React.js Roadmap

Introduction:

React.js is a popular JavaScript library for building user interfaces. This documentation provides a structured roadmap to help you learn React.js effectively.

Prerequisites:

Before diving into React.js, ensure you have a solid understanding of the following:
- HTML
- CSS
- JavaScript

1. Basic React Concepts

- What is React.js?
- Components and component-based architecture
- JSX (JavaScript XML) syntax
- State and props
- Rendering elements
- Virtual DOM

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2. React Component Lifecycle

- Component mounting, updating, and unmounting phases
- Lifecycle methods:
  - componentDidMount
  - componentDidUpdate
  - componentWillUnmount

3. State Management

- React's built-in state management
- Context API for sharing data across components
- Introduction to Redux or MobX for more complex state management

4. React Router

- Set up routes and nested routes
- Navigate between different views or pages in a single-page application

5. React Hooks

- useState for managing component state
- useEffect for handling side effects
- useContext for accessing context in functional components
- useRef for accessing DOM elements

6. Styling in React

- Inline styles
- CSS modules
- Styled-components
- CSS-in-JS libraries

7. React Best Practices and Performance Optimization

- Code splitting and lazy loading
- Memoization and shouldComponentUpdate for reducing unnecessary renders
- Optimizing images and assets

8. Server-Side Rendering (SSR) and Next.js (Optional)

- Introduction to server-side rendering (SSR)
- Overview of Next.js—a React framework for SSR and building complex applications

9. Testing React Applications

- Introduction to testing frameworks like Jest
- Writing unit tests and integration tests
- React Testing Library for testing React components

10. React Ecosystem and Advanced Concepts (Optional)

- React Native for mobile app development
- GraphQL for API querying
- Higher-order components (HOCs) and render props for advanced patterns

11. Build Real-World Projects

- Start with simple projects and gradually increase complexity
- Apply learned concepts and best practices

Conclusion:
Learning React.js is an ongoing process. Stay updated with the latest trends, best practices, and changes in the React ecosystem. Online tutorials, documentation, and community forums can be valuable resources for continuous learning.

Happy coding!