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### What is the DOM?

Imagine a web page as a house with rooms and furniture. The DOM, is like a blueprint or map of that house.

It helps JavaScript understand and interact with the elements of a web page, such as textimages, buttons, and forms.

In the DOM, everything on a web page becomes an object. Each element, like a heading or paragraph, and even the attributes (like "class") becomes an object.

1

























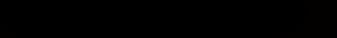


Imtiyaz Nandasaniya



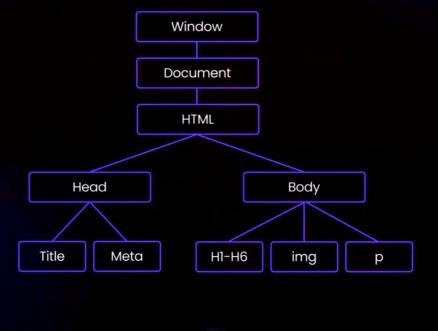
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How does the DOM work?

The browser creates a tree-like structure in its memory, where each HTML element becomes a node.











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### **Accessing Elements**

JavaScript can talk to the DOM and ask for specific elements.

For example, it can say, "Hey DOM, can you give me the heading with the ID 'mainHeading'?"

So, here is the most common method for accessing DOM elements.

- 1. getElementById
- 2. getElementsByClassName
- 3. getElementsByTagName
- querySelector
- 5. querySelectorAll

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### GetElementById

This method allows you to select a single element by its unique id attribute. Since id values must be unique within a document.

This method always return one element (or null if no element matches the provided id).

```
// HTML
<div id="myDiv">This is a div element.</div>
// JS
const myDiv = document.getElementById('myDiv');
console.log(myDiv.textContent);
// Output: "This is a div element."
```

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### **GetElementsByClassName**

This method returns a collection of elements that have the specified class name.

If there are no elements with the given class, an empty collection will be returned.

```
//HTML
This is a paragraph 1
Another paragraph 2

//JS
const elemClass = document.getElementsByClassName('highlight');
for (const element of elemClass) {
   console.log(element.textContent);
}

// Output:
// "This is a paragraph 1"
// "Another paragraph 2"
```

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### **Throwing Custom Errors**

Javascript allows you to create your own custom errors by extending the Error object.

This empowers you to define your own error types and provide more meaningful error messages to aid in debugging.

```
class MyCustomError extends Error {
  constructor(message) {
    super(message);
    this.name = 'MyCustomError';
  }
}

try {
  throw new MyCustomError('Uh-oh! This is a custom error.');
} catch (error) {
  console.log("Oops! An error occurred:", error.name, error.message);
  // Output: Oops! An error occurred:
  // MyCustomError Uh-oh! This is a custom error.
}
```

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### QuerySelector

querySelector is a method that selects the first element matching a CSS-like selector and returns it (or null if no match is found).

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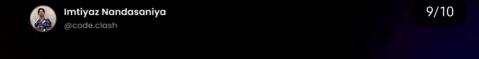








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### QuerySelectorAll

querySelectorAll returns a NodeList with all elements that match the given selector, allowing for iteration using methods like forEach.

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# **Manipulating Content**

Techniques for manipulating DOM content using JavaScript:

- innerHTML
- outerHTML
- innerText
- textContent
- hidden











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This property **sets or returns** the HTML content (inner HTML) of an element

Note: Is valid only for **element nodes** 

```
element.innerHTML;
// Returns innerHTML Property
element.innerHTML = text;
// Set the innerHTML Property
```













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## **outerHTML**

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This property **sets or returns** the HTML element, including attributes, start tag, and end tag.

```
element.outerHTML;
// Returns outerHTML Property
element.outerHTML = text;
// Set the outerHTML Property
```









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<h1 id="heading">Heading</h1>; let headingText = document.getElementById("heading"); console.log(headingText.outerHTML); // "<h1 id='heading'>Heading</h1>" // Seting outerHTML headingText.outerHTML = "paragraph"; Heading paragraph



















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### textContent

This property **retrieves or sets** the raw text content of an element, including the text content of all its child elements, **regardless** of their visibility or CSS styles.

### **innerText**

Same as textContent, but it does not include the text content of hidden elements, such as elements with display: none or visibility: hidden CSS properties.











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# hidden | attribute

The "hidden" attribute is used to hide an element from being displayed on

a web page.

and it is a boolean property, where **true** indicates that the element is **hidden** and **false** indicates that it is **visible.** 

Example

<div hidden>This is a hidden element.</div>;
console.log(element.hidden); // Outputs: true
element.hidden = false; // Unsets the "hidden" attribute
console.log(element.hidden); // Outputs: false











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### **DOM Manipulation**

- With JavaScript, we can easily manipulate the DOM to bring our web pages to life.
- In this section we are going to look at:
  - Create elements
  - Set the content of an element
  - Insert an element
  - Replace a child element
  - Remove a child element











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### **Create Elements:**

 We just create a HTML element using the createElement() method which takes a tagname as a parameter and saves it into a variable.



#### **Set Content:**

 For adding content We are going to use the .innerHTML() property.















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#### Insert an element:

 We have two methods for inserting elements.

### 1. appendChild()

 The appendChild() method appends a element as the last child of an element.

const parent = document.getElementById('parent')
parent.appendChild(createEl)

### insertBefore()

 The insertBefore() method inserts a child node before an existing child.















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### Example:



### Before

### appendChild()

```
const createEl = document.createElement('li');
createEl.innerHTML = 'water';
const parent = document.getElementById('parent');
parent.appendChild(createEl);
```

```
v
  Coffee
  Fea
  Vater
  Vul>
```

### 2. insertBefore()

```
const createEl = document.createElement('li');
createEl.innerHTML = 'water';
const parent = document.getElementById('parent');
const firstChildEl = document.getElementById('coffee');
parent.insertBefore(createEl, firstChildEl);
```















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### Replace a Child Element

 Now let's take a look at how we can replace items.

```
const firstchild = document.getElementById('firstchild')
const parent = document.getElementById('parent')

const createEl = document.createElement('div')
const innerhtml = createEl.innerHTML = 'i am a frontend developer'

parent.replaceChild(createEl, firstchild)
```

- Here we replace an element using the replaceChild() method.
- The first argument is the new element and the second argument is the element which we want to replace.











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### **Remove Child Element**

 We are going to be using the removeChild() JavaScript method which accepts just one parameter that is the element you want to remove.

```
const firstchild = document.getElementById('firstchild');
const parent = document.getElementById('parent');
parent.removeChild(firstchild);
```

NOTE: In Next Post we will see add CSS style using JS DOM and JS event handler.











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