Lesson 05 Demo 02

Creating a React Application Using the Principles of Redux

Objective: To develop a react application that demonstrates the principle of Redux

Tools Required: Node Terminal, React app, and Visual Studio Code

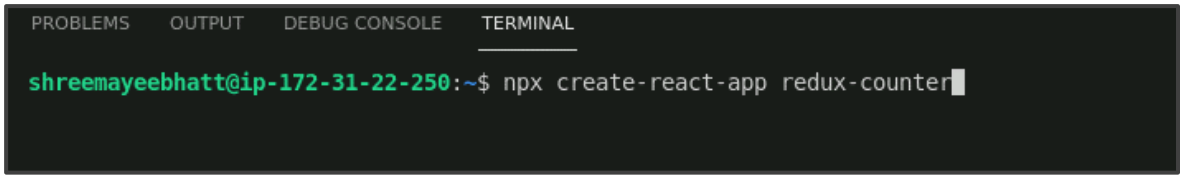
Prerequisites: Knowledge of creating a React app and understanding of the folder structure

Steps to be followed:

1. Create a new React app
2. Create a new file as store.js
3. Open the existing file called App.js
4. Wrap the App component with the Provider component
5. Run the application

Step 1: Create a new React app

1.1 Open the terminal and run the command **npx create-react-app redux-counter**



Note: This command will create a new React app with the name **redux-counter**

1.2 Move to the **redux-counter** directory by running the **cd redux-counter** command

1.3 Install the necessary dependencies by running the **npm install redux react-redux** command

Step 2: Create a new file called store.js

2.1 create the **store.js** file in the **src** directory

2.2 Import the **configureStore** function from the **redux** package

```
1   import { createStore } from 'redux';
2
```

2.3 Define the **initial state** of the store

2.4 Create a **reducer** function that handles **state** updates based on different action types

2.5 Use the **createStore** function to create the **Redux store** with the **reducer** function and **initial state**

2.6 Export the default store

```
import { createStore } from 'redux';

const initialState = {
count: 0,
};

function reducer(state = initialState, action) {
switch (action.type) {
case 'INCREMENT':
return { count: state.count + 1 };
case 'DECREMENT':
return { count: state.count - 1 };
default:
return state;
}
}

const store = createStore(reducer);

export default store;
```

```
import { createStore } from 'redux';
const initialState = {
count: 0,
};

function reducer(state = initialState, action) {
switch (action.type) {
case 'INCREMENT':
return { count: state.count + 1 };
case 'DECREMENT':
return { count: state.count - 1 };
default:
return state;
}
}
const store = createStore(reducer);

export default store;
```

2.7 Inside the folder, create a new file called **Counter.js**

> **Note:** This will be our presentational component that will display the current count and the buttons to increment and decrement it

2.8 Create a new file called **Counter.js** in the directory **src/components**

2.9 Create a functional component named **Counter** that receives props for **count**, increment, and decrement

2.10 Render the **count** value, along with buttons for incrementing and decrementing the **count**

2.11 Export the **Counter** component

```
import React from 'react';
function Counter({ count, increment, decrement }) {
return (
<div>
<h1>Count: {count}</h1>
```

```
 <button onClick={increment}>Increment</button>
<button onClick={decrement}>Decrement</button>
</div>

);
}
export default Counter;
```

```
import React from 'react';

function Counter({ count, increment, decrement }) {
return (
<div>
<h1>Count: {count}</h1>
<button onClick={increment}>Increment</button>
<button onClick={decrement}>Decrement</button>
</div>
);
}

export default Counter;
```

Step 3: Open the existing file called App.js

Note: The container component will establish the connection between the **Counter** component and the **Redux store**

3.1 In the **src** directory, open the existing file named **App.js**

3.2 Import **React**, the **useSelector** and **useDispatch** Hooks from **react-redux**, then **Counter** component

```
import { useSelector, useDispatch } from 'react-redux';
```

3.3 Create the **App** functional component

3.4 Use the **useSelector** Hook to select the **count** value from the **Redux store**

3.5 Utilize the **useDispatch** hook for accessing the **dispatch** function

3.6 Define the **increment** and **decrement** functions that dispatches the corresponding actions to the **Redux store**

3.7 Render the **Counter** component, passing the **count**, increment, and decrement as props

3.8 Export the **App** component

```
function App() {
const count = useSelector(state => state.count);
const dispatch = useDispatch();

const increment = () => {
dispatch({ type: 'INCREMENT' });
};

const decrement = () => {
dispatch({ type: 'DECREMENT' });
};

return <Counter count={count} increment={increment} decrement={decrement} />;
}

export default App;
```

import React from 'react';
import { useSelector, useDispatch } from 'react-redux';
import Counter from './components/Counter';

function App() {
const count = useSelector(state => state.count);
const dispatch = useDispatch();

const increment = () => {
dispatch({ type: 'INCREMENT' });
};

const decrement = () => {
dispatch({ type: 'DECREMENT' });
};

return <Counter count={count} increment={increment}

```
decrement={decrement} />;
}

export default App;
```

```
import logo from './logo.svg';
import React from 'react';
import { useSelector, useDispatch } from 'react-redux';
import Counter from './components/Counter';

function App() {
const count = useSelector(state => state.count);
const dispatch = useDispatch();

const increment = () => {
dispatch({ type: 'INCREMENT' });
};

const decrement = () => {
dispatch({ type: 'DECREMENT' });
};

return <Counter count={count} increment={increment} decrement={decrement} />;
}

export default App;
```

Step 4: Wrap the App component with the Provider component

4.1 In the **src** directory, open the existing **index.js** file

4.2 Import **React**, **ReactDOM**, the **Provider** component from **react-redux**, the **store** from the **store.js** file, and the **App** component

4.3 Wrap the **App** component with the **Provider** component, passing the **store** as a property

4.4 Use the **ReactDOM.render** function to render the wrapped **App** component to the DOM

```
import React from 'react';
import ReactDOM from 'react-dom';
import { Provider } from 'react-redux';

import store from './store';
import App from './App';
```

ReactDOM.render(

<Provider store={store}>
<App />
</Provider>,
document.getElementById('root'));

```
import './index.css';
import reportWebVitals from './reportWebVitals';
import React from 'react';
import ReactDOM from 'react-dom';
import { Provider } from 'react-redux';
import store from './store';
import App from './App';


ReactDOM.render(
  <Provider store={store}>
  <App />
  </Provider>,
  document.getElementById('root')
  );

// If you want to start measuring performance in your app, pass a function
// to log results (for example: reportWebVitals(console.log))
// or send to an analytics endpoint. Learn more: https://bit.ly/CRA-vitals
reportWebVitals();
```

Step 5: Run the application

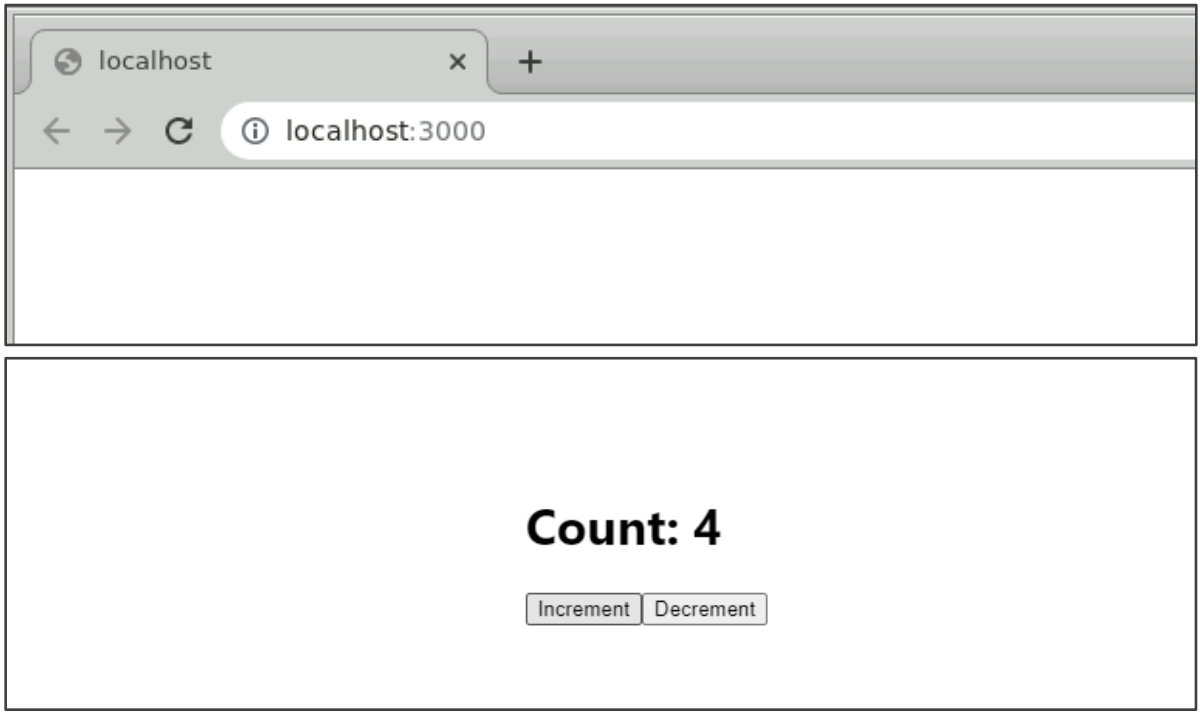
5.1 In the terminal, navigate to the project directory

5.2 Run the **npm start** command to start the development server

```
PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

shreemayeebhatt@ip-172-31-22-250:~/redux-counter$ npm start
```

5.3 Open your browser and navigate to **http://localhost:3000**



You should now be able to see the **counter** app in your browser. Clicking on the buttons should increment or decrement the count, and the value should be stored and managed by the **Redux store**

With this, you have successfully created a React application demonstrating the principles of Redux, managing state through a centralized store, and connecting components for efficient state management.