

Introduction to JavaScript

JavaScript is a powerful, high-level programming language used to create interactive effects within web browsers. It is one of the core technologies of the web, alongside HTML and CSS.

1. Key Features

Lightweight & Versatile: Runs in the browser, no need for special installations. **Dynamic:** Supports dynamic typing and flexible coding patterns. **Event-Driven:** Responds to user interactions such as clicks or keyboard input. **Object-Oriented:** Allows creation and manipulation of objects.

2. Common Uses

JavaScript is used for: Creating interactive user interfaces (e.g., dropdowns, modals, sliders) Form validation before sending data to a server Manipulating HTML and CSS dynamically Communicating with servers using APIs (AJAX, Fetch) Building full-stack applications (Node.js)

3. Basic Syntax

JavaScript code can be written inside the **<script>** tag or in an external file with a .js extension.
Example: `<script> let name = "Alice"; console.log("Hello " + name); </script>`

4. Variables

Variables store data. Use **let**, **const**, or **var** to declare them. **let:** Block-scoped, can be updated but not redeclared. **const:** Block-scoped, cannot be updated or redeclared. **var:** Function-scoped, generally avoided in modern code.

5. Data Types

Type	Example
String	"Hello"
Number	42
Boolean	true or false
Null	null
Undefined	let x; // undefined
Object	{name: 'Alice', age: 25}
Array	[1, 2, 3]