ReactJS Roadmap

1. Basic JavaScript and ES6 Fundamentals

Before diving into React, make sure you're comfortable with JavaScript, especially the ES6 features commonly used in React development.

- **Variables and Data Types** (let, const, var)

- **Functions** (arrow functions, function expressions, etc.)

- **Objects & Arrays**

- **Loops** (for, forEach, map, etc.)

- **Destructuring** (arrays, objects)

- **Template Literals**

- **Spread and Rest operators**

- **Modules** (import/export)

- **Promises and Async/Await**

- **Higher-order functions** (map, filter, reduce)

2. Introduction to ReactJS

Learn the core principles of React to get started with building components and understanding the concept of a virtual DOM.

- **What is React?**

- **Understanding Components** (functional and class-based)

- **JSX (JavaScript XML)** – JSX syntax, embedding expressions

- **ReactDOM** – rendering components to the browser

- **Props and State**

- **Event Handling in React**

- **React Developer Tools** – installing and using the React DevTools

3. React Component Basics

Start building functional components and learning about component state and props.

- **Functional Components** (basic introduction)

- **Class Components** (when and why they are used)

- **Rendering Lists** – using `.map()` to render dynamic lists

- **Key Prop in Lists**

- **Handling Forms** (controlled and uncontrolled components)

4. Styling in React

Learn various ways to style your React components to match your design needs.

- **CSS in JS** – styled-components, Emotion

- **CSS Modules** – scoping styles to components

- **External CSS Frameworks** – Material-UI, Tailwind CSS (Use this in you handsOn)

5. State Management in React

Understand how to manage data within your app and pass data around using state and props.

- **State in React**

- **Using** `useState` **Hook** – for functional components

- **Updating State** – asynchronously

- **Props** – passing data to child components

- **Handling Events** – passing event handlers as props

6. Advanced React Concepts

Dive deeper into more React Hooks.

- **useEffect Hook** – side effects, fetching data, component lifecycle

- **useContext Hook** – managing global state across components

- **useMemo Hook** - optimizing performance by memoizing variables, functions and components

- **Custom Hooks** – extracting logic into reusable hooks

- **Component Lifecycle** – in class components (`componentDidMount` , `componentWillUnmount`)

7. React Router

Learn how to add navigation and routing to your React application.

- **React Router Basics** – setting up routes and links

- **Dynamic Routing** – route parameters

- **Nested Routes** – organizing routes hierarchically

- **React Router Hooks** – `useHistory` , `useParams` , `useNavigate` , etc.

- **Redirects and 404 Pages**

8. State Management with Context API

Learn how to manage more complex state in your application.

- **Context API** – basic state management solution

9. Handling Data in React

Learn how to fetch data from APIs and handle it in your React app.

- **Fetching Data with** `useEffect` – using `fetch` or Axios

- **Handling Loading, Success, and Error States**

- **Data Transformation** – manipulating and displaying data

- **Error Boundaries** – handling JavaScript errors in a React tree