

In React, the `useCallback` hook is used to memoize a callback function so that it's not recreated on every render, improving performance by preventing unnecessary re-renders of child components. Here's an example of how to use `useCallback` in a React application:

Suppose you have a parent component and a child component, and you want to pass a callback function from the parent to the child, memoizing it with `useCallback` to avoid unnecessary re-renders.

```
import React, { useState, useCallback } from 'react';

// Child component
const ChildComponent = ({ callback }) => {
  console.log('ChildComponent rendering');
  return (
    <div>
      <button onClick={callback}>Click me</button>
    </div>
  );
};

// Parent component
const ParentComponent = () => {
  const [count, setCount] = useState(0);

  // Define a callback function using useCallback
  const handleClick = useCallback(() => {
    console.log('Button clicked');
    setCount(count + 1);
  }, [count]);

  console.log('ParentComponent rendering');

  return (
    <div>
      <h1>Parent Component</h1>
      <p>Count: {count}</p>
      {/* Pass the memoized callback to the child component */}
      <ChildComponent callback={handleClick} />
    </div>
  );
};

export default ParentComponent;
```

In this example:

We have a `ParentComponent` that maintains a count state variable and defines a callback function `handleClick`. We use `useCallback` to memoize this callback, and we specify `[count]` as its dependency array. This means that the callback will only be recreated if the count value changes.

The `ChildComponent` receives the callback prop and renders a button that triggers the callback when clicked.

When you run this code, you'll notice that the `ChildComponent` does not re-render unnecessarily when the parent component re-renders. The `handleClick` function is only recreated if the count state changes, thanks to `useCallback`. This optimization can be particularly useful when you pass callbacks down to child components that rely on props or state from the parent.