

ProSensia

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Internship Role: Web Development

DOM Manipulation – getElementById, querySelector, innerHTML

Objective

To explore:

- The **Document Object Model (DOM)**
- Accessing and manipulating HTML elements using:
 - getElementById
 - querySelector
 - innerHTML
- Making websites **interactive and dynamic** with JS

What is the DOM?

DOM stands for **Document Object Model**. It represents the HTML structure of a webpage in **tree form**, where every element is a node.

JavaScript can access and manipulate these nodes to:

- Change content
- Modify attributes

- Add interactivity

Accessing DOM Elements

1. getElementById()

Returns the first element with the specified id.

```
<h1 id="main-heading">Welcome</h1>
```

```
const heading = document.getElementById("main-heading");  
console.log(heading.textContent); // Welcome
```

2. querySelector()

Returns the **first matching element** based on any **CSS selector**.

```
<p class="description">This is a site.</p>  
const desc = document.querySelector(".description");  
console.log(desc.textContent); // This is a site.
```

You can use:

- #id selector
- .class selector
- tag selector

3. innerHTML

Allows getting or setting the **HTML content** of an element.

```
const container = document.querySelector("#container");  
container.innerHTML = "<p>Updated content!</p>";
```

innerHTML can be dangerous if user input is used → it can lead to **XSS (Cross-Site Scripting)** vulnerabilities.

DOM Mini Project Example

HTML:

```
<h2 id="title">Original Title</h2>
<button onclick="changeTitle()">Change</button>
```

JS:

```
function changeTitle() {
  let heading = document.getElementById("title");
  heading.innerHTML = "New Dynamic Title!";
}
```

DOM Manipulation Use Cases

Task	Method
Change text	element.textContent or innerHTML
Access by ID	getElementById()
Access by CSS selector	querySelector()
Change style	element.style.color = "red"
Add event handling	onclick, addEventListener()

Conclusion

Learning DOM manipulation helped me **connect HTML structure with JavaScript logic**. Using methods like getElementById and querySelector, I can dynamically update content and improve user experience.