HTML Fundamentals

.NET CORE

HTML *is not a programming language; it is a markup language that defines the structure of your webpage.* ***HTML*** *consists of a series of* ***elements****, which you use to enclose different parts of the page content to make it appear or act a certain way.*

HTTPS://DEVELOPER.MOZILLA.ORG/EN-US/DOCS/LEARN/GETTING_STARTED_WITH_THE_WEB/HTML_BASICS

Preparation

- Everyone creates a .html page to experiment on.

HTML vs CSS

https://www.w3schools.com/html/html_intro.asp
https://en.wikipedia.org/wiki/HTML
https://en.wikipedia.org/wiki/Cascading_Style_Sheets
https://www.w3schools.com/css/css_intro.asp

HTML (Hyper Text Markup Language)	CSS (Cascading Style Sheets)
In 1989, Tim Berners-Lee invented the Web with HTML as its publishing language. HTML (Hyper Text Markup Language) was created to help programmers describe the content on a website. HTML uses tags to help you add paragraphs, headers, pictures, bullets and other structural components. Just like you would write something on a word document, HTML helps you write something on a website.	CSS was proposed by Hakom Lie and co-created by Bert Bos around 1996. Created to compliment HTML, CSS is what makes a website look amazing. CSS more involved with changing a websites style rather than its content. Kind of like changing the font size, font color and positioning on a word document. CSS oversees the way the content looks on a page and what else goes on it to compliment that content.

HTML4 vs HTML5

https://html.spec.whatwg.org/multipage/introduction.html#is-this-html5?

HTML5 is the result of a collaboration between the ***World Wide Web Consortium (W3C)***, and the ***Web Hypertext Application Technology Working Group, or WHATWG***.

These organizations teamed up in 2006 to reduce HTML4's reliance on plugins, improve error handling, and replace scripting with more markups.

In 2011 the groups came to the conclusion that they had different goals: the W3C wanted to publish a "finished" version of "HTML5", while the ***WHATWG*** wanted to work on a ***Living Standard*** for HTML, continuously maintaining the specification rather than freezing it in a state with known problems, and adding new features as needed to evolve the platform.

In 2019, the ***WHATWG*** and ***W3C*** signed an agreement to collaborate on a single version of HTML going forward.

HTML5 has **greatly simplified** the process of creating web applications. In ***HTML5***, browsers work together with an emphasis on accessibility and support for multimedia(without plugins). This results in a **greatly simplified** the process of creating web applications and a more secure, stable user experience.

HTML – New Features in HTML5

https://www.w3schools.com/html/html5_intro.asp

New element	Use
<audio> </audio>	audio & video both support multiple formats, so the browser can choose the one it knows best. No more Flash with its security holes!
<video> </video>	
<canvas> </canvas>	"flash games and graphics primitives"
<nav></nav>	Nav bar on the page
<header></header>	A container for introductory content or a set of navigational links.
<footer></footer>	defines a footer for a document or section.
<article></article>	Specifies independent, self-contained content.
<section></section>	Defines sections in a document (chapters, headers, footers).

HTML – Anatomy of a Web Page

https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/HTML_basics

```
1  <!DOCTYPE html>
2  <html>
3    <head>
4      <meta charset="utf-8">
5      <title>My test page</title>
6    </head>
7    <body>
8      <img src="images/firefox-icon.png" alt="My test image">
9    </body>
10 </html>
```

The required HTML5 document type declaration.

Wraps all the content on the page. Sometimes known as the root element.

The head is a container for metadata (not to be displayed).

Unicode Transformation Format-8. A set of chars you'll need for text.

The title appears in the browser tab when the page is loaded and in bookmarks.

The body contains all the content that you want to show web users. (text, images, videos, games, etc)

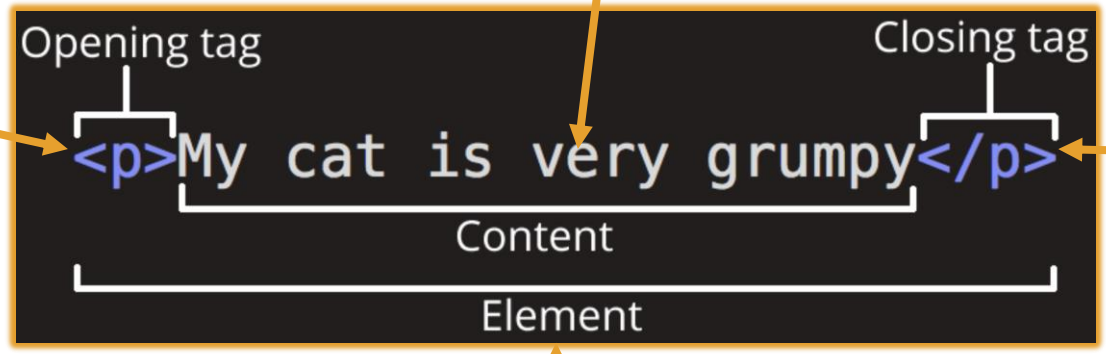
HTML - Anatomy of an Element

https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/HTML_basics
https://devdocs.io/html/

- An ***Element*** designates a section of ***HTML*** for a specific purpose according to the ***tags*** on the ***element***. It's also known as the ***Root Element***.
- Text without any ***tag*** prints on the webpage. Text inside element ***tags*** will have a styling and purpose.

Between the opening and closing tags is the ***content***. The content prints to the webpage.

p means paragraph. All ***tags*** have angle brackets on each side.



The closing ***tag*** has a '/' before the closing ***tag*** type.

The opening and closing ***tags***, along with everything between them, is the ***element***.

* Some elements don't have contents or a closing tag. (<img>, <br>, <input>)

HTML - Nested Elements

You can nest elements inside other elements.

```
<p>My cat is <strong>very</strong> grumpy.</p>
```

A nested element must be closed before it's enclosing element is closed. The below will display but the styling will not be applied.

```
<p>My cat is <strong>very grumpy.</p></strong>
```

HTML – Basic Text Elements

https://www.w3schools.com/html/html_formatting.asp

Here are some examples of how to format elements ***inline***.

```
<b>Bold text </b>
<strong>Important text </strong>
<i>italic text</i>
<em> Emphasized text </em>
<mark>Marked text </mark>
<small>Small text</small>
<del>Deleted text </del>
<ins>Inserted text </ins>
<sub>Subscript text</sub>
<sup>Superscript text</sup>
```

Bold text
Important text
italic text
Emphasized text
Marked text
Small text
~~Deleted text~~
Inserted text
Subscript text
Superscript text

*use **
** to create a line break.

HTML - and Elements

https://www.w3schools.com/tags/tag_span.asp

•used to group inline elements in a document. •provides no styling change by itself. •CSS can hook onto that part of the HTML doc using the value of the span.	• defines a division or a section in an HTML document. • often used as a container for other HTML elements to style them with CSS or to perform certain tasks with JavaScript.

```
<div style="background-color:lightblue">
  <h3>This is a heading</h3>
  <p>This is a paragraph.</p>
</div>
```

```
<p>My mother has <span style="color:blue">blue</span> eyes.</p>
```

HTML – Attributes

https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/HTML_basics
https://en.wikipedia.org/wiki/HTML_attribute

Attributes are modifiers placed inside the opening ***tag of*** the ***element***. The ***Attribute*** is a key-value pair. Different Tags have some specific Attributes but most share from four main attributes.

HTML – Global Attributes

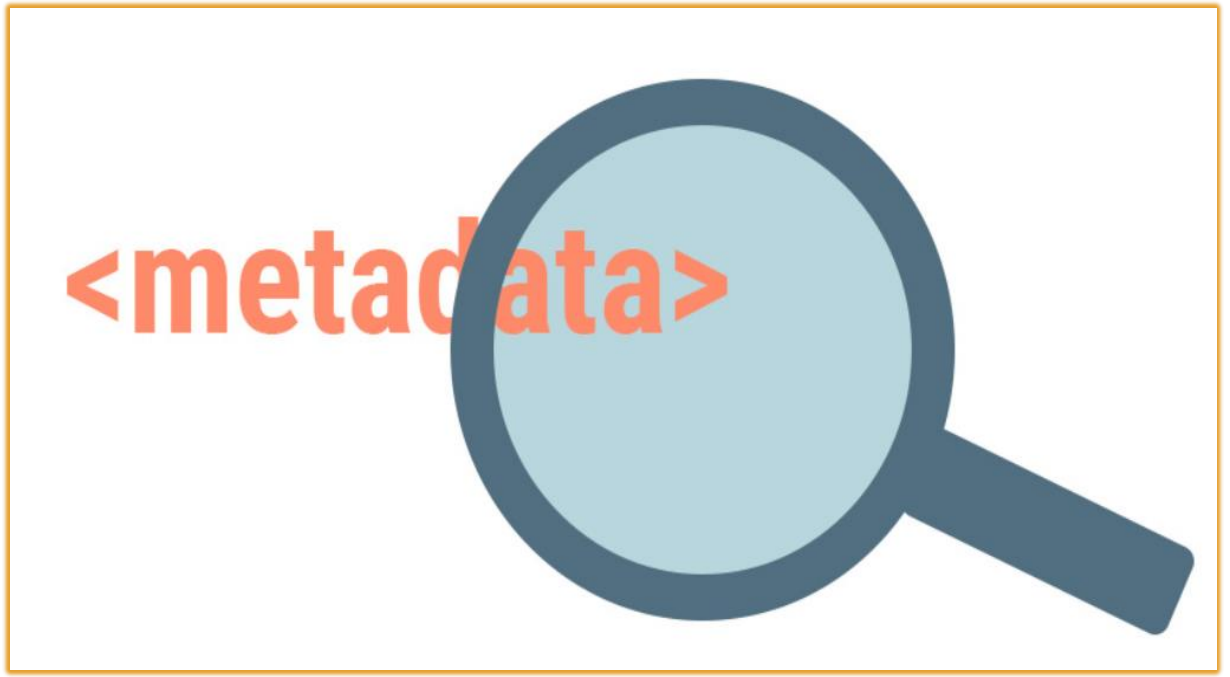
https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/HTML_basics
https://en.wikipedia.org/wiki/HTML_attribute

Attribute	Meaning and usage
id	Provides a document-wide unique identifier for an element. ** This is an example of an id **
class	Provides a way of classifying similar elements. It's NOT unique and can be shared with other elements and in other files ** This is an example of the 'class="class-blue"' attribute **
style	Adds styling directly to the element. NOT recommended. It is better to use ***external*** CSS for all styling. ** This is an example of the 'style="color:red"' attribute **
title	Used to attach subtextual explanation to an element. It's the small popup when you hover over something. ** This is an example of the 'title="Hypertext Markup Language"' attribute **

HTML – Metadata

https://itseeze.com/blog/seo-101-everything-you-need-to-know-about-metadata/

- ***Metadata*** is data that describes other data.
- In webpages, ***metadata*** is used for Search Engine Optimization (SEO).
- Website ***metadata*** consists of a page ***title*** and <***meta***> description for every page.
- Located in the ***<head>*** of an HTML page
- ***<meta>*** elements provide search engines with information about the content and purpose of pages of a website.



HTML – Metadata inside <head>

https://itseeze.com/blog/seo-101-everything-you-need-to-know-about-metadata/

<meta name="viewport" content="width=device-width, initial-scale=1.0">	This has to do with mobile initial zoom stuff
<meta http-equiv="X-UA-Compatible" content="ie=edge">	This switches off Microsoft Edge's old-IE-compatibility behaviors.
<meta name=“Tech Lead" content="Nick Escalona">	Self Explanatory.
<meta name="description" content="description of this page"> <meta name="keywords" content="search engine keywords">	These used to be very important for search engine results.

HTML – Elements inside <body>

https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/HTML_basics

Element	Description
<p>	The paragraph element. For text.
<h1>, <h2>, <h3>, <h4>, <h5>, <h6>	Headers. Largest to smallest
Revature	Link to another web page with the 'anchor' tag.
<img src="routeToImage" width="100px" alt="My Revature image">	Link to an image on your computer or online. 'alt' is for when the image is not found.
	This is an alternate XML-style syntax for elements with no closing tag.

HTML – Lists

https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/HTML_basics

HTML has special elements for lists. The most common list types are ***ordered*** and ***unordered*** lists. Items inside the lists are put inside ***<li>*** elements.

Unordered lists have no defined order (shopping list). These are wrapped in a element.	*Ordered* lists have a defined sequence (recipe). These are wrapped in an element.
  - bullet 1 - bullet 2 	 - number 1 - number 2

HTML – Tables (with comments)

```
<table>
    <thead>
        <!-- table header section/row -->
        <th>City</th> <!-- table header cell -->
        <th>State</th>
    </thead>
    <tbody>
        <!-- table body -->
        <tr>
            <!-- table row -->
            <td>Seattle</td> <!-- table data cell -->
            <td>WA</td>
        </tr>
        <tr>
            <td>Arlington</td>
            <td>TX</td>
        </tr>
    </tbody>
</table>
```

City	State
Seattle	WA
Arlington	TX

HTML – Entities/Character Codes

https://www.w3schools.com/html/html_entities.asp
https://www.w3schools.com/charsets/ref_utf_punctuation.asp

- Character ***entities*** are used to display reserved characters in HTML.
- HTML has a
  - Numerical Reference,
  - a Hexadecimal Reference and
  - an Entity Code for these reserved characters.

Entity Code/numeric code	Symbol/Number
< / <	<
&gt;	>
	Non-breaking space
&#20B5;	₵
&trade;	™
&#213C;	ℼ (pi)
࢐ / →	→

*there are many more

HTML – Forms

https://developer.mozilla.org/en-US/docs/Learn/Forms
https://developer.mozilla.org/en-US/docs/Learn/Forms/Your_first_form

Forms allow users to enter data which is sent to a web server for processing or used on the client-side to immediately update the interface in some way (add another item to a list, or show or hide a UI feature)

A ***form's*** HTML is made up of one or more ***form controls***, plus some additional elements to help structure the overall ***form***.

They are mostly created using the ***<input>*** element, although there are some other elements, too

Form controls can be programmed to enforce specific formats or values to be entered (***form validation***) and paired with text labels that describe their purpose.

Controls can be:

Single text fields	multi-line text fields	dropdown boxes	buttons	checkboxes	radio buttons

```
<form action="/my-handling-form-page" method="post">
 <ul>
  <li>
    <label for="name">Name:</label>
    <input type="text" id="name" name="user_name">
  </li>
  <li>
    <label for="mail">E-mail:</label>
    <input type="email" id="mail" name="user_mail">
  </li>
  <li>
    <label for="msg">Message:</label>
    <textarea id="msg" name="user_message"></textarea>
  </li>
 </ul>
</form>
```

HTML – Method Attribute and Form

https://www.w3schools.com/tags/att_form_method.asp

Form data can be sent as URL variables (with ***method***="get") or as HTTP post transaction (with ***method***="post").

The ***action*** attribute specifies <u>where</u> the form data is sent

The ***method*** attribute specifies <u>how</u> the form data is sent.
*ONLY GET and POST are valid for forms

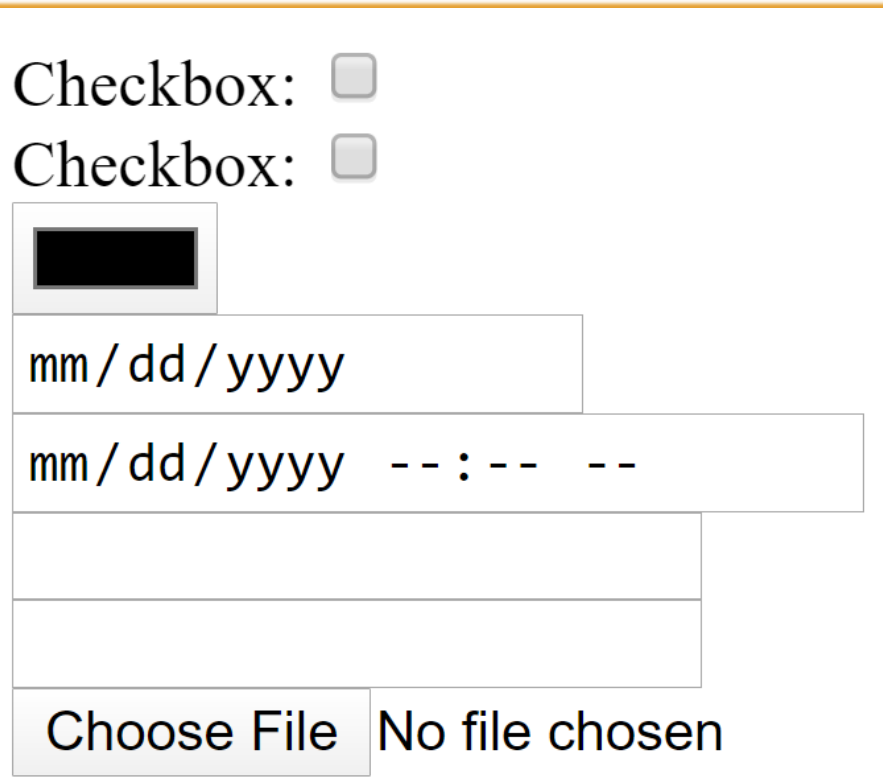
```
<form action="/action_page.php" method="get">
  <label for="fname">First name:</label>
  <input type="text" id="fname" name="fname"><br><br>
  <label for="lname">Last name:</label>
  <input type="text" id="lname" name="lname"><br><br>
  <input type="submit" value="Submit">
</form>
```

HTML - Input Attribute Types

```
<label>
    Checkbox:
    <input type="checkbox" name="checkbox1">
</label><br>

<label for="box2">Checkbox:</label>
<input type="checkbox" id="box2" name="checkbox2"><br>

<input type="color" name="color"><br>
<input type="date"><br>
<input type="datetime-local"><br>
<input type="email"><br>
<input type="password"><br>
<input type="file"><br>
<input type="hidden" name="hiddenthing" value="data">
```



*the name ***attribute*** is the name sent back to the server so you can access the user inputted value in the ***controller***

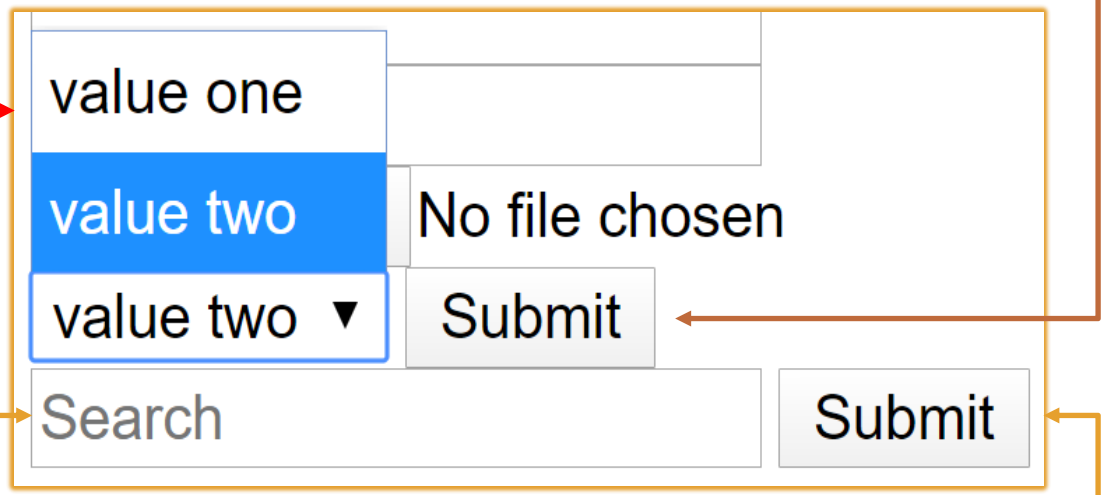
HTML – More Input Attribute Types

```
    <select name="whichvalue">
        <option value="value1"> value one</option>
        <option value="value2" selected> value two</option>
    </select>

    <input type="submit">
</form>

<!-- form for google search -->
<form method="GET" action="https://google.com/search">
    <!-- <label> -->
        <!-- Search: -->
        <input type="text" name="q" placeholder="Search">
    <!-- </label> -->
    <input type="submit">
```

This is a Boolean Attribute. This is shorthand for **selected = "selected".** This creates a default choice.



Input Attribute Purposes (1/2)

https://www.w3schools.com/html/html_form_attributes.asp

Input Attribute	Purpose and Usage
id= “”	Specifies a unique (within the HTML doc) id for an HTML element.
type=“”	Specifies the type of <input> element to display. The default type is text.
name=“”	Specifies a name for the element that can be used to reference the element in the JS file. For form elements it is also used as a reference when the data is submitted,
for=“”	Specifies which form element a label is bound to. When used with the ***<output>*** element, the for attribute specifies the relationship between the result of the calculation, and the elements used in the calculation.
placeholder=“”	Gives a sample value or description of the expected input. The value is displayed in the input field before the user enters a value. Works with ***text***, ***search***, ***url***, ***tel***, ***email***, and ***password***.

Input Attribute Purposes (2/2)

https://www.w3schools.com/html/html_form_attributes.asp

Input Attribute	Purpose and Usage
value=""	Specifies an initial value for an input field
readonly	The field cannot be modified. A user can tab to, highlight, and copy the text from the field. It's sent when submitting a form.
disabled	The input field is unusable and un-clickable. The value of the field will not be sent when submitting a form.
Autofocus	Focuses on the field on page load

Assignment

Create a .html file that implements the following html structures.