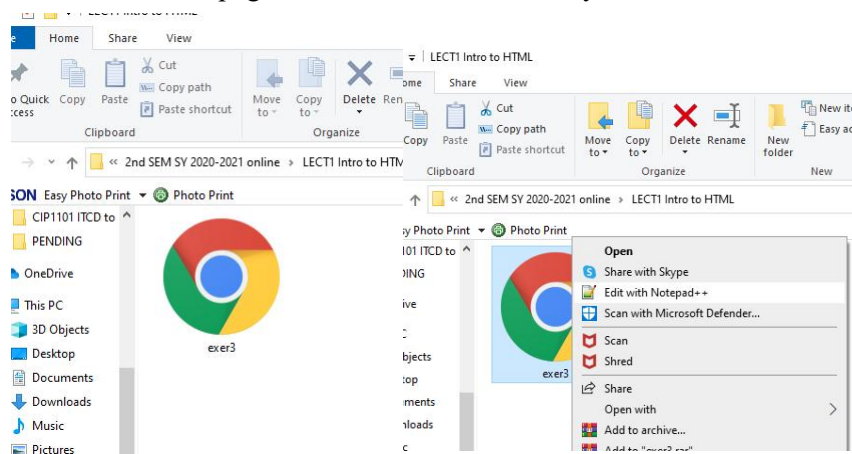
```
D:\CIP 1101 - Integrative Programming HTML5 CCS3 BOOTSTRAP\2nd SEM
File  Edit  Search  View  Encoding  Language  Settings  Tools  Macro

exer3.html
 1    <!DOCTYPE html>
 2    <html>
 3      <head>
 4        <meta charset="utf-8">
 5        <title>My test page</title>
 6      </head>
 7      <body>
 8        <p>This is my page</p>
 9      </body>
10    </html>
11
```

Last but not the least!
- Viewing your pages
  - Your web page will look take the icon of your default browser.

Controlling Text and Text Flows

Designate Headings with <h#></h#>
- The purpose of the heading element is to indicate different heading levels in a document.
- The tag are made up of h with level of 1-6 following it. One(1) will be the largest and six(6) will be the smallest
    <h1>Heading 1</h1>
    <h2>Heading 2</h2>
    <h3>Heading 3</h3>
    <h4>Heading 4</h4>
    <h5>Heading 5</h5>
    <h6>Heading 6</h6>

Insert Ruler Lines with <hr>
- The *horizontal rule* element**, <hr>**, will draw a horizontal line wherever you place it.
- The <hr> element is used to separate content (or define a change) in an HTML page

Control Text with Character Elements
- The character elements give you some basic controls over how text will display on a Web browser.
- Physical elements describe the physical appearance of the characters.
    Ex: A bold text
- Elements that derive their names from the intended function or purpose of the text is called Logical Element.
    Ex: A strong text

• This element will display bold typeface, but the element's name stands for strongly emphasized text.

Display Italicized Text

Six different elements of displaying italicized text with distinct purpose:

- **<u><i></i></u>** The italics element is a physical element for displaying italicized text.
- **<u></u>** The *emphasis* element is a logical element for emphasizing important portions of a document.
- **<u><cite></cite></u>** The *citation* element identifies a portion of your document as a reference to an outside source.
- **<u><var></var></u>** The logical element indicates a *variable*, as might be used in computer code.
- **<u><dfn></dfn></u>** This logical element identifies a portion of text as defining instance of a term.
- **<u><address></address></u>** To set apart your address or personal information at the bottom of a Web page. This element also generally adds a line break before and after the address.

Display Boldface Text

- **<u></u>** The bold element is a physical element that allows you to render boldface text.
- **<u></u>** The *strong* also displays in bold.
- o This logical element indicates a heavier or stronger emphasis than does <b>, but there is usually no difference in how the two look in the browser

Display Highlighted Text

- **<mark> </mark>** element defines marked/highlighted text

Display Deleted Text

- **<del> </del>** element defines deleted/removed text

Create Superscripts and Subscripts

- **<u></u>** This element creates a superscript
- **<u></u>** This element forces text to display as a subscript.

Display Monospaced Text

- **<u><code></code></u>** This logical element not only displays in a courier, fixed width-font font, but also indicates that the text is a portion of computer code.
- **<u><kbd></kbd></u>** Standing for *keyboard,* this logical element identifies its contents as keyboard input.
- **<u><samp></samp></u>** This is another logical element. It describe its content as *sample output,* most often rendering text in monospaced font.

Display Underlined Text

- **<u><u></u></u>** The *underline* element will render text with a line underneath.
- **<u><ins></ins></u>** The *inserted text* element is a logical element that indicates text that has been inserted since the document was written.

Control Text Flow

- Indents, Paragraph Breaks and Line spacing is a main consideration when building a web site.

Create Line Breaks with <br /> and Paragraphs with <p>

- The difference between the *line break* and the *paragraph* elements is that…
- when you use <br> you're telling a browser to insert a line break and go to the next line.
- The <p>element on the other hand, will add a blank line before it starts your new paragraph.

Indent Text

- When you want indent text in a word processor, just press the TAB key.
- In HTML, it's NOT that SIMPLE.
- Web browsers ignore normal text formatting instructions; you have to be creative to indent text.

Use   to add spaces

- The non breaking space **entity** ( ) will instruct a browser to add spaces wherever you want them.
- It is most commonly used to create an indent at the beginning of a paragraph.
- If you want to have a five-space indent at the beginning of the paragraph, type five nonbreaking space entities at the beginning of the line you want to indent.

HTML Entities

- Are reserved characters in HTML.
- A character entity looks like his:

&entity_name; or &# entity_name;

Common HTML Entities

Result	Description	Entity Name
	non-breaking space	
<	less than	<
>	greater than	>
&	ampersand	&
"	double quotation mark	&quote;
'	single quotation mark (ampersand)	&
©	copyright	©
®	registered trademark	®
/	sorward slash	/

Use <blockquote> to Indent a Large Block
- If you want to indent everything from the left margin, the easiest way to do it is to use the <blockquote> element.
- Keep in mind that when you enclose your text in this element, you will instruct the browser to indent the margins from both sides.

Retain Text Formatting with <pre></pre>
- By using the preformatted text element, you can tell a browser to display your text exactly as you entered it.
- The downside of this element is that the browser will display the text in a typewriter-style monospaced font.
- But this could be override and instruct the browser to use a different font format.

Position and Align Text
- The align attribute used with many elements, will allow you to position text (or images) at the left, center or right of a pages
- In the case of paragraph, justify is added in the list of text positioning.
- To see how it works try this: <p align="right">Text</p>

NOTE!
- When using the align attribute, it's often not necessary to specify "left" alignment, as the browser usually defaults to this arrangement anyway.
- There are exceptions though, so always check to see how your pages display.

References:
- Jenkins, S. (2013). Web Design All-in-One for Dummies. John Wiley & Sons.
- Parker, J. (2021). HTML for Beginners: A Complete Beginners Guide to Learn Html in 1 Hour and Master Your Web Designing.
- W3Schools online web tutorials. (n.d.). https://www.w3schools.com/