

React JS

Duration: 14 Days (4 hours per day)

Day 1 : React Basics

- Session 1: Introduction to React
 - What is React? Overview and benefits
 - Setting up the React development environment
 - Creating a new React application using create-react-app
 - Understanding JSX and the basics of React components

Day 2

- Session 2: Component Fundamentals
 - Props and state in React
 - Handling events in React components
 - Conditional rendering and lists
 - Hands-on exercises to create basic components

Day 3: State Management and Hooks

- Session 1: Deep Dive into State and Hooks
 - Detailed exploration of useState and useEffect hooks
 - Understanding the component lifecycle with hooks
 - Introduction to custom hooks and when to use them

Day 4

- Session 2: Advanced Component Concepts
 - Working with controlled and uncontrolled components
 - Forms in React: Handling form data and validation
 - Context API for global state management
 - Exercise: Building a small app using hooks and context

Day 5: Component Communication and Performance

- Session 1: Parent-Child Component Communication
 - Passing data between components using props
 - Lifting state up to manage shared state
 - Using React refs for accessing DOM elements

Day 6

- Session 2: Optimizing React Applications
 - Memoization techniques: React.memo, useMemo, and useCallback
 - Performance considerations in React applications
 - Lazy loading and code splitting in React
 - Hands-on: Optimizing a React app for better performance

Day 7: Routing and Additional React Features

- Session 1: React Router
 - Introduction to React Router for navigation
 - Setting up routes and nested routes
 - Programmatic navigation and route guards

Day 8

- Session 2: Additional React Features
 - Handling side effects with useEffect
 - Integrating third-party libraries (e.g., UI libraries like Material-UI)
 - Overview of React Developer Tools for debugging
 - Final exercise: Implementing routing and advanced features in an app

Day 9: Introduction to Redux

- Session 1: Redux Fundamentals
 - Understanding Redux: Store, Actions, Reducers
 - Setting up Redux in a React project
 - Dispatching actions and updating the store

Day 10

- Session 2: Advanced Redux Concepts
 - Working with redux-thunk for asynchronous actions
 - Integrating Redux DevTools for better debugging
 - Hands-on: Managing state in a React app with Redux

Day 11: Introduction to Next.js

- Session 1: Next.js Basics
 - What is Next.js and why use it?
 - Setting up a Next.js project
 - Pages and routing in Next.js
 - Server-side rendering (SSR) and Static Site Generation (SSG)

Day 12

- Session 2: Next.js Features
 - Dynamic routing and API routes

- Integrating Redux with Next.js
- Exercise: Building a simple Next.js application

Day 13: Unit Testing in React and Redux

- Session 1: Unit Testing Basics
 - Introduction to Jest and React Testing Library
 - Writing unit tests for React components
 - Testing component behavior and snapshots

Day 14

- Session 2: Testing Redux and Next.js
 - Testing Redux actions, reducers, and connected components
 - Testing asynchronous actions with redux-thunk
 - Introduction to testing in Next.js applications
 - Final hands-on: Writing and running tests for a React/Redux application