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<u>Frontend Engineer Assignment</u>

Q1. Explain what the simple List component does.

Ans- Simple List Componenet displays a list of items passed as props.

It uses the **useState** and **useEffect** hooks to manage the selected index of the list item. Whenever a list item is clicked, its corresponding index is saved to the state using **setSelectedIndex** function, and the background color of the clicked item is changed to **green** while others are red.

The **SingleListItem** component is used to render each item of the list, and it is wrapped with the memo function to optimize rendering performance by avoiding unnecessary re-renders.

The component also uses the **PropTypes** library to validate the props being passed to it, making sure that the items prop is an array of objects with a text property that is a string.

Q2.What problems / warnings are there with code?

Ans- There are a few problems and warnings with the code:

1. The **setSelectedIndex** function should be just **useState(null)** instead of **[setSelectedIndex, selectedIndex] = useState()** in the WrappedListComponent.

2. In the **SingleListItem** component, the onClick handler should be a function that calls **onClickHandler(index)** instead of directly calling it with **onClickHandler(index)**.
3. The PropTypes for the items prop in the **WrappedListComponent** are incorrect. It should be **PropTypes.arrayOf(PropTypes.shape({ text: PropTypes.string.isRequired })).**

4. There is a warning in the console about the missing dependency **setSelectedIndex** in the **useEffect** hook in the **WrappedListComponent**. The fix for this is to add **setSelectedIndex** to the dependency array in the useEffect hook or remove it altogether since it's not being used in the hook.

```
Compiled with problems:

ERROR

prop_types__WEBPACK_IMPORTED_MODULE_2___default(...).shapeOf is not a function
TypeError: prop_types__WEBPACK_IMPORTED_MODULE_2___default(...).shapeOf is not a function
    at ./src/List.jsx (http://localhost:3000/static/js/bundle.js:194:116)
    at options.factory (http://localhost:3000/static/js/bundle.js:42540:31)
    at __webpack_require__ (http://localhost:3000/static/js/bundle.js:41964:33)
    at fn (http://localhost:3000/static/js/bundle.js:42197:21)
    at ./src/App.js (http://localhost:3000/static/js/bundle.js:18:63)
    at options.factory (http://localhost:3000/static/js/bundle.js:42540:31)
    at __webpack_require__ (http://localhost:3000/static/js/bundle.js:41964:33)
    at fn (http://localhost:3000/static/js/bundle.js:42197:21)
    at ./src/index.js (http://localhost:3000/static/js/bundle.js:255:62)
    at options.factory (http://localhost:3000/static/js/bundle.js:42540:31)
```

The shapeOf is not a valid PropTypes method. Instead, it should be shape, so i changed **shapeOf** to **shape** in the propTypes definition of the WrappedListComponent.

So, this is what i changed in the code-

```
60  WrappedListComponent.propTypes = {
61    items: PropTypes.arrayOf(PropTypes.shape({
62      text: PropTypes.string.isRequired,
63    })),
64  };
65
66  WrappedListComponent.defaultProps = {
67    items: null,
68  };
```

```
Compiled with problems:

ERROR

setSelectedIndex is not a function
TypeError: setSelectedIndex is not a function
    at handleClick (http://localhost:3000/static/js/bundle.js:169:5)
    at onClickHandler (http://localhost:3000/static/js/bundle.js:176:29)
    at WrappedSingleListItem (http://localhost:3000/static/js/bundle.js:140:14)
    at renderWithHooks (http://localhost:3000/static/js/bundle.js:22312:22)
    at updateFunctionComponent (http://localhost:3000/static/js/bundle.js:25194:24)
    at updateSimpleMemoComponent (http://localhost:3000/static/js/bundle.js:25056:14)
    at updateMemoComponent (http://localhost:3000/static/js/bundle.js:24929:18)
    at beginWork (http://localhost:3000/static/js/bundle.js:26959:20)
    at HTMLUnknownElement.callCallback (http://localhost:3000/static/js/bundle.js:11904:18)
    at Object.invokeGuardedCallbackDev (http://localhost:3000/static/js/bundle.js:11948:20)
```

The error "**setSelectedIndex is not a function**" indicates that setSelectedIndex is not a function. This might be because setSelectedIndex was declared using destructuring assignment with the useState hook but wasn't initialized with an initial state value. This means that setSelectedIndex is undefined when the handleClick function is called.

To fix this error, i initialized the setSelectedIndex with null while using useState hook.

const [selectedIndex, setSelectedIndex] = useState(null);

The **WrappedSingleListItem** component was replaced with the **SingleListItem** **component** and now includes a **key pro**p on the SingleListItem component. The **onClick handler** was also changed to pass in the index as an argument to the **onClickHandler** prop function. The **isSelected** prop now checks if the selectedIndex is equal to the current index.

The **WrappedListComponent** was renamed to List and now includes the **SingleListItem** component directly. The handleClick function was changed to pass in the index as an argument to the **setSelectedIndex** function. The items.map now includes a key prop on the SingleListItem component and passes in the handleClick function as the **onClickHandler** prop.

Q3. Please fix, optimize, and/or modify the component as much as you think is necessary.

So, after Modifying the code (taking reference from Q.2) here's the updated code.

```
import React, { useState, useEffect, memo } from 'react';

import PropTypes from 'prop-types';



// Single List Item

const SingleListItem = memo(({ index, isSelected, onClickHandler,
text }) => {

  return (

    <li

      style={{ backgroundColor : isSelected ? 'green' : 'red',

      fontWeight: isSelected ? 'bold' : 'normal',

      color: isSelected ? 'white' : 'black',

      borderRadius: isSelected ? '10%' : '0',

      listStyleType: 'none',

      border: isSelected ? '2px solid black' : 'none',

      transform: isSelected ? 'scale(1.1)' : 'none',

      transition: 'transform 0.2s ease-in-out',

      cursor: 'pointer' ,

      letterSpacing: '0.8',

      margin: '5px',
```

```jsx
            height: '40px'



        }}

        onClick={() => onClickHandler(index)}

      >

        {text}

      </li>

  );

});



SingleListItem.propTypes = {

  index: PropTypes.number.isRequired,

  isSelected: PropTypes.bool.isRequired,

  onClickHandler: PropTypes.func.isRequired,

  text: PropTypes.string.isRequired,

};



// List Component

const List = memo(({ items }) => {

  const [selectedIndex, setSelectedIndex] = useState(null);



  useEffect(() => {

    setSelectedIndex(null);

  }, [items]);



  const handleClick = index => {
```

```jsx
      setSelectedIndex(index);
    };


    return (

      <ul style={{ textAlign: 'left' }}>

        {items.map((item, index) => (

          <SingleListItem

            key={index}

            onClickHandler={handleClick}

            text={item.text}

            index={index}

            isSelected={selectedIndex === index}

          />

        ))}

      </ul>

    )

});


List.propTypes = {

  items: PropTypes.arrayOf(PropTypes.shape({

    text: PropTypes.string.isRequired,

  })),

};


List.defaultProps = {

  items: null,
```

```
};


export default List;
```

I added, some css in the single list item to change the text, color, font-size while clicking the list items.

Now, The output looks like this-

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