React JS

Zetlan Technologies

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e-Learning Course

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COURSE MODULES

Module 1: Introduction to React.js

- What is React.js?
- Why use React?
- Key features of React
- Understanding the Virtual DOM
- Setting up a React development environment
- React vs. Other frameworks (Angular, Vue)
- Creating your first React app with Create React App (CRA)
- Introduction to JSX

Module 2: React Components & Props

- Understanding components (Functional & Class)
- Writing functional components
- Writing class-based components
- Props: Passing data between components
- Default props & prop types validation
- Component composition

Module 3: State & Lifecycle Methods

- Understanding React state
- Using useState Hook (Functional components)
- Managing state in class components
- React Lifecycle Methods (componentDidMount, Update, etc.)
- Handling Events in React
- Controlled vs. Uncontrolled Components
- Forms in React (Handling input, form submission)

Module 4: React Hooks

- What are Hooks?
- useState Hook
- useEffect Hook
- useContext Hook
- useRef Hook
- useReducer Hook (alternative to useState)
- Custom Hooks

Module 5: React Router (Navigation in React)

- Introduction to React Router
- Setting up React Router
- Route, Link, NavLink, and Redirect
- Dynamic Routing
- Route Parameters
- Nested Routes
- Protected Routes (Authentication & Authorization)

Module 6: Managing State in React

- Lifting State Up
- Context API for state management
- Redux Introduction
- Redux Toolkit (RTK)
- Actions, Reducers, and Store
- Middleware (Redux Thunk, Redux Saga)
- Working with APIs using Redux

Module 7: Handling API Requests

- Fetching Data with fetch()
- Using axios for HTTP requests
- Handling promises & async/await
- Handling API errors
- CRUD Operations in React with REST APIs

Module 8: Styling in React

- Inline styles in JSX
- CSS Modules in React
- Styled Components
- Using Tailwind CSS with React
- Material UI and ShadCN for UI components

Module 9: Performance Optimization

- Code Splitting & Lazy Loading
- Memoization using React.memo
- useMemo and useCallback Hooks
- Avoiding unnecessary re-renders
- Virtualization with react-window

Module 10: Working with Third-Party Libraries

- Using UI Libraries (Material UI, Ant Design, ShadCN)
- Chart Libraries (Recharts, Chart.js)
- Form Libraries (Formik, React Hook Form)
- Animations with Framer Motion

Module 11: React with Backend Integration

- Connecting React with Node.js & Express
- Using Firebase with React
- GraphQL with React (Apollo Client)
- Real-time Communication with WebSockets

Module 12: Testing in React

- Introduction to Testing in React
- Jest & React Testing Library
- W riting unit tests
- Testing components with mocks
- End-to-end testing with Cypress

Module 13: Deploying React Apps

- Building and Optimizing for Production
- Deploying on Vercel, Netlify, and Firebase
- Deploying React App on GitHub Pages
- Deploying on AWS, GCP, and DigitalOcean
- CI/CD with GitHub Actions

Module 14: Advanced Topics & Best Practices

- React Server Components
- Next.js (React Framework)
- Progressive Web Apps (PWA) with React
- Micro Frontends with React
- Design Patterns in React