

Day 5: JavaScript - DOM Manipulation and Events

1. What is the DOM?

The Document Object Model (DOM) is a programming interface for web documents. It represents the structure of a webpage as a tree of objects that can be modified with JavaScript.

2. Accessing Elements in the DOM

- `document.getElementById("id")`
- `document.getElementsByClassName("class")`
- `document.getElementsByTagName("tag")`
- `document.querySelector("selector")`
- `document.querySelectorAll("selector")`

Example:

```
const heading = document.getElementById("main-heading");  
const items = document.querySelectorAll(".list-item");
```

3. Modifying DOM Elements

- Change text: `element.textContent = "New Text";`
- Change HTML: `element.innerHTML = "Bold";`
- Change style: `element.style.color = "blue";`
- Set attributes: `element.setAttribute("src", "image.jpg");`

Example:

```
heading.textContent = "Updated Heading";
```

```
heading.style.color = "red";
```

4. Creating and Appending Elements

- Create: `document.createElement("tag")`

- Append: `parent.appendChild(child)`

Example:

```
const para = document.createElement("p");
```

```
para.textContent = "This is a new paragraph.";
```

```
document.body.appendChild(para);
```

5. Removing Elements

- `element.remove()`

Example:

```
const item = document.getElementById("item1");
```

```
item.remove();
```

6. DOM Events

Events are actions that happen in the browser, such as clicking a button or typing in a field.

Common events:

- click
- mouseover
- keydown
- submit
- change

7. Adding Event Listeners

Syntax:

```
element.addEventListener("event", callbackFunction);
```

Example:

```
const btn = document.getElementById("btn");  
btn.addEventListener("click", function() {  
    alert("Button clicked!");  
});
```

8. Event Object

The event object contains details about the event.

Example:

```
btn.addEventListener("click", function(e) {  
    console.log(e.target); // the clicked element  
});
```

9. Event Delegation

Using a parent to handle events on its children.

Example:

```
document.getElementById("list").addEventListener("click", function(e) {  
    if (e.target.tagName === "LI") {  
        e.target.style.color = "red";  
    }  
});
```

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