



COMPLETE

REACT

REACT

CORE CONCEPTS

- **Components:** *Functional and class components.*
- **JSX:** *JavaScript XML, a syntax extension for writing HTML in JavaScript.*
- **Props:** *Data passed from parent to child components.*
- **State:** *Internal data managed within a component.*
- **Virtual DOM:** *A lightweight copy of the actual DOM for efficient updates.*

REACT HOOKS

useState: Manage state in functional components.

javascript

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```
const [count, setCount] = useState(0);
```

useEffect: Perform side effects (e.g., data fetching, subscriptions).

javascript

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```
useEffect(() => {  
  console.log("Component mounted or up  
dated");  
}, []);
```

- ***useContext: Access context in functional components.***
- ***useReducer: Manage complex state logic.***
- ***Custom Hooks: Reusable logic across components.***

REACT STATE MANAGEMENT

- ***Lifting State Up***: Share state between components by moving it to a common ancestor.
- ***Context API***: Share state across the component tree without prop drilling.
- ***Redux***: A predictable state container for managing global state.

ROUTING

***React Router: Declarative routing
for SPAs***

javascript

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```
<Route path="/about" component={About}  
/>
```

PERFORMANCE OPTIMIZATION

- ***Memoization***: *React.memo* for functional components, *PureComponent* for class components.
- ***Lazy Loading***: Load components on demand using *React.lazy* and *Suspense*.
- ***Code Splitting***: Split code into smaller bundles for faster loading.

ADVANCED TOPICS

- ***Error Boundaries***: Catch JavaScript errors in the component tree.
- ***Portals***: Render children outside the DOM hierarchy.
- ***Refs***: Access DOM nodes or React elements directly.
- ***Higher-Order Components (HOCs)***:
Reuse component logic.

TESTING

- ***Jest: A JavaScript testing framework.***
- ***React Testing Library: Test React components in a user-centric way.***

STYLING

- ***CSS Modules: Scoped CSS for components.***
- ***Styled Components: CSS-in-JS library for styling React components.***
- ***SASS/SCSS: Preprocessor for writing CSS.***

INTERVIEW QUESTIONS

BEGINNER-LEVEL QUESTIONS

- 1. What is React, and why is it used?**
- 2. What is the difference between functional and class components?**
- 3. What is JSX, and how is it different from HTML?**
- 4. What are props, and how are they used?**
- 5. What is state, and how is it managed in React?**
- 6. What is the Virtual DOM, and how does it improve performance?**
- 7. How do you handle events in React?**
- 8. What is the difference between state and props?**
- 9. How do you conditionally render components in React?**
- 10. What are keys in React, and why are they important?**

INTERMEDIATE LEVEL QUESTIONS

- 1. What are React hooks, and how do you use them?**
- 2. What is the purpose of useEffect?**
- 3. How do you share state between components?**
- 4. What is the Context API, and how is it used?**
- 5. How do you implement routing in React?**
- 6. What is Redux, and how does it work?**
- 7. How do you optimize performance in React?**
- 8. What is the difference between React.memo and PureComponent?**
- 9. How do you handle forms in React?**
- 10. What are error boundaries, and how do you use them?**

ADVANCE LEVEL QUESTIONS

- 1. How do you create custom hooks in React?**
- 2. What is the difference between useState and useReducer?**
- 3. How do you implement lazy loading in React?**
- 4. What are portals, and how are they used?**
- 5. How do you test React components?**
- 6. What are higher-order components (HOCs), and how are they used?**
- 7. How do you integrate React with a backend API?**
- 8. How do you handle authentication in a React application?**
- 9. How do you implement internationalization (i18n) in React?**
- 10. How do you use React with TypeScript?**

PRACTICAL/CODING QUESTIONS

- 1. Write a React component to display a list of items.**
- 2. Write a React component to handle a form with validation.**
- 3. Write a React component to fetch and display data from an API.**
- 4. Write a React component to implement a counter using hooks.**
- 5. Write a React component to implement a toggle button.**
- 6. Write a React component to implement a modal dialog.**
- 7. Write a React component to implement a search filter.**
- 8. Write a React component to implement a pagination control.**
- 9. Write a React component to implement a drag-and-drop feature.**
- 10. Write a React component to implement a dark mode toggle.**

BEHAVIORAL/SCENARIO-BASED QUESTIONS

- 1. How do you debug a React application?**
- 2. How do you handle performance issues in a React application?**
- 3. How do you ensure code quality in a React project?**
- 4. How do you handle state management in a large React application?**
- 5. How do you collaborate with designers to implement React components?**