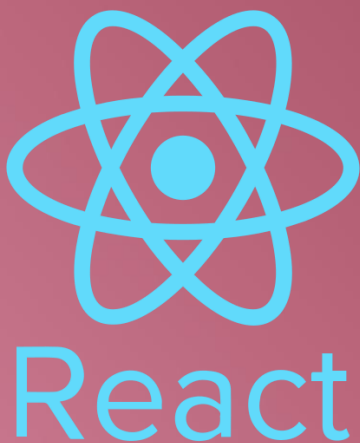# MASTER
FULL STACK DEVELOPMENT

Complete Beginner to Advanced

Detailed

Course Syllabus

CONTENTS

FOUNDATION OF HTML AND CSS

Fundamentals of HTML

- Introduction to HTML
- Basic structure of an HTML document
- Common tags (headings, paragraphs, links, images, lists)
- Form elements and attributes
- Input types and validation
- Semantic HTML tags (header, nav, section, article, footer)
- **Project: First landing page with HTML**

Getting Started with CSS & GitHub

- Inline, internal, and external CSS
- Basic selectors and properties (colour, background, font, text alignment)
- Box model (margin, border, padding, content)
- Positioning (static, relative, absolute, fixed)
- Flexbox basics
- Introduction to git & GitHub and its setup
- **Project: Creating a simple layout with CSS**

JAVASCRIPT ESSENTIALS AND ADVANCED TECHNIQUES

JavaScript Essentials

- Variables, data types, and operators
- Basic syntax and control structures (if statements, loops)
- Introduction to functions
- Let var and constant
- Hoisting and scopes
- Closure
- Introduction to HOF
- DOM manipulation (getElementById, querySelector)
- Event handling (click, hover, etc.)
- Event bubbling and capturing

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UI Functionalities and React-Routing

- Introduction to React Router DOM
- Creating different paths
- Creating an error page using useRouteError hook
- Creating children routes
- Understanding types of routing (SSR vs CSR)
- Single Page Application and dynamic routing
- Using useParams hook
- Applying event handlers

CSS FRAMEWORKS AND ADVANCED REACT CONCEPTS

Getting Started with Frameworks

- Introduction to Bootstrap / Tailwind
- Setting up Bootstrap/Tailwind
- Grid system and responsive design
- Commonly used classes (buttons, cards, alerts)

Advanced React Concepts

- Higher-order components
- Lazy loading (on-demand loading)
- Controlled vs uncontrolled components

REACT LIFECYCLE AND PERFORMANCE OPTIMIZATION

Class Components

- Creating class-based components
- States in class components
- Lifecycle methods of React

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CONTENTS

Performance optimization

- Error boundaries
- Fragments and StrictMode
- Performance optimization with React.memo and useCallback

STATE MANAGEMENT WITH REDUX

Introduction to Redux

- What is Redux and why use it
- Setting up Redux
- Actions, reducers, and the store
- Connecting Redux with React components

Advanced Redux

- Advanced Redux concepts (middleware, async actions)
- Combining reducers
- Project work: Integrating Redux into the Recipe app

PROJECT IMPLEMENTATION

Setting Up the E-commerce Website

- Planning the project structure
- Setting up the environment with Create React App
- Installing necessary dependencies (React Router, Redux, Tailwind CSS, etc.)
- Creating the basic layout (header, footer, product listing)

Implementing Functionality and deployment

- Adding product data and displaying products
- Implementing product details page
- Adding a shopping cart with Redux
- Deployment of react front end on hosting platforms

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- Setting up MongoDB and using MongoDB Atlas
- Basic CRUD operations and data modelling

Advanced MongoDB

- Schema design and data relationships
- Aggregation framework and indexing
- Performance optimization and data validation

AUTHENTICATION AND CI/CD PIPELINES

Authentication and Authorization

- Implementing user authentication (e.g., JWT, Passport.js)
- Managing user roles and permissions
- Securing APIs and handling sessions

CI/CD Pipelines

- Introduction to Continuous Integration and Continuous Deployment
- Setting up CI/CD pipelines using GitHub Actions or similar tools
- Deploying applications (backend and frontend) to cloud platforms

MAJOR PROJECT FRONTED SETUP

Setting Up the E-commerce Website

- Planning and organizing the project structure
- Setting up the frontend environment with Create React App
- Installing and configuring dependencies (React Router, Redux, Tailwind CSS, etc.)
- Building the basic layout (header, footer, product listing)

Implementing Functionality

- Adding and displaying product data
- Implementing product details and shopping cart functionality with Redux

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FINALIZING AND DEPLYOMENT

Backend Integration and Checkout Functionality

- Developing checkout functionality and integrating with the backend

Deployment and Final Touches

- Deploying Node.js/Express backend to cloud platforms (Heroku, AWS, etc.)
- Hosting the React frontend on platforms like Netlify or Vercel
- Configuring domain names, SSL certificates, and final deployment checks
- Conducting final testing and performance optimization

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