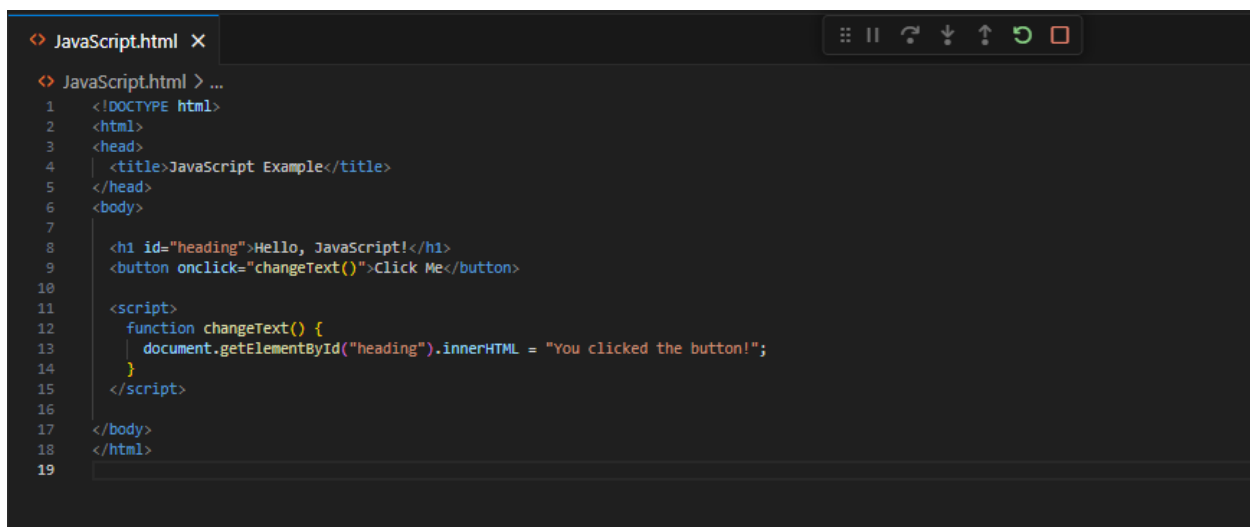# JavaScript

JavaScript is an object-based, high-level programming language that adds logic, dynamic behavior, and interactivity to web pages. While HTML structures the content of a web page and CSS styles it, JavaScript is the element that allows users to interact with content through functions like button clicks, pop-ups, form validation, changing content, and much more.

JavaScript is client-side because it runs immediately in the browser, although it can also run server-side with programs such as Node.js. JavaScript is an important part of web development, and all modern browsers support JavaScript.

JavaScript can be added to an HTML document using the <script> tag. The JavaScript can be included from the outside with a .js file, included directly in the HTML, or as inline JavaScript.

Sample Program:

```html
<!DOCTYPE html>
<html>
<head>
  <title>JavaScript Example</title>
</head>
<body>

  <h1 id="heading">Hello, JavaScript!</h1>
  <button onclick="changeText()">Click Me</button>

  <script>
    function changeText() {
      document.getElementById("heading").innerHTML = "You clicked the button!";
    }
  </script>

</body>
</html>
```
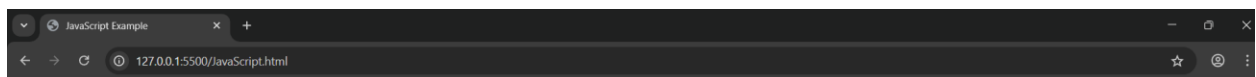
JavaScript Example

127.0.0.1:5500/JavaScript.html

Hello, JavaScript!

Click Me

JavaScript Example

127.0.0.1:5500/JavaScript.html

You clicked the button!

Click Me

JavaScript Tags and Element:

Tag / Element	Description	Example
<script>	Embeds or links JavaScript code in an HTML page	<script>...code...</script>
onclick	Calls JavaScript function when an element is clicked	<button onclick="myFunction()">Click</button>
document.getElementById()	Accesses an element by its id attribute	document.getElementById("demo").innerHTML = "Hi!"
addEventListener()	Adds event handling (e.g., click, hover) to an element	element.addEventListener("click", myFunction)
alert()	Shows a popup alert box to the user	alert("Welcome!");
console.log()	Logs a message to the browser's console for debugging	console.log("Debug info");
function	Defines reusable blocks of JavaScript code	function greet() { alert("Hello!"); }
var, let, const	Declares variables; let and const are modern and safer than var	let name = "John";
innerHTML	Modifies or gets the HTML content inside an element	element.innerHTML = "New text";