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**Practical 7:**

**DOM Traversal and Manipulation**

**What is the DOM?**

The **Document Object Model (DOM)** represents the structure of an HTML document as a tree of objects. It allows JavaScript to access, modify, or create HTML elements dynamically.

**Common DOM Methods:**

| **Method** | **Description** |
| --- | --- |
| getElementById(id) | Selects an element by its ID. |
| querySelector(selector) | Selects the first element that matches a CSS selector. |
| createElement(tagName) | Creates a new HTML element. |
| appendChild(node) | Adds a new child node to a parent element. |
| removeChild(node) | Removes a child node from a parent element. |

**Syntax Explanation**

// Accessing elements

const title = document.getElementById('title');

const button = document.querySelector('.btn');

// Creating elements

const newItem = document.createElement('li');

// Adding content

newItem.textContent = "New Task";

// Adding to the DOM

document.body.appendChild(newItem);

// Removing an element

parentElement.removeChild(childElement);

**Simple Examples**

**Example 1: Change Text Using getElementById**

<h1 id="main-title">Hello</h1>

<script>

document.getElementById('main-title').textContent = 'Welcome to DOM!'; </script>

**Example 2: Create and Append Element**

<ul id="task-list"></ul>

<script>

const li = document.createElement('li');

li.textContent = 'Buy groceries';

document.getElementById('task-list').appendChild(li);

</script>

**Example 3: Use querySelector to Change Style**

<p class="note">This is a note.</p>

<script>

const note = document.querySelector('.note');

note.style.color = 'blue';

</script>

**Example 4: Add Multiple Items with Button Click**

<button onclick="addTask()">Add Task</button>

<ul id="list"></ul>

<script>

function addTask() {

const li = document.createElement('li');

li.textContent = 'New Task';

document.getElementById('list').appendChild(li);

}

</script>

**Example 5: Remove Element from DOM**

<ul id="myList">

<li id="item1">Item 1</li>

</ul>

<script>

const item = document.getElementById('item1');

item.parentNode.removeChild(item);

</script>

**Example 6: Toggle Task Done**

<ul id="tasks">

<li onclick="this.classList.toggle('done')">Click me to mark done</li> </ul>

<style>

.done {

text-decoration: line-through;

}

</style>

**Tasks**

**Task 1: Add Items to a List**

Create an input field and a button.

When the button is clicked, add the input value to a list.

**Task 2: Delete Items from a List**

Add a delete button beside each task.

Clicking it removes that task.

**Task 3: Edit a Task**

Add an "Edit" button beside each task.

Clicking it allows the user to change the task content.