

CSE 106

Lecture 5 – HTML

Acknowledgement: [w3schools.com](https://www.w3schools.com)

Full Stack Development

Backend	Frontend	Database
Python (Flask, Django...)	HTML	SQL (MySQL, PostgreSQL...)
JavaScript/Node.js (Express)	CSS	NoSQL (MongoDB, DynamoDB...)
Java (Spring...)	JavaScript	
Ruby (Ruby on Rails...)		
C# (ASP.NET...)		
C++ (TreeFrog...)		

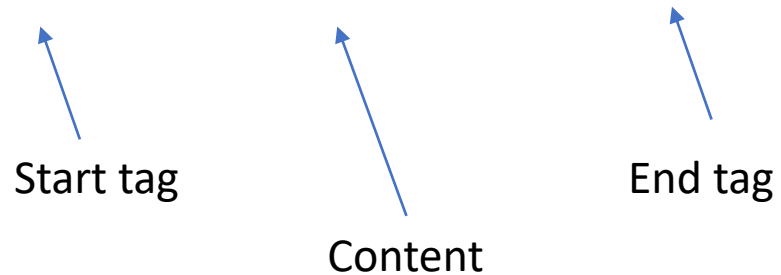
HTML

- HTML stands for **H**yper **T**ext **M**arkup **L**anguage
- HTML is the standard markup language for Web pages
- HTML **elements** are the building blocks of HTML pages
- HTML elements are represented by **<> tags**

HTML Elements

- An HTML element is a **start tag** and an **end tag** with **content** in between:

`<h1>This is a Heading</h1>`



HTML Elements

- HTML elements can be nested (elements can contain other elements)
- All HTML documents consist of nested HTML elements

```
<!DOCTYPE html>
```

```
<html>
```

```
  <body>
```

```
    <h1>My First Heading</h1>
```

```
    <p>My first paragraph.</p>
```

```
  </body>
```

```
</html>
```

HTML Attributes

- HTML elements can have attributes
- Attributes provide additional information about the element
- Attributes are always specified in the start tag
- Attributes usually come in name/value pairs like: name="value"

```
<a href="https://www.w3schools.com">Visit W3Schools</a>
```

HTML Attributes

- **src** attribute specifies the path to the image
 - **Absolute URL** - Links to an external image hosted on another website
 - **Relative URL** - Links to an image hosted within the website (below)
- **width** and **height** specify the size of the image in pixels

```

```

```

```

HTML Attributes

- **style** attribute is used to add styles to an element
 - Contains CSS which is applied to the contents with the **style** attribute
 - Can specify color, font, size, and more
 - Looks like: `<tagname style="property:value;">`

```
<p style="color:red;">This is a red paragraph.</p>
```

```
<p style="font-family:Papyrus;">Papyrus font</p>
```

```
<p style="text-align:center;">This is centered</p>
```


HTML Formatting Elements

- Formatting elements were designed to display special types of text

```
<p><b>This text is bold</b></p>
```

```
<p><i>This text is italic</i></p>
```

```
<p>Do not forget to buy <mark>milk</mark> today.</p>
```

```
<p>My favorite color is <del>blue</del> red.</p>
```

```
<p>My favorite color is <del>blue</del> <ins>red</ins>.</p>
```

```
<p>This is <sub>subscripted</sub> text.</p>
```

```
<p>This is <sup>superscripted</sup> text.</p>
```

HTML Comments

- Add comments to your HTML source by using the following syntax:

```
<!-- Write your comments here -->
```

- Notice that there is an exclamation point (!) in the start tag, but not in the end tag
- Comments are not displayed by the browser, but they can help document your HTML source code

```
<!-- This is a comment -->
```

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

```
<!-- Remember to add more information here -->
```

HTML Table

- Arrange data into rows and columns
- A table in HTML consists of table cells inside rows and columns
 - Surrounded by **<table> </table>**
 - Each table row is defined with **<tr> </tr>** tags (tr = table row)
 - Each table cell is defined by **<td> </td>** tags (td = table data)
 - You can use table headers with **<th> </th>** tags (th = table header)

HTML Table

```
<table>
  <tr>
    <th>Contact</th>
    <th>Country</th>
  </tr>
  <tr>
    <td>Maria Anders</td>
    <td>Germany</td>
  </tr>
  <tr>
    <td>Francis Chang</td>
    <td>Mexico</td>
  </tr>
</table>
```

HTML Lists

- Can have ordered (numbered) and unordered (bulleted) lists
 - An ordered list starts with the `` tag
 - An unordered list starts with the `` tag
- Each list item starts with the `` tag

```
<ol>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>
<ul>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ul>
```

Wake up!

- <https://youtu.be/hJfUbHanTpU>

HTML Block Elements

- HTML elements have default display value, depending on the element
 - Two display values: **block** and **inline**
- Block-level Elements
 - Always starts on a new line
 - Always takes up the full width available (stretches out to the left and right)
 - Has a top and a bottom margin, whereas an inline element does not
 - The <div> element is a block-level element
 - Other block elements: <h1>, , <main>, , <p>, <table>, , <video>

```
<div>Hello World</div>
```

HTML Inline Elements

- Inline Elements

- An inline element does not start on a new line
- An inline element only takes up as much width as necessary
- The `` element is an inline element
- Other inline elements: `<a>`, ``, `<button>`, `<code>`, `<i>`, ``, `<input>`

```
<span>Hello World</span>
```

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


HTML Forms

- Used to collect user input
- Typically sent to the server for processing

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

HTML Forms

- The HTML `<input>` element is the most used form element
- An `<input>` element display depends on the type attribute

Type	Description
<code><input type="text"></code>	Displays a single-line text input field
<code><input type="radio"></code>	Displays a radio button
<code><input type="checkbox"></code>	Displays a checkbox
<code><input type="submit"></code>	Displays a submit button (submitting the form)
<code><input type="button"></code>	Displays a clickable button

HTML Forms

- The `<label>` tag defines a label for many form elements
 - Useful for screen-reader users
 - Helps users who have difficulty clicking on very small regions because when the user clicks the text in the element it triggers
 - The `for` attribute of the `<label>` tag should be equal to the `id` attribute of the `<input>` element to bind them together

```
<form>
  <label for="fname">First name:</label><br>
  <input type="text" id="fname" name="fname" value="John"><br>
</form>
```

HTML Video and Audio

- The <video> element is used to show a video on a page
- The <audio> element is used to play an audio file on a page

```
<video width="320" height="240" controls>  
  <source src="movie.mp4" type="video/mp4">  
</video>
```

```
<audio controls>  
  <source src="horse.mp3" type="audio/mpeg">  
</audio>
```

HTML Head

- The <head> element
 - Container for metadata and is placed between <html> tag and <body> tag
 - Metadata is not displayed
- The <title> element
 - The title of the doc and is shown in the browser title bar or the page tab
 - Is required in HTML documents
 - Very important for search engine optimization (SEO)

```
<!DOCTYPE html>
<html>
  <head>
    <title>A Meaningful Page Title</title>
  </head>
</html>
```

HTML Head

- The <style> element
 - Used to define style information for a single HTML page
- The <link> element
 - Defines the relationship between the current doc and an external resource
 - Most often used to link to external style sheets or JavaScript scripts

```
<style>
  body {background-color: powderblue;}
  h1 {color: red;}
  p {color: blue;}
</style>
```

```
<link rel="stylesheet" href="mystyle.css">
```

HTML Head

- The <script> element
 - Used to define client-side JavaScripts
- The <base> element
 - Specifies the base URL and/or target for all relative URLs in a page
 - Tag must have either an href or a target attribute present, or both

```
<script>
  function myFunction() {
    document.getElementById("demo").innerHTML = "Hello JavaScript!";
  }
</script>
```

```
<base href="https://www.w3schools.com/" target="_blank">
```

View HTML Source Code

- To view the HTML of a web page you can right-click in an HTML page and select "View Page Source" (in Chrome)
- Right-click on an element (or a blank area), and choose "Inspect" to see what elements are made up of (HTML and CSS)
- Edit the HTML and CSS live