

# JavaScript for Beginners

(Concepts Only)

*JavaScript is a programming language used to create interactive and dynamic web pages. It works alongside HTML (structure) and CSS (style) to enhance user experience.*

## 1. What is JavaScript?

JavaScript (JS) is a client-side scripting language that enables websites to respond to user interactions. It can be used for:

- ✚ Validating form inputs
- ✚ Creating animations and dynamic content
- ✚ Handling events like clicks and key presses
- ✚ Communicating with servers (AJAX, APIs)

## 2. JavaScript Basics

### A. Operators

JavaScript has different types of operators:

- ✚ Arithmetic: +, -, \*, /, % (addition, subtraction, multiplication, division, remainder)
- ✚ Comparison: ==, ===, !=, !==, >, < (compare values)
- ✚ Logical: && (AND), || (OR), ! (NOT)

### B. Variables & Data Types

Variables store data and can be declared using var, let, or const.

Data Types include:

- ✚ String (text)
- ✚ Number (integers & decimals)
- ✚ Boolean (true/false)
- ✚ Array (lists of values)
- ✚ Object (key-value pairs)

### **C. Control Statements**

Used to control the flow of execution.



Conditional Statements:

- if, else if, else – Executes code based on conditions.
- switch – Executes different code blocks based on values.



Loops:

- for – Repeats code a fixed number of times.
- while – Repeats code while a condition is true.
- do-while – Runs at least once, then checks the condition.

### **D. Functions**

A function is a block of reusable code that performs a task. It is defined using the function keyword and can accept parameters.

### **E. Events & DOM Manipulation**

Events (e.g., onclick, onmouseover) allow JavaScript to respond to user actions.

DOM (Document Object Model) allows JavaScript to change HTML elements dynamically.

### **F. JavaScript in Web Development**

Client-Side JavaScript – Runs directly in the browser (e.g., animations, form validation).

Server-Side JavaScript – Runs on servers using Node.js (e.g., backend development, database interaction).

## **3. Advantages of JavaScript**

- ✓ Runs in all browsers without installation
- ✓ Speeds up website performance
- ✓ Enhances user experience
- ✓ Works well with other technologies (HTML, CSS, APIs)