

HTML

COEN 161

Hyper
Text
Markup
Language

What does it mean?

- HTML is *the* language for creating web pages that can be displayed in a web browser.
- Two significant parts to the name
 - Hypertext - text that references other text
 - Markup Language - a syntax that lets us "tag up" the text to give it more *meaning*

Hypertext

- Text that contains links to other texts

```
<a href="https://www.w3schools.com">This is a link</a>
```

- In the web, these are links to other webpages.
- A collection of webpages is also called a **website**.

Markup a.k.a. Tags

- Tags are used to markup text in HTML documents

```
<p>This is some text</p>
```

- Most tags have an open and a closing tag
- Some tags are ***self closing***

```

```

Attributes

- Tags can also contain additional information in addition to text
- Some attribute examples

```

```

```
<div class="allDivs" id="myDiv"></div>
```

```
<a href="https://www.w3schools.com">This is a link</a>
```

Text

Insert your name here

Write some text of your choice here

- course number
- course number
- course number

Structure

```
<!DOCTYPE html>
<html lang="en">

<!-- Include your comments here -->

<head>
  <meta charset="utf-8" />
  <title> My First Page</title>
</head>
<body>
  <h1> Insert your name here </h1>
  <p> Write some text of your choice here </p>
  <!-- Include the course numbers of your classes this quarter -->
  <ul>
    <li>course number </li>
    <li>course number </li>
    <li>course number </li>
  </ul>
</body>
</html>
```


DOCTYPE

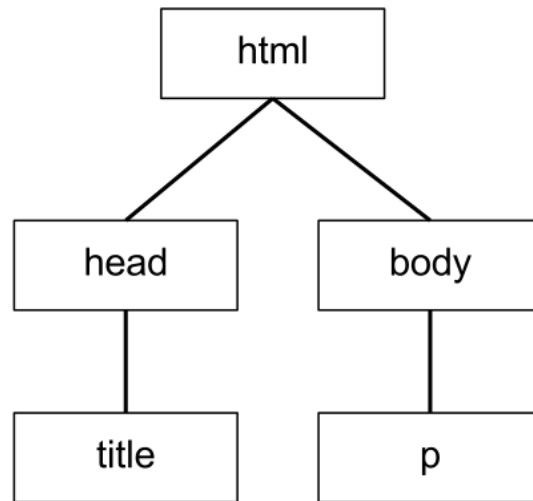
- A special instruction that tells the browser what kind of document this is
- HTML5 only has one doctype declaration
 - `<!DOCTYPE html>`
- HTML 4.01 has 3 types of declarations
 - Strict
 - `<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/strict.dtd">`
 - Traditional
 - `<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">`
 - Frameset
 - `<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Frameset//EN" "http://www.w3.org/TR/html4/frameset.dtd">`

Why DOCTYPE?

- HTML 4.01 was based on SGML
 - Standard Generalized Markup Language
 - The rules for the markup were defined in a DTD - Document Type Definition
 - DTDs define what elements are legal in a document
 - DTDs are also used in XML
- HTML5 is not SGML based and doesn't need a DTD

The <html> tag

- The **root** of an html document
- Tells the browser this is an HTML document
- Encloses all other tags



Head

- Contains metadata about the file
 - `<title>` - the title of the page, usually displayed in the top of the browser
 - `<style>` - defines style information for the page
 - `<link>` - defines a link to an external document such as a style sheet
 - `<meta>` - defines metadata that tells the browser how to display the page
 - `<script>` - let's you write client-side scripts!
 - The `src` attribute can be used to link external scripts, but the tag must be empty

Body

- The body contains the actual content of the page
- That can be...
 - Text
 - Images
 - Hyperlinks
 - Lists
 - Tables
 - etc.

Types of content

- HTML has two types of content tags

Block Elements

- Usually displayed on its own line e.g. `<div>`, `<h1>`, ``, `<table>`

Inline Elements

- Usually displayed on the same line as other inline elements e.g. ``, `<td>`, `<a>`, ``

Common Tags

- `<p>` - defines a paragraph
- `<h1>` - `<h6>` - define headers
- `<div>` - define a division or section in your html file
- `` - allows you to group inline elements and manipulate them separately
- `
` - adds a line break without starting a new paragraph
- `<hr>` - adds a horizontal line across the page
- `` or `<i>` - defines bold or italic text
- `<!-- -->` - defines a comment in HTML

The <a> tag

- Defines a link to another page
- The link can be ***absolute*** (to another site)

```
<a href="https://www.w3schools.com">This is a link</a>
```

- Or it can be ***relative*** (to another page on the same site)

```
<a href="index2.html">This is a link</a>
```


The tag

- Inserts an image on the page
- The src defines the path to the image which can also be **absolute** or **relative**
- You can also define width and height of the image

```

```

Lists

- Two most common types of lists
 - Ordered list -
 - Unordered list -
- These lists contain list items -
- Description list - <dl> - contains
 - Definition terms - <dt>
 - Definitions - <dd>

```
<ul>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ul>
<dl>
  <dt>Coffee</dt>
  <dd>- black hot drink</dd>
  <dt>Milk</dt>
  <dd>- white cold drink</dd>
</dl>
```

Tables

`<table>` - defines the table

`<tr>` - defines the row

`<td>` - defines a cell in a row

border attribute sets
thickness of the border
around your table

colspan/rowspan set the
number of columns or row a
cell should span

```
<table border="1">  
  <caption>My important data</caption>  
  <tr><th>Column 1</th><th>Column 2</th></tr>  
  <tr><td>A</td><td>B</td></tr>  
  <tr><td colspan='2'>C</td></tr>  
</table>
```

Column 1	Column 2
A	B
C	

Forms

- The `<form>` element defines a form that can collect user input
- Each form contains ***form elements***
 - The `<input>` element is the most important one and comes in different ***types***
 - `<input type="text">` - takes free form text as an input
 - `<input type="radio">` - allows one of many choices
 - `<input type="submit">` - submits the form and performs the form's ***action***
 - Form inputs also have a **name** and **value** attribute that specify what the form is called and the string in the field
- A form action is an attribute that defines where to send the form data and is usually a URL (more on this later)

Sample Form

```
<form action="/action_page.php">  
  First name:<br>  
  <input type="text"  
    name="firstname" value="Mickey">  
  <br>  
  Last name:<br>  
  <input type="text"  
    name="lastname" value="Mouse">  
  <br><br>  
  <input type="submit" value="Submit">  
</form>
```

First name:

Mickey

Last name:

Mouse

Submit

HTML Validation

- HTML by default is not a very strict syntax
- However, there is a standard set for proper syntax
- Following the standard makes sure your page
 - Displays properly
 - Makes your HTML more readable and maintainable
 - Increases the chances of *interoperability* across browsers
- validator.w3.org
 - Checks your HTML to make sure it meets the standard
 - More strict than the browser which often fixes bad HTML on the fly

HTML5

Introduced new elements such as

- Semantic elements
 - <header>, <footer>, <article>, and <section>
- Attributes of Form elements
 - number, date, time, calendar, and range
- Graphic elements
 - <svg> and <canvas>
- Multimedia elements
 - <audio> and <video>

Exercise

Resources

- <https://www.w3schools.com/html/default.asp>
- <https://www.w3schools.com/tags/>
- https://www.w3schools.com/html/html_lists.asp
- https://www.w3schools.com/html/html5_intro.asp
- https://www.w3schools.com/html/html_forms.asp