## **JavaScript Part 02**

### **1. DOM Manipulation**

The **DOM** (Document Object Model) is how JavaScript interacts with the HTML structure of a web page.

**Example:**

const heading = document.getElementById("heading");

heading.innerText = "Hello from JavaScript!";

**Explanation:**

* document.getElementById() selects an HTML element by its ID.
* .innerText sets or gets the text inside that element.

### **2. Event Handling**

You can make your website interactive by responding to user actions like clicks.

**Example:**

const button = document.getElementById("clickBtn");

button.onclick = function() {

alert("You clicked the button!");

};

**Explanation:**

* onclick attaches a function to run when the button is clicked.
* alert() shows a popup box to the user.

### **3. Objects**

Objects group data together with key-value pairs.

**Example:**

const weapon = { name: "Sword", power: 100 };

console.log(weapon.name); // Sword

**Explanation:**

* weapon.name accesses the name property of the object.
* You can also use weapon["power"] to get the value.

### **4. Arrays of Objects**

Store multiple objects in a single list using arrays.

**Example:**

const monsters = [

{ name: "Slime", health: 30 },

{ name: "Dragon", health: 300 }

];

console.log(monsters[1].name); // Dragon

**Explanation:**

* monsters[1] gets the second object in the array.
* .name accesses the name of that object.

### **5. Math.random() and Math.floor()**

Generate random numbers and round them down.

**Example:**

const number = Math.floor(Math.random() \* 10);

console.log(number); // Random number from 0 to 9

**Explanation:**

* Math.random() gives a decimal from 0 to 0.999...
* Math.floor() rounds it down to a whole number.

### **6. style.display Manipulation**

Show or hide elements using JavaScript.

**Example:**

const box = document.getElementById("box");

box.style.display = "none"; // Hides the element

**Explanation:**

* Changing .style.display can hide or show an HTML element.

### **7. innerText vs innerHTML**

Change what appears on screen using different methods.

**Example:**

textBox.innerText = "<b>Not bold</b>"; // Shows the HTML as text

textBox.innerHTML = "<b>Bold</b>"; // Renders bold text

**Explanation:**

* innerText treats content as plain text.
* innerHTML renders HTML tags properly.

### **8. Template Literals**

Make string creation easier using backticks (`).

**Example:**

const name = "Alice";

const message = `Hello, ${name}!`;

console.log(message); // Hello, Alice!

**Explanation:**

* ${} allows you to insert variables directly into strings.

### **9. Array Methods: shift() and pop()**

Remove items from arrays.

**Example:**

const inventory = ["stick", "dagger", "sword"];

inventory.shift(); // Removes "stick"

inventory.pop(); // Removes "sword"

console.log(inventory); // ["dagger"]

**Explanation:**

* shift() removes the first item.
* pop() removes the last item.

## **✅ Summary**

| **Concept** | **Method/Keyword** | **Description** |
| --- | --- | --- |
| DOM Selection | getElementById() | Select elements from the page |
| Text Update | innerText | Change plain text |
| HTML Rendering | innerHTML | Render HTML tags inside elements |
| Event Handling | onclick | Trigger function when clicked |
| Random Numbers | Math.random() | Generate random decimal |
| Rounding Down | Math.floor() | Get whole number from decimal |
| Objects | {} | Store key-value data |
| Arrays | [] | Store multiple items |
| Template Literals | `Hello ${x}` | Easier string formatting |
| Hide Element | style.display | Show or hide HTML elements |
| Array Methods | shift(), pop() | Remove items from start/end of array |