**TASK-3**

**1. What is JavaScript (JS)?**

* JavaScript is a **high-level, interpreted programming language** used to make web pages **dynamic and interactive**.
* It is an **object-oriented, client-side scripting language**.
* JS can **run directly in browsers** without compilation.
* Along with **HTML** (structure) and **CSS** (style), JS is a **core frontend technology** of the web.

**Example:**

alert("Hello World!");

This code will show a popup in the browser.

**2. Why We Use JS**

* To **add interactivity** to web pages: e.g., buttons, forms, sliders.
* To **validate forms** before submission.
* To **manipulate HTML elements dynamically** (DOM manipulation).
* To **create animations and effects**.
* To **handle events** like click, hover, scroll.
* To **communicate with servers** (AJAX) without reloading the page.

**Example Uses:**

* Drop-down menus
* Image sliders
* Pop-up modals
* Interactive calculators

**3. When Do We Use JS?**

* When you want **dynamic behavior** on a webpage.
* When a page needs to **react to user input**.
* When a website requires **animations or effects**.
* When you want **fetch data from servers** without reloading the page.

**4. Where Do We Use JS?**

* **Web browsers**: Chrome, Firefox, Safari, Edge.
* **Servers** (Node.js).
* **Web apps** (React.js, Angular, Vue.js).
* **Mobile apps** (React Native).
* **Desktop apps** (Electron).

**5. Types of Using JS**

There are mainly **3 ways to include JS in web pages**:

**1. Inline JS**

* Directly in HTML element using the onclick, onmouseover, etc.

<button onclick="alert('Hello')">Click Me</button>

**2. Internal JS**

* Inside <script> tag in HTML page.

<script>

function greet() {

alert("Hello World!");

}

</script>

<button onclick="greet()">Click Me</button>

**3. External JS**

* Using .js file and linking with <script src="file.js"></script>.

<script src="script.js"></script>

**Advantages:**

* Keeps code organized
* Can reuse in multiple pages

**6. What Happens on a Webpage When JS is Used**

* JS **can modify HTML content** dynamically (DOM manipulation).
* JS **handles user events** like clicks, typing, mouse movements.
* JS **changes styles** dynamically (CSS manipulation).
* JS **validates forms** before sending data to server.
* JS **performs calculations** without page reload.
* JS can **communicate with server asynchronously** (AJAX).

**Example: DOM Manipulation**

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

<button onclick="document.getElementById('demo').innerHTML='Hi!'">Click Me</button>

* On click, JS changes the text of <p> dynamically.