HTML

Hyper Text Markup Language

What is HTML?

- HTML is the standard markup language for creating Web pages
- Stands for Hyper Text Markup Language
- Describes the structure of a Web page
- Consists of a series of elements
- HTML elements tell the browser how to display the content
- HTML elements are represented by tags
- HTML tags label pieces of content such as “heading”, “paragraph”, “table”, and so on
- Browsers do not display the HTML tags, but use them to render the content of the page.

Tags

Basic Tags

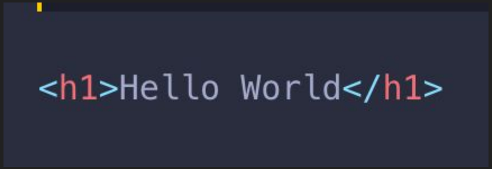
- Headers - Sizes 1 - 6
- Paragraphs
- Links
- Images
- Lists
- Divs
- Spans
- Breaks

How to Open and Close a tag

Open a tag: <h1>

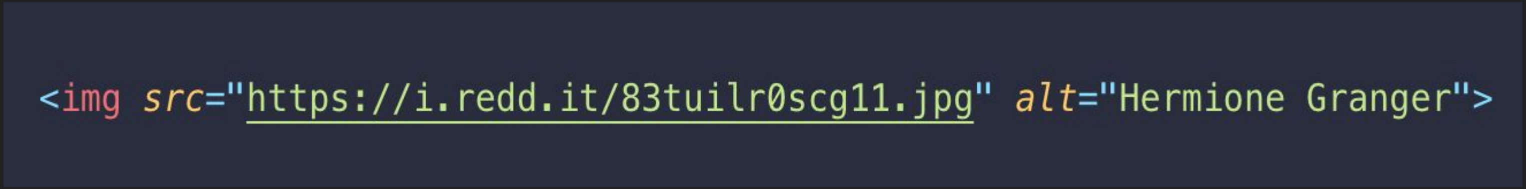
Close a tag: </h1>

For example:



```
<h1>Hello World</h1>
```

Not all tags have a closing tag. For example, an image tag does not have a closing tag.

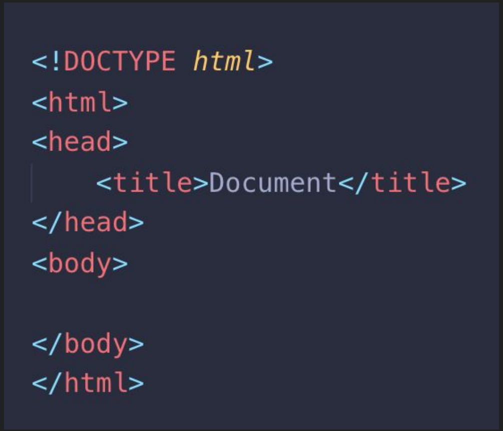


```
<img src="https://i.redd.it/83tuilr0scg11.jpg" alt="Hermione Granger">
```

HTML Boilerplate

Every webpage has the same HTML Boilerplate.

This is what it looks like:



```html
<!DOCTYPE html>
<html>
<head>
    <title>Document</title>
</head>
<body>

</body>
</html>
```

Shortcut: On VSCode, type ! then hit tab. This will auto input the boilerplate for you. PLEASE KNOW HOW TO WRITE THIS FROM SCRATCH!

HTML Boilerplate Explained

- The `<!DOCTYPE html>` declaration defines the document to be HTML5
- The `<html>` element is the root element of an HTML page
- The `<head>` element contains meta information about the document
- The `<title>` element specifies a title for the document
- The `<body>` element contains the visible page document

HTML Tags

- HTML tags are element names surrounded by angle brackets
- HTML tags normally come **in pairs** like `<p>` and `</p>`
- The first tag in a pair is the **start tag,** the second tag is the **end tag**
- The end tag is written like the start tag, but with a **forward slash** inserted before the tag name
- The start tag is also called the **opening tag,** and the end tag the **closing tag.**

HTML Elements

- An HTML element consists of a ***start*** tag and an ***end*** tag, with content inserted in between:
    - <tagname>Content goes here…</tagname>

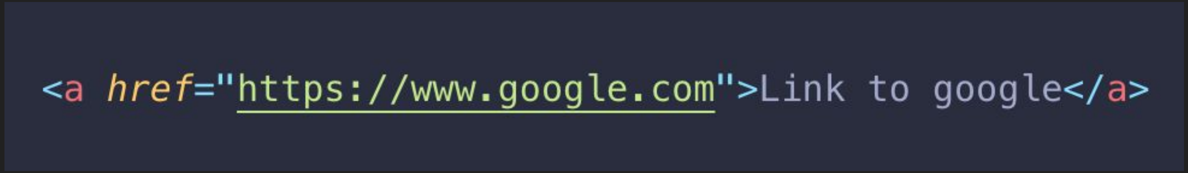
- The HTML ***element*** is everything from the start tag to the end tag:
    - <p>My first paragraph.</p>

HTML Attributes

- All HTML elements can have **attributes**
- Attributes provide a**dditional information** about an element
- Attributes are always specified in **the start tag**
- Attributes usually come in name/value pairs like: **name=”value”**

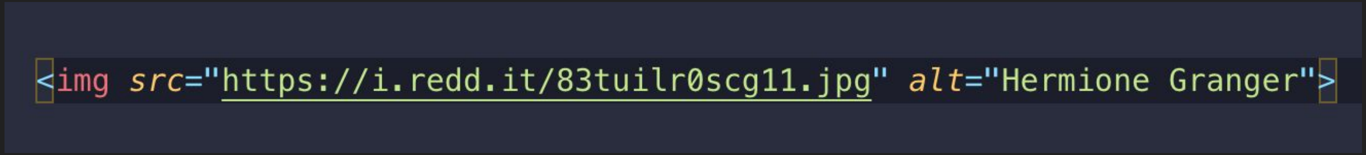
HTML Attributes cont.

- The href Attribute
  - HTML links are defined with the <a> tag. The link address is specified in the href attribute:



```
<a href="https://www.google.com">Link to google</a>
```

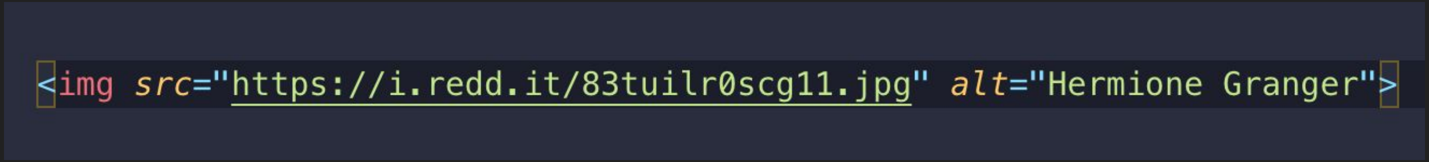
- The src Attribute
  - HTML images are defined with the <img> tag. The filename of the image is specified in the src attribute.



```
<img src="https://i.redd.it/83tuilr0scg11.jpg" alt="Hermione Granger">
```

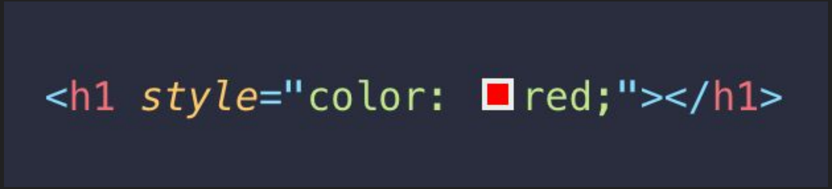
HTML Attributes cont.

- The alt Attribute
  - The alt attribute specifies alternative text to be used if an image cannot be displayed.
  - The value of the alt attribute can be read by screen readers. This way, someone “listening” to the webpage, e.g. a vision impaired person, can “hear” the element.



```html
<img src="https://i.redd.it/83tuilr0scg11.jpg" alt="Hermione Granger">
```

- The style Attribute
  - The style attribute is used to specify the styling of an element, like color, font, size etc.

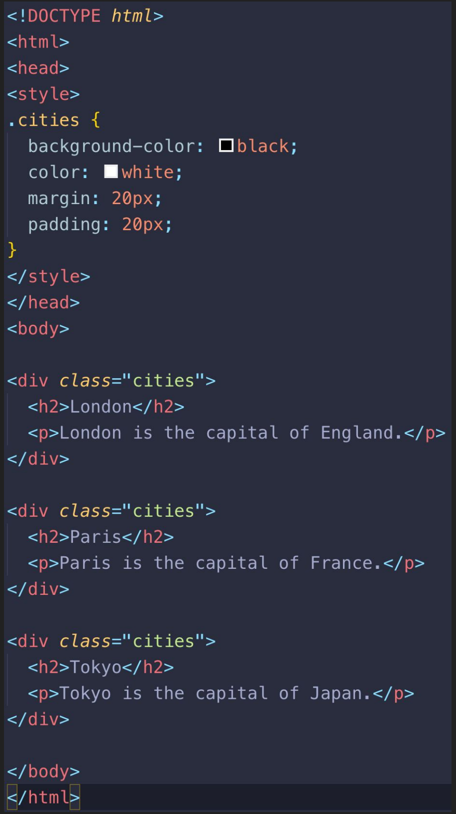


```html
<h1 style="color: 🟥red;"></h1>
```

HTML Classes (Attribute)

- The HTML `class` attribute is used to define equal styles for elements with the same class name.
- So, all HTML elements with the same `class` attribute will get the same style.

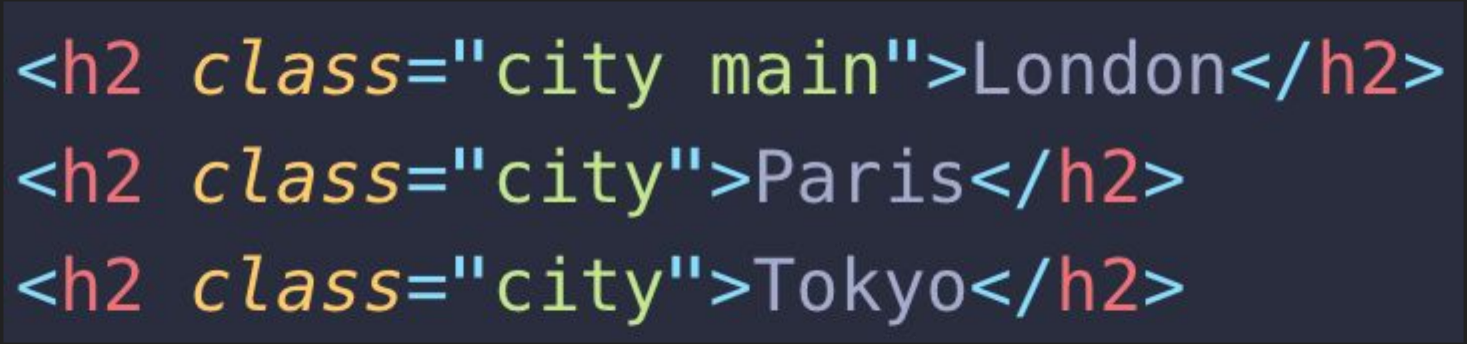
HTML Class Example



```html
<!DOCTYPE html>
<html>
<head>
<style>
.cities {
  background-color: ■black;
  color: □white;
  margin: 20px;
  padding: 20px;
}
</style>
</head>
<body>

<div class="cities">
  <h2>London</h2>
  <p>London is the capital of England.</p>
</div>

<div class="cities">
  <h2>Paris</h2>
  <p>Paris is the capital of France.</p>
</div>

<div class="cities">
  <h2>Tokyo</h2>
  <p>Tokyo is the capital of Japan.</p>
</div>

</body>
</html>
```

Multiple Classes

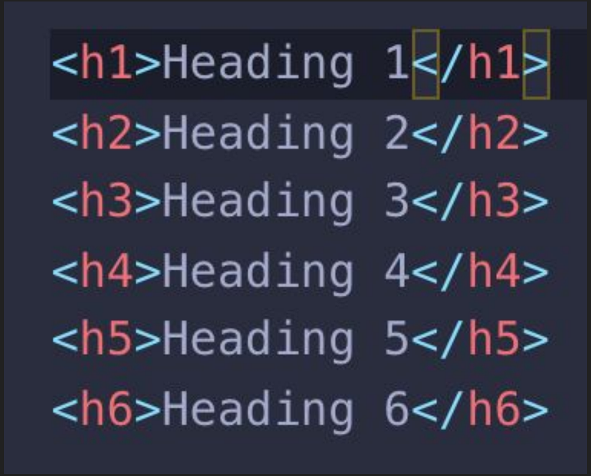
- HTML elements can have more than one class name, each class name must be separated by a space.



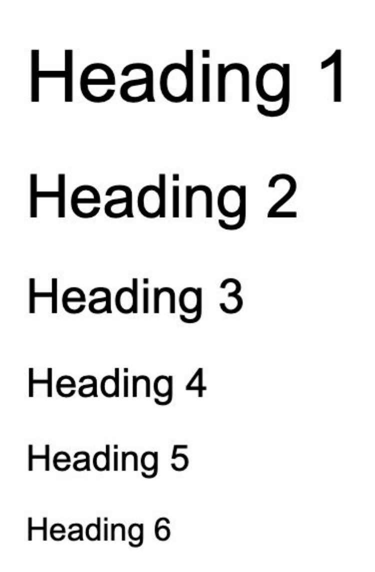
```
<h2 class="city main">London</h2>
<h2 class="city">Paris</h2>
<h2 class="city">Tokyo</h2>
```

HTML Headings

- Headings are defined with the <h1> to <h6> tags.
- <h1> defines the most important heading. <h6> defines the least important heading.



```html
<h1>Heading 1</h1>
<h2>Heading 2</h2>
<h3>Heading 3</h3>
<h4>Heading 4</h4>
<h5>Heading 5</h5>
<h6>Heading 6</h6>
```



Heading 1

Heading 2

Heading 3

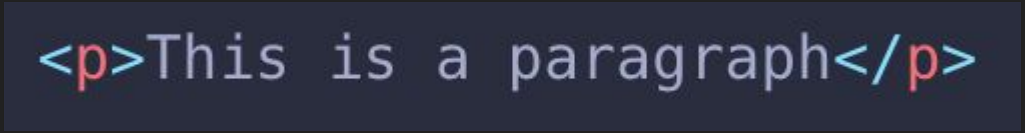
Heading 4

Heading 5

Heading 6

HTML Paragraphs

- The HTML <p> element defines a paragraph

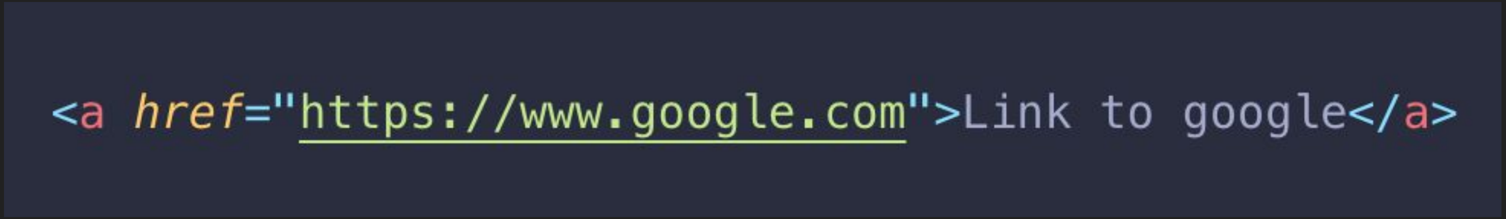


```html
<p>This is a paragraph</p>
```

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.

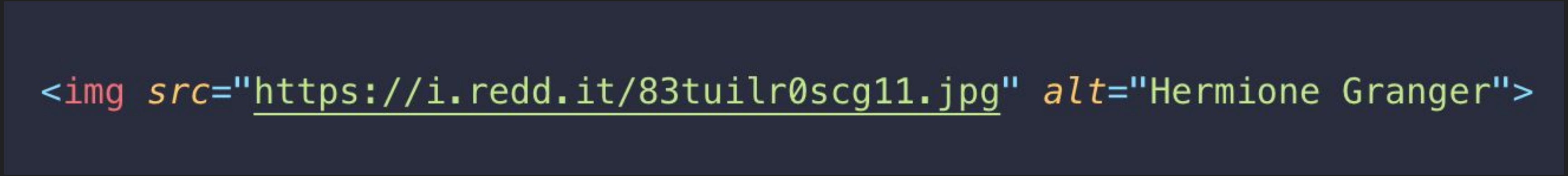
NOTE: A link does not have to be text. It can be an image or any other HTML element.



```
<a href="https://www.google.com">Link to google</a>
```

HTML Images

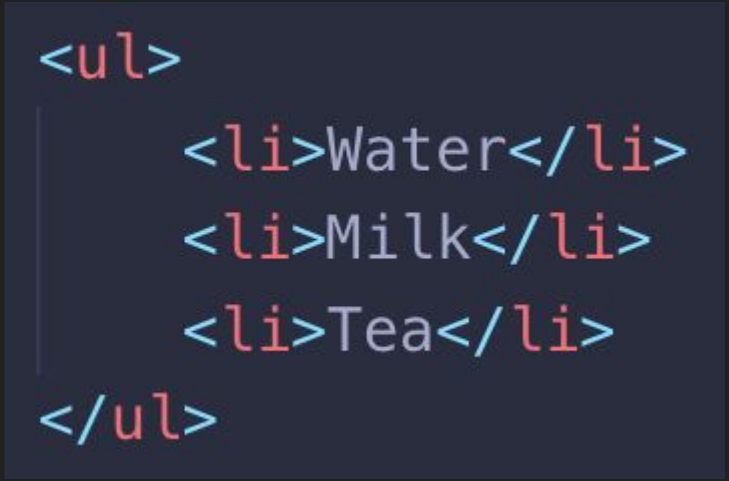
- HTML images are defined with the <img> tag.
- The <img> tag is empty, it contains attributes only, and does not have a closing tag.
- The src attribute specifies the URL (web address) of the image.
- The alt attribute provides alternative text for an image if the user for some reason cannot view it. The value of the alt attribute should describe the image.



```
<img src="https://i.redd.it/83tuilr0scg11.jpg" alt="Hermione Granger">
```

HTML Lists - Unordered

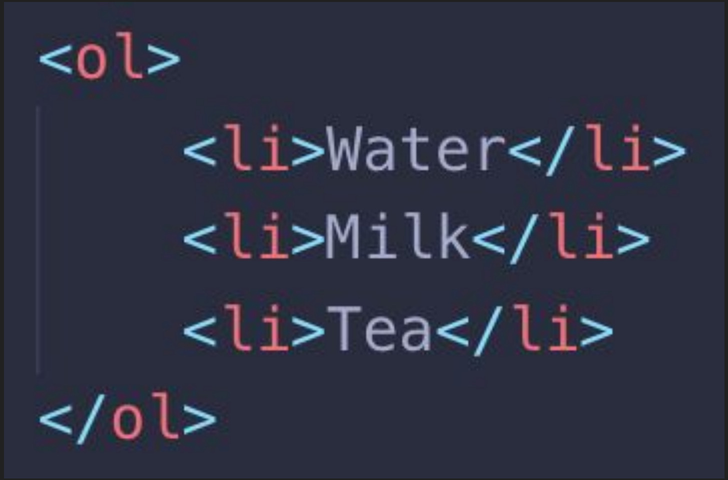
- An unordered list starts with the <ul> tag. Each list item starts with the <li> tag.
- The list items will be marked with bullets (small black circles) by default:



```
<ul>
    <li>Water</li>
    <li>Milk</li>
    <li>Tea</li>
</ul>
```

HTML Lists - Ordered

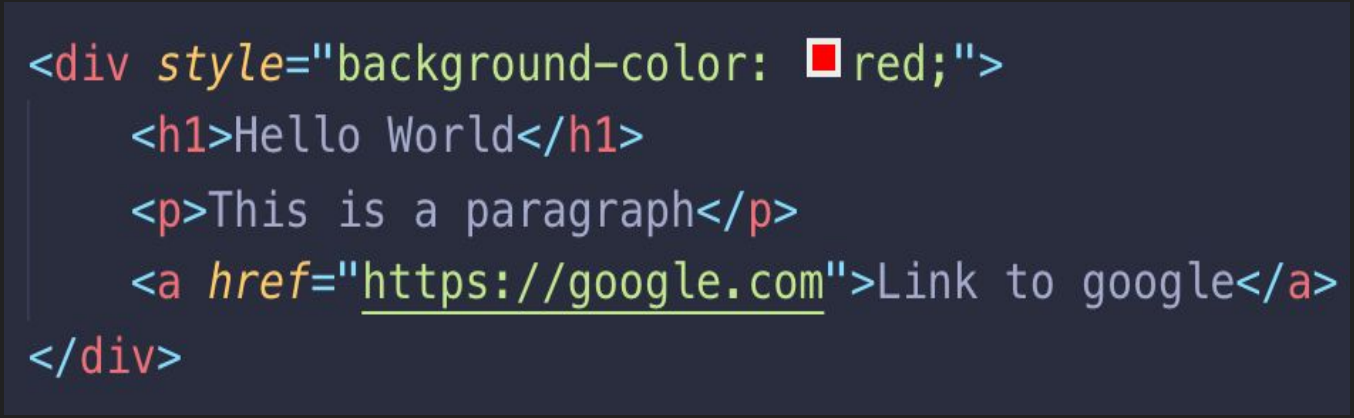
- An ordered list starts with the <ol> tag. Each list item starts with the <li> tag.
- The list items will be marked with numbers by default.



```
<ol>
    <li>Water</li>
    <li>Milk</li>
    <li>Tea</li>
</ol>
```

HTML Div

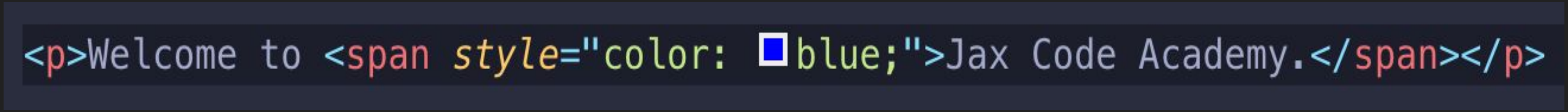
- The <div> element is often used as a container for other HTML elements.
- The <div> element has no required attributes, but style, class and id are common.
- When used together with CSS, the <div> element can be used to style blocks of content.



```html
<div style="background-color: 🟥 red;">
    <h1>Hello World</h1>
    <p>This is a paragraph</p>
    <a href="https://google.com">Link to google</a>
</div>
```

HTML Span

- The <span> element is often used as a container for some text.
- The <span> element has no required attributes, but style, class, and id are common.
- When used together with CSS, the <span> element can be used to style parts of the text:



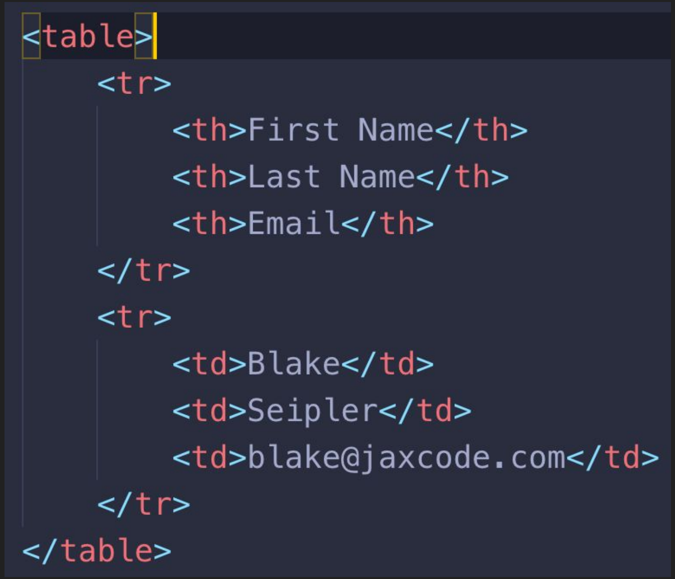
```html
<p>Welcome to <span style="color: blue;">Jax Code Academy.</span></p>
```

Assignment #1

- Recreate this webpage using HTML.

HTML Tables

- An HTML table is defined with the <table> tag.
- Each table row is defined with the <tr> tag. A table header is defined with the <th> tag. By default, table headings are bold and center. A table data/cell is defined with the <td> tag.



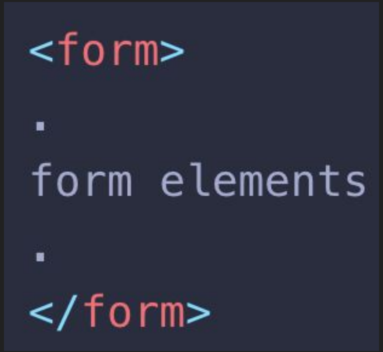
```
<table>
    <tr>
        <th>First Name</th>
        <th>Last Name</th>
        <th>Email</th>
    </tr>
    <tr>
        <td>Blake</td>
        <td>Seipler</td>
        <td>blake@jaxcode.com</td>
    </tr>
</table>
```

Assignment 1.2 - Harry Potter Table

- Create a table from the information provided here.

HTML Forms

- The HTML <form> element defines a form that is used to collect user input:



```
<form>
.
form elements
.
</form>
```

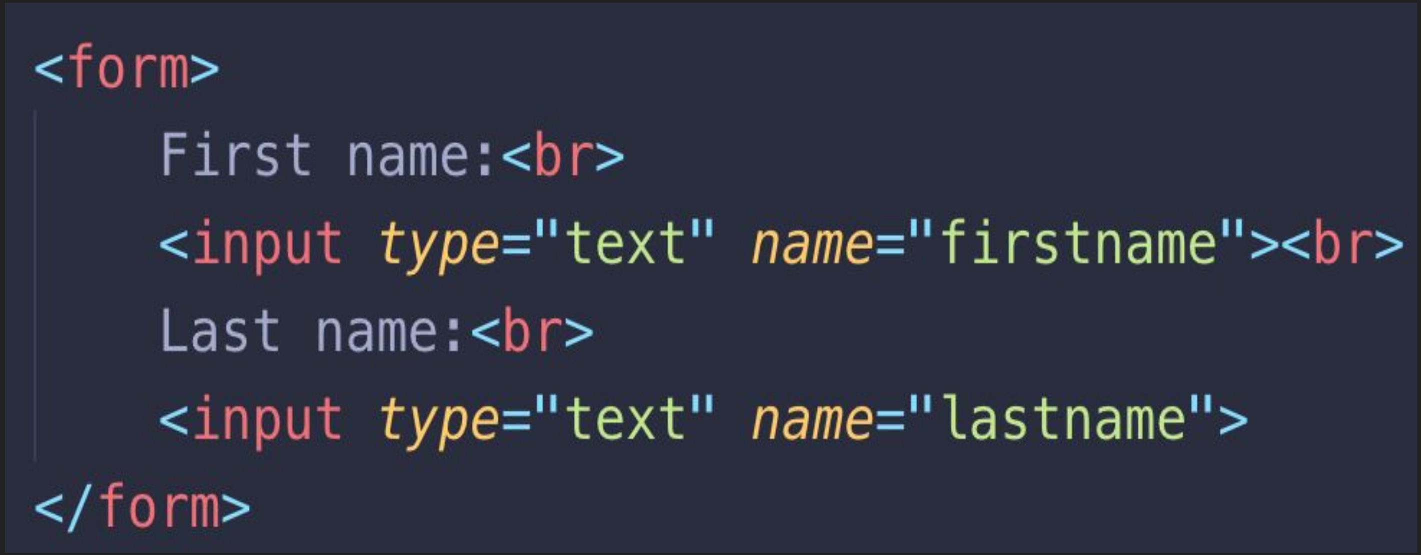
- An HTML form contains **form elements**.
- Form Elements are different types of input elements, like text fields, checkboxes, radio buttons, submit buttons, and more.

The <input> Element

- The <input> element is the most important form element.
- The <input> element can be displayed in several ways, depending on the **type** attribute.
- Here are some examples:
    - <input type=”text”> Defines a one-line text input field
    - <input type=”radio> Defines a radio button (for selection one of many choices)
    - <input type=”submit”> Defines a submit button (for submitting the form)

Input type Text

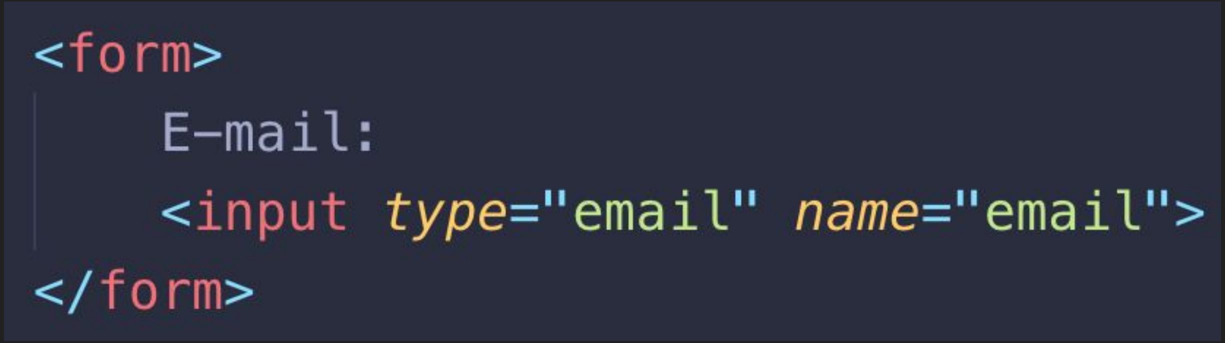
- <input type=”text”> defines a one-line input field for text-input:



```
<form>
    First name:<br>
    <input type="text" name="firstname"><br>
    Last name:<br>
    <input type="text" name="lastname">
</form>
```

Input Type Email

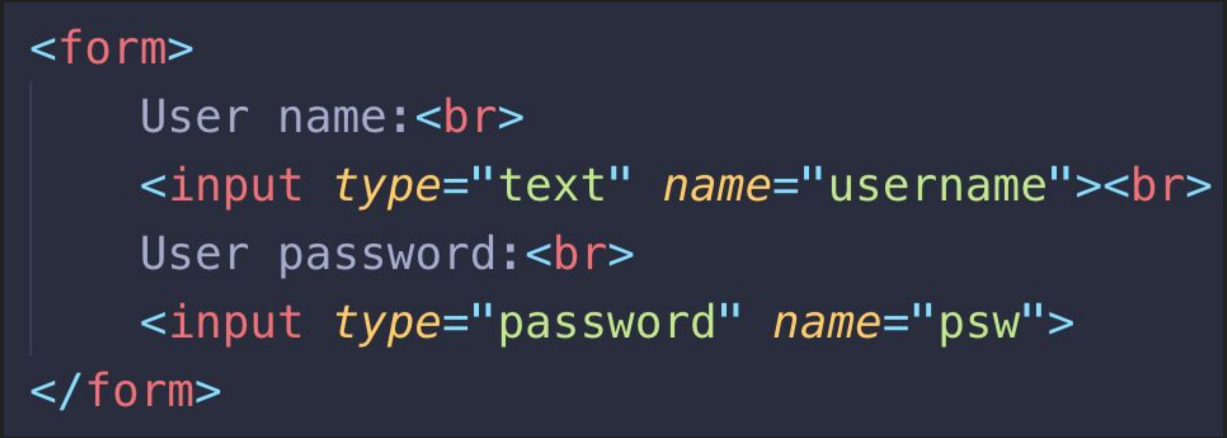
- The <input type=”email”> is used for input fields that should contain an email address.
- Depending on browser support, the email address can be automatically validated when submitted.
- Some smartphones recognize the email type, and add “.com” to the keyboard to match email input.



```
<form>
    E-mail:
    <input type="email" name="email">
</form>
```

Input Type Password

- <input type=”password”> defines a password field:

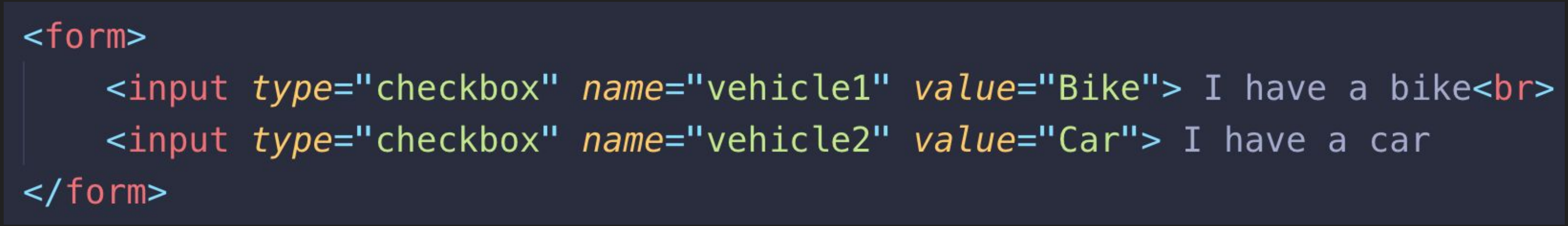


```
<form>
    User name:<br>
    <input type="text" name="username"><br>
    User password:<br>
    <input type="password" name="psw">
</form>
```

- The characters in a password field are masked (shown as asterisks or circles).

Input Type Checkbox

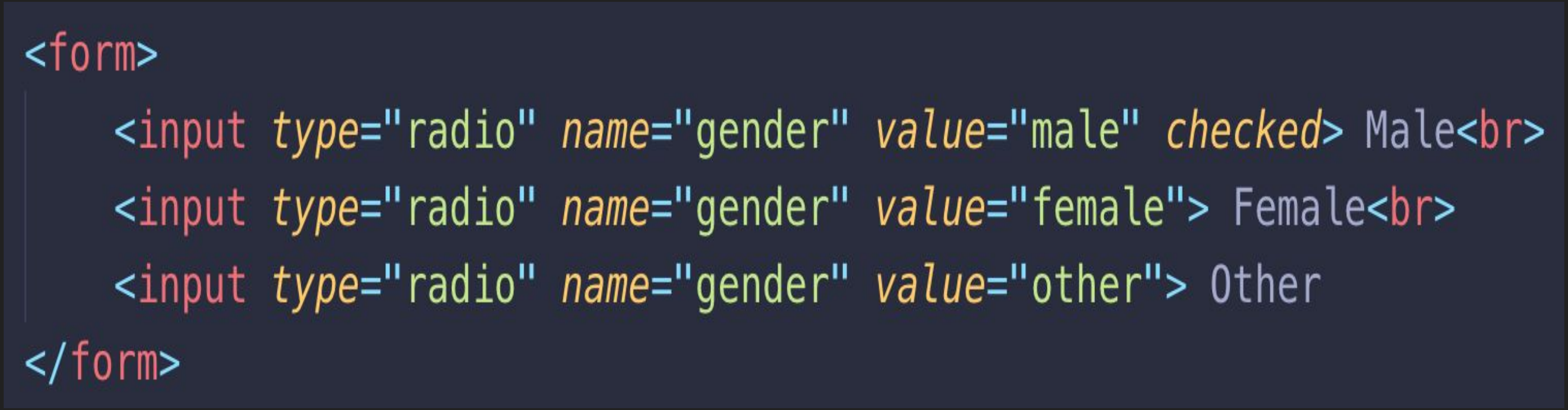
- <input type=”checkbox”> defines a **checkbox.**
- Checkboxes let a user select ZERO or MORE options of a limited number of choices.



```html
<form>
    <input type="checkbox" name="vehicle1" value="Bike"> I have a bike<br>
    <input type="checkbox" name="vehicle2" value="Car"> I have a car
</form>
```

Radio Button Input

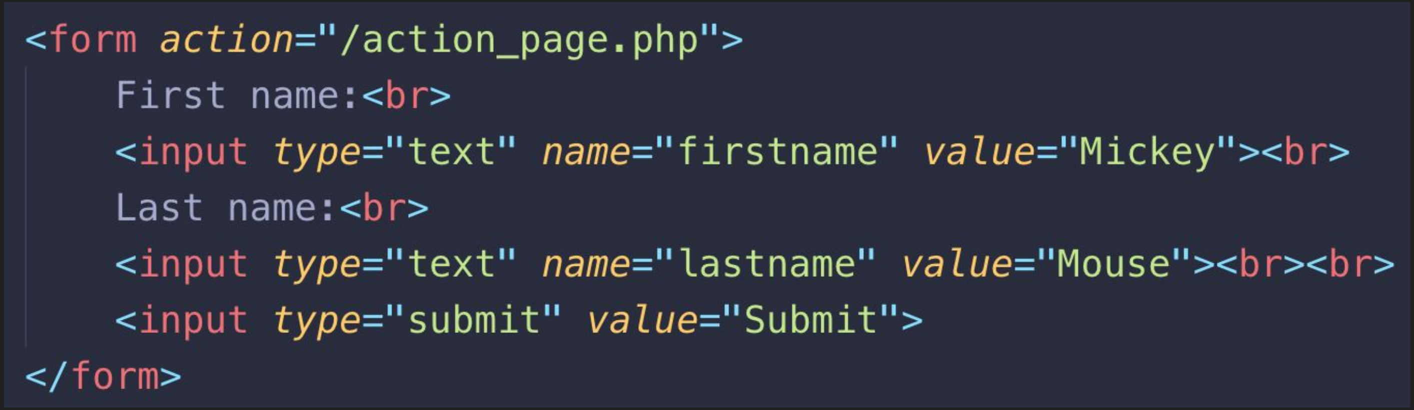
- <input type=”radio”> defines a **radio button.**
- Radio buttons let a user select ONE of a limited number of choices:



```
<form>
    <input type="radio" name="gender" value="male" checked> Male<br>
    <input type="radio" name="gender" value="female"> Female<br>
    <input type="radio" name="gender" value="other"> Other
</form>
```

The Submit Button

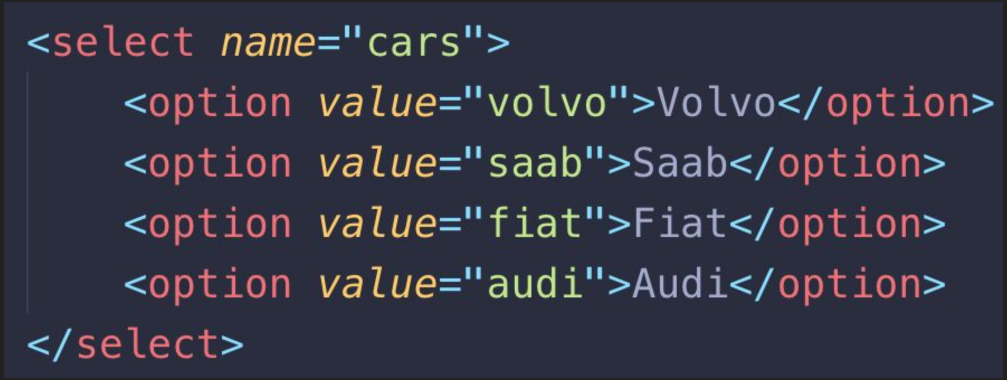
- <input type=”submit”> defines a button for **submitting** the form data to a **form-handler**.
- The form-handler is typically a server page with a script for processing input data.
- The form-handler is specified in the form’s **action** attribute:



```
<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>
```

The <select> Element

- The <select> element defines a **drop-down list:**

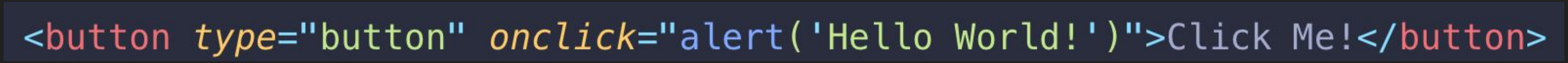


```
<select name="cars">
    <option value="volvo">Volvo</option>
    <option value="saab">Saab</option>
    <option value="fiat">Fiat</option>
    <option value="audi">Audi</option>
</select>
```

- The <option> element defines an option that can be selected.
- By default, the first item in the drop-down list is selected.
- To define a pre-selected option add the selected attribute to the option.

The <button> Element

- The <button> element defines a clickable button:

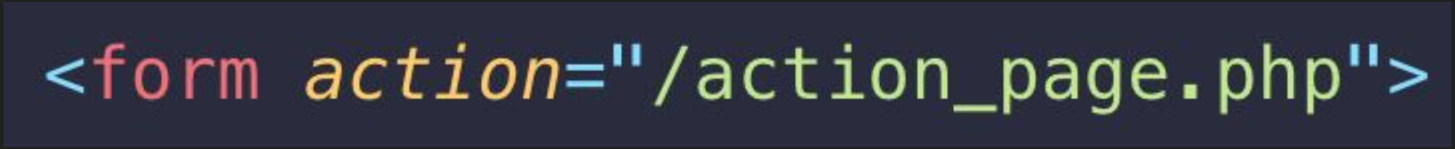


```html
<button type="button" onclick="alert('Hello World!')">Click Me!</button>
```

- Always specify the **type** attribute for the button element. Different browsers may use different default types for the button element.

The Action Attribute

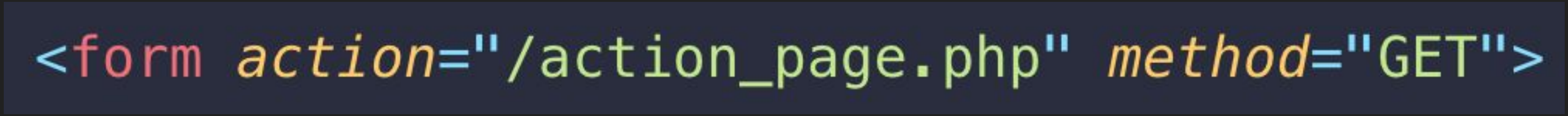
- The action attribute defines the action to be performed when the form is submitted.
- Normally, the form data is sent to a web page on the server when the user clicks on the submit button.
- In the example previous example, the form data is sent to a page on the server called “/action_page.php”. This page contains server-side script that handles the form data:



```html
<form action="/action_page.php">
```

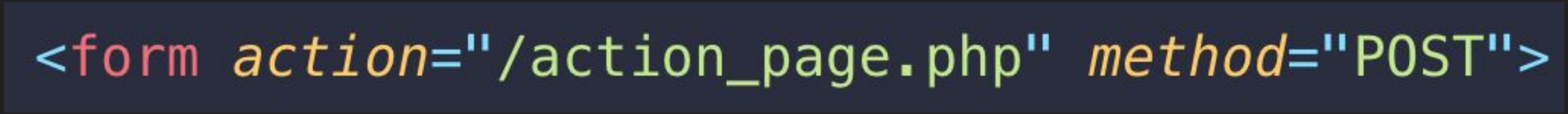
The Method Attribute

- The method attribute specifies the HTTP method (**GET** or **POST**) to be used when submitting the form data:



```
<form action="/action_page.php" method="GET">
```

or:



```
<form action="/action_page.php" method="POST">
```

When to use GET?

- The default method when submitting form data is GET.
- However, when GET is used, the submitted form data will be **visible in the page address field:**

  /action_page.php?firstname=Mickey&lastname=Mouse

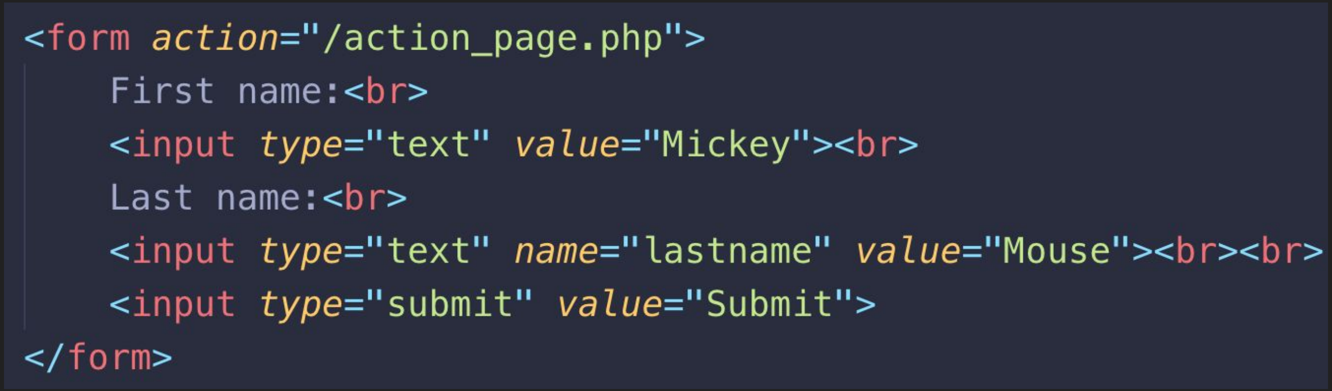
- **Notes on GET:**
  - **Appends form-data in the URL in name/value pairs**
  - **The length of the URL is limited (about 3000 characters)**
  - **Never use GET to send sensitive data! (will be visible in the URL)**
  - **Useful for form submissions where a user wants to bookmark**
  - **GET is better for non-secure data, like query strings in Google**

When to use POST?

- Always use POST if the form data contains sensitive or personal information. The POST method does not display the submitted form data in the page address field.
- Notes on POST:
  - Post has no size limitations, and can be used to send large amounts of data.
  - Form submissions with POST cannot be bookmarked.

The Name Attribute

- Each input field must have a name attribute to be submitted.
- If the name attribute is omitted, the data of that input field will not be sent at all.
- This example will only submit the “Last Name” input field:



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

Assignment 1.3 - Form Exercise

- Recreate the form located here.