

JavaScript DOM – Complete Beginner Guide

DOM stands for Document Object Model. It is a programming interface for web documents. When a web page loads in the browser, the browser converts HTML into a tree-like structure called the DOM. JavaScript can then access and manipulate this structure to change content, styles, attributes, and behavior dynamically.

1. What is DOM?

- DOM represents the HTML page as objects and nodes.
- Every HTML element becomes an object.
- JavaScript can read, change, add, or delete elements.
- Without DOM, web pages would be static.

2. DOM Structure

The DOM is structured like a tree:

- Document → Root
- HTML → Parent Node
- Head & Body → Child Nodes
- Elements, Attributes, Text → Leaf Nodes

3. Selecting Elements

Common methods:

- `document.getElementById()`
- `document.getElementsByClassName()`
- `document.getElementsByTagName()`
- `document.querySelector()`
- `document.querySelectorAll()`

4. Changing Content

- `innerText` – changes visible text.
- `innerHTML` – changes HTML content.
- `textContent` – safer text replacement.

5. Changing Styles

JavaScript can modify CSS directly:

```
element.style.color = "red";  
element.style.backgroundColor = "yellow";
```

6. Attributes Manipulation

- `getAttribute()`
- `setAttribute()`
- `removeAttribute()`

7. Creating and Removing Elements

- `document.createElement()`
- `appendChild()`
- `removeChild()`
- `replaceChild()`

8. Events in DOM

Events allow interaction:

- `onclick`
- `onmouseover`
- `onkeydown`
- `addEventListener()`

DOM Practice Tasks

- 1 Task 1: Change heading text when button is clicked.
- 2 Task 2: Change background color dynamically.
- 3 Task 3: Hide and show an element.
- 4 Task 4: Add new list item using button.
- 5 Task 5: Remove an element from list.
- 6 Task 6: Form validation using DOM.
- 7 Task 7: Image slider using DOM events.

Conclusion:

The DOM is the bridge between HTML and JavaScript. Mastering DOM manipulation allows you to build interactive, dynamic, and user-friendly web applications. Every modern web framework like React, Angular, and Vue is built on DOM concepts.