1. **write a javascript program to link javascript file with the html page.**

**Aim: To demonstrate how to link an external JavaScript file with an HTML page.**

**Description: JavaScript can be written either inside the HTML file or in a separate file with the .js extension.**

**Linking an external JavaScript file makes the code modular, reusable, and easy to maintain.**

**We use the <script src="filename.js"></script> tag inside the HTML file to link the JavaScript file.**

**Program:**

**HTML file (index.html)**

**<!DOCTYPE html>**

**<html>**

**<head>**

**<title>Linking JavaScript Example</title>**

**</head>**

**<body>**

**<h1>External JavaScript Linking Demo</h1>**

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

**<!-- Linking external JavaScript file -->**

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

**</body>**

**</html>**

**JavaScript file (script.js)**

**document.getElementById("demo").innerHTML = "JavaScript file linked successfully!";**

**Output:**

**External JavaScript Linking Demo**

**JavaScript file linked successfully!**

1. **write a javascript program to select the elements in HTML page using selectors.**

**Aim: To demonstrate how to select HTML elements using different selectors in JavaScript.**

**Description**

**In JavaScript, we can select elements in an HTML page using DOM selectors.  
Commonly used methods are:**

* **getElementById("id") → selects element by id.**
* **getElementsByClassName("className") → selects elements by class.**
* **getElementsByTagName("tagName") → selects elements by tag.**
* **querySelector("CSS selector") → selects first matching element.**
* **querySelectorAll("CSS selector") → selects all matching elements.**

**Program**

**HTML file (index.html)**

**<!DOCTYPE html>**

**<html>**

**<head>**

**<title>JavaScript Selectors Example</title>**

**</head>**

**<body>**

**<h1 id="heading">Hello Students</h1>**

**<p class="para">This is the first paragraph.</p>**

**<p class="para">This is the second paragraph.</p>**

**<p>This is a normal paragraph without class.</p>**

**<button onclick="selectElements()">Click to Select Elements</button>**

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

**</body>**

**</html>**

**JavaScript file (selectors.js)**

**function selectElements() {**

**// Select by ID**

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

**heading.style.color = "blue";**

**// Select by Class Name**

**let paragraphs = document.getElementsByClassName("para");**

**for (let i = 0; i < paragraphs.length; i++) {**

**paragraphs[i].style.fontWeight = "bold";**

**}**

**// Select by Tag Name**

**let allParas = document.getElementsByTagName("p");**

**allParas[2].style.color = "green";**

**// Select by querySelector (CSS selector) - first match**

**let firstPara = document.querySelector(".para");**

**firstPara.style.backgroundColor = "yellow";**

**// Select by querySelectorAll - all matches**

**let allSelected = document.querySelectorAll(".para");**

**allSelected.forEach(p => p.style.fontSize = "18px");**

**}**

**Output:**

**After clicking the button:**

* **The heading turns blue.**
* **The paragraphs with class para become bold and font-size 18px.**
* **The third paragraph (without class) becomes green.**
* **The first paragraph with class para gets a yellow background.**

**Result: We successfully selected HTML elements using different JavaScript selectors (getElementById, getElementsByClassName, getElementsByTagName, querySelector, and querySelectorAll) and applied different styles to them.**

1. **write a javascript program to implement the event listeners.**

**Aim: To demonstrate how to use JavaScript event listeners to handle user actions (like clicks, mouseovers, and keypresses) in a web page.**

**Description: Event listeners allow JavaScript to respond to events that happen on a web page (such as a button click, mouse movement, or key press).  
We use the method:**

**element.addEventListener("event", functionName);**

**Program**

**HTML file (index.html)**

**<!DOCTYPE html>**

**<html>**

**<head>**

**<title>Event Listeners Example</title>**

**</head>**

**<body>**

**<h2>JavaScript Event Listener Demo</h2>**

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

**<p id="msg"></p>**

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

**<p id="textOutput"></p>**

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

**</body>**

**</html>**

**JavaScript file (events.js)**

**// Event Listener for Button Click**

**document.getElementById("btnClick").addEventListener("click", function() {**

**document.getElementById("msg").innerHTML = "Button was clicked!";**

**document.getElementById("msg").style.color = "blue";**

**});**

**// Event Listener for Input (Typing)**

**document.getElementById("textInput").addEventListener("keyup", function() {**

**let text = document.getElementById("textInput").value;**

**document.getElementById("textOutput").innerHTML = "You typed: " + text;**

**});**

**// Event Listener for Mouse Over**

**document.getElementById("btnClick").addEventListener("mouseover", function() {**

**document.getElementById("btnClick").style.backgroundColor = "lightgreen";**

**});**

**// Event Listener for Mouse Out**

**document.getElementById("btnClick").addEventListener("mouseout", function() {**

**document.getElementById("btnClick").style.backgroundColor = "";**

**});**

**Output**

1. **When you click the button, the message “Button was clicked!” appears in blue.**
2. **When you type in the text box, the text appears below dynamically.**
3. **When you hover (mouseover) on the button, it turns light green.**
4. **When you move the mouse out, the button returns to its original color.**

**Result: The program successfully implemented event listeners to handle multiple events (click, keyup, mouseover, and mouseout) on HTML elements.**