**📌 Day 5 : DOM + Events**

**🔹 DOM (Document Object Model) kya hai?**

* Browser me jo HTML likhte ho (<h1>, <p>, <button> etc.), browser usko ek **tree structure** me convert kar deta hai.
* Ye tree ke nodes (elements) ko hum **JavaScript se control/manipulate** kar sakte hain.
* Matlab HTML = static, DOM + JS = dynamic + interactive.

**👉 Example:**Agar tu likhe:

<h1 id="title">Hello World</h1>

document.getElementById("title").innerText = "Hello Trupti!";

1. **document**
   * Ye poore HTML page ko represent karta hai.
   * Matlab tera pura webpage ka root object.
2. **getElementById("title")**
   * Ye document se bolega:  
     "Arre, mujhe wo element de jiska id = title hai."
   * Is case me wo <h1 id="title">Hello World</h1> ko pakad lega.
3. **.innerText**
   * Har HTML element ke andar ka text hota hai.
   * Yaha <h1> ke andar ka "Hello World".
   * Tu .innerText ka use karke us text ko read bhi kar sakta hai aur update bhi.
4. **= "Hello Trupti!";**
   * Ye assignment hai.
   * Matlab: ab is <h1> ke andar "Hello Trupti!" daal do

**Result:**

HTML initially:

<h1 id="title">Hello World</h1>

JavaScript execute hone ke baad:

<h1 id="title">Hello Trupti!</h1>

👉 Browser pe text change ho jaayega.  
Matlab bina page reload kiye, bina HTML manually badle → JavaScript ne DOM se baat

karke content update kar diya.

**🔹 DOM ke common selectors**

1. **getElementById**
   * Sirf ek element ko pakadta hai (jo ID se identify hota hai).
   * Example:
   * let title = document.getElementById("title");
   * Ye ek object deta hai jiske andar wo pura <h1> element hoga.
2. **querySelector**
   * Ye **CSS selector jaisa** hai.
   * ID ke liye #idName, class ke liye .className, aur direct tag ke liye tagName.
   * Example:
   * let btn = document.querySelector("#myBtn"); // id
   * let para = document.querySelector(".myClass"); // class
   * let div = document.querySelector("div"); // tag

👉 **Shortcut soch le**:

* Agar ek specific element chahiye → getElementById
* Agar CSS jaisa flexible selector chahiye → querySelector

**🔹 Events kya hai?**

* Jab user kuch karta hai (click, type, hover, scroll, etc.) usko **event** kehte hain.
* JavaScript me inko **sun** sakte ho aur phir koi kaam karwa sakte ho.

Example:

* Click karte hi alert khul jaye
* Typing karte hi dusre div me text dikh jaye
* Hover karte hi color badal jaye

**🔹 addEventListener**

* Ye ek **listener (guard)** hota hai jo wait karta hai ki user koi action kare.
* Syntax:
* element.addEventListener("eventType", function() {
* // jo karna hai
* });

👉 Example:

let btn = document.getElementById("myBtn");

btn.addEventListener("click", function() {

console.log("Button clicked!");

});

**✨ Practice Examples (Step by Step)**

**🟢 Example 1: Button click → “Hello” print**

**HTML:**

<button id="myBtn">Click Me</button>

<div id="output"></div>

**JS:**

let btn = document.getElementById("myBtn");

let output = document.getElementById("output");

btn.addEventListener("click", function() {

output.innerText = "Hello 👋";

});

👉 Flow samajh le:

1. Button ko JS se pakda (getElementById).
2. click event sun raha hai.
3. Jab click hoga → ek function chalega jo output div ke andar “Hello” daal dega.

**🟢 Example 2: Input box → real-time text dusre div me**

**HTML:**

<input type="text" id="myInput" placeholder="Type something..." />

<div id="showText"></div>

**JS:**

let input = document.getElementById("myInput");

let showText = document.getElementById("showText");

input.addEventListener("input", function() {

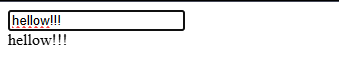
showText.innerText = input.value;

});

👉 Flow samajh le:

1. Input box me jab bhi tu kuch type karega, input event fire hoga.
2. Har character ke sath event trigger hota hai (real-time).
3. Hum input.value lete hain aur dusre div me daal dete hain.

Result: Tu type karega "Hello" → dusre div me turant "Hello" dikh jaayega.



*Upper me type kiya niche bhi dikhra h!*

**🧠 Ekdum WOW Notes (Interview + Real life use ke liye)**

* DOM = browser ka HTML ka live object model (tree).
* getElementById → ekdum seedha fast tareeka, sirf ek element ke liye.
* querySelector → flexible (CSS style).
* Events = user ke actions.
* addEventListener → listener lagana jo action hote hi kaam kare.
* Most common events:
  + click (button, link, etc.)
  + input (input box me typing)
  + mouseover / mouseout (hover effects)
  + keydown / keyup (keyboard events)

🔥 Ab tu khud experiment kar:

* Hover karte hi color change:

**HTML:**

<h1 id="heading">Hover karke dekh!</h1>

**JS:**

let h1 = document.getElementById("heading");

// hover (mouseenter)

h1.addEventListener("mouseenter", function() {

h1.style.color = "red"; // hover pe red

});

// hover se hatne par (mouseleave)

h1.addEventListener("mouseleave", function() {

h1.style.color = "black"; // normal back to black

});

* Double click pe “WOW” likhna

**HTML:**

<p id="para">Double click karke dekh</p>

**JS:**

let p = document.getElementById("para");

p.addEventListener("dblclick", function() {

p.innerText = "WOW 🎉";

});

* Keyboard key press karte hi uska naam print karna

**HTML:**

<input type="text" id="myInput" placeholder="Type something..." />

<div id="output"></div>

**JS:**

let input = document.getElementById("myInput");

let output = document.getElementById("output");

input.addEventListener("keydown", function(event) {

output.innerText = "You pressed: " + event.key;

});

\*) Matlab:

* Tu “A” dabata hai → output = You pressed: a
* Tu “Enter” dabata hai → output = You pressed: Enter

**📌bhav dene vale topic:**

**1. querySelectorAll**

👉 Soch tu bolta hai:  
“Arre bhai, mujhe sabhi *p* tags la do.”  
Ye sabhi elements ka **ek list (NodeList)** dega.

<p class="para">Para 1</p>

<p class="para">Para 2</p>

<p class="para">Para 3</p>

let paras = document.querySelectorAll(".para");

paras.forEach(p => console.log(p.innerText));

📌 Matlab: querySelectorAll = ek saath sabko bulao.

**2. innerText vs innerHTML**

* innerText → Sirf **text** change hoga.
* innerHTML → Text + HTML tags bhi samjhega.

<div id="box">Hello</div>

document.getElementById("box").innerText = "<b>Hi</b>";

// Output: <b>Hi</b> (as text)

document.getElementById("box").innerHTML = "<b>Hi</b>";

// Output: Hi (bold me dikh raha hai)

📌 Shortcut:

* Text = innerText
* Text + Tag = innerHTML

**3. style**

👉 Direct color, size, etc. badalne ka shortcut.

<p id="para">Change my color</p>

let p = document.getElementById("para");

p.style.color = "red"; // laal

p.style.fontSize = "24px"; // bada text

📌 Matlab: CSS likhne ka fast tareeka.

**4. classList**

👉 Ek button jaisa soch, jo class add/remove/toggle kare.

<style>

.highlight { color: red; font-weight: bold; }

</style>

<p id="para">Hello</p>

let p = document.getElementById("para");

p.classList.add("highlight"); // laal aur bold

p.classList.remove("highlight"); // normal

p.classList.toggle("highlight"); // on/off switch

📌 Matlab: CSS ko ON/OFF karna.

**5. createElement + appendChild**

👉 Soch tu khud se ek **naya element** banana chahta hai aur page me dalna hai.

<div id="container"></div>

let div = document.getElementById("container");

let newPara = document.createElement("p"); // naya <p> banao

newPara.innerText = "Main naya paragraph hu!";

div.appendChild(newPara); // div ke andar daal do

📌 Matlab: khud se **naya dabba banao aur page me chipka do**.

**6. remove + removeChild**

👉 Agar element hatana ho to:

<div id="container">

<p id="p1">Para 1</p>

<p id="p2">Para 2</p>

</div>

// Method 1: direct

document.getElementById("p1").remove();

// Method 2: parent ke through

let container = document.getElementById("container");

let p2 = document.getElementById("p2");

container.removeChild(p2);

📌 Matlab: kisi dabbe ko page se gayab kar do.

**🔑 Ekdum Easy Summary**

* querySelectorAll → ek saath sabko pakdo.
* innerText → sirf text badlo.
* innerHTML → text + tag ko bhi samjho.
* style → direct CSS lagao.
* classList → CSS classes ON/OFF karo.
* createElement + appendChild → naya dabba banao aur chipkao.
* remove/removeChild → dabba hatao.

👇

**📌 Parent, Child, Node — Easy Bhasha Me**

**1. Node**

👉 DOM me sab kuch **Node** hota hai.

* Element Node → <p>, <div>, <h1>
* Text Node → jo text likha hai "Hello"
* Comment Node → <!-- comment -->

📌 Matlab: ek ghar ka ek ek tukda = Node

**2. Parent & Child**

* Parent = bada dabba (container)
* Child = uske andar rakha hua chhota dabba

Example:

<div id="parent">

<p>Child 1</p>

<p>Child 2</p>

</div>

Yaha:

* <div> = Parent
* <p> = Child

👉 Relation:

* <div> ka child hai <p>
* <p> ka parent hai <div>

**3. appendChild**

👉 Matlab: parent ke andar ek naya child chipkao.

<div id="container"></div>

let div = document.getElementById("container");

// naya element banao

let newPara = document.createElement("p");

newPara.innerText = "Main naya paragraph hu!";

// parent div ke andar add karo

div.appendChild(newPara);

📌 Matlab: jaise tu ek **dabbe (div)** ke andar naya **chhota dabba (p)** rakh raha hai.

**4. removeChild**

👉 Matlab: parent ke andar se ek child ko nikal do.

<div id="container">

<p id="p1">Para 1</p>

<p id="p2">Para 2</p>

</div>

let div = document.getElementById("container");

let para = document.getElementById("p1");

div.removeChild(para); // p1 ko hata diya

📌 Matlab: parent ke andar se ek child ko **nikal ke bahar fek diya**.

**5. parentNode / childNodes**

👉 Ye properties se parent-child relation check kar sakte ho.

<div id="container">

<p id="p1">Hello</p>

</div>

let p = document.getElementById("p1");

// child ka parent dekhna

console.log(p.parentNode); // <div id="container">...</div>

// parent ke children dekhna

let div = document.getElementById("container");

console.log(div.childNodes);

// NodeList: [#text, <p id="p1">Hello</p>, #text]

📌 Matlab: ghar ka family tree jaise hi hota hai — kaun kiska baap/ma-baap hai aur kiske bacche hai.

**✅ Ekdum Easy Summary**

* **Node** → DOM ka ek tukda (element, text, comment).
* **Parent** → bada dabba (jo kisi ko contain karta hai).
* **Child** → uske andar rakha chhota dabba.
* **appendChild()** → parent ke andar child chipkao.
* **removeChild()** → parent ke andar se child hatao.
* **parentNode / childNodes** → relations dekhne ka tareeka.

**📂 Day 5: DOM + Events – Full Example File**

**<!DOCTYPE html>**

**<html lang="en">**

**<head>**

**<meta charset="UTF-8">**

**<title>Day 5: DOM + Events Practice</title>**

**<style>**

**body { font-family: Arial, sans-serif; padding: 20px; }**

**.box { border: 1px solid #ccc; padding: 10px; margin: 10px 0; }**

**button { margin-top: 5px; padding: 5px 10px; cursor: pointer; }**

**#hoverBox { padding: 20px; background: lightgray; display: inline-block; }**

**</style>**

**</head>**

**<body>**

**<h1 id="title">Hello World</h1>**

**<button id="changeTextBtn">Change Heading</button>**

**<div class="box">**

**<strong>👉 Explanation:</strong> getElementById + innerText se text badalna**

**</div>**

**<hr>**

**<button id="myBtn">Click Me</button>**

**<div id="output"></div>**

**<div class="box">**

**<strong>👉 Example:</strong> Button click → “Hello 👋” print**

**</div>**

**<hr>**

**<input type="text" id="myInput" placeholder="Type something..." />**

**<div id="showText"></div>**

**<div class="box">**

**<strong>👉 Example:</strong> Input box → Real-time text dusre div me**

**</div>**

**<hr>**

**<div id="container"></div>**

**<button id="addParaBtn">Add Paragraph</button>**

**<div class="box">**

**<strong>👉 Example:</strong> createElement + appendChild**

**</div>**

**<hr>**

**<div id="hoverBox">Hover over me!</div>**

**<div class="box">**

**<strong>👉 Example:</strong> Hover karte hi color change**

**</div>**

**<hr>**

**<p id="para">Double click me!</p>**

**<div class="box">**

**<strong>👉 Example:</strong> Double click pe “WOW” likhna**

**</div>**

**<hr>**

**<input type="text" id="keyInput" placeholder="Press any key..." />**

**<div id="keyOutput"></div>**

**<div class="box">**

**<strong>👉 Example:</strong> Keyboard key press karte hi uska naam print**

**</div>**

**<script>**

**// 1. Change Heading text**

**let title = document.getElementById("title");**

**let changeTextBtn = document.getElementById("changeTextBtn");**

**changeTextBtn.addEventListener("click", function() {**

**title.innerText = "Hello Trupti!";**

**});**

**// 2. Button click → print Hello**

**let btn = document.getElementById("myBtn");**

**let output = document.getElementById("output");**

**btn.addEventListener("click", function() {**

**output.innerText = "Hello 👋";**

**});**

**// 3. Input box → real-time text**

**let input = document.getElementById("myInput");**

**let showText = document.getElementById("showText");**

**input.addEventListener("input", function() {**

**showText.innerText = input.value;**

**});**

**// 4. Create + Append new paragraph**

**let container = document.getElementById("container");**

**let addParaBtn = document.getElementById("addParaBtn");**

**addParaBtn.addEventListener("click", function() {**

**let newPara = document.createElement("p");**

**newPara.innerText = "Main naya paragraph hu!";**

**container.appendChild(newPara);**

**});**

**// 5. Hover effect**

**let hoverBox = document.getElementById("hoverBox");**

**hoverBox.addEventListener("mouseenter", function() {**

**hoverBox.style.background = "lightgreen";**

**});**

**hoverBox.addEventListener("mouseleave", function() {**

**hoverBox.style.background = "lightgray";**

**});**

**// 6. Double click**

**let para = document.getElementById("para");**

**para.addEventListener("dblclick", function() {**

**para.innerText = "WOW 🎉";**

**});**

**// 7. Key press event**

**let keyInput = document.getElementById("keyInput");**

**let keyOutput = document.getElementById("keyOutput");**

**keyInput.addEventListener("keydown", function(event) {**

**keyOutput.innerText = "You pressed: " + event.key;**

**});**

**</script>**

**</body>**

**</html>**

✅ Isme **sab kuch ek jagah hai**:

* getElementById + innerText
* addEventListener (click, input, dblclick, mouseenter, keydown)
* createElement + appendChild
* Hover, Double click, Keyboard

Tu copy karke run karega → ekdum **interactive playground** ban jayega 🔥.

**📑 Day 5: DOM + Events – Index**

1️⃣ **DOM Basics**

* DOM kya hai?
* Example: getElementById("title").innerText = "Hello Trupti!"
* document, getElementById, innerText ka flow

2️⃣ **DOM Selectors**

* getElementById → ek element pakadna
* querySelector → CSS jaisa flexible selector
* querySelectorAll → ek saath multiple elements

3️⃣ **Events**

* Event kya hai?
* Common events: click, input, mouseover/mouseout, keydown/keyup
* addEventListener ka use

4️⃣ **Practice Examples**

* Example 1: Button click → “Hello” print
* Example 2: Input box → real-time text dusre div me
* Example 3: Hover karte hi color change
* Example 4: Double click pe “WOW” likhna
* Example 5: Keyboard key press → key name print

5️⃣ **DOM Manipulation Methods**

* innerText vs innerHTML
* style property (direct CSS apply karna)
* classList (add, remove, toggle class)
* createElement + appendChild (naya element banana)
* remove / removeChild (element hataana)

6️⃣ **Parent – Child – Node Concepts**

* Node types (element, text, comment)
* Parent & Child relation
* appendChild (parent me child chipkaana)
* removeChild (parent se child hatana)
* parentNode / childNodes

7️⃣ **Full Example Playground (HTML File)**

* Sab features ek jagah combined code
* Direct copy-paste karke browser me run kar

**QUE:**

### ✅ Q1: Form Submit → Console me Values Print

<form id="myForm">

<input type="text" id="inp" placeholder="Enter Name">

<br>

<input type="email" id="mail" placeholder="Enter mail">

<br><br>

<button type="submit">SUBMIT</button>

</form>

<script>

const form = document.getElementById("myForm");

form.addEventListener("submit", function(e) { //eventListener lagaya form per

e.preventDefault(); //form k submit btn ko dabate hi dusre page pe re-direct krta h, so voh dusre page pe na jate huye vahi pe stop kare prevent kre nd console m print krwade!!!

const name = document.getElementById("inp").value; //.value lagane se sirf uski value milti h joh user put krta hai (Trupti) nahi toh (<input type="text" id="inp" placeholder="Enter Name">) yhe milta h!!!

const email = document.getElementById("mail").value;

console.log("Name: " + name);

console.log("Email: " + email);

});

</script>

### ✅ Q2: Counter (Increase/Decrease Buttons)

### <h1 id = "head"> 0 </h1>

### <button id ="inc"> INCREASE </button>

### <button id = "dec"> DECREASE </button>

### let counter = 0; //jisme value inc/dec hogi!!!

### const head = document.getElementById("head");

### const inc = document.getElementById("inc");

### const dec = document.getElementById("dec");

### inc.addEventListener("click", function(e){

### counter++;

### head.innerText = counter; **//counter ki value joh inc hogi vo head ko do taki voh vaha pe show ho inc hote huye!**

### });

### dec.addEventListener("click", function(e){

### counter--;

### head.innerText = counter;

### });

### OUTPUT:

### 