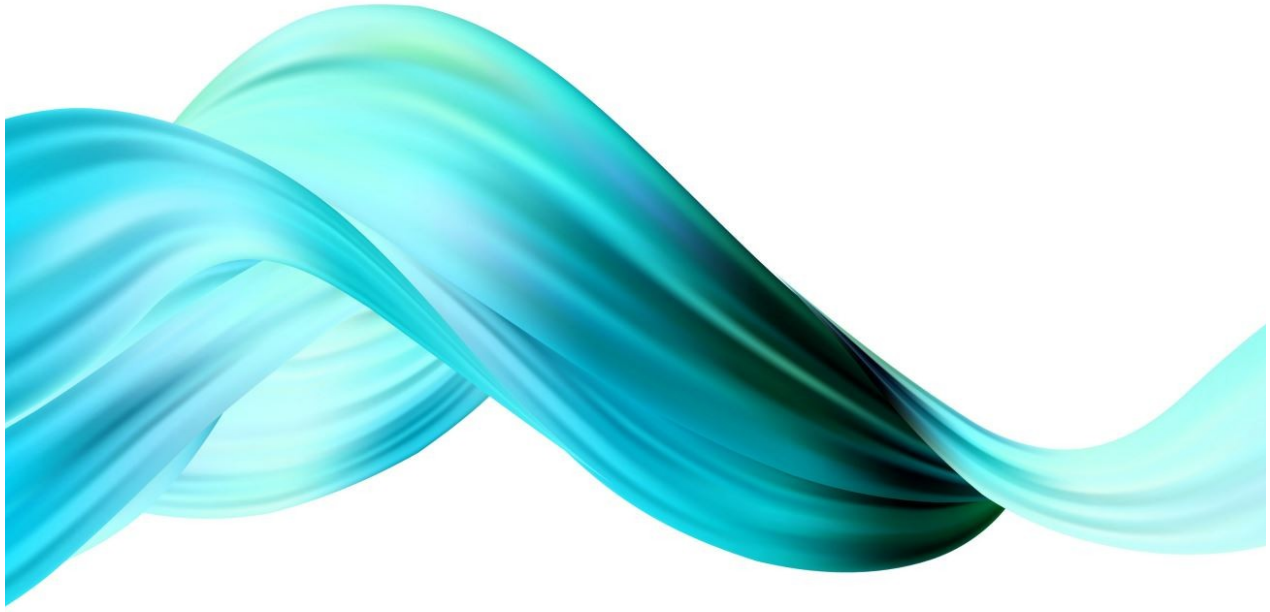
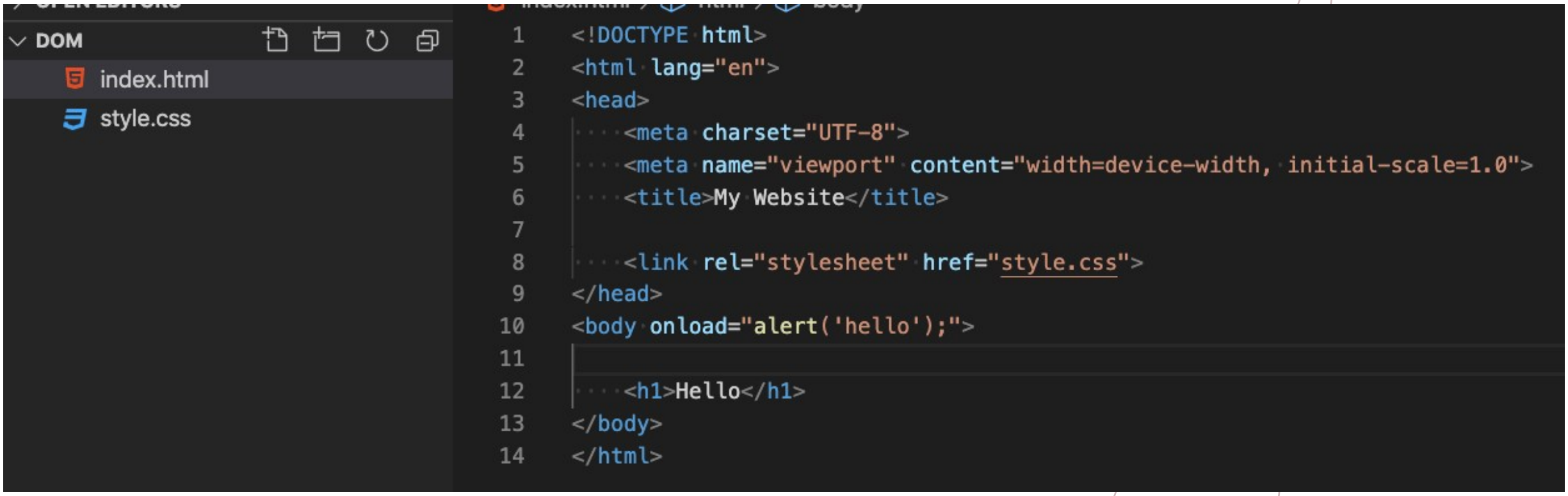


THE DOCUMENT OBJECT MODEL (DOM)

INLINE JAVASCRIPT

- The onload event occurs when an object has been loaded.



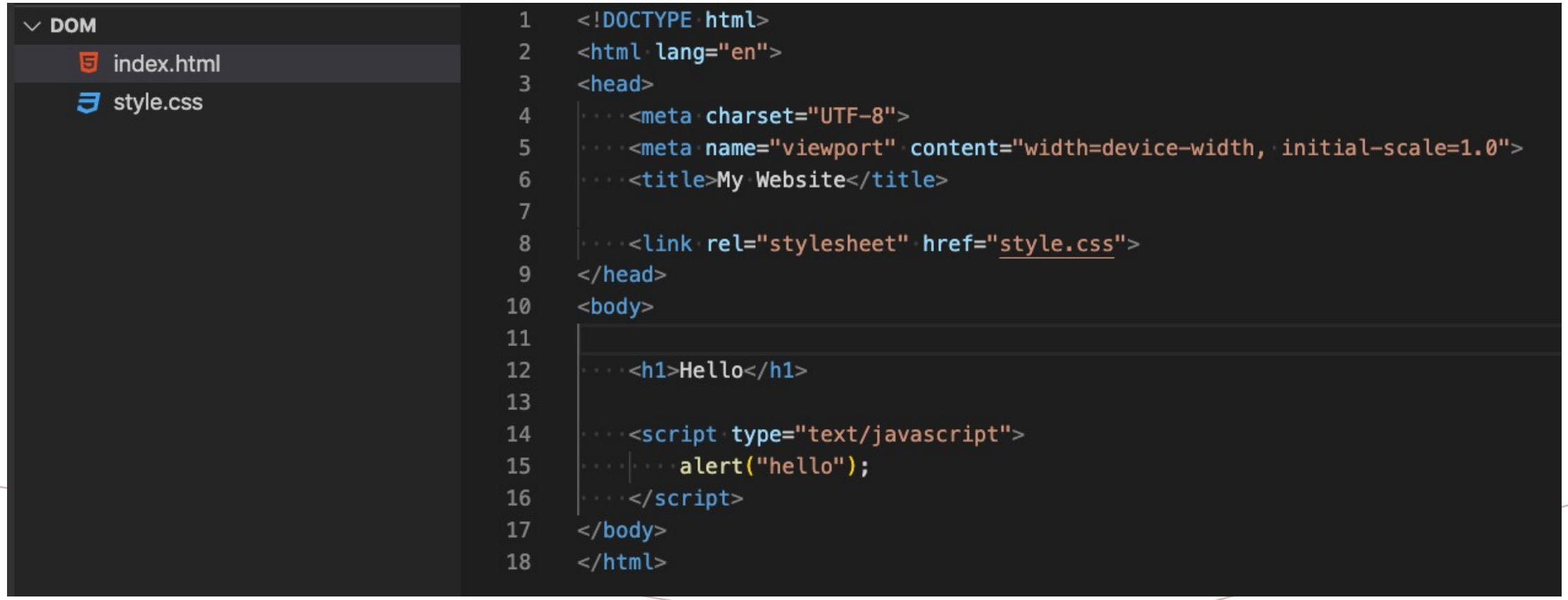
DISADVANTAGE

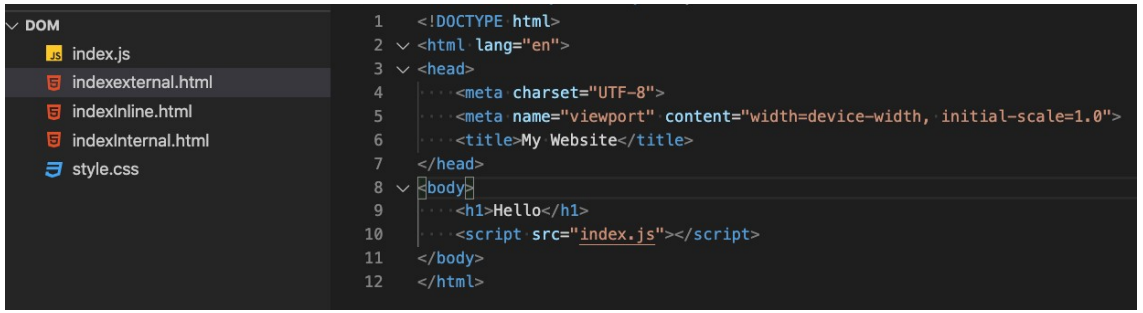
- It is not very modular.
- It is difficult to debug.
- It is not a good practice.

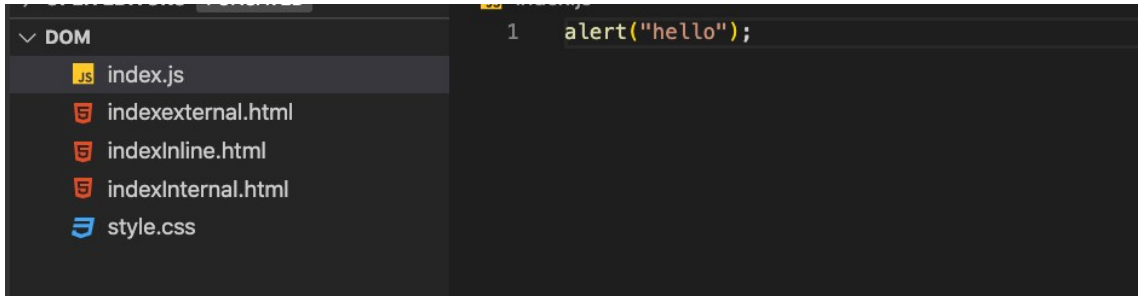
Please try to avoid that if you can.

INTERNAL JAVASCRIPT

- Integrate a script tag.





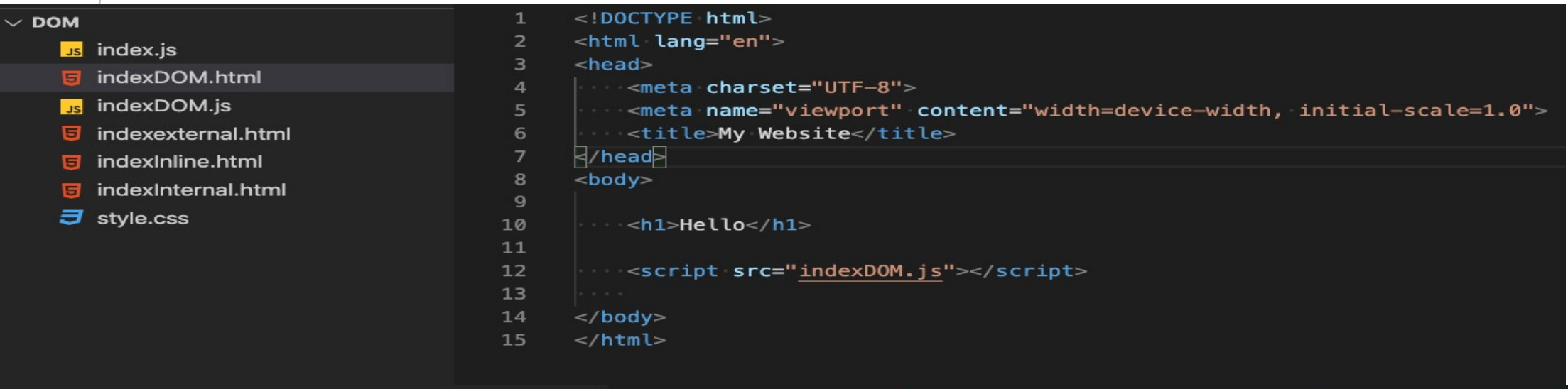


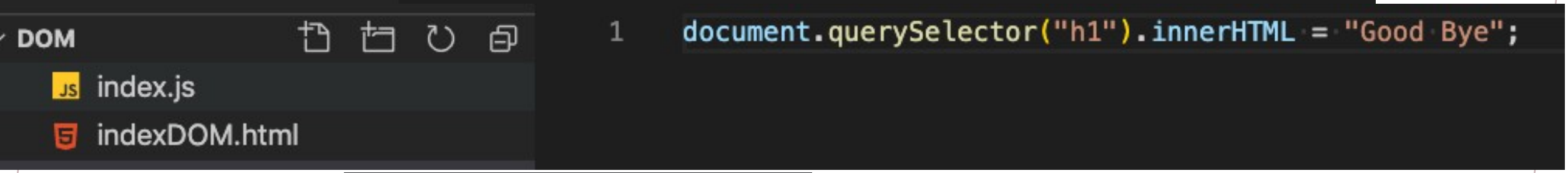
EXTERNAL JAVASCRIPT

YOU WILL INSERT THE SCRIPT TAG WITH A EXTERNAL SOURCE.

WHAT HAPPENS IF I WRITE THE CSS LINK TAG AT THE END OF THE FILE?

QUERYSELECTOR





Good Bye

DOCUMENT OBJECT MODEL

DOMINATING THE DOM TO ADD FUNCTIONALITY TO HTML ELEMENTS.

STATIC WEBSITES.

We basically planned what content our website should have and also the appearance of that content.

We wrote the HTML and the CSS code, then we hit save and refreshed our browser, and there is our site.

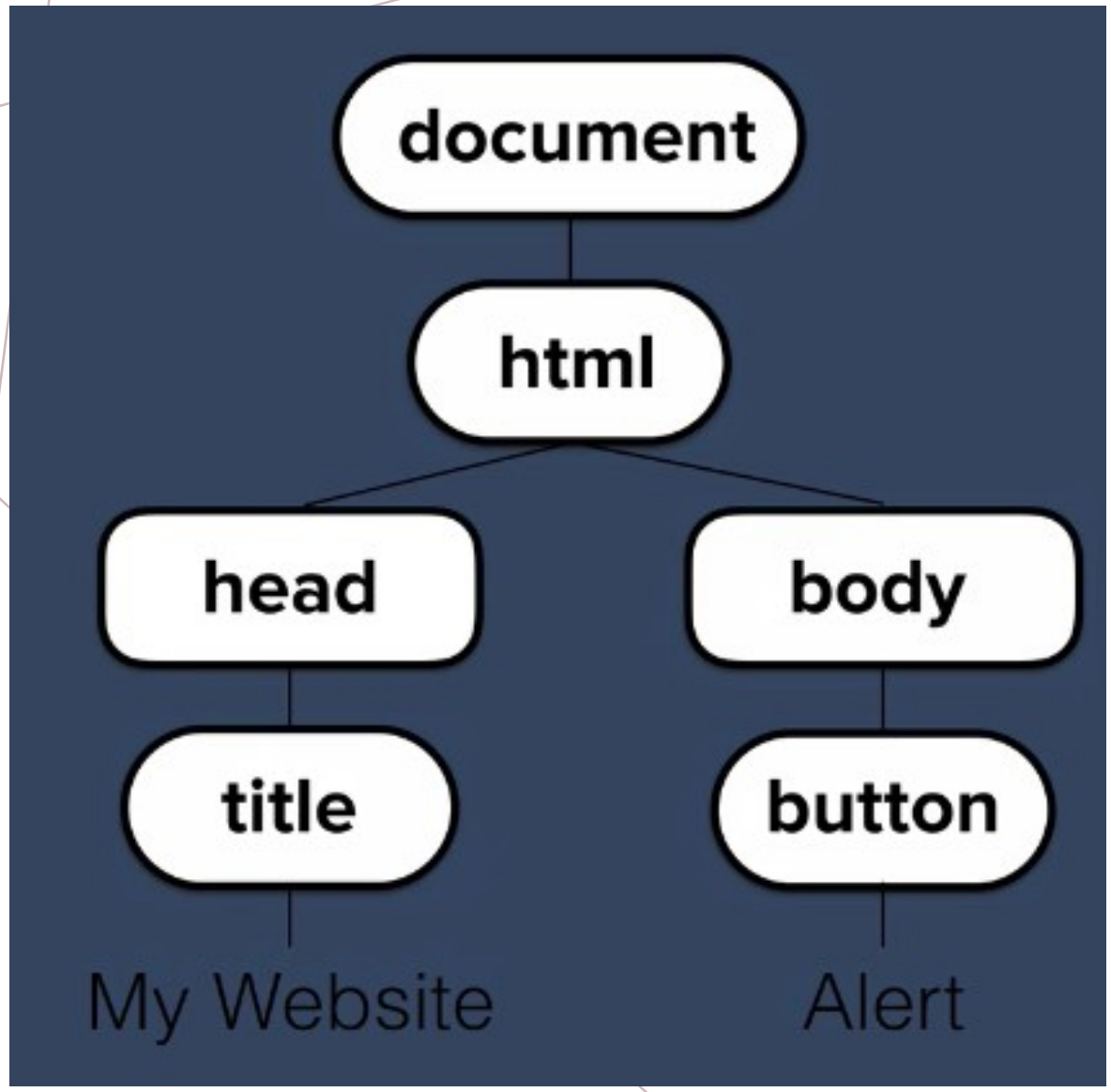
If we want our website to be interactive, then we need to be able to change parts of the website on the fly, that means when a user clicks on a button, we will need to respond to that by changing the content or the appearance of our website.

DOM

Catalogs the web page into individual objects that we can select and manipulate.

```
<html>
  <head>
    <title>My Website</title>
  </head>
  <body>
    <button>Alert</button>
  </body>
</html>
```

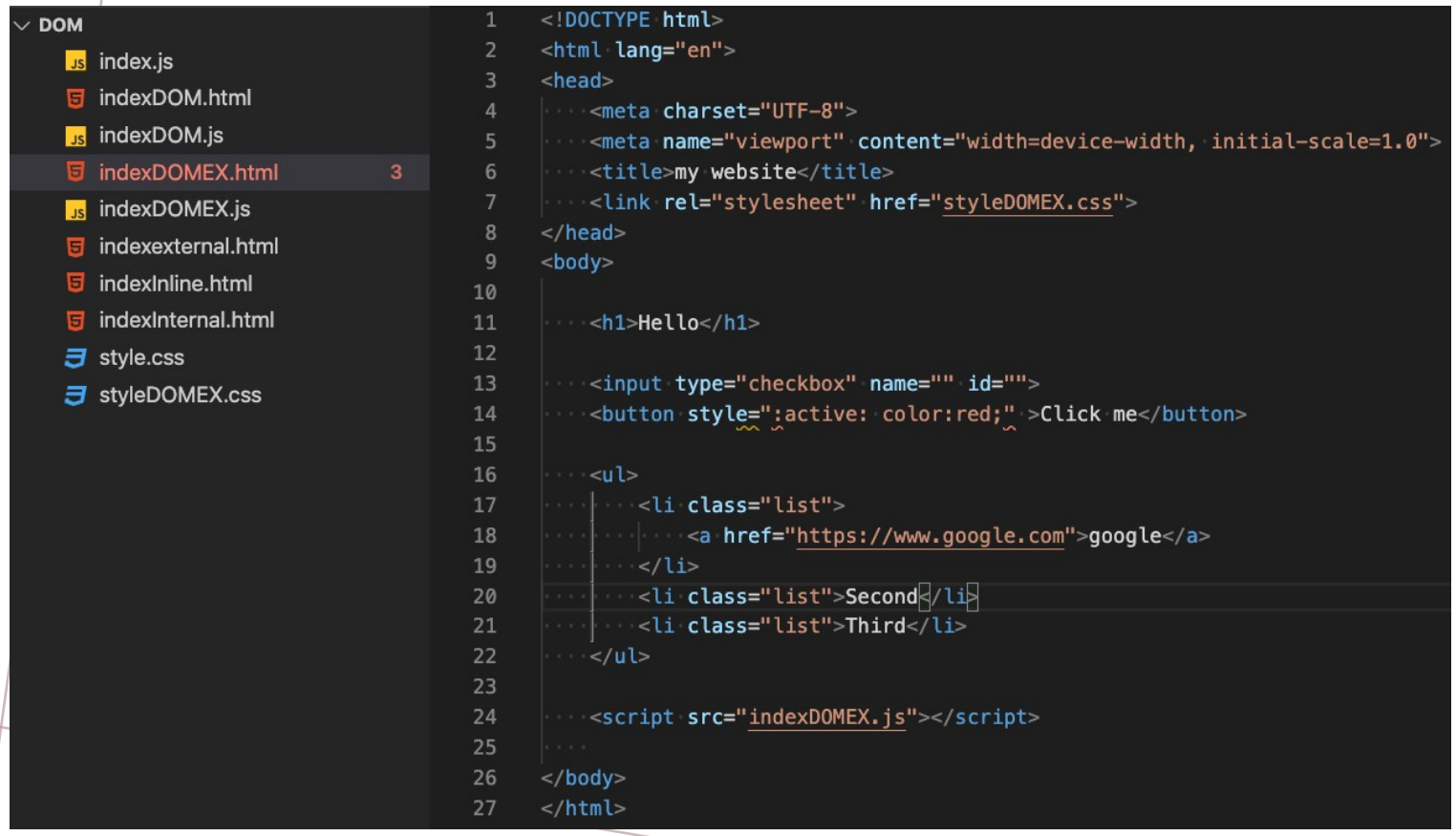
On the left we have the html code of a really basic website. On the right is roughly the structure of our website that you might see in the browser.



•The task of converting an HTML file into the DOM is done by the browser when you load up the web page. It turns each of these elements and their associated data into a tree structure with a whole bunch of objects that you can select and manipulate.

The tree model on the left is usually how you will see the DOM represented. All of the elements in our HTML has been converted into objects, and their relationships to each other mapped out in the tree diagram.

Ex: the head section is a descendant of the HTML object but the head and the body, they are siblings, they are not descendants of each other and everything that is contained inside your HTML document is contained in an object called the document.



Hello

Click me

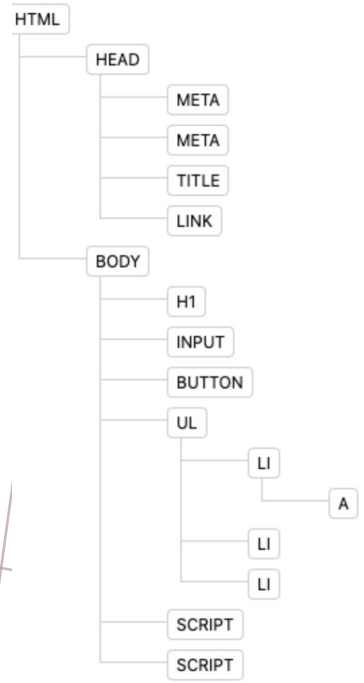
- google
- Second
- Third

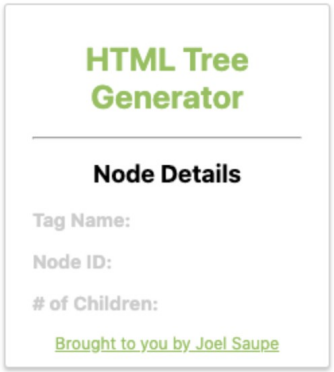
NAVIGATE THROUGH THE TREE

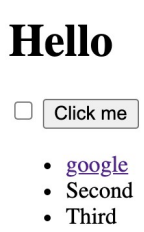
Document

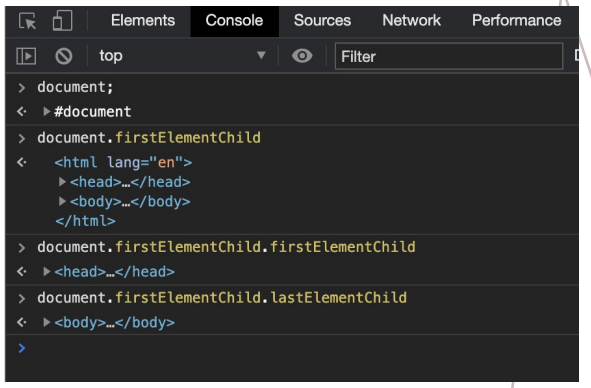
Document.firstElementChild: The firstElementChild property returns the first child element of the specified element.

How to select the h1?



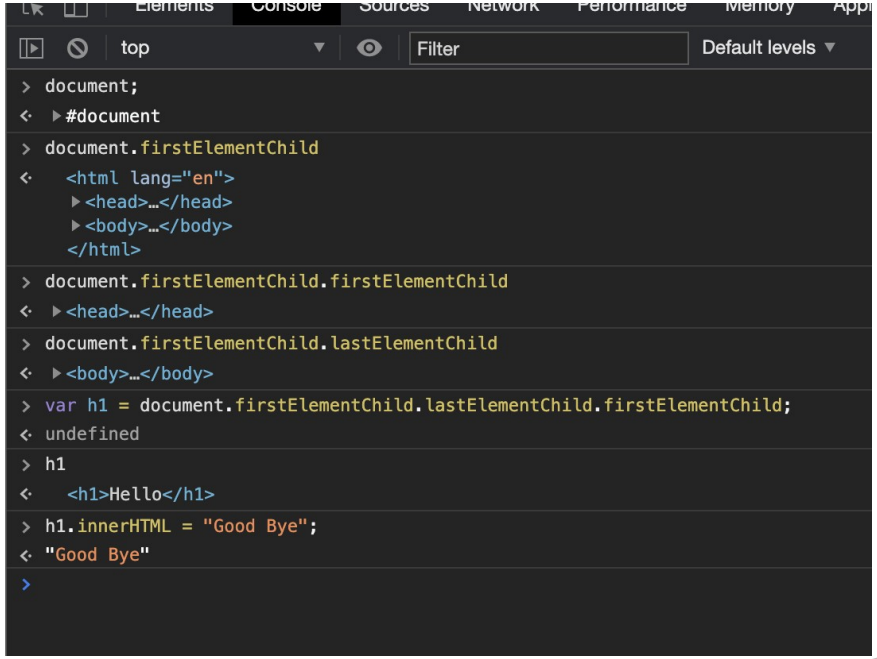






MANIPULATING THE DOM.

- The innerHTML property sets or returns the HTML content (inner HTML) of an element.



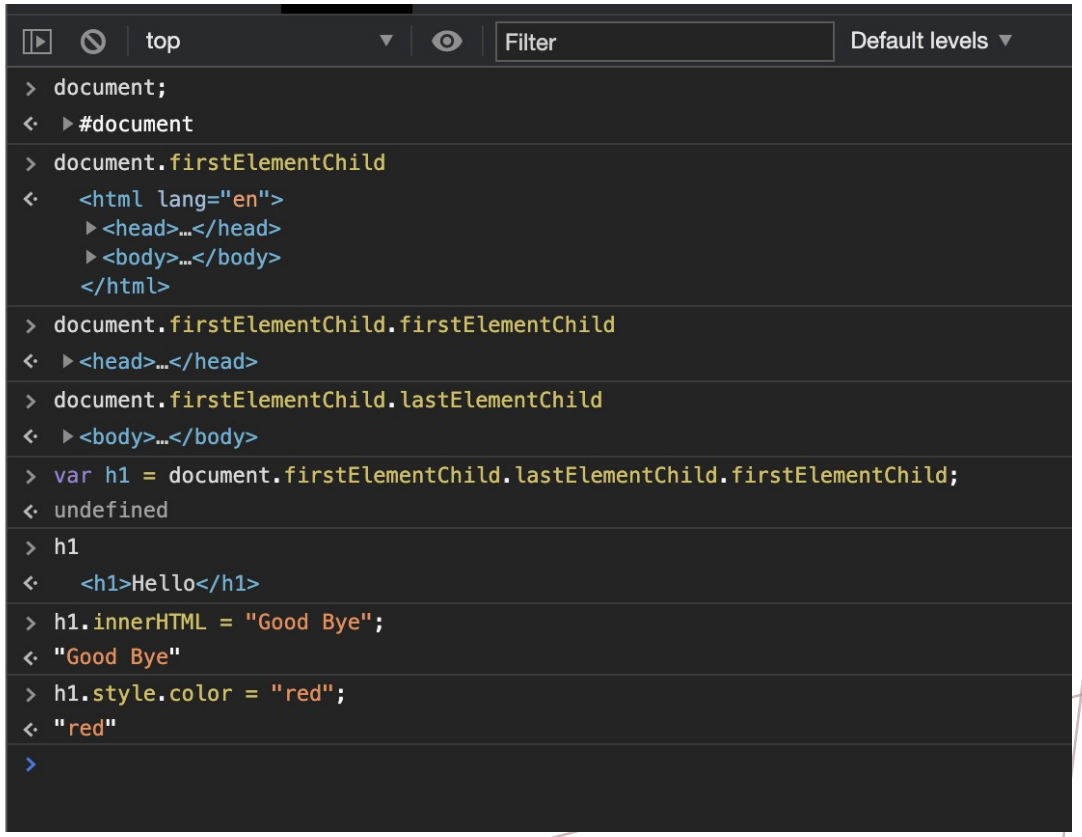
CHANGING THE STYLE ON THE FLY

- *object*.style.color: The color property sets or returns the color of the text.

Good Bye

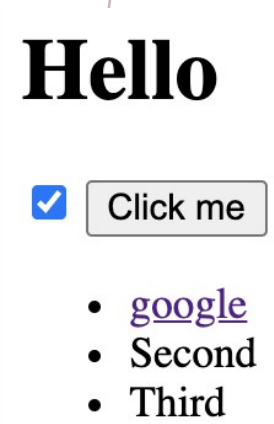
Click me

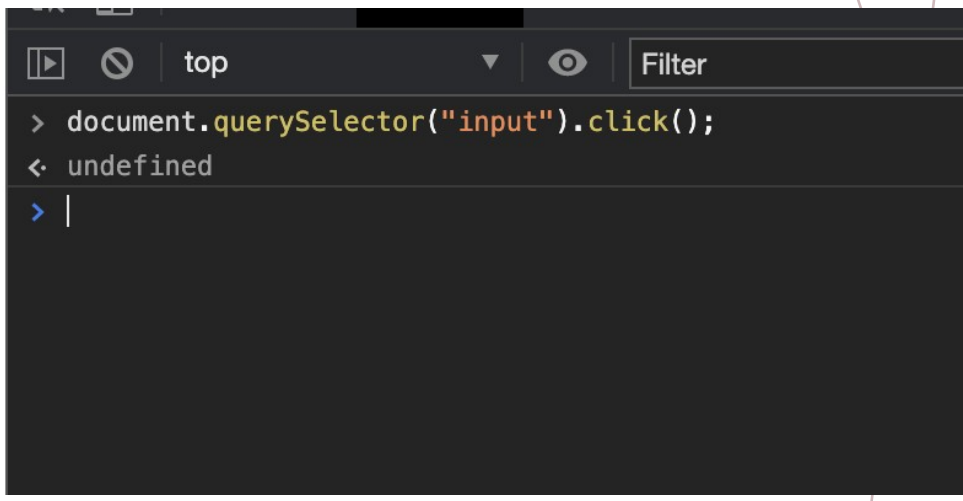
- google
- Second
- Third



DOCUMENT.QUERYSELECTOR

It looks into the entire document. In my example it looks for the object that has the selector of “input”. I called a method called click, what click does is that it simulates a mouse click. It will perform an action. It will select one element in the document.

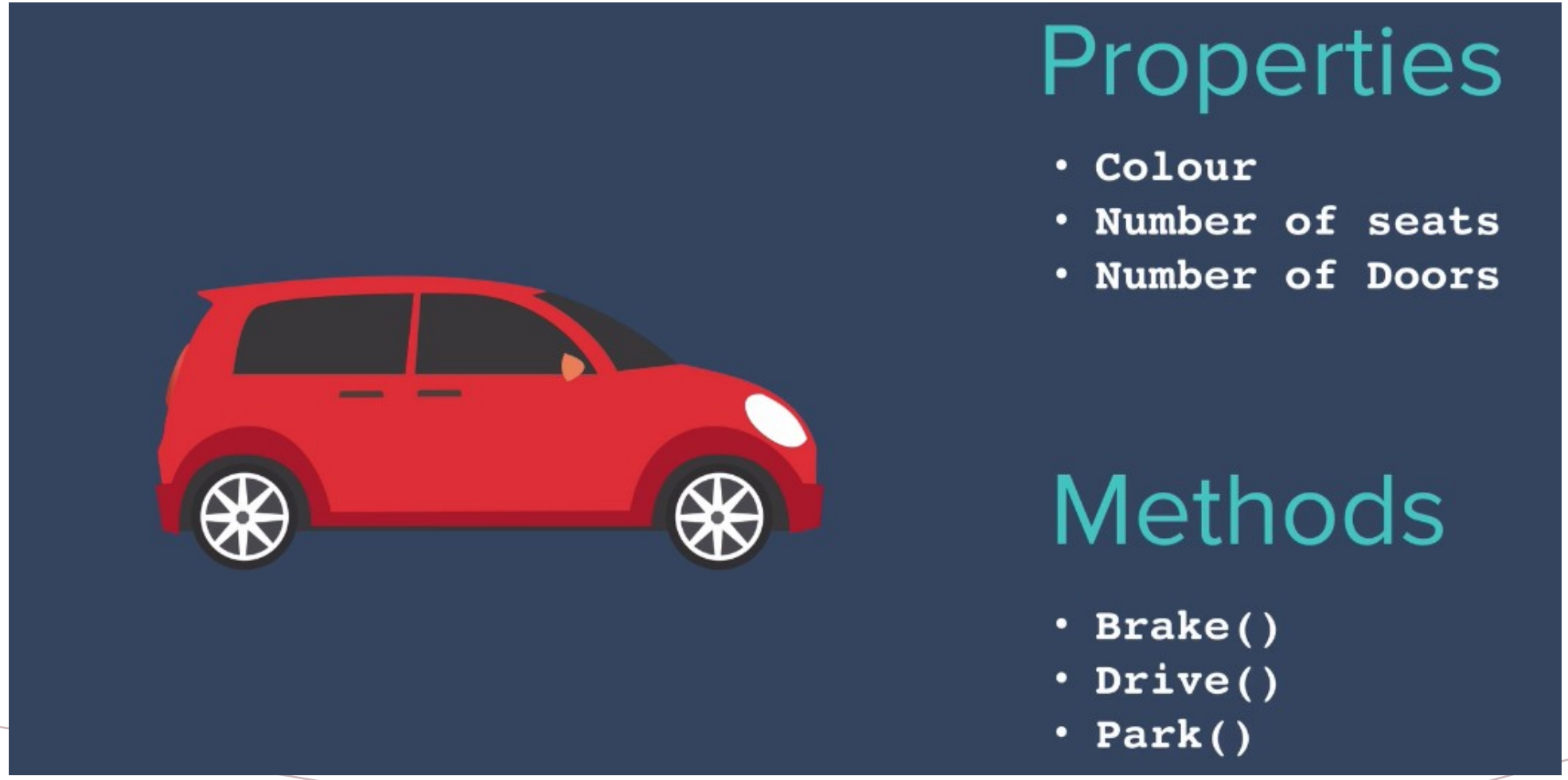




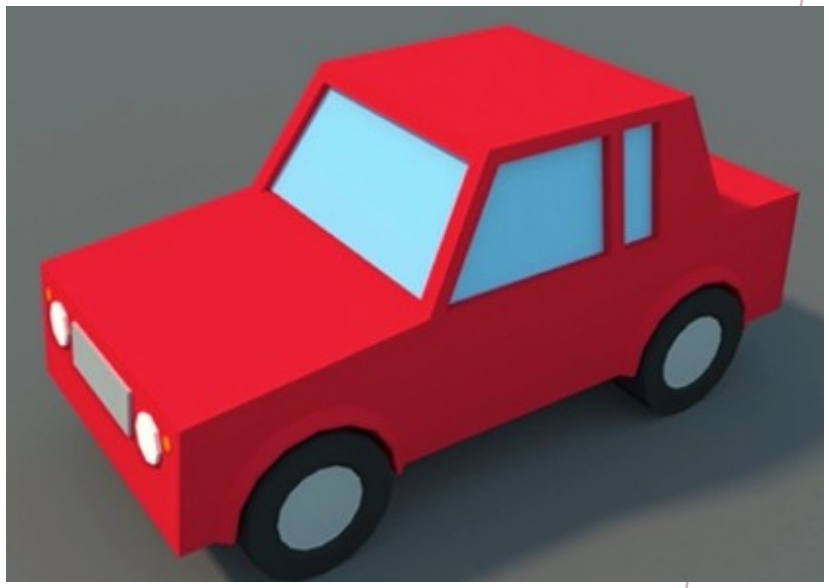
Our objects inside the DOM, can have properties and methods.

Properties: describe something about the object.
Methods: are things that the object can do

EXAMPLE:


Properties
• Colour
• Number of seats
• Number of Doors
Methods
• Brake()
• Drive()
• Park()

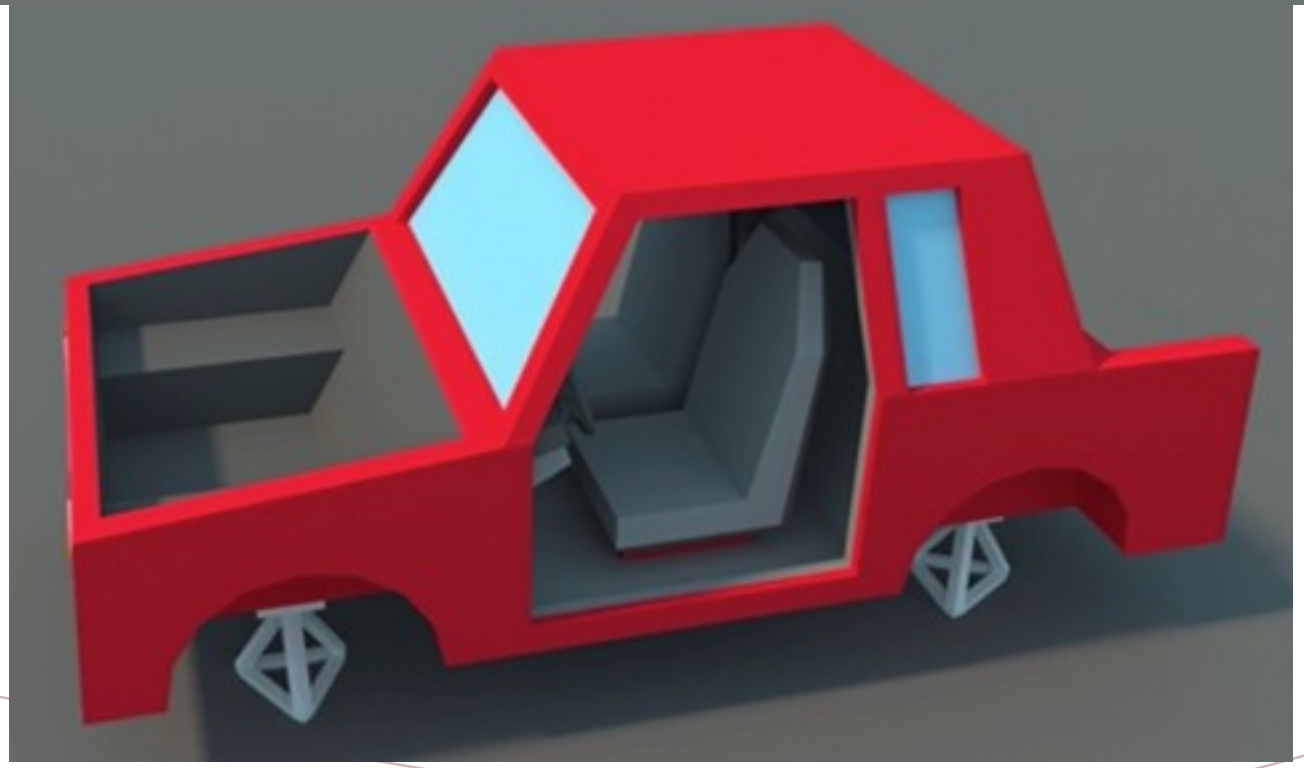
GET PROPERTY



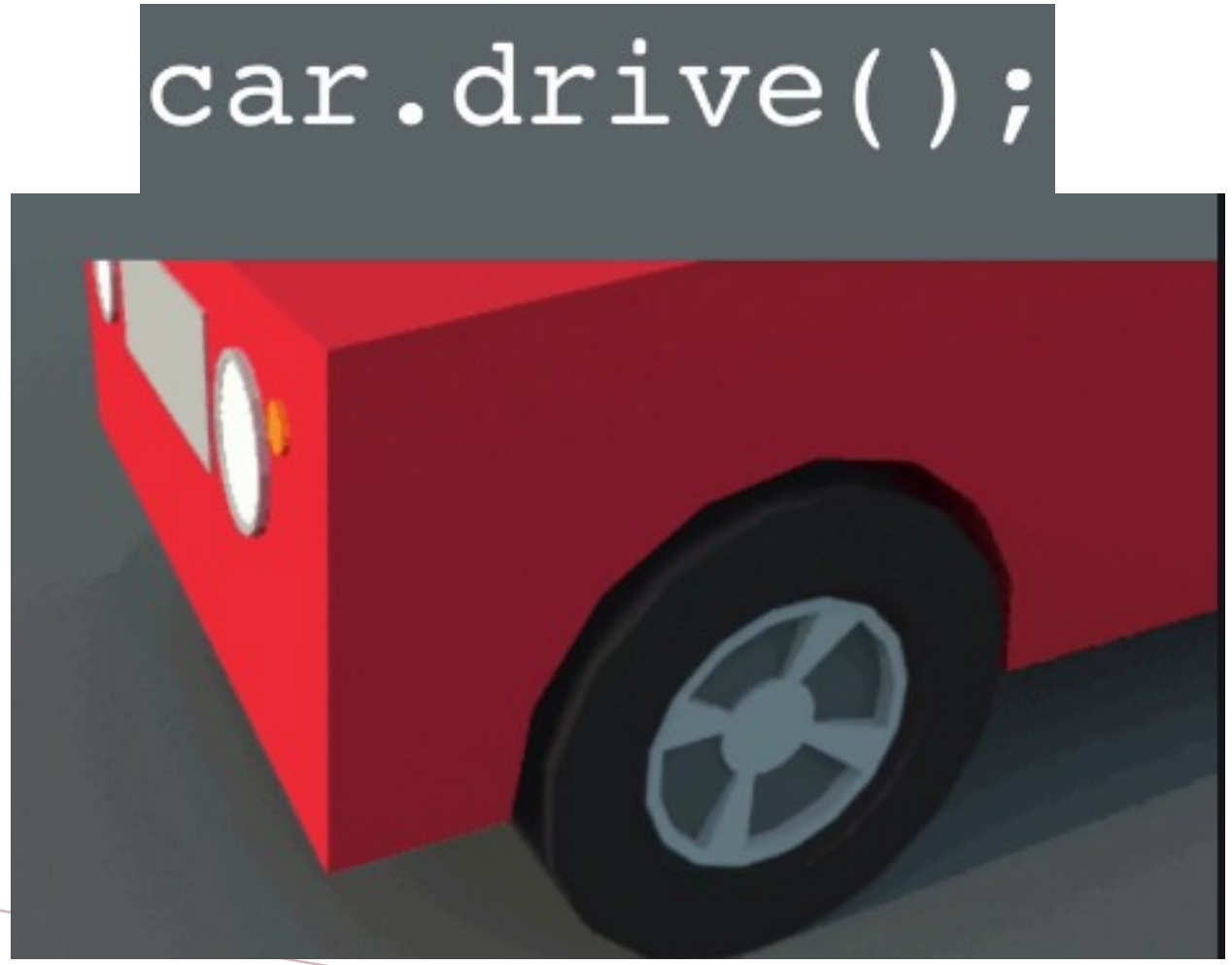
```
car.colour; //red
```

SET PROPERTY

```
car.numberOfDoors = 0;
```



CALL METHOD



```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>my website</title>
    <link rel="stylesheet" href="styleDOMEX.css">
</head>
<body>

    <h1 id="title">Hello</h1>

    <input type="checkbox" name="" id="">
    <button class="btn" style=":active: color:red;" >Click me</button>

    <ul id="list">
        <li class="item">
            <a href="https://www.google.com">google</a>
        </li>
        <li class="item">Second</li>
        <li class="item">Third</li>
    </ul>

</body>
<footer><script src="indexDOMEX.js"></script></footer>
</html>
```

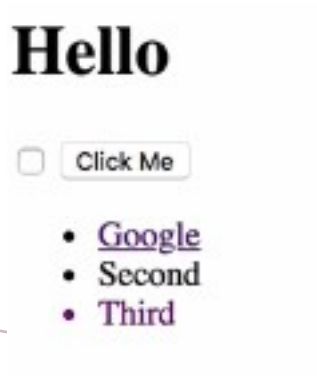
ADDED SOME CLASSES AND IDS

ALL DIFFERENT WAYS OF SELECTION ELEMENTS INSIDE THE DOM

- document.getElementsByTagName(“li”); = you will get an array with all the list items. Please notice the word elements – its plural. It is going he page.

```
> document.getElementsByTagName("li");
< ▶ HTMLCollection(3) [li.item, li.item, li.item]
>
```

If you try to change the color of the array. You will get an error. You will have to specify the li you would like to change using the index of the array.




```
> document.getElementsByTagName("li");
< ▶ HTMLCollection(3) [li.item, li.item, li.item]
> document.getElementsByTagName("li").style.color = "purple";
✖ ▶ Uncaught TypeError: Cannot set property 'color' of undefined
      at <anonymous>:1:49
> document.getElementsByTagName("li")[2].style.color = "purple";
< "purple"
>
```

- document.getElementsByClassName(“btn”) = allows you to select elements base on the name of the class. Please notice getElements – its plural so it will give you an array. That means changing the color will not work.

```
> document.getElementsByClassName("btn");
<- ▶HTMLCollection [button.btn]
>
```

Even if it is only one item with the class name you have to select using the index of the array.

```
> document.getElementsByClassName("btn").style.color = "red";
✖ ▶Uncaught TypeError: Cannot set property 'color' of undefined
      at <anonymous>:1:52
> document.getElementsByClassName("btn")[0].style.color = "red";
```

- document.getElementById(“title”) = it is going to select by id. notice the word element is not longer plural. The reason why is because every single id in the web page should be unique. The web page should not have the same id for multiple elements.


```
> document.getElementById("title");
<   <h1 id="title">Hello</h1>
> document.getElementById("title").innerHTML = "Good Bye";
< "Good Bye"
>
```

- document.querySelector(“h1”) = it will return a single item. You have to specify a tag, class or id inside the parenthesis. Ex for id: document.querySelector(“#title”). Ex for class document.querySelector(“.btn”)

```
> document.querySelector("h1");
    <h1 id="title">Good Bye</h1>
> document.querySelector("#title");
    <h1 id="title">Good Bye</h1>
> document.querySelector(".btn");
    <button class="btn" style="color: red;">Click Me</button>
```

Combining selectors

```
<h1 id="title">Hello</h1>
<a href="https://www.google.com">Google</a>
<input type="checkbox">

<button class="btn">Click Me</button>

<ul id="list">
  <li class="item"><a href="https://www.google.com">Google</a></li>
  <li class="item">Second</li>
  <li class="item">Third</li>
</ul>
```

```
> document.querySelector("li a");
    <a href="https://www.google.com">Google</a>
>
```

- document.querySelectorAll(“”) – it will return a list of all the item you specify. If you want to change the attribute of the item. You will have to specify its index.

```
> document.querySelectorAll("#list .item");
< ▶ NodeList(3) [li.item, li.item, li.item]
> document.querySelectorAll("#list .item")[2].style.color = "blue";
< "blue"
```

HOW TO USE JS TO MANIPULATE THE ELEMENTS WE SELECTED.

- You can change the style of the property using the DOM.
- The value of the attribute has to be a string.

```
> document.querySelector("h1").style.color = "red";
<- "red"
> document.querySelector("h1").style.fontSize = "10rem";
<- "10rem"
> document.querySelector("h1").style.padding = "30%"
```

THE SEPARATION OF CONCERNS: STRUCTURE VS STYLE VS BEHAVIOR

classList – will add classes to an element.

```
> document.querySelector("button").classList.add("invisible");
<- undefined
> document.querySelector("button").classList.remove("invisible");
<- undefined
> document.querySelector("button").classList.toggle("invisible");
```

```
<!DOCTYPE html>
<html lang="en" dir="ltr">
▶<head>…</head>
▼<body>
    <h1 id="title">Hello</h1>
    <a href="https://www.google.com">Google</a>
    <input type="checkbox">
..  <button class="btn invisible">Click Me</button> == $0
  ▶<ul id="list">…</ul>
  ▶<footer>…</footer>
  </body>
</html>
```

TEXT MANIPULATION

- innerHTML: give you the html between the element tags.
  - <h1 id="title">hello</h1> = output: hello
- textContent: will give you the text content.

```
> document.getElementById("title").innerHTML = "Good Bye";
<- "Good Bye"
> document.getElementById("title").textContent = "Hello";
<- "Hello"
>
```

ATTRIBUTE MANIPULATION

- Reminder: classes is an attribute, href is an attribute and src is an attribute.

```
> document.querySelector("a");
<-   <a href="https://www.google.com">Google</a>
> document.querySelector("a").attributes;
<- ▶ NamedNodeMap {0: href, href: href, length: 1}
> document.querySelector("a").getAttribute("href");
<- "https://www.google.com"
> document.querySelector("a").setAttribute("href", "https://www.bing.com");
```