React/JS Development

"JavaScript expressions required"

Bootcamp Curriculum

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Bootcamp Overview

React/JS Development Curriculum

Target Audience:
- This bootcamp is designed for beginners/career switchers/designers wanting to upskill in React/JS development

Prerequisites:
- JavaScript experience required

Duration:
- 8 Weeks (12 weeks)
- Monday - Friday (5pm- 7pm WIT)/ 3pm-6pm UTC)

Format:
- Live classes and educative webinars including recorded sessions
- Hands-on assignments and real world projects
- One-on-one mentorship/career coaching
- Portfolio development (5 live portfolio projects)

Outcome:
By the end of this bootcamp, participants will master key frontend development skills in React/JS through real-world projects and build a job-ready portfolio. They will confidently present their work in interviews and be prepared to contribute to modern developer roles, with the tools and knowledge to advance in their careers.

Certification:
Upon successful completion of the bootcamp, participants will present their portfolios for review by instructors and receive a certification from U-Tech Forge (UTF)

Learning Modules

React/JS Development Curriculum

The following modules have been designed to take you through the essential concepts and practices of frontend development and engineering. Each module focuses on a key area of frontend development (React/JS), progressively building your skills from fundamental principles to advanced techniques. Each module includes practical exercises and real-world projects and can be used independently, but also creates a strong foundation for your career in web development.

Module 1: React Learning Path

What is React? Learn about React and its significance in modern web development

Setting up React: Understand the benefits of using React, including componentbased architecture, virtual DOM, and performance advantages

Setting Up the Development Environment Learn how to set up your environment using tools like Node.js and npm

React Basics

- **JSX (JavaScript XML):** Learn how to write HTML-like syntax in JavaScript
- **Components:** Understand functional and class components. Learn how to create and manage components
- **Props:** Learn how to pass data to components using props
- **State:** Understand state management within components. Learn about useState hook
- **Rendering Elements:** Learn how to conditionally render elements and lists using the .map function

Projects:
- Create a simple "Hello World!" React app.
- Build a component that displays user information (name, age, etc.)

Mon-Friday (5pm- 7pm WIT)/(3pm-6pm UTC)

Learning Modules

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Module 2: Intermediate React: Component Lifecycle and Hooks

Component Lifecycle
- Understand the lifecycle of class components (e.g., 'componentDidMount', 'componentDidUpdate', 'componentWillUnmount')

Hooks
- **UseState:** For managing state in functional components.
- **UseEffect:** For performing side effects in functional components.
- **Custom Hooks:** Learn how to create and use custom hooks.
- **Context API:** Understand how to manage global state with the Context API

Projects:
- Build a weather app that fetches data from an API and displays it using components and hooks.
- Create a todo list app with add, edit, and delete functionalities using state and hooks.

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Learning Modules

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Module 3: Advanced React Concepts

Key Concepts
- **Context API:** Learn how to implement clientside routing using 'reactrouter'.
- **Error Boundaries:** Understand how to catch JavaScript errors in components
- **Higher Order Components (HOC):** Learn about HOCs and how to use them for code reuse.
- **Render Props:** Understand the render props pattern for sharing code between components
- **Performance Optimization:** Learn about React performance optimization techniques like memoization with 'React.memo' and 'useMemo'

Projects:
- Build a multipage app using React Router
- Develop a performance optimized version of your previous projects

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Module 4: State Management

Key Concepts
- **Redux:** Understand the concept of prop drilling and its downsides
- **Redux:** Learn about Redux for state management
- **Slices:** Understand how to create and use a Redux slice
- **Actions:** Learn how to define and dispatch actions
- **Reducers:** Understand how to handle actions in reducers
- **Redux Toolkit Query Tags:** Manage cache invalidation
- **Alternative State Management Libraries:** Explore alternatives like MobX, Recoil, or Zustand

Projects:
- Build a shopping cart application that uses Redux for state management
- Implement a blog application that manage posts using Redux

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Learning Modules

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Module 5: React with APIs

Key Concepts
- **Fetching Data:** Learn how to fetch data from APIs using 'fetch' or Axios
- **Handling Asynchronous Data:** Understand how to manage loading and error states when fetching data
- **Working with Forms:** Learn how to create controlled components for form handling and validation

Projects:
- Develop a GitHub user search app that fetches user data from the GitHub API.
- Create a form for submitting user feedback and displaying the response.

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Module 6: Testing React Applications

Key Concepts
- **Importance of Testing:** Understand the importance of testing in software development
- **Testing Libraries:** Learn about testing libraries like Jest and React Testing Library
- **Unit Testing:** Write unit tests for your components
- **Integration Testing:** Understand how to test interactions between components

Projects:
- Write tests for the components you've built in previous projects
- Create a testing suite for your Redux store

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Module 7: Styling in React

Key Concepts
- **Global:** Learn about libraries like Styled Components or Emotion
- **CSS Modules:** Understand how to use CSS Modules for scoped styling
- **Sass/CSS:** Explore using Sass or SCSS with React for advanced styling

Projects:
- Refactor your previous projects to use a (Styled) library or CSS Modules. Build a fully styled application using Sass/SCSS.

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Module 8: Styling in React Building & Deploying Best Applications

Key Concepts
- **Build Tools:** Learn about build tools like Webpack and Babel
- **Deployment:** Understand the process of how to create and configure a React application using Create React App
- **Deployment:** Learn how to deploy your React application to platforms like Netlify, Vercel, or GitHub Pages

Projects:
- Take one of your projects and deploy it to a hosting service. Create a new project specifically for deployment practice

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Module 9: Advanced Topics

Key Concepts
- **Server/Client Rendering (SSR):** Learn about frameworks like Next.js for serverside rendering
- **Static Site Generation (SSG):Understand static site generation with tools like Gatsby.**
- **Progressive Web Apps (PWAs):** Explore how to turn your React applications into PWAs
- **TypeScript with React:** Learn how to integrate TypeScript into your React projects for type safety

Projects:
- Convert one of your portfolio sites using Next.js or Gatsby.
- Create a PWA using React.

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Learning Modules

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Module 10: Final Projects and Portfolio

Projects:
- Ecommerce Platform: Build a full-featured ecommerce site with product listing, a shopping cart, and user authentication.
- Social Media Dashboard: Create a dashboard for users to post updates, follow friends, and interact with content.
- Personal Portfolio: Develop a personal portfolio website showcasing your projects and skills.

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Bootcamp Deliverables and Reference Guide

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Bootcamp Deliverables

Bootcamp Deliverables:
- 5 live portfolio projects ready portfolio with frontend development (ReactJS) case studies and personal projects
- Final collaborative capstone project showcasing end to end skills
- UTF course certification
- Resume and LinkedIn optimisation for software developer roles
- Interview preparation and guidance as well as networking tips (Active Tech Community)

Reference Guide

Books
- Exclusive access to carefully curated books for bootcamp members.

Online Resources
- Premium online resources are available exclusively to bootcamp members.