

# Introduction to JavaScript

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## What is JavaScript?

JavaScript is a **programming language** used to make web pages **interactive**. While **HTML** structures the page and **CSS** styles it, **JavaScript adds behavior**.

For example:

- Want to show a popup when a user clicks a button? Use JavaScript.
- Want to build a game, form validation, or fetch data from a server? Use JavaScript.

JavaScript runs **in the browser**, meaning it executes on the user's device.

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## Why JavaScript?

- Works on **all modern browsers**
  - Essential for **front-end development**
  - Used by frameworks like **React, Vue, Angular**
  - Can also be used on the **backend** (Node.js)
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## Where Can You Write JavaScript?

There are 3 common ways to write JavaScript in a webpage:

### Inline (Not recommended)

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

In a `<script>` tag inside HTML

```
<!DOCTYPE html>
<html>
  <body>
    <h1>Hello World</h1>
    <script>
      console.log("JavaScript is working!");
    </script>
  </body>
</html>
```

External JavaScript File (Recommended)

```
<!-- index.html -->
<!DOCTYPE html>
<html>
  <body>
    <h1>Hello</h1>
    <script src="script.js"></script>
  </body>
</html>
```

```
// script.js
console.log("Hello from external JS file!");
```

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## Your First JavaScript Code

Let's start with the simplest code that prints something:

```
console.log("Hello JavaScript");
```

`console.log()` is used to print messages to the **browser console**.

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## How to Open the Console

- Right-click on the page > Inspect
  - Go to the **Console** tab
  - You'll see outputs from `console.log()` here
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## JavaScript is Case-Sensitive

```
let x = 5;  
let X = 10;  
console.log(x); // 5  
console.log(X); // 10
```

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## Comments in JavaScript

Use comments to explain your code:

```
// This is a single-line comment  
  
/*  
  This is a  
  multi-line comment  
*/
```

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## Summary

- JavaScript makes your website interactive.
- You can write it inside HTML or in separate `.js` files.
- Use `console.log()` to test your code.
- Practice by writing simple scripts and watching them work in the browser.