

COMP6080

⭐ ReactJS - Higher Order Components

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What Are They?

A Higher Order Component (HOC) is a function that takes in a component, and returns a new component (typically with more functionality).

The most common application of this capability is aligned with the idea of a **decorator pattern**

As such the capability focuses on decorating another component it takes in, rather than changing the component.



What Are They?

HOCs are typically actual **functions** that return **components**



Example

```
1 function Car(props) {  
2   // Log the props  
3   useEffect(() => {  
4     console.log(props);  
5   }, [props]);  
6  
7   return <h2>Hi, I am a {props.colour} Car!</h2>;  
8 }
```



Example

```
1 const withPropsLogger = (WrappedComponent) => {
2   return (props) => {
3     console.log("Current Props:", props);
4     return <WrappedComponent {...props} />;
5   };
6 };
7
8 function Car(props) {
9   return <h2>Hi, I am a {props.colour} Car!</h2>;
10 }
11
12 export default withPropsLogger(Car);
```



Example

```
1 const makeExpandableCollapsible = (WrappedComponent) => {
2   return (props) => {
3     const [shown, setShow] = useState(true);
4
5     return (
6       <>
7       <button
8         onClick={() => {
9           setShow((s) => !s);
10          }}
11        >
12          {shown ? "Hide" : "Collapse"}
13        </button>
14          {shown && <WrappedComponent {...props} />}
15        </>
16      );
17    };
18  };
19
20 const CarSection = makeExpandableCollapsible(Car);
```



Overall Benefits

- It allows the reuse of logic surrounding components, reducing copy and pasting of the same code. E.g:
 - You have multiple components you want only a logged in user to see
 - Page wrappers that include header bar etc.
- It does not have any side effects (all hooks are within in the new component you return)



Feedback



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