

## JavaScript Learning Roadmap

**Total Duration:** 3-4 Months (Daily Commitment: 1-2 hours)

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### 1. Month 1: The Basics (2-3 Weeks)

**Goal:** Build a strong foundation in core JavaScript concepts.

#### Topics to Cover:

- **Syntax and Basics:** Variables, Data Types (string, number, boolean, etc.)
- **Operators:** Arithmetic, Comparison, Logical, Assignment
- **Control Structures:**
  - Conditional Statements (if, else, switch)
  - Loops (for, while, do-while)
- **Functions:**
  - Function Declarations and Expressions
  - Arrow Functions
  - Function Parameters and Return Values
- **Scope and Hoisting:**
  - Global vs Local Scope
  - Var, Let, and Const
- **DOM Manipulation:**
  - Selecting and modifying elements
  - Event Handling (click, hover, etc.)
- **Basic Debugging:**
  - Using console.log() and breakpoints
  - Debugging in the browser

#### Resources:

- MDN Web Docs: [JavaScript Guide](#)
- FreeCodeCamp: [JavaScript Basics](#)
- YouTube Channel: [Traversy Media - JavaScript Crash Course](#)

#### Mini-Project:

- A simple **To-Do List App** with add, delete, and mark-complete functionalities.
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## 2. Month 2: Intermediate Concepts (3-4 Weeks)

**Goal:** Understand how JavaScript works behind the scenes and practice intermediate concepts.

### Topics to Cover:

- **Advanced Functions:**
  - Closures and Higher-Order Functions
  - Callbacks, Promises, and Async/Await
- **Array and Object Methods:**
  - Map, Filter, Reduce, ForEach
  - Object Destructuring and Spread Operator
- **Error Handling:**
  - Try-Catch Blocks
  - Custom Error Handling
- **API Calls and Fetch:**
  - Making API requests
  - Handling API responses and errors
- **Working with JSON:**
  - Parsing and Stringifying JSON data

### Resources:

- JavaScript.info: [Advanced Working with Functions](#)
- YouTube Channel: [Web Dev Simplified - Asynchronous JavaScript](#)
- Book: *Eloquent JavaScript* by Marijn Haverbeke

### Mini-Project:

- **Weather App:** Fetch and display weather data from a public API.
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## 3. Month 3: Advanced JavaScript (3-4 Weeks)

**Goal:** Master the language features used in modern development.

### Topics to Cover:

- **Object-Oriented Programming (OOP):**
  - Classes and Inheritance
  - Encapsulation and Polymorphism
- **Prototypes and Prototypal Inheritance**

- **Modules and Bundling:**
  - ES6 Modules (import and export)
  - Using tools like Webpack and Babel
- **Asynchronous Patterns:**
  - Event Loop and Microtasks
  - Async Generators and Iterators

#### Resources:

- Udemy Course: [The Complete JavaScript Course 2023 by Jonas Schmedtmann](#)
- JavaScript Info: [Objects and Prototypes](#)
- MDN: [JavaScript OOP](#)

#### Mini-Project:

- **Recipe App:** Fetch and display recipes based on user input.
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## 4. Month 4: Practical Projects & DSA (Ongoing)

**Goal:** Start applying concepts to real-world projects and learn DSA with JavaScript.

#### Topics to Cover:

- **Building Projects with Real APIs:**
  - Movie Search App
  - E-commerce Product Page
- **DSA Concepts:**
  - Arrays, Strings, Linked Lists
  - Stacks, Queues, Trees, Graphs
  - Sorting and Searching Algorithms
- **Interview Preparation:**
  - Solving problems on LeetCode, CodeSignal, and HackerRank
  - Mock Interviews

#### Resources:

- YouTube Channel: [CodeWithHarry - Data Structures & Algorithms](#)
- Platform: [LeetCode - DSA Practice](#)
- Book: *Cracking the Coding Interview* by Gayle Laakmann McDowell

#### Final Projects:

- **Personal Portfolio Website**
  - **Expense Tracker App with Authentication**
  - **Social Media Dashboard with API Integration**
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