■ Notes on DOM in JavaScript (2 Hours)

■ Session Plan

- Part 1 (30 min): Introduction to DOM & Basic Concepts
- Part 2 (30 min): Selecting & Manipulating Elements
- Part 3 (30 min): Creating, Appending, and Removing Elements
- Part 4 (30 min): Event Handling & Practical Mini Project

■ Part 1: Introduction to DOM (30 min)

What is DOM?

- DOM = Document Object Model
- A programming interface that represents an HTML/XML document as a tree structure
- Browser creates it automatically when a page loads
- JavaScript can use DOM to:
• Change content
• Change structure
• Change style
• React to events

DOM Tree

```
<!DOCTYPE html>
<html>
  <body>
    <h1 id="title">Hello DOM</h1>
    <p>Welcome to DOM learning!</p>
  </body>
</html>
```

■ Part 2: Selecting & Manipulating Elements (30 min)

```
// By ID
let heading = document.getElementById("title");

// By class
let items = document.getElementsByClassName("item");

// By tag
let paragraphs = document.getElementsByTagName("p");

// Modern querySelector
let firstPara = document.querySelector("p"); // first <p>
let allPara = document.querySelectorAll("p"); // all <p>
```

■ Part 3: Creating, Appending, and Removing Elements (30 min)

```
let newDiv = document.createElement("div");
newDiv.textContent = "I am a new div!";
newDiv.classList.add("box");

// Append to body
document.body.appendChild(newDiv);

// Removing element
let element = document.getElementById("oldDiv");
element.remove();
```

■ Part 4: Event Handling & Practical Mini Project (30 min)

```
let button = document.getElementById("myBtn");

button.addEventListener("click", function() {
  alert("Button Clicked!");
});
```

Mini Project: To-Do List

```
<h2>My To-Do List</h2>
<input type="text" id="taskInput" placeholder="Enter task">
<button id="addBtn">Add Task</button>
<ul id="taskList"></ul>

<script>
let input = document.getElementById("taskInput");
let addBtn = document.getElementById("addBtn");
let list = document.getElementById("taskList");

addBtn.addEventListener("click", function() {
  if (input.value.trim() === "") return;

  let li = document.createElement("li");
  li.textContent = input.value;

  // Remove on click
  li.addEventListener("click", function() {
    list.removeChild(li);
  });

  list.appendChild(li);
  input.value = "";
});
</script>
```

■ Summary

- DOM is the tree representation of an HTML document
- JavaScript can select, manipulate, create, and remove elements
- Event handling makes pages interactive
- Practical applications: To-do lists, calculators, dynamic forms, notifications