

Report Day: 4.1

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Learning Outcomes:

Introduction to JavaScript

JavaScript (commonly abbreviated as JS) is a high-level, interpreted programming language that is one of the core technologies of the World Wide Web, alongside HTML and CSS. JavaScript is an essential part of modern web development. While HTML provides the structure and CSS is responsible for styling, JavaScript brings interactivity to the web. This includes form validation, animations, dynamic content updates, and interaction with web servers via APIs without reloading the page.

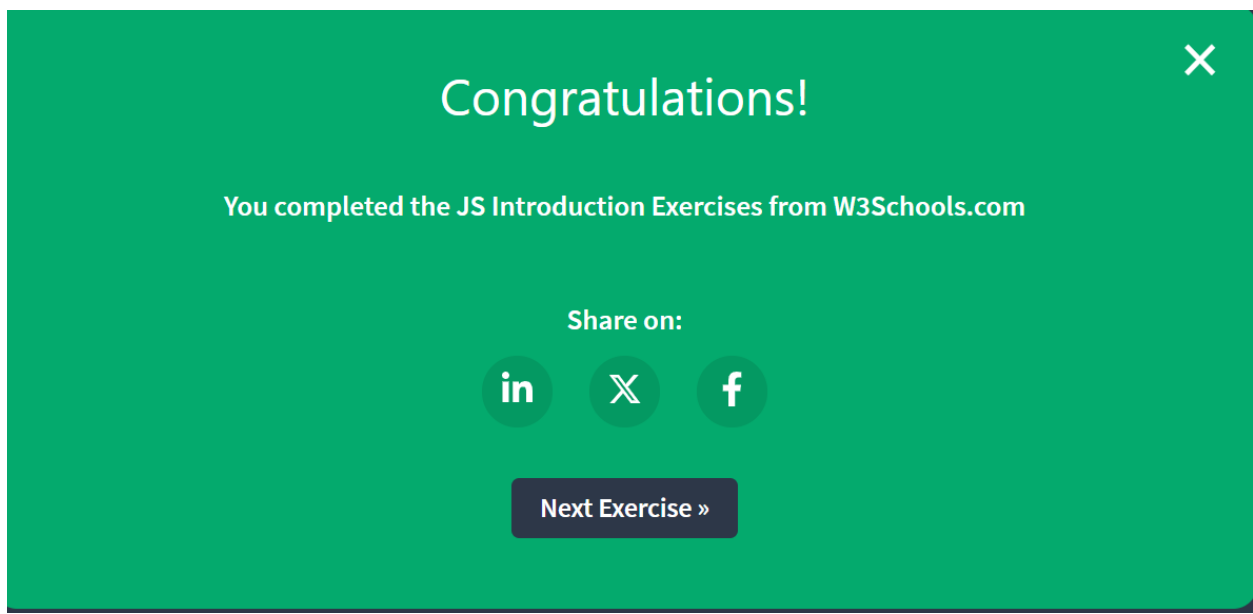
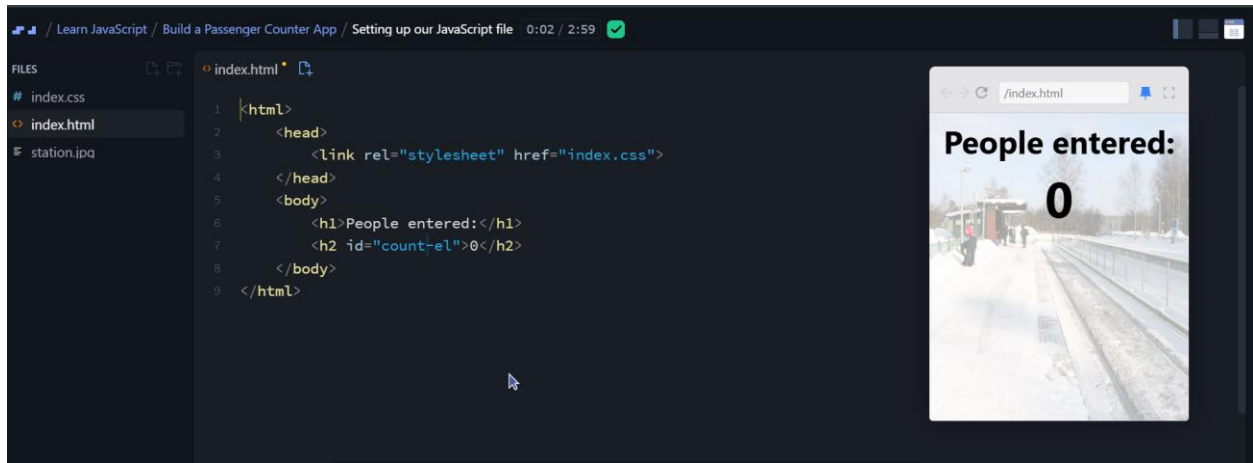
Significance:

JavaScript is **object-oriented, prototype-based**, and supports **functional programming paradigms**. One of its key strengths is that it is embedded directly into web browsers, making it universally accessible without needing to install additional plugins or compilers.

How JavaScript Runs in the Browser

Modern browsers consist of multiple components, but the key ones responsible for running JavaScript include:

- **HTML Parser:** Reads and parses the HTML file to construct the Document Object Model (DOM).
- **CSS Engine:** Parses CSS and applies styles to the elements in the DOM.
- **JavaScript Engine:** Interprets and executes JavaScript code.
- **Rendering Engine:** Combines DOM and CSSOM (CSS Object Model) to build a visual representation of the page.



Conclusion:

JavaScript is a versatile and integral language for creating dynamic, interactive websites. It runs directly in the browser using powerful JavaScript engines, and interacts closely with browser components like the DOM, BOM, and Web APIs.