**🚀 12-Week React Learning Roadmap (Beginner to Advanced)**

This roadmap will help you master **React** in 12 weeks, covering everything from fundamentals to advanced topics like state management, performance optimization, and deployment.

**🟢 Phase 1: React Fundamentals (Weeks 1-3)**

✅ Goal: Understand core React concepts and build small projects.

**📌 Week 1: React Basics**

🔹 What is React? Why use React?  
🔹 Setting up React with Vite.  
🔹 JSX (JavaScript XML) and rendering elements.  
🔹 Components (Functional & Class Components).  
🔹 Props (Passing data between components).

🛠 **Mini Project:** Build a **Simple Portfolio Website** using React components.

**📌 Week 2: State and Events**

🔹 Understanding **useState Hook**.  
🔹 Handling user inputs & events.  
🔹 React forms and controlled components.  
🔹 Conditional rendering (if, ternary, &&).

🛠 **Mini Project:** Build a **To-Do List App** with state management.

**📌 Week 3: useEffect & API Calls**

🔹 Understanding **useEffect Hook**.  
🔹 Fetching data from an API using fetch() or axios.  
🔹 Lifecycle of a React component.  
🔹 Handling loading and errors.

🛠 **Mini Project:** Build a **Weather App** using OpenWeather API.

**🟡 Phase 2: React Advanced Topics (Weeks 4-8)**

✅ Goal: Learn routing, state management, and reusable UI components.

**📌 Week 4: React Router**

🔹 Setting up react-router-dom.  
🔹 Creating multiple pages (Home, About, Contact).  
🔹 Dynamic routes & URL parameters.  
🔹 Redirects & Navigation.

🛠 **Mini Project:** Build a **Multi-Page Blog Website** using React Router.

**📌 Week 5: Advanced State Management**

🔹 Context API for global state.  
🔹 Using useReducer for complex state logic.  
🔹 State management with **Zustand** (alternative to Redux).

🛠 **Mini Project:** Build a **User Authentication System** with fake login/logout.

**📌 Week 6: Styled Components & UI Libraries**

🔹 Using Tailwind CSS in React.  
🔹 Styled Components for dynamic styling.  
🔹 ShadCN/UI or Material UI for pre-built components.

🛠 **Mini Project:** Create a **Dark Mode Toggle UI** with styled components.

**📌 Week 7: React Performance Optimization**

🔹 Understanding Virtual DOM & React Fiber.  
🔹 Lazy loading with React.lazy() & Suspense.  
🔹 Memoization with useMemo & useCallback.  
🔹 Avoiding unnecessary re-renders with React.memo().

🛠 **Mini Project:** Optimize your **To-Do List App** for performance.

**📌 Week 8: Forms & Validation**

🔹 Controlled vs. Uncontrolled components.  
🔹 Using react-hook-form for form validation.  
🔹 Handling complex forms & validations with Yup.

🛠 **Mini Project:** Build a **Registration Form with Validation**.

**🟠 Phase 3: Advanced Topics & Real-World Apps (Weeks 9-12)**

✅ Goal: Build full-stack applications and deploy them.

**📌 Week 9: Redux Toolkit (Optional: Zustand, Recoil, Jotai)**

🔹 Why Redux? Understanding global state.  
🔹 Using **Redux Toolkit** (createSlice, configureStore).  
🔹 Async state management with createAsyncThunk().

🛠 **Mini Project:** Build a **Cart System** using Redux.

**📌 Week 10: Authentication & Firebase**

🔹 Using Firebase Authentication for user login/signup.  
🔹 Storing & retrieving data with Firebase Firestore.

🛠 **Mini Project:** Build a **Login System with Firebase Authentication**.

**📌 Week 11: Building a Full-Stack App (MERN Stack)**

🔹 Connecting React with **Node.js + Express + MongoDB**.  
🔹 REST API integration with React.  
🔹 CRUD operations (Create, Read, Update, Delete).

🛠 **Final Project:** Build a **Full-Stack Blog App**.

**📌 Week 12: Testing & Deployment**

🔹 Writing unit tests using Jest & React Testing Library.  
🔹 End-to-end testing with Cypress.  
🔹 Deploying React apps using **Vercel**, **Netlify**, or **GitHub Pages**.  
🔹 Using Docker for containerized deployment.

🛠 **Final Step:** Deploy your **Full-Stack Blog App** online.

**🎯 Next Steps After This Roadmap**

✅ Learn **Next.js** for server-side rendering.  
✅ Explore **GraphQL (Apollo Client)** for efficient data fetching.  
✅ Start contributing to **open-source projects**.  
✅ Build real-world projects & add them to your **GitHub portfolio**.

**🔥 Ready to Start?**

This roadmap ensures you'll be job-ready for **React Developer roles** in **3 months**.