



Web 3

Week 1-2: Learning JavaScript

Skills to Develop:

- Master the fundamentals of JavaScript programming language, including variables, data types, control structures, functions, and object-oriented programming concepts.
- Gain proficiency in DOM manipulation, asynchronous programming with callbacks, promises, and async/await, and basic understanding of ES6+ features.

Resources:

- JavaScript Basics for Beginners - Chai or Code JavaScript curriculum for beginners.
- [MDN Web Docs - JavaScript](#) - Mozilla Developer Network's comprehensive guide to JavaScript.

Extra Task:

- Build simple web applications or browser-based games using JavaScript to reinforce your learning.

Week 3-4: Understanding Blockchain Basics

Skills to Develop:

- Understand how blockchain works, including its components, consensus mechanisms, and transaction processing.
- Learn about different blockchain platforms, with a focus on Ethereum.

Resources:

- Blockchain Basics Explained - IBM Blockchain.
- [Blockchain Essentials](#) - Coursera course by the University at Buffalo.

Extra Task:

- Join online communities or forums related to blockchain technology to engage in discussions and stay updated on industry trends.

Week 3-4: Introduction to Solidity Programming

Skills to Develop:

- Learn the basics of Solidity, the programming language used for writing smart contracts on Ethereum.
- Understand Solidity syntax, data types, control structures, and functions.

Resources:

- [CryptoZombies](#) - Interactive code school for learning Solidity.
- Solidity Documentation - Official Solidity documentation with tutorials and examples.

Extra Task:

- Practice writing simple smart contracts and deploying them on Ethereum's test networks (e.g., Ropsten).

Week 5-6: Advanced Solidity Programming

Skills to Develop:

- Deepen your understanding of Solidity by learning about advanced topics such as inheritance, modifiers, and error handling.
- Explore common vulnerabilities in smart contracts and best practices for secure contract development.

Resources:

- Ethereum and Solidity: The Complete Developer's Guide - Udemy course by Stephen Grider.
- Ethereum Smart Contract Best Practices - ConsenSys guide to smart contract security.

Extra Task:

- Analyze existing smart contracts for vulnerabilities and propose improvements.

Week 7-8: Web3.js and Interacting with Ethereum

Skills to Develop:

- Learn how to interact with Ethereum blockchain using Web3.js library.
- Understand concepts such as accounts, transactions, and contract interactions.

Resources:

- [Web3.js Documentation](#) - Official documentation for Web3.js.
- Getting Started with Web3.js - Ethereum.org guide to using Web3.js.

Extra Task:

- Develop a simple decentralized application (D-App) using Web3.js.

Week 9-10: Smart Contract Testing and Development Tools

Skills to Develop:

- Learn about tools like Hardhat and Truffle Suite for smart contract development, testing, and deployment.
- Understand the importance of unit testing and test-driven development (TDD) in smart contract development.

Resources:

- Hardhat Documentation - Official documentation for Hardhat.
- Truffle Suite Documentation - Official documentation for Truffle Suite.

Extra Task:

- Write unit tests for your smart contracts using testing frameworks like Mocha and Chai.

Week 11-12: Blockchain Security and Auditing

Skills to Develop:

- Learn about common security vulnerabilities in blockchain and smart contracts.
- Understand best practices for auditing smart contracts and identifying vulnerabilities.

Resources:

- OpenZeppelin - Guides, tutorials, and best practices for smart contract security.
- [Secure Smart Contract Development](#) - Coursera course by the University of California, Irvine.

Extra Task:

- Conduct security audits on existing smart contracts or participate in bug bounty programs.

Week 13-14: Advanced Ethereum Development

Skills to Develop:

- Dive deeper into advanced Ethereum development topics such as Ethereum Improvement Proposals (EIPs) and protocol enhancements.
- Explore scalability solutions, layer 2 solutions, and upcoming changes to the Ethereum protocol.

Resources:

- Advanced Ethereum Development - Ethereum.org's guide to advanced Ethereum development.
- Ethereum Improvement Proposals (EIPs) - Study Ethereum Improvement Proposals for understanding upcoming changes and enhancements to the Ethereum protocol.

Extra Task:

- Contribute to open-source projects related to Ethereum development.

Week 15-16: Capture the Flag (CTF) Challenges and Practice

Skills to Develop:

- Apply your knowledge and skills gained throughout the learning journey to solve real-world challenges in Web3 security.
- Collaborate with others, share insights, and learn from different approaches to solving problems.

Resources:

- Participate in Web3 CTFs hosted by various platforms or communities.
- Join CTF-focused Discord servers or forums to connect with other participants and access resources.

Extra Task:

- Analyze CTF challenges you couldn't solve and research the solutions to further enhance your understanding.