

React Developer

Module1: Introduction to React

- What is React?
- SPA (Single Page Application) concept
- React vs Angular vs Vue
- React Developer Environment Setup (Node, npm, VS Code)
- Using Create React App (CRA)
- Folder structure overview

Module2: JavaScript Refresher (ES6+)

- let, const, var
- Arrow functions
- Destructuring
- Spread & Rest operators
- Template literals
- Array methods (map, filter, reduce)
- Promises & async/await
- Modules & imports

Module3: JSX & Rendering

- JSX syntax
- Expressions in JSX
- Rendering elements
- Fragment
- StrictMode

Module4: Components

- Function vs Class components
- Props and PropTypes
- State in class and functional components
- Component lifecycle (for class components)
- Event handling
- Conditional rendering
- Lists and keys

Module5: Styling in React

- CSS Modules
- Inline Styling
- Styled-components
- Tailwind CSS (optional but recommended)
- SCSS integration

Module6: React Hooks

- useState
- useEffect
- useRef
- useContext
- useReducer
- useMemo and useCallback
- Custom Hooks

Module7: React Router

- Installation and setup
- BrowserRouter, Routes, Route
- Navigation with Link and useNavigate
- Dynamic Routing and Params
- Route protection (Private Routes)

Module8: Forms in React

- Controlled vs Uncontrolled components
- Handling input fields
- Form validation basics
- Libraries: Formik, React Hook Form
- Yup for schema validation

Module9: State Management

- Lifting state up
- Context API
- Redux (Core concepts, setup, actions, reducers, store)
- Redux Toolkit (recommended)
- Middleware (Thunk)

Module10: API Integration

- Fetching data using fetch and axios
- useEffect with API calls
- Handling loading and error states
- Pagination, search, filtering
- Working with REST APIs

Module11: Authentication

- JWT basics
- Login/Signup UI
- Private/Public routes
- Storing tokens (localStorage)
- Role-based authentication

Module12: Performance Optimization

- Code splitting
- Lazy loading
- Memoization
- React Profiler

Module13: Testing

- Unit Testing with Jest
- Component testing with React Testing Library
- Test cases for Hooks
- Mocking APIs

Module14: Deployment

- Building React app for production
Deploy to:
Netlify
Vercel
GitHub Pages
Firebase

Module15: Extra Tools & Libraries

- React Dev Tools
- React Query or SWR (data fetching)
- Next.js (optional but valuable)
- Framer Motion (animations)
- Chart.js / Recharts (data visualization)

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