

JavaScript DOM Practical Lecture

In this lecture, we will explore the Document Object Model (DOM) in JavaScript. We will learn how to select elements, handle events, and manipulate content and styles dynamically. We will use a single HTML file to demonstrate all concepts.

1. Selecting Elements

You can select elements in the DOM using methods like `querySelector` and `getElementById`.

```
<!-- HTML -->
<p id="intro">This is a paragraph with <span class="highlight">highlighted text</span>.</p>

<!-- JavaScript -->
const intro = document.getElementById("intro");
console.log(intro.innerText); // Access element by ID

const highlight = document.querySelector(".highlight");
console.log(highlight.innerText); // Access first element by CSS selector
```

2. Events (addEventListener)

Events let you react to user actions like clicks, typing, or mouse moves.

```
<!-- HTML -->
<button id="btn">Click Me</button>
<div id="output"></div>

<!-- JavaScript -->
const btn = document.getElementById("btn");
const output = document.getElementById("output");

btn.addEventListener("click", () => {
  output.innerText = "Button was clicked!";
});
```

3. Manipulating DOM (innerHTML, classList)

We can change content dynamically and toggle CSS classes for styling.

```
<!-- HTML -->
<p id="text">Hello, World!</p>
<button id="changeBtn">Change Text</button>
<button id="toggleBtn">Toggle Highlight</button>

<!-- JavaScript -->
const text = document.getElementById("text");
const changeBtn = document.getElementById("changeBtn");
const toggleBtn = document.getElementById("toggleBtn");

changeBtn.addEventListener("click", () => {
  text.innerHTML = "Text changed with <b>innerHTML</b>!";
});

toggleBtn.addEventListener("click", () => {
  text.classList.toggle("highlight");
});
```

Complete Example (Single HTML Layout)

```

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>DOM Practical Lecture</title>
  <style>
    body { font-family: Arial, sans-serif; margin: 20px; }
    .highlight { background-color: yellow; font-weight: bold; }
    button { margin: 5px; padding: 8px 12px; cursor: pointer; }
    #output { margin-top: 10px; padding: 10px; border: 1px solid #ccc; }
  </style>
</head>
<body>
  <h1>JavaScript DOM Practical Lecture</h1>

  <h2>1. Selecting Elements</h2>
  <p id="intro">This is a paragraph with <span class="highlight">highlighted text</span>.</p>

  <h2>2. Events</h2>
  <button id="btn">Click Me</button>
  <div id="output"></div>

  <h2>3. Manipulating DOM</h2>
  <p id="text">Hello, World!</p>
  <button id="changeBtn">Change Text</button>
  <button id="toggleBtn">Toggle Highlight</button>

  <script>
    // Selecting elements
    const intro = document.getElementById("intro");
    const highlight = document.querySelector(".highlight");
    console.log(intro.innerText, highlight.innerText);

    // Events
    const btn = document.getElementById("btn");
    const output = document.getElementById("output");
    btn.addEventListener("click", () => {
      output.innerText = "Button was clicked!";
    });

    // Manipulating DOM
    const text = document.getElementById("text");
    const changeBtn = document.getElementById("changeBtn");
    const toggleBtn = document.getElementById("toggleBtn");

    changeBtn.addEventListener("click", () => {
      text.innerHTML = "Text changed with <b>innerHTML</b>!";
    });

    toggleBtn.addEventListener("click", () => {
      text.classList.toggle("highlight");
    });
  </script>
</body>
</html>

```