Lesson 05 Demo 03
Create a React Application Using Combine Reducers

Objective: To develop a React application that demonstrates the use of combined reducers

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 called **reducers.js**
3. Create a new file called **AddTodo.js**
4. Import the **rootReducer** from **reducers.js** into the **index.js** file
5. Run the application and view it in the browser

Step 1: Create a new React app

1.1 Open your terminal and run the **npx create-react-app combined-reducers-todo** command

Note: This command will create a new **React** app with the name **combined-reducers-todo**

```
shreemayeebhatt@ip-172-31-22-250:~$ npx create-react-app combined-reducers-todo
```

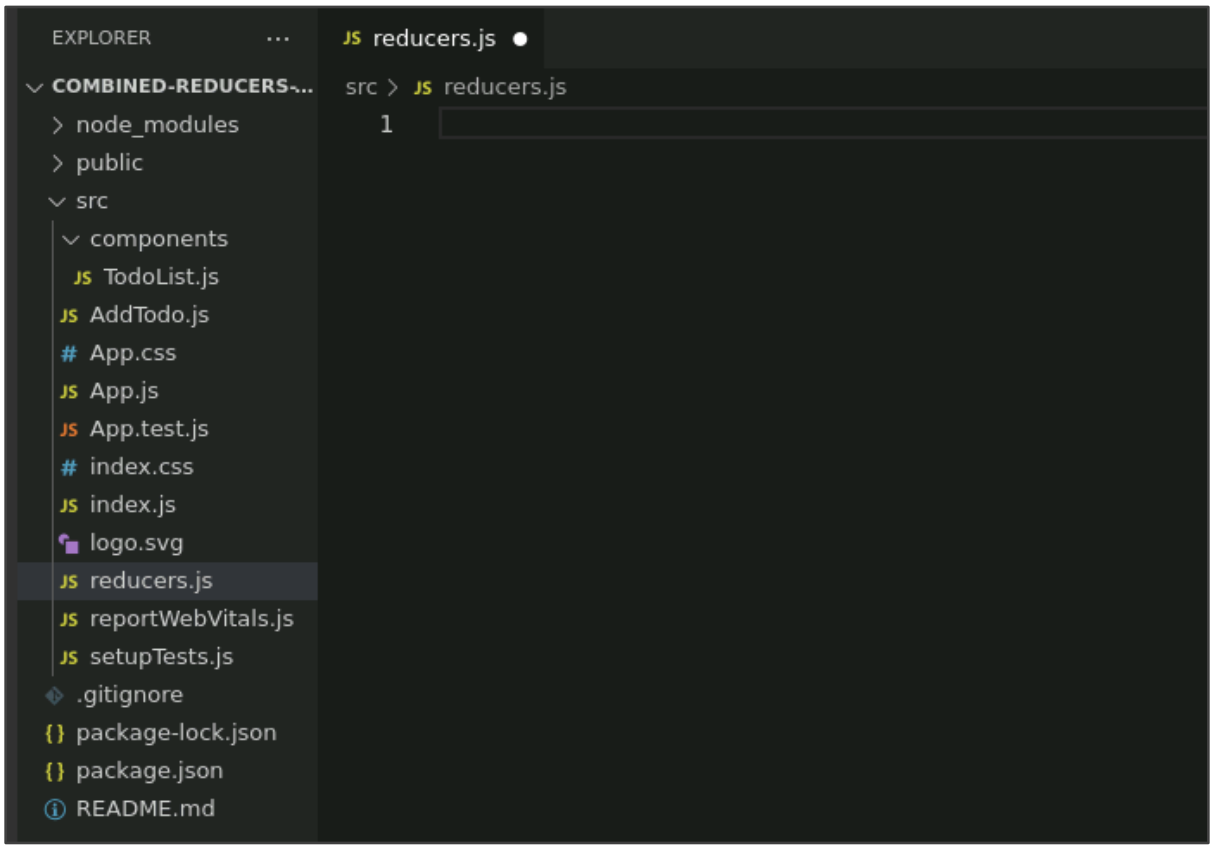
1.2 Move to the **combined-reducers-todo** directory by running the **cd combined-reducers-todo** command in the terminal

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

```
shreemayeebhatt@ip-172-31-22-250:~$ cd combined-reducers-todo/
shreemayeebhatt@ip-172-31-22-250:~/combined-reducers-todo$ npm install redux react-redux
```

Step 2: Create a new file called reducers.js

2.1 create a new file named **reducers.js** In the **src** directory



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

2.3 Define a **reducer** function for the **todoList** state

2.4 Use the **combineReducers** function to combine the reducers into a **rootReducer**

2.5 Export the **rootReducer**

```
import { combineReducers } from 'redux';
const todoListReducer = (state = [], action) => {
switch (action.type) {
case 'ADD_TODO':
return [...state, action.payload];
case 'REMOVE_TODO':
```

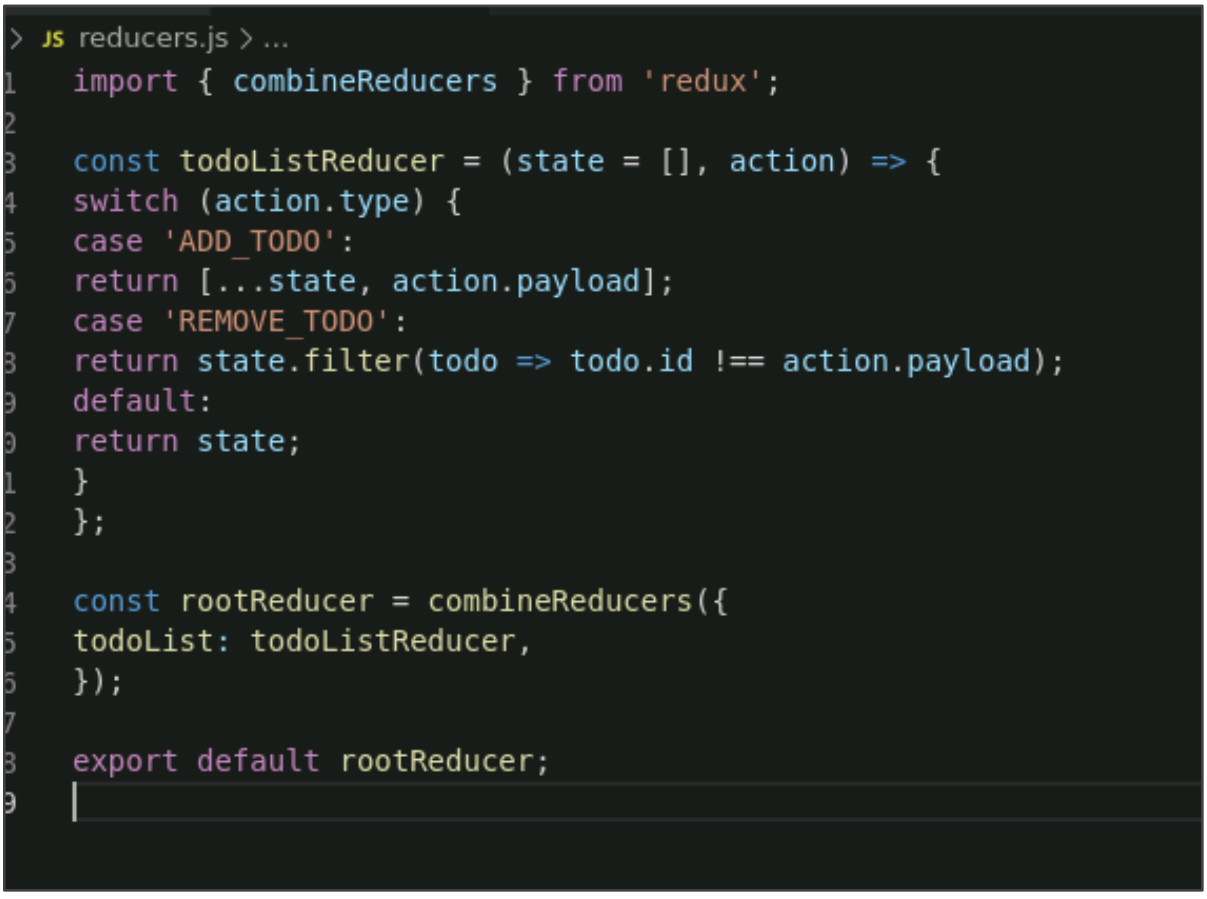
return state.filter(todo => todo.id !== action.payload);
default:

return state;
}

};

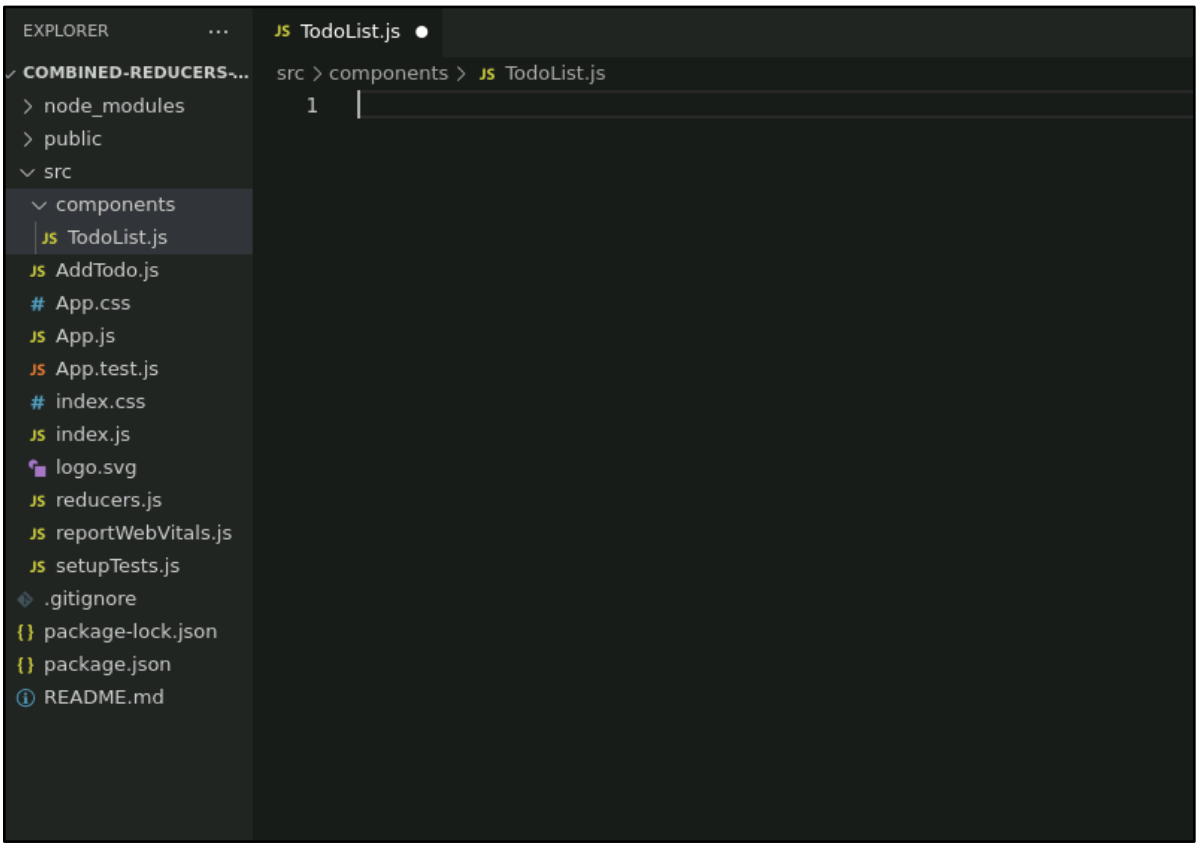
const rootReducer = combineReducers({
todoList: todoListReducer,
});

export default rootReducer;



2.6 Create a new file called **TodoList.js**. This will be your presentational component that will display the **list of todos**

2.7 In the **src/components** directory, create the **TodoList.js** file



2.8 Create a functional component named **TodoList** that receives props for **todos** and **removeTodo**

2.9 Render a list of **todos**, displaying the text of each **todo** and a button to remove it

2.10 Export the **TodoList** component

```
import React from 'react';

function TodoList({ todos, removeTodo }) {
return (
<ul>

{todos.map(todo => (
```

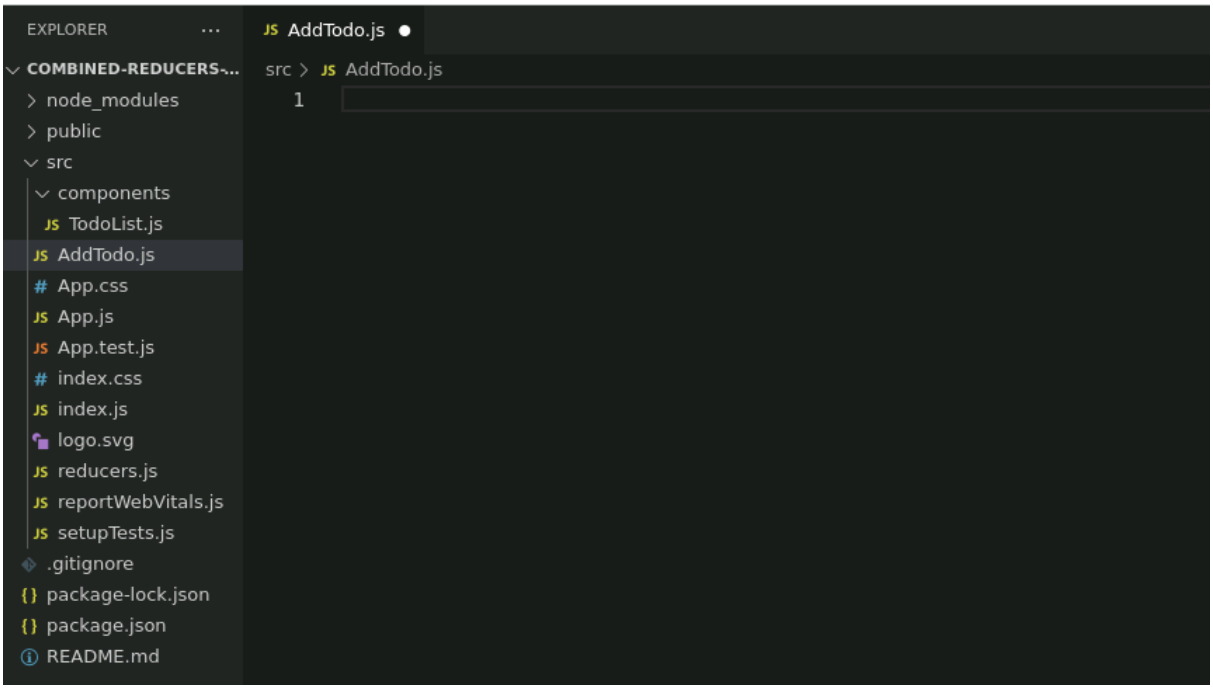
```
<li key={todo.id}>

{todo.text}

<button onClick={() => removeTodo(todo.id)}>X</button>
</li>
))}
</ul>
);
}

export default TodoList;
```

src > components > JS TodoList.js > ...

```
1   import React from 'react';
2
3   function TodoList({ todos, removeTodo }) {
4   return (
5   <ul>
6   {todos.map(todo => (
7   <li key={todo.id}>
8   {todo.text}
9   <button onClick={() => removeTodo(todo.id)}>X</button>
10  </li>
11  ))}
12  </ul>
13  );
14  }
15
16  export default TodoList;
```

Step 3: Create a new file called AddTodo.js

3.1 In the **src/components** directory, create a new file named **AddTodo.js**



> **Note:** This will be our presentational component that will display the form to add a new **todo**

3.2 Import **React** and **useState**

3.3 Create a functional component called **AddTodo** that receives a property for **addTodo**

3.4 Manage the input text state using the **useState** hook

3.5 Handle form submission by adding a new **todo** to the list

3.6 Export the **AddTodo** component

```
import React, { useState } from 'react';
function AddTodo({ addTodo }) {

const [text, setText] = useState('');
```

```
const handleSubmit = e => {
e.preventDefault();
addTodo({
id: Date.now(),
text,
});
setText('');
};
return (
<form onSubmit={handleSubmit}>
<input type="text" value={text} onChange={e =>
setText(e.target.value)} />
<button type="submit">Add Todo</button>
</form>
);
}
export default AddTodo;
```

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

function AddTodo({ addTodo }) {
const [text, setText] = useState('');

const handleSubmit = e => {
e.preventDefault();
addTodo({
id: Date.now(),
text,
});
setText('');
};

return (
<form onSubmit={handleSubmit}>
<input type="text" value={text} onChange={e => setText(e.target.value)} />
<button type="submit">Add Todo</button>
</form>
);
}

export default AddTodo;
```

Note: This will be our container component that will connect the **TodoList** and **AddTodo** components to the Redux store

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

3.8 Import **React**, the **useSelector** and **useDispatch** hooks from **react-redux**, and the **TodoList** and **AddTodo** components

3.9 Create the **App** functional component

3.10 Use the **useSelector** hook to select the **TodoList** state from the Redux store

3.11 Use the **useDispatch** hook to get the dispatch function

3.12 Define the **addTodo** and **removeTodo** functions that dispatch the corresponding actions to the Redux store

3.13 Render the **AddTodo** and **TodoList** components, passing the required props

3.14 Export the **App** component

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

import AddTodo from './components/AddTodo';

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

const addTodo = todo => {
dispatch({ type: 'ADD_TODO', payload: todo });
};

const removeTodo = id => {
dispatch({ type: 'REMOVE_TODO', payload: id });
```

```
};

return (
<div>
<AddTodo addTodo={addTodo} />
<TodoList todos={todoList} removeTodo={removeTodo} />

</div>

);
}

export default App;
```

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

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

const addTodo = todo => {
dispatch({ type: 'ADD_TODO', payload: todo });
};

const removeTodo = id => {
dispatch({ type: 'REMOVE_TODO', payload: id });
};

return (
<div>
<AddTodo addTodo={addTodo} />
<TodoList todos={todoList} removeTodo={removeTodo} />
</div>
);
}

export default App;
```

Step 4: Import the rootReducer from reducers.js in the index.js file

> **Note:** This will create the **Redux store** using the **createStore** function from **redux**, and will pass the store to the **Provider** component from **react-redux**, and wrap the **App** 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 **createStore** function from redux, the **rootReducer** from **reducers.js**, and the **App** component

4.3 Create the **Redux** store using the **createStore** function and pass the **rootReducer** to it

4.4 Wrap the **App** component with the **Provider** component, passing the **Redux store** as a prop

4.5 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 { createStore } from 'redux';
import rootReducer from './reducers';
import App from './App';

const store = createStore(rootReducer);


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

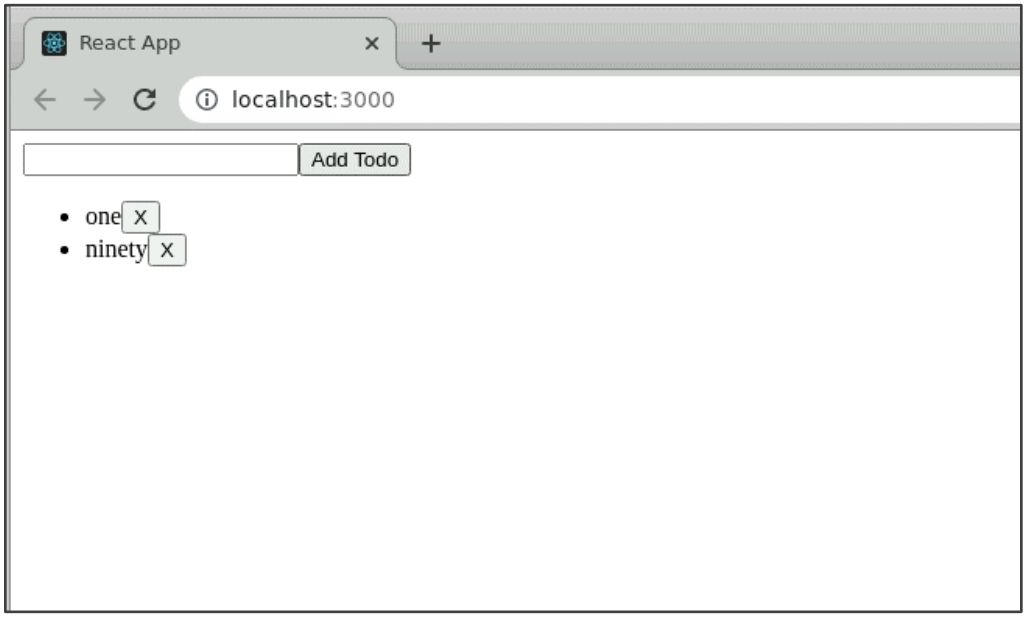
```
import React from 'react';
import ReactDOM from 'react-dom';
import { Provider } from 'react-redux';
import { createStore } from 'redux';
import rootReducer from './reducers';
import App from './App';

const store = createStore(rootReducer);

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

Step 5: Run the app and view it in the browser

5.1 In the terminal, navigate to the project directory

5.2 Run the command **npm start** to start the app

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



In conclusion, we successfully created a React application using combined reducers to manage state with Redux. We followed a step-by-step process that involved creating a new React app, setting up reducers.js file to define reducers and a root reducer, creating presentational components for displaying a todo list and adding new todos, and connecting these components to the Redux store in the App.js file. Finally, we imported the root reducer in the index