Curriculum

Week 1 to 3

Foundations

Begin your journey into software development by mastering the essentials of web development. You'll learn to construct well-structured web pages using HTML and to style them beautifully with CSS. This foundational knowledge sets the stage for you to create engaging and responsive user interfaces, understanding how each line of code translates into visual elements on the screen.

Key Outcomes

- Gain proficiency in HTML and CSS to develop structured and visually appealing websites
- Understand responsive design principles to ensure your web pages look great on any device
- Employ best practices for web development, from code organization to optimizing for performance and accessibility
- Learn to enhance coding efficiency with GitHub Copilot, utilizing AI to streamline the development process and code generation

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Week 4 to 7

JavaScript

Starting with fundamental programming constructs, you'll quickly progress to creating rich, interactive user experiences. You'll employ JavaScript to respond to user interactions, manipulate the DOM in real-time, and make web pages react instantly to each user's input.

Key Outcomes

- Implement JavaScript to create interactive and dynamic web experiences
- Manipulate the DOM and harness the power of asynchronous JavaScript for responsive user interface
- Utilize AJAX, JSON, and third-party APIs to enrich your applications with dynamic content and seamless data integration

Week 8 to 13

Back-End Development

Venture into the server-side realm with back-end development, where you'll build the engine room of your applications. Learn to set up servers, manage databases, and create APIs using Node.js. This module emphasizes the importance of security, teaching you to safeguard your applications against potential threats and vulnerabilities.

Key Outcomes

- Acquire the skills to build and maintain the back-end infrastructure using Node.js
- Implement security best practices to protect user data and ensure the integrity of your applications
- Develop and manage APIs that serve as vital conduits for front-end and back-end communication

Week 14 to 17

Full-Stack Integration

The full-stack integration module is where the front-end and back-end come together. You'll learn to weave front-end displays with back-end logic seamlessly, creating a cohesive and functional application. This module also covers the implementation of user authentication and session management, essential for personalized user experiences.

Key Outcomes

- Integrate front-end and back-end technologies to develop complete applications
- Manage user authentication and session states to provide secure and customized experiences
- Apply industry-standard tools and Agile methodologies to collaborate effectively in team environments

Week 18 to 21

Algorithm and Structural Foundations

Strengthen your software engineering skills with an in-depth look at algorithms and data structures. You'll learn how to organize data for optimal efficiency and solve complex problems systematically. This knowledge is crucial for writing efficient code that forms the backbone of powerful software solutions.

Key Outcomes

- Master the use of algorithms and data structures to solve complex problems with elegance and efficiency
- Utilize design patterns and SOLID principles to write clean, maintainable code
- Prepare for technical interviews with a solid understanding of computer science fundamentals

Week 22 to 25

Front-End Development

This module introduces you to the dynamic world of front-end frameworks, focusing on React. You'll learn how to build dynamic, single-page applications (SPAs) and create reusable components that bring modern web applications to life. By understanding state management and lifecycle methods, you can construct interactive and data-driven user experiences.

Key Outcomes

- Create sophisticated user interfaces using React
- Understand the principles of component-based architecture to write reusable and maintainable code
- Employ testing strategies to ensure the reliability and robustness of your applications

Week 26 to 28

Deployment and DevOps

Learn the art of deploying software and managing live applications. This module covers server management, continuous integration/continuous deployment (CI/CD) practices, and containerization with Docker. You'll understand how to get your applications out of development and into the hands of users reliably and efficiently.

Key Outcomes

- Deploy web applications using modern DevOps tools and techniques
- Configure servers and set up automated deployment pipelines for streamlined software delivery
- Use Docker to create containerized environments, ensuring consistency across development and production

Week 29 to 32

Mobile Development

Embrace the mobile-first approach as you learn to translate your web development skills to the mobile platform. Focusing on React Native, you'll adapt your applications for iOS and Android, ensuring they are responsive, intuitive, and tap into the unique features of mobile devices.

Key Outcomes

- Develop cross-platform mobile applications that offer a seamless user experience across devices
- Utilize mobile-specific features and design patterns to enhance the functionality and usability of your applications
- Navigate the ecosystem of mobile app development, from platform guidelines to app store distribution
- Implement accessibility features in mobile applications, ensuring inclusivity and usability for all users, regardless of their abilities.

Week 33 to 36

Capstone Project

Over 4 weeks, you'll harness your comprehensive software engineering skills to identify a real-world problem and craft a targeted software solution. Your journey culminates in a presentation to industry experts, showcasing your ability to transform challenges into impactful technology solutions. This is where you transition from learning to leading, demonstrating your readiness for the professional tech landscape.