Cracking the React Interview

Must-Know Questions & Answers!

@ sanuj bansal

React Fundamentals

1. What is React?
React is a JavaScript library used to build user interfaces, especially for single-page applications. It focuses on the view layer of the application and allows developers to create reusable components, which helps in managing complex UIs efficiently.

2. What is JSX?
JSX stands for JavaScript XML. It allows developers to write HTML-like syntax directly within JavaScript, making it easier to create and visualize UI components. JSX is not required to use React, but it makes the code more readable and concise.

3. What is the Virtual DOM?
The Virtual DOM is a concept where a virtual representation of the actual DOM is kept in memory. React uses it to detect changes and update only the necessary parts of the real DOM, which improves performance and user experience.

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4. What are Components in React?

Components are the building blocks of a React application. They allow developers to split the UI into independent, reusable pieces. Each component manages its own state and can be combined to build complex user interfaces.

5. Difference Between Functional and Class Components

- Functional components are simple functions that accept props and return UI.
- Class components are ES6 classes that extend React and can manage their own state and lifecycle. React now encourages using functional components with Hooks.

6. What are Props in React?

Props (short for "properties") are inputs to components that are passed from a parent component. They are read-only and help in customizing component behavior without modifying the component itself.

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7. What is State in React?

State refers to the internal data of a component that can change over time. When the state changes, the component re-renders to reflect the updated data. State is useful for managing dynamic information within the component.

8. What are React Hooks?

Hooks are special functions that allow functional components to use features like state, lifecycle, and context, which were previously available only in class components. Examples include useState, useEffect, and useContext.

9. Difference Between useEffect and useLayoutEffect

Both are Hooks that manage side effects. The key difference:

- useEffect runs after the component has rendered and updated the DOM.
- useLayoutEffect runs synchronously after the DOM updates but before the browser repaints the screen.

10. What is useRef Used For?

useRef is a Hook that provides a way to persist values across renders without triggering a re-render. It is often used to access DOM elements or store mutable values that do not require UI updates.

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11. Why Are Keys Used in Lists?

Keys help React identify which items in a list have changed, been added, or removed. They provide a unique identity to each element, which improves the performance and correctness of list rendering.

12. What is Lifting State Up?

Lifting state up refers to moving the state from a child component to a common parent when multiple child components need to access or modify the same data. This promotes better data flow and coordination.

13. What is the Context API?

The Context API is a React feature that allows data to be passed through the component tree without having to pass props manually at every level. It's useful for global values like themes, user info, or language settings.

14. What is Prop Drilling?

Prop drilling is the process of passing props from a parent component to a deeply nested child component through multiple intermediary components. It can make code less maintainable and is often solved using Context API.

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15. How to Optimize Performance in React?

Performance can be optimized by:

- Avoiding unnecessary re-renders
- Using memoization techniques
- Lazy loading components
- Using efficient key management in lists
- Minimizing the depth of the component tree

16. What is Conditional Rendering?

Conditional rendering is the process of showing different content or components based on certain conditions. It allows dynamic control over what is displayed to the user, based on app state or logic.

17. What is a Controlled Component?

A controlled component is a form input whose value is managed by React's state. Changes in the input field are handled via React rather than the DOM, allowing better control and validation.

18. What is Lazy Loading?

Lazy loading is a technique where certain components or resources are loaded only when needed, rather than during the initial page load. This improves performance and reduces the initial loading time of the application.

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19. What is Reconciliation in React?
Reconciliation is the process React uses to compare the current Virtual DOM with the previous version to determine what has changed. Based on this comparison, React updates the real DOM efficiently.

20. What is Server-Side Rendering (SSR)?
SSR is a rendering technique where the HTML of a page is generated on the server and sent to the browser. This improves initial load time and makes applications more SEO-friendly. Frameworks like Next.js use SSR with React.

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Sanuj Bansal

Senior Developer