

React.js

Course Duration : 20 Hours

Module 1: Introduction to React.js (1 Hours)

- What is React?
- Overview of React.js and its benefits.
- - Understanding the component-based architecture.
- Setting Up the Development Environment
- Installing Node.js, npm, and React.
- Creating your first React application with Create React App.
- Overview of the project structure and files.

Module 2: React Components (2 Hours)

- Understanding Components
- Functional vs. Class Components.
- Creating and exporting components.
- JSX: JavaScript XML syntax.
- Props and State
- Passing data with props.
- Managing state within a component.
- Component Lifecycle
- Introduction to lifecycle methods in class components.
- React hooks: useState, useEffect.

Module 3: Handling Events and Forms (2 Hours)

- Event Handling in React
- Handling events like clicks, form submissions, etc.
- Binding methods and using arrow functions.
- Working with Forms
- Controlled vs. uncontrolled components.
- Handling form data and validations
- Conditional Rendering
- Rendering components based on conditions.

Module 4: React Router (2 Hours)

- Introduction to React Router
- Setting up and using React Router.
- Creating routes and linking between pages.
- Dynamic Routing
- Passing parameters to routes.
- Nested routes and redirection.
- Route Guards
- Protecting routes with authentication checks.

Module 5: State Management with Redux (2 Hours)

- Introduction to Redux
- Understanding the need for state management.
- Core concepts: Store, Actions, Reducers.
- Setting Up Redux
- Installing and configuring Redux.
- Connecting Redux with React components using react-redux.
- Advanced Redux Concepts
- Middleware in Redux (e.g., redux-thunk).
- Managing asynchronous actions.
- Context API
- Using React's Context API for simple state management.

Module 6: Styling in React (4 Hours)

- CSS in React
- Inline styling and CSS classes.
- Styled-components and CSS modules.
- Responsive Design
- Making components responsive with media queries.
- Using libraries like Tailwind, Material-UI for styling.
- Theming
- Implementing a theme with styled-components or CSS variables.

Module 7: Working with APIs and Data Fetching (4 Hours)

- Fetching Data
- Making HTTP requests using fetch API and axios.
- Handling API responses and errors.
- Working with RESTful APIs
- Working with GraphQL APIs
- CRUD operations with external APIs.
- Displaying and updating data from APIs.
- React Query
- Introduction to React Query for data fetching and caching.

Module 8: Advanced React Concepts (3 Hours)

- React Hooks
- Deep dive into useEffect, useContext, useReducer, useMemo, and useCallback.
- Higher-Order Components (HOCs)
- Understanding HOCs and when to use them.
- Error Boundaries
- Handling errors in React components.
- Code Splitting
- Implementing code splitting with React.lazy and Suspense.

Next JS

Next.js Syllabus

Course Duration : (18 Hours)

Module 1: Introduction to Next.js (2 Hours)

- What is Next.js?
- Overview of Next.js and its features.
- Differences between Next.js and traditional React applications.
- Setting Up the Development Environment
- Installation of Node.js, npm, and Next.js.
- Creating your first Next.js application.
- Overview of the project structure.

Module 2: Pages and Routing (2 Hours)

- Pages in Next.js
- Creating and managing pages.
- Dynamic and nested routing.
- Routing Mechanics
- Link component and programmatic navigation.
- Catch-all routes and custom 404 pages.
- API Routes
- Introduction to API routes in Next.js.
- Creating and consuming API routes.

Module 3: Styling in Next.js (2 Hours)

- CSS-in-JS
- Styled JSX and other CSS-in-JS solutions.
- Global and Modular CSS
- Applying global styles and creating modular CSS files.
- CSS Preprocessors
- Using Sass or Less with Next.js.

Module 4: Data Fetching Techniques (4 Hours)

- Static Generation (SSG)
- `getStaticProps` and `getStaticPaths`.
- Incremental Static Regeneration (ISR).
- Server-Side Rendering (SSR)
- `getServerSideProps` and its use cases.
- Client-Side Fetching
- Fetching data client-side using React hooks.

Module 5: Authentication and Security (4 Hours)

- Implementing Authentication
- Overview of authentication methods.
- Adding authentication to your Next.js app (e.g., using NextAuth.js).
- Security Best Practices

- Protecting routes and API endpoints.
- Handling tokens and sensitive information securely.

Module 6: Performance Optimization (4 Hours)

- Image Optimization
- Using the Image component for optimal performance.
- Code Splitting and Lazy Loading
- Automatic and custom code splitting.
- Lazy loading components and images.
- Caching and Data Persistence
- Caching strategies and leveraging SWR for data persistence.

Module 7: (Removed)