



A Venn diagram with three overlapping circles. The top circle is red and labeled 'HTML'. The bottom-left circle is green and labeled 'CSS'. The bottom-right circle is blue and labeled 'JS'. The intersections of the circles are shaded in darker tones of their respective colors. The entire diagram is set against a light yellow background with a dark grey curved border on the right side.

HTML

CSS

JS

HTML, JS and
CSS
Relationship

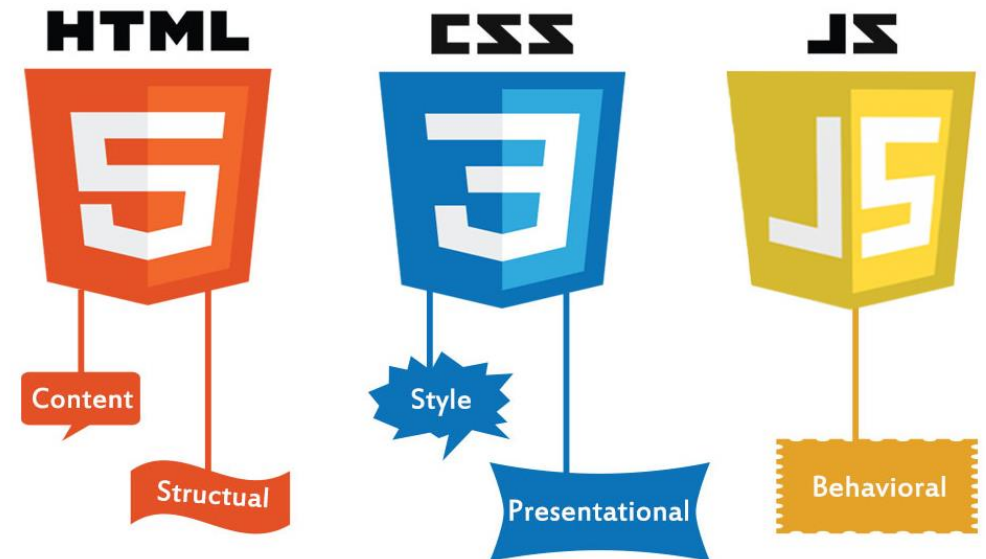
Warm Up

- Play Card Matching Memory game online. Think if you want to develop this game in any programming language, what component your code would have? You can use pseudocode or program outline. List variables and functions/methods/procedures would you use?
- <https://www.puzzlewebgames.com/memory-match/>
or **tinyurl.com/mmrGame**

Front-End Web Development (languages)

HTML + JavaScript + CSS = Backbone of Web

Responsible for what user can see and do on a website, referred to as client side languages, run in the browser (Google Chrome, Firefox etc.) of a computer. Browser translates these languages and the result of this translation is the visual web page.



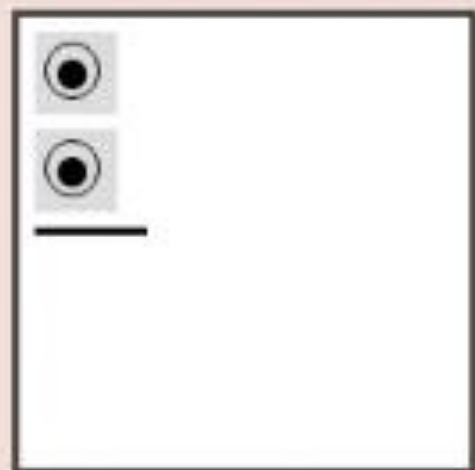


Markup Language	Styling Language	Programming Language
<ul style="list-style-type: none">• The Body• HyperText Markup Language (HTML)• Content and basic structure• Describes and defines• Made up of tags• Tells the browser what to display	<ul style="list-style-type: none">• The Accessories• Cascading Style Sheet (CSS)• Gives style and structure to the content• Link the CSS file to the HTML• Tells the browser how to display	<ul style="list-style-type: none">• The body's ability to perform actions• JavaScript is not Java• Behavior of the website• Used for interactive functionality• Allows for the user to interact with the browser



Markup Language	Styling Language	Programming Language
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HTML



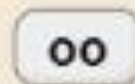
HTML + CSS



HTML + CSS + JS



Click here to **PLAY!**



**Interactive website is critical,
*otherwise***

**its just a boring page
filled with information**

HTML **data-*** Attribute. Definition and Usage

- The **data-*** attribute is used to store custom data private to the page or application.
- The **data-*** attribute gives us the ability to embed custom data attributes on all HTML elements.
- The stored (custom) data can then be used in the page's JavaScript to create a more engaging user experience (without any Ajax calls or server-side database queries).

The **data-*** attribute consist of two parts:

- 1.The attribute name should not contain any uppercase letters, and must be at least one character long after the prefix "data-"
- 2.The attribute value can be any string <https://www.w3schools.com/>

HTML Syntax of data-* Attribute

```
<article
  id="electric-cars"
  data-columns="3"
  data-index-number="12314"
  data-parent="cars">
...
</article>
```

data-* attributes allow us to store extra information on standard, semantic HTML elements. Any attribute on any element whose attribute name starts with data- is a data attribute.

JavaScript Access - **Element.getAttribute()**

```
<!-- example div in an HTML DOC -->
<div id="div1">Hi Champ!</div>

// in a console
const div1 = document.getElementById('div1');
//=> <div id="div1">Hi Champ!</div>

const exampleAttr= div1.getAttribute('id');
//=> "div1"

const align = div1.getAttribute('align')
//=> null
```

The `getAttribute()` method of the `Element` interface **returns the value** of a specified attribute on the element. If the given attribute **does not exist**, the value returned will either be **null** or **""**. Ex.
`getAttribute(attributeName)`

Example 1. Link

The screenshot shows a web browser window with the address bar displaying `w3schools.com/TAGS/tryit.asp?filename=tryhtml5_global_data`. An alert box is open, displaying the message: `www.w3schools.com says` followed by `The Salmon is a fish.` with an `OK` button. A blue arrow points from the `Salmon` link in the list on the right to the alert box. The web page has a title `Species` and a paragraph `Click on a species to see what type it is:`. Below this is a list of three items: `Owl`, `Salmon`, and `Tarantula`. The `Salmon` item is highlighted. The left sidebar of the browser shows the source code of the page, which includes a JavaScript function `showDetails` that uses `document.getElementById` to retrieve the `data-animal-type` attribute and displays it in an alert box. The code also includes the HTML structure for the `Species` page, including the list of species and their corresponding IDs and data attributes.

```
<!DOCTYPE html>
<html>
<head>
<script>
function showDetails(animal) {
  var animalType = animal.getAttribute("data-animal-type");
  alert("The " + animal.innerHTML + " is a " + animalType + ".");
}
</script>
</head>
<body>

<h1>Species</h1>
<p>Click on a species to see what type it is:</p>

<ul>
  <li onclick="showDetails(this)" id="owl" data-animal-type="bird">Owl</li>
  <li onclick="showDetails(this)" id="salmon" data-animal-type="fish">Salmon</li>

  <li onclick="showDetails(this)" id="tarantula" data-animal-
type="spider">Tarantula</li>
</ul>

</body>
</html>
```

Result Size: 696 x 522

Get your own website

Example 2. Link

dofactory.com/html/editor/img-data-title

dofactory

HTML -- Edit code and see the results on the right.

```


<br/><br/>
<button onclick="show();">Show data</button>

<script>
  let show = () => {
    let element = document.getElementById("myimg");
    alert("Topic = " + element.getAttribute('data-topic'));
  }
</script>
```

www.dofactory.com says
Topic = Van Gogh self-portrait

OK



Show data

HTML DOM Element className

- Set the class attribute for an element:
`element.className = "myStyle";`

```
if (element.className == "myStyle") {  
    element.className = "newStyle";  
} else {  
    element.className = "myStyle";  
}
```

Card Matching Game Programming Project

Follow instructions in the file:

INSTRUCTIONS: FINISH THE CODE THAT:

1. The game will have the board of your selected dimensions (4x4, 5x5, 3x4). Make sure you use even number of cards.
2. The game will have user friendly instructions
3. The counter of step is being added and display at the end of the game. Example "You win the game with 14 moves"

CHALLENGE 1. Cards with emojis

CHALLENGE 2. Cards with images