Introduction to HTML

What is HTML?

- HTML stands for Hyper Text Markup Language

- HTML is the standard markup language for creating Web pages

- HTML describes the structure of a Web page

- HTML consists of a series of elements

- HTML elements tell the browser how to display the content

- HTML elements label pieces of content such as "this is a heading", "this is a paragraph", "this is a link", etc.

- HTML is Not Case Sensitive

Terminology

HTML	Hyper Text Markup Language
Tags	Keywords that are surrounded by angled brackets, typically in pairs
Opening Tag	This tag opens the pair of takes <html>
Closing Tag	This tag closes the pair and contains a slash </html>
Attributes	Additional information placed with the opening tag that modifies the tag

A Simple HTML Document

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <title>My Blog</title>
  </head>
  <body>
    <!-- all your content will go here -->
  </body>
</html>
```

Let's pick these tags apart one-by-one.

- `<!DOCTYPE html>` - There have been several revisions of HTML. You'll frequently see HTML5 referred to. As you may guess, this is the fifth major review of HTML. HTLM5 was release in 2008 and there's no HTML6 brewing so no worries about this initial tag changing. In any case, since your browser can understand several versions of HTML, put this at the top to signal to the browser that we're using the latest version

It must only appear once, at the top of the page (before any HTML tags).

The `<!DOCTYPE>` declaration is not case sensitive.

- `<html>` element is the root element of an HTML page

You should always include the `lang` attribute inside the `<html>` tag, to declare the language of the Web page. This is meant to assist search engines and browsers.

- `<head></head>` - All of your web pages are going to need important meta data. They need to tell browsers how to handle browser resizings, what character sets your page uses, what the title is, what the favicon is (the little logo on your browser tab), where the CSS is located, etc. The `<head>` tag (which is over the `body` tag) contains all the important meta data. Nothing that gets *displayed* to the user (like a div or an h1) will *ever* be put in the head. It's *just* meta data.

- `<meta>` - Okay, so all these meta tags are giving the browser information of how to handle your documents

  - The `charset="UTF-8"` bit says that your document is written using the UTF-8 character set. This basically means you can use all character/letters/numbers/emojis/etc. that you expect to be able to use. Another example (that you would never use is) is ASCII (as in ASCII Art). ASCII is a much narrower set of characters that wouldn't have emojis for example. ASCII can't even do a lot of the characters you'd expect you'd be able to use like non-English accents. In other words, always include this line and never think about it. It's always UTF-8.

  - `name="viewport" content="width=device-width, initial-scale=1.0"` - This is letting the browser know how specifically to handle mobile devices like phones and small tablets. If you don't put this, the browser may just output a really zoomed out view of your website and it's very hard to read. This allows you to have mobile browsers treat your content better and more like you'd expect. Always put this too.

- `<title></title>`

defines a title in the browser toolbar

provides a title for the page when it is added to favorites

displays a title for the page in search engine-results

- `<body></body>` All of your visible HTML will go here. Your divs, spans, tables, h1s, etc. all here.

What is an HTML Element?

An HTML element is defined by a start tag, some content, and an end tag:

```
<tagname> This is my new Content</tagname>
```

The HTML **element** is everything from the start tag to the end tag.

Nested HTML Elements

HTML elements can be nested (this means that elements can contain other elements).

All HTML documents consist of nested HTML elements.

HTML Attributes

- All HTML elements can have attributes

- Attributes provide additional information about elements

- Attributes are always specified in the start tag

- Attributes usually come in name/value pairs like: name="value"

- The `href` attribute of `<a>` specifies the URL of the page the link goes to

- The `src` attribute of `<img>` specifies the path to the image to be displayed

- The `width` and `height` attributes of `<img>` provide size information for images

- The `alt` attribute of `<img>` provides an alternate text for an image

- The `style` attribute is used to add styles to an element, such as color, font, size, and more

- The `lang` attribute of the `<html>` tag declares the language of the Web page

- The `title` attribute defines some extra information about an element

HTML Headings

HTML headings are defined with the `<h1>` to `<h6>` tags.

`<h1>` defines the most important heading. `<h6>` defines the least important heading.

Search engines use the headings to index the structure and content of your web pages.

HTML Paragraphs

The HTML `<p>` element defines a paragraph.
A paragraph always starts on a new line, and browsers automatically add some white space (a margin) before and after a paragraph.

HTML Horizontal Rules

The `<hr>` tag defines a thematic break in an HTML page, and is most often displayed as a horizontal rule.

The `<hr>` element is used to separate content (or define a change) in an HTML page

HTML Line Breaks

The HTML `<br>` element defines a line break.

Use `<br>` if you want a line break (a new line) without starting a new paragraph
The `<br>` tag is an empty tag, which means that it has no end tag.

The HTML `<pre>` Element

The HTML `<pre>` element defines preformatted text.
The text inside a `<pre>` element is displayed in a fixed-width font (usually Courier), and it preserves both spaces and line breaks

HTML Styles

The HTML `style` attribute is used to add styles to an element, such as color, font, size, and more.

The HTML `style` attribute has the following syntax:

`<tagname style="property:value;">`

HTML Text Formatting

Formatting elements were designed to display special types of text:

- `<b>` - Bold text
- `<strong>` - Important text
- `<i>` - Italic text
- `<em>` - Emphasized text
- `<mark>` - Marked text
- `<small>` - Smaller text
- `<del>` - Deleted text
- `<ins>` - Inserted text
- `<sub>` - Subscript text
- `<sup>` - Superscript text

Tip: The `<i>` tag is often used to indicate a technical term, a phrase from another language, a thought, a ship name, etc.

Tip: A screen reader will pronounce the words in `<em>` with an emphasis, using verbal stress.

HTML Quotation and Citation Elements

`<blockquote>`, `<q>`, `<abbr>`, `<address>`, `<cite>`, and `<bdo>`

HTML Comment Tag

HTML comments are not displayed in the browser, but they can help document your HTML source code.

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

HTML Links - Hyperlinks

HTML links are hyperlinks.

You can click on a link and jump to another document.

When you move the mouse over a link, the mouse arrow will turn into a little hand.
Note: A link does not have to be text. A link can be an image or any other HTML element!

link text

HTML Links - The target Attribute

By default, the linked page will be displayed in the current browser window. To change this, you must specify another target for the link.

The `target` attribute specifies where to open the linked document.

The `target` attribute can have one of the following values:

- `_self` - Default. Opens the document in the same window/tab as it was clicked
- `_blank` - Opens the document in a new window or tab
- `_parent` - Opens the document in the parent frame
- `_top` - Opens the document in the full body of the window

Absolute URLs vs. Relative URLs

Both examples above are using an **absolute URL** (a full web address) in the `href` attribute.

A local link (a link to a page within the same website) is specified with a **relative URL** (without the "https://www" part):

HTML Images

The HTML `<img>` tag is used to embed an image in a web page.

Images are not technically inserted into a web page; images are linked to web pages. The `<img>` tag creates a holding space for the referenced image.

The `<img>` tag is empty, it contains attributes only, and does not have a closing tag.

The `<img>` tag has two required attributes:

- src - Specifies the path to the image
- alt - Specifies an alternate text for the image

The value of the `alt` attribute should describe the image
If a browser cannot find an image, it will display the value of the `alt` attribute

Image Size - Width and Height

You can use the `style` attribute to specify the width and height of an image or `width` and `height` attributes

HTML Favicon

A favicon is a small image, so it should be a simple image with high contrast.

```
<link rel="icon" type="image/x-icon" href="/images/favicon.ico">
```

HTML Tables

HTML tables allow web developers to arrange data into rows and columns.

HTML Table - Colspan

The value of the `colspan` attribute represents the number of columns to span.

```html
<table>
<thead>

  <tr>
    <th id="purchase">Purchase</th>
    <th id="location">Location</th>
    <th id="date">Date</th>
    <th id="evaluation">Evaluation</th>
    <th id="cost">Cost (€)</th>
  </tr>
</thead>
<tbody>
  <tr>
    <th id="haircut">Haircut</th>
    <td headers="location haircut">Hairdresser</td>
    <td headers="date haircut">12/09</td>
    <td headers="evaluation haircut">Great idea</td>
    <td headers="cost haircut">30</td>
  </tr>

    …

</tbody>
<table>
```