**MODULE: 13 React – Applying Redux**

1. **What is Redux?**

* Redux is a JavaScript library commonly used with React for managing the state of an application.
* It provides a predictable and centralised way to store, update, and access data, making it easier to maintain and debug complex React applications.

1. **What is Redux Thunk used for?**

* Redux Thunk is a middleware used in React apps with Redux for handling asynchronous operations.
* Thunks are functions that enable delayed or batched action dispatching, making it useful for tasks like API calls while maintaining Redux's principles.

1. **What is a Pure Component? When to use Pure Component over Component?**

* A Pure Component in React is a class component that automatically implements the shouldComponentUpdate() method with shallow prop and state comparisons. It's used to optimise rendering by preventing unnecessary re-renders.
* Use Pure Components when you want to enhance performance by avoiding unnecessary updates, especially when dealing with immutable data or when rendering performance is critical.

1. **What is the second argument that can optionally be passed tosetState and what is its purpose?**

* The second argument in tosetState is a callback function.
* Its purpose is to execute code after the state has been updated and the component has re-rendered. This is useful for performing actions that depend on the updated state, ensuring they occur at the right time in the component lifecycle.
* Example:

this.setState({ count: this.state.count + 1 }, () => {

console.log('State updated and component re-rendered.');

});

1. **Create a Table and Search data from a table using React Js?**

* **Input**
* public->index.html

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="utf-8" />

<link rel="icon" href="%PUBLIC\_URL%/favicon.ico" />

<meta name="viewport" content="width=device-width, initial-scale=1" />

<meta name="theme-color" content="#000000" />

<link

rel="stylesheet"

href="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0/css/bootstrap.min.css"

integrity="sha384-Gn5384xqQ1aoWXA+058RXPxPg6fy4IWvTNh0E263XmFcJlSAwiGgFAW/dAiS6JXm"

crossorigin="anonymous"

/>

<title>React App</title>

</head>

<body>

<div id="root"></div>

</body>

</html>

* src->newTable->ProductTable.jsx

// src/components/ProductTable.js

import React, { useState } from "react";

const ProductTable = () => {

const [searchTerm, setSearchTerm] = useState("");

const [products, setProducts] = useState([

{

id: 1,

name: "Amanda Waller Shirt Men",

price: "$333",

category: "Fashion",

},

{

id: 2,

name: "Abercrombie Allen Brook shirt",

price: "$70",

category: "Fashion",

},

{

id: 3,

name: "Abercrombie Lake Arnaki Shirt",

price: "$60",

category: "Fashion",

},

{ id: 4, name: "Bench Shirt", price: "$29", category: "Fashion" },

]);

const handleSearch = (e) => {

setSearchTerm(e.target.value);

};

const filteredProducts = products.filter((product) =>

product.name.toLowerCase().includes(searchTerm.toLowerCase())

);

return (

<div className="container mt-5">

<h1>Search Products : shirt</h1>

<div className="input-group mb-3">

<input

type="text"

className="form-control"

placeholder="Search..."

value={searchTerm}

onChange={handleSearch}

/>

<div className="input-group-append">

{/\* Add search icon if needed \*/}

<span className="input-group-text">🔍</span>

</div>

</div>

<table className="table">

<thead>

<tr>

<th>Name</th>

<th>Price</th>

<th>Category</th>

<th>Action</th>

</tr>

</thead>

<tbody>

{filteredProducts.map((product) => (

<tr key={product.id}>

<td>{product.name}</td>

<td>{product.price}</td>

<td>{product.category}</td>

<td>

<button

className="btn btn-primary"

onClick={() => console.log("React clicked")}

>

React

</button>

<button

className="btn btn-info"

onClick={() => console.log("Edit clicked")}

>

Edit

</button>

<button

className="btn btn-danger"

onClick={() => console.log("Delete clicked")}

>

Delete

</button>

</td>

</tr>

))}

</tbody>

</table>

<div>

{/\* Add button for creating a new product \*/}

<button

className="btn btn-success"

onClick={() => console.log("Create product clicked")}

>

+ Create Product

</button>

</div>

</div>

);

};

export default ProductTable;

* src->App.js

import React from 'react'

import ProductTable from './newTable/ProductTable'

function App() {

return (

<div>

<ProductTable/>

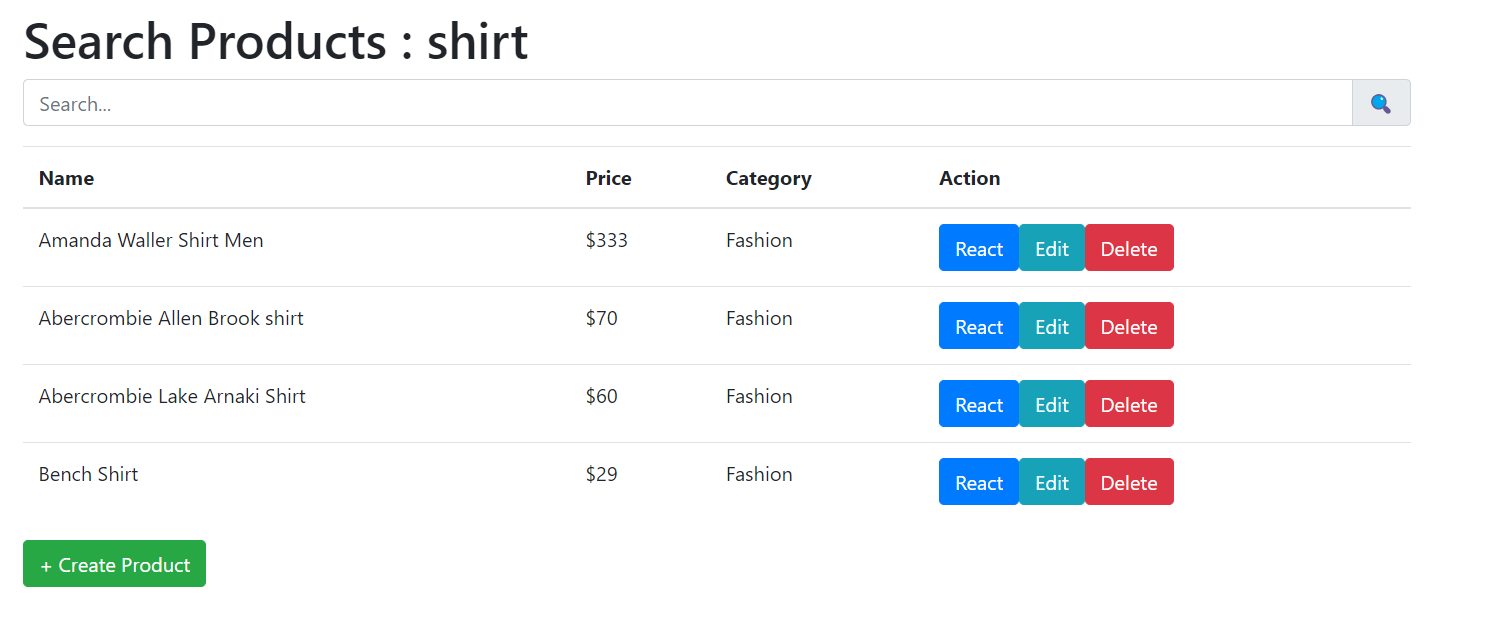
</div>

)

}

export default App

* **Output**

****

1. **Create Login registration with CRUD Application using API (Redux)**

* public: index.html

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="utf-8" />

<link rel="icon" href="%PUBLIC\_URL%/favicon.ico" />

<meta name="viewport" content="width=device-width, initial-scale=1" />

<meta name="theme-color" content="#000000" />

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.2/dist/css/bootstrap.min.css" rel="stylesheet">

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.2/dist/js/bootstrap.bundle.min.js"></script>

<title>React App</title>

</head>

<body>

<div id="root"></div>

</body>

</html>

* src:
* app:rootReaducer.js

import { combineReducers } from "redux";

import userReducer from "../../userReducer";

const rootReducer = combineReducers({

userReducer: userReducer

});

export default rootReducer;

* app:store.js

import { createStore, applyMiddleware } from "redux";

import rootReducer from "./rootReducer";

import reduxThunk from 'redux-thunk';

// import thunk from "redux-thunk";

const thunkMiddleWare = [reduxThunk];

const store = createStore (rootReducer, applyMiddleware(...thunkMiddleWare));

export default store;

* pages:
* Home.jsx

import React from 'react'

import { useNavigate } from 'react-router-dom';

function Home() {

const redirect = useNavigate();

var username = localStorage.getItem('name');

// console.log(username);

var logout = () => {

localStorage.removeItem('id');

localStorage.removeItem('name');

localStorage.removeItem('email');

localStorage.removeItem('password');

redirect('/');

}

return (

<div className='container mt-5 pt-5 text-center'>

<h1 className='mb-5'> Hello, {username}, </h1>

<h2> Welcome to Home Page. </h2>

<button className='btn btn-danger mt-5 px-5' onClick={logout}> Logout </button>

</div>

)

}

export default Home

* Login.jsx

import React, { useState } from 'react';

import { useNavigate } from 'react-router-dom';

import axios from 'axios';

function Login() {

const [formValue, setFormValue] = useState({

email: "",

password: ""

});

const onChange = (j) => {

setFormValue({

...formValue,

[j.target.name]:j.target.value

})

console.log(formValue);

};

const Validation = () => {

var result = true;

if (formValue.email == "")

{

alert('Email id is required for Login.');

result = false;

}

if (formValue.password == "")

{

alert('Password is required for Login.');

result = false;

}

return result;

};

const redirect = useNavigate();

const onSubmit = async(p) => {

p.preventDefault();

if (Validation())

{

const res = await axios.get(`http://localhost:3000/user?email=${formValue.email}`);

if (res.data.length > 0)

{

if (res.data[0].password == formValue.password)

{

localStorage.setItem('id', res.data[0].id);

localStorage.setItem('name', res.data[0].name);

localStorage.setItem('email', res.data[0].email);

localStorage.setItem('password', res.data[0].password);

alert('Login Successfully.');

redirect('/Home');

}

else

{

alert('Password is Incorrect !');

return false;

}

}

else

{

alert('Email ID is Incorrect !');

return false;

}

}

};

return (

<div className='container-fluid bg-light' style={{ height: '100vh' }}>

<div className="container pt-4">

<h1 className='text-center'> Login </h1>

<form>

<div className="row mt-4">

<div className="col-md-4"></div>

<div className="col-md-4 col-sm-12">

<label className='pb-2'> Email : </label>

<input type="email" className="form-control" placeholder='Enter your email id here' name='email' onChange={onChange} value={formValue.name} />

</div>

<div className="col-md-4"></div>

</div>

<div className="row mt-4">

<div className="col-md-4"></div>

<div className="col-md-4 col-sm-12">

<label className='pb-2'> Password : </label>

<input type="password" className="form-control" placeholder='Enter your password here' name='password' onChange={onChange} value={formValue.password} />

</div>

<div className="col-md-4"></div>

</div>

<div className="mt-5 text-center">

<button className='btn btn-primary' onClick={onSubmit}> Login </button>

</div>

</form>

<p className='text-center pt-5'>

If You have not Account, please &nbsp;

<button className='btn btn-sm btn-outline-primary' onClick={() => redirect('/Register')}> Register </button>

</p>

</div>

</div>

)

}

export default Login

* Registration.jsx

import React, { useState } from 'react';

import { useDispatch } from 'react-redux';

import { insert } from '../../userReducer';

import { useNavigate } from 'react-router-dom';

function Registration() {

const [formValue, setFormValue] = useState({

name: "",

email: "",

mobile: "",

password: "",

gender: "",

country: "",

});

const onChange = (j) => {

setFormValue({

...formValue,

id: new Date().getTime().toString(),

[j.target.name]:j.target.value

})

console.log(formValue);

};

const Validation = () => {

var result = true;

if (formValue.name == "")

{

alert('Name is required for Register.');

result = false;

}

if (formValue.email == "")

{

alert('Email is required for Register.');

result = false;

}

if (formValue.mobile == "")

{

alert('Mobile is required for Register.');

result = false;

}

if (formValue.password == "")

{

alert('Password is required for Register.');

result = false;

}

if (formValue.gender == "")

{

alert('Gender is required for Register.');

result = false;

}

if (formValue.country == "")

{

alert('Country is required for Register.');

result = false;

}

return result;

};

const dispatch = useDispatch();

const redirect = useNavigate();

const onSubmit = (p) => {

p.preventDefault();

if (Validation())

{

dispatch(insert(`http://localhost:3000/user`, formValue));

alert('Your Registration was Completed.');

setFormValue({

...formValue,

name: "",

email: "",

mobile: "",

password: "",

gender: "",

country: ""

});

redirect("/");

}

};

return (

<div className='container-fluid bg-light' style={{ height: '100vh' }}>

<div className="container pt-4">

<h1 className='text-center border-top border-bottom border-primary border-2 py-2'> Registration Form </h1>

<form>

<div className="row mt-4">

<div className="col-md-4 col-sm-12">

<label className='pb-2'> Name : </label>

<input type="text" className="form-control" placeholder='Enter your name here' name='name' onChange={onChange} value={formValue.name} />

</div>

<div className="col-md-4 col-sm-12">

<label className='pb-2'> Email : </label>

<input type="email" className="form-control" placeholder='Enter your email id here' name='email' onChange={onChange} value={formValue.email} />

</div>

<div className="col-md-4 col-sm-12">

<label className='pb-2'> Mobile Number : </label>

<input type="number" className="form-control" placeholder='Enter your mobile number here' name='mobile' onChange={onChange} value={formValue.mobile} />

</div>

</div>

<div className="row mt-4">

<div className="col-md-4 col-sm-12">

<label className='pb-2'> Password : </label>

<input type="password" className="form-control" placeholder='Enter your password here' name='password' onChange={onChange} value={formValue.password} />

</div>

<div className="col-md-4 col-sm-12">

<label className='mb-2'> Gender : </label> <br />&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;

<input type="radio" name='gender' value="Male" onChange={onChange} /> Male &nbsp;&nbsp;&nbsp;&nbsp;&nbsp;

<input type="radio" name='gender' value="Female" onChange={onChange} /> Female

</div>

<div className="col-md-4 col-sm-12">

<label className='pb-2'> Country : </label>

<select className='form-control' name='country' onChange={onChange} value={formValue.country}>

<option value="" selected disabled> Select your Country </option>

<option value="India"> India </option>

<option value="Canada"> Canada </option>

<option value="US"> US </option>

<option value="Switzerland"> Switzerland </option>

<option value="Dubai"> Dubai </option>

</select>

</div>

</div>

<div className="mt-5 text-center">

<button className='btn btn-primary' onClick={onSubmit}> Register </button>

</div>

</form>

<p className='text-center pt-5'>

If You have already Account, please &nbsp;

<button className='btn btn-sm btn-outline-primary' onClick={() => redirect('/')}> Login </button>

</p>

</div>

</div>

)

}

export default Registration

* App.js

import { BrowserRouter, Routes, Route } from "react-router-dom";

import Login from "./features/Login/pages/Login";

import Registration from "./features/Login/pages/Registration";

import Home from "./features/Login/pages/Home";

function App() {

return (

<BrowserRouter>

<Routes>

<Route Index path="/" element={<> <Login/> </>}></Route>

<Route path="/Register" element={<> <Registration/> </>}></Route>

<Route path="/Home" element={<> <Home/> </>}></Route>

</Routes>

</BrowserRouter>

);

}

export default App;

* index.js

import React from 'react';

import ReactDOM from 'react-dom/client';

import App from './App';

import { Provider } from 'react-redux';

import store from './features/Login/App/store';

const root = ReactDOM.createRoot(document.getElementById('root'));

root.render(

<React.StrictMode>

<Provider store={store}>

<App />

</Provider>

</React.StrictMode>

);

* userReducer.js

import axios from "axios";

const All\_Data = 'All\_Data';

// const Single\_User = 'Single\_User';

const objectInit = {

alluser: []

// singleuser: {},

// demoName: 'Jainish Patel'

};

const userReducer = (state = objectInit, action) => {

switch (action.type)

{

case 'All\_Data':

return { ...state, alluser: action.payload };

}

return state;

};

export default userReducer;

// For All Users Data GET :

const getData = (data) => ({ type:All\_Data, payload:data });

export const usersFetch = () => {

return function (dispatch) {

axios.get(` http://localhost:3000/posts`)

.then((resp) => dispatch(getData(resp.data)))

}

};

// Insert/POST Data to JSON-Server || Add Data

export const insert = (api, object) => {

return function () {

axios.post(api, object)

.then( (resp) => console.log(resp))

}

};