

MernStack Project Notes – Udemmy Course

React Tips

Tip: Working with react router dom

Tip: props.children in react

Tip: React.Fragment

Tip: Conditionally render content

Tip: Portals

Tip: Setting up google maps for your project

Tip: Props destructuring

Tip: Redux and react hook – (useState and useReducer)

Tip: Breaking the project down

Tip: useEffect

Tip: Wiring up a custom confirm (And passing in two component as one using React.Fragment)

Tip: How he setup form validation using a custom hook and re-usable components

Tip: How to use the useContext Hook for security in our app

Tip: Using a model View design in our app for our express.js routes (**another way of exporting modules as well**)

Tip: Working with Express Validator for validating routes

Tip: Endode URI for passing in invalid characters in an URL

Tip: Specifying you own database name for MONGO DB Atlas

Tip: Difference between find and findById (id vs a property)

Tip: Creating a relationship between two collections (two tables)

Tip: Using transactions to write records

Tip: Writing to MongoDB from the front-end using **fetch** and adding CORS

(Tip:Fixing the Headers already sent to client error/ unhandled exception)

Tip: useEffect

useEffect allows you to call side effects in pure functions. It allows you to perform an action at every re-render or state change.

If you use useEffect without a dependent variable, it will run after ever render. If you supply a dependent array, it will only run when a value in the array changes.

https://www.w3schools.com/react/react_useeffect.asp

Example:

Here is an example of a `useEffect` Hook that is dependent on a variable. If the `count` variable updates, the effect will run again:

```
import { useState, useEffect } from "react";
import ReactDOM from "react-dom/client";

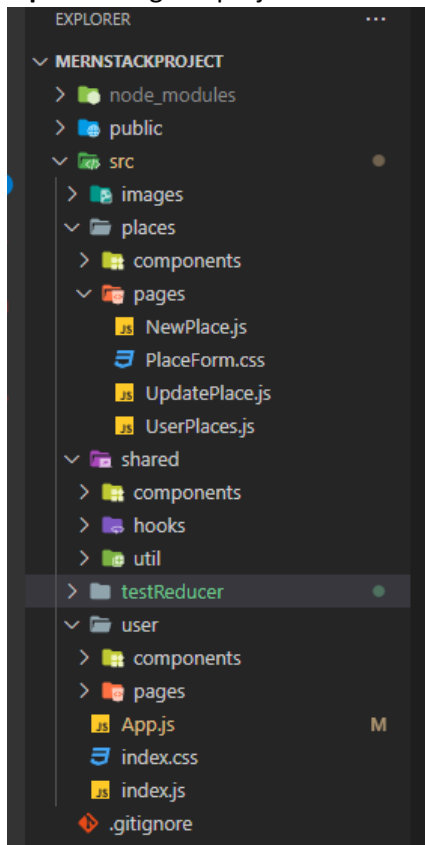
function Counter() {
  const [count, setCount] = useState(0);
  const [calculation, setCalculation] = useState(0);

  useEffect(() => {
    setCalculation(() => count * 2);
  }, [count]); // <- add the count variable here

  return (
    <>
      <p>Count: {count}</p>
      <button onClick={() => setCount((c) => c + 1)}>+</button>
      <p>Calculation: {calculation}</p>
    </>
  );
}

const root = ReactDOM.createRoot(document.getElementById('root'));
root.render(<Counter />);
```

Tip: Breaking the project down



It's a pretty straightforward project

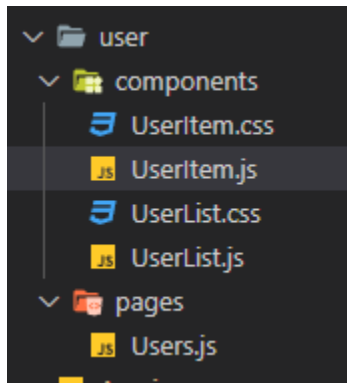
There are "2" main parts to the application

He has the places and user components for the base UI

He has a shared folder for all of the supporting and re-usable elements

The way that he has the places and user components:

User.js



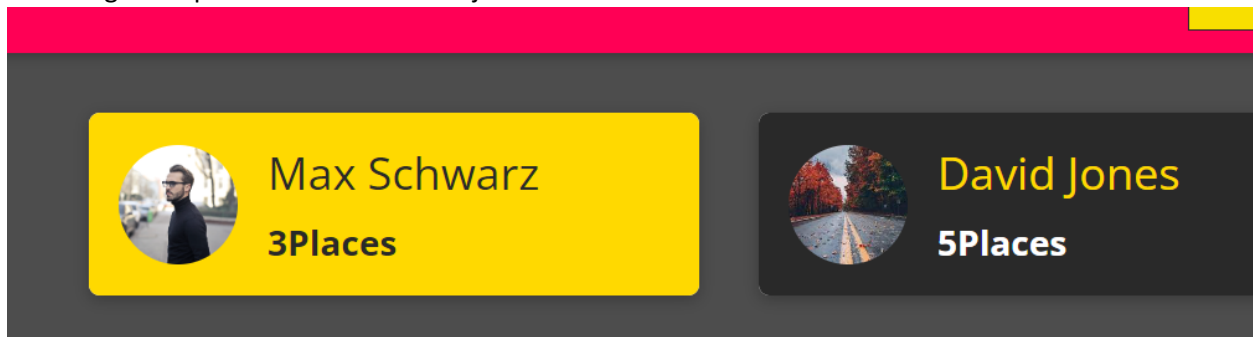
In a nutshell:

He has a "PAGES" folder for the base Parent Component (Base UI)

The Data (test data for starters is behind the main Page Component)

He has the component's folder for all of the supporting components that are children of the base page(s) component(s).

Main Page Component for **User**: Users.js



Main Page Component for **Places**: UserPaces.js



Rick James Crib

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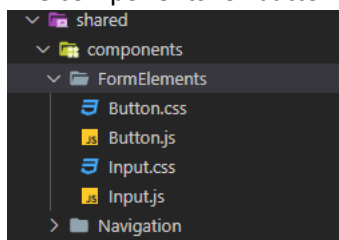
I am Rick James B(*&***

[VIEW ON MAP](#)

[EDIT](#)

[DELETE](#)

The components for buttons and input fields are in the Shared Components folder



```
UserList.js
src > user > components > UserList.js > ...
6
7 function UserList(props) {
8   if (props.items.length === 0) {
9     return (
10      <div className='center'>
11        <Card>
12          <h2>No Users found</h2>
13        </Card>
14      </div>
15    );
16   }
17
18   return <ul className='users-list' >
19     {props.items.map(user => (
20       <UserItem
21         key={user.id}
22         id={user.id}
23         image={user.image}
24         name={user.name}
25         placeCount={user.places}
26       />
27     ))}
28   </ul>
29 }

UserItem.js
src > user > components > UserItem.js > ...
8
9 function UserItem(props) {
10   return (
11     <li className="user-item">
12
13       <Card>
14         <Link to={`/${props.id}/places`} >
15           <div className="user-item_image">
16             <Avatar image={props.image} alt={props.name} />
17           </div>
18           <div className="user-item_info">
19             <h2>{props.name}</h2>
20             <h3>
21               {props.placeCount}
22               {props.placeCount === 1 ? "Place" : "Places"}
23             </h3>
24           </div>
25         </Link>
26       </Card>
27     </li>
28   );
29 }
```

```
Users.js
src > user > pages > Users.js > ...
1 import React from 'react'
2 import UserList from '../components/UserList'
3
4
5 function Users() {
6
7   const USERS = [
8     {
9       id: 'u1',
10      name: 'Max Schwarz',
11      image:
12        'https://images.pexels.com/photos/839011/pexels-photo-839011.jpeg',
13      places: 3
14    },
15    {
16      id: 'u2', name: 'David Jones',
17      image: 'https://encrypted-tbn0.gstatic.com/images?q=tbn:AND9GcQ9UrmhqVOrX1iITZtH5MFACt2FIF',
18      places: 5
19    }
20  ];
21
22   return (
23     <UserList items={USERS} />
24   );
25 }
26
27 export default Users
```

He splits the implementation by using parent and child compositions

The props are passed down from parent-to-child

Users Is three Levels deep

Users.js – Parent Component – has the data `const USERS = []`

```
Users.js
src > user > pages > Users.js > ...
p00149021@houstonisd.org Mag17615@7, 4 weeks ago | 1 author (p00149021@houstonisd.org Mag17615@7)
1 import React from 'react'
2 import UserList from '../components/UserList'
3
4
5 function Users() {
6
7   const USERS = [
8     {
9       id: 'u1',
10      name: 'Max Schwarz',
11      image:
12        'https://images.pexels.com/photos/839011/pexels-photo-839011.jpeg',
13      places: 3
14    },
15
16    {
17      id: 'u2', name: 'David Jones',
18      image: 'https://encrypted-tbn0.gstatic.com/images?q=tbn:AND9GcQ9WUrmhqV0rXiIIZtH5MfACTc2FIFb1JE',
19      places: 5
20    },
21  ];
22
23  return (
24    <UserList items={USERS} />
25  )
26 }
27
28 export default Users
```

The child component – **UserList.js** – he passes the `USERS[]` data to it

```
UserList.js x
src > user > components > UserList.js > ...
p00149021@houstonisd.org Mag17615@7, 4 weeks ago | 1 author (p00149021@houstonisd.org Mag17615
1 import React from 'react' p00149021@houstonisd.org Mag17615@7, 4 wee
2
3 import UserItem from './UserItem';
4 import Card from '../../shared/components/UIElements/Card';
5 import './UserList.css';
6
7 function UserList(props) {
8   if (props.items.length === 0) {
9     return (
10       <div className='center'>
11         <Card>
12           <h2>No Users found</h2>
13         </Card>
14       </div>
15     );
16   }
17
18   return <ul className='users-list' >
19     {props.items.map(user => (
20       <UserItem
21         key={user.id}
22         id={user.id}
23         image={user.image}
24         name={user.name}
25         placeCount={user.places}
26       </UserItem>
27     ))}
28   </ul>
29 );
30
31 export default UserList
```

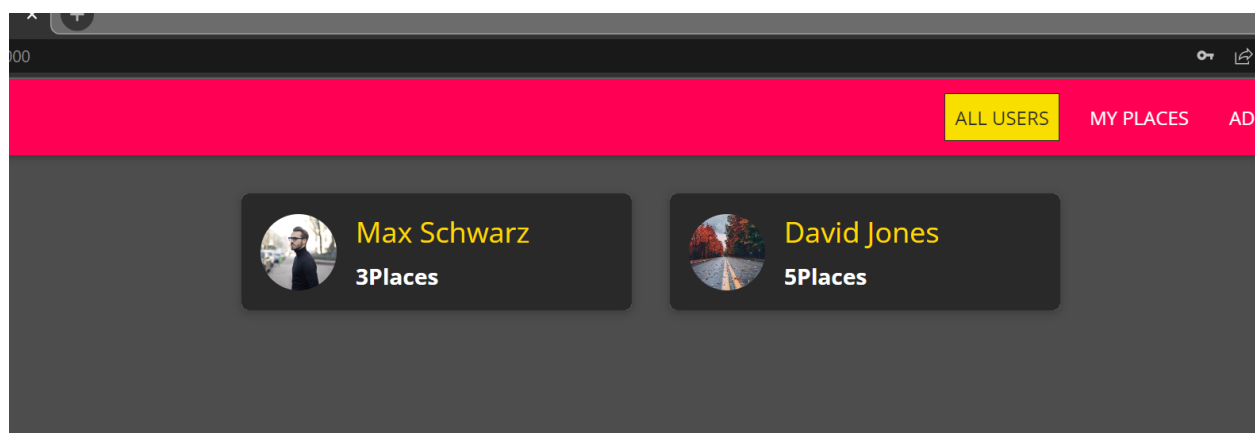
The props are passed down to the third component (**UserItem.js**) (child of UserList)

```
src > user > components > UserList.js > ...  
p00149021@houstonisd.org Mag17615@7, 4 weeks ago | 1 author (p00149021@houstonisd.org Mag17615@7)  
1 import React from 'react' p00149021@houstonisd.org Mag17615@7, 4 weeks ago  
2  
3 import UserItem from './UserItem';  
4 import Card from '../../shared/components/UIElements/Card';  
5 import './UserList.css';  
6  
7 function UserList(props) {  
8   if (props.items.length === 0) {  
9     return (  
10       <div className='center'>  
11         <Card>  
12           <h2>No Users found</h2>  
13         </Card>  
14       </div>  
15     );  
16   }  
17  
18  
19   return <ul className='users-list' >  
20     {props.items.map(user => (  
21       <UserItem  
22         key={user.id}  
23         id={user.id}  
24         image={user.image}  
25         name={user.name}  
26         placeCount={user.places}  
27       />  
28     ))}  
29   </ul>  
30  
31   };  
32  
33   export default UserList
```

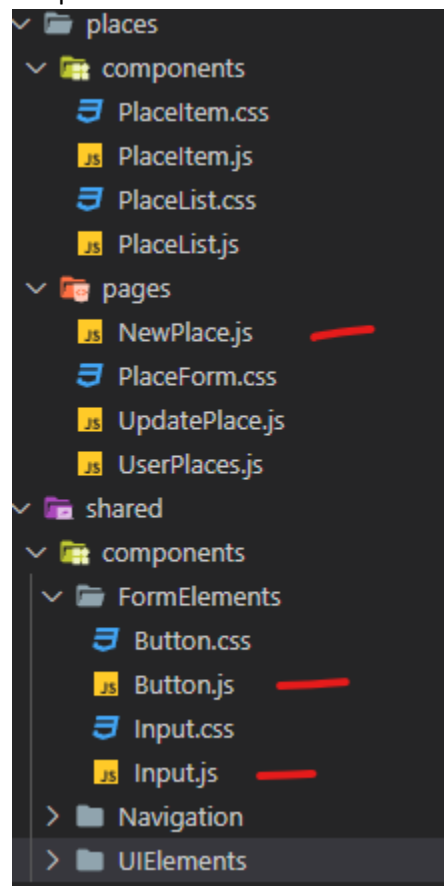


```
src > user > components > UserItem.js > ...
p00149021@houstonisd.org Mag17615@7, 4 weeks ago | 1 author (p00149021@houstonisd.org Mag17615@7)
1 import React from 'react'
2 import { Link } from 'react-router-dom';
3
4 import './UserItem.css'
5 import Avatar from '../../shared/components/UIElements/Avatar';
6 import Card from '../../shared/components/UIElements/Card';
7
8
9 function UserItem(props) {
10   return (
11     <li className="user-item">
12       <Card>
13         <Link to={`/${props.id}/places`} >
14           <div className="user-item__image">
15             <Avatar image={props.image} alt={props.name} />
16           </div>
17           <div className="user-item__info">
18             <h2>{props.name}</h2>
19             <h3>
20               {props.placeCount}
21               {props.placeCount === 1 ? "Place" : "Places"}
22             </h3>
23           </div>
24         </Link>
25       </Card>
26     </li>
27   );
28 }
29
30 export default UserItem
```

End Result:



For places:



He uses the same concept, he uses custom re-usable buttons and inputs as child components
In the pages folder, this is generally the base view component

```
JS NewPlace.js X
src > places > pages > JS NewPlace.js > NewPlace

32   console.log(formState.inputs); //send this to backend
33
34   };
35
36   return (
37     <form
38       className='place-form'
39       onSubmit={placeSubmitHandler}>
40       <Input
41         id="title"
42         element='input'
43         type="text"
44         label="Title"
45         validators={[VALIDATOR_REQUIRE()]}
46         errorText='Please enter a valid title.'
47         onInput = {InputHandler}
48       />
49       <Input
50         id="description"
51         element='textarea'
52         label="Description"
53         validators={[VALIDATOR_MINLENGTH(5),]}
54         errorText='Please enter a valid description (at least 5 characters).'
55         onInput = {InputHandler}
56       />
57       <Input
58         id="address"
59         element='input'
60         label="address"
61         validators={[VALIDATOR_REQUIRE()]}
62         errorText='Please enter a valid address.'
63         onInput = {InputHandler}
64       />
65       <Button
66         type='submit'
67         disabled={!formState.isValid}
68       >ADD PLACE
69     </Button>
70   </form>
71 )
```

The way he wired up the `<Input />` component

Based on our tutorial / explanation of how `useReducer` works, he implemented the component to wire up validation with it. This is achieved easily with `useReducer` (when you want to add complex logic) in your component level state management.

```
terminal Help NewPlacejs - MemStackProject - Visual Studio Code

NewPlacejs x
src > places > pages > NewPlacejs > NewPlace
29
30 const placeSubmitHandler = event => {
31   event.preventDefault();
32   console.log(formState.inputs); //send this to backend
33 }
34 };
35
36 return (
37   <form
38     className="place-form"
39     onSubmit={placeSubmitHandler}>
40     <input
41       id="title"
42       element="input"
43       type="text"
44       label="Title"
45       validators={[VALIDATOR_REQUIRE()]}
46       errorText="Please enter a valid title."
47       onInput = {InputHandler}
48     />
49     <input
50       id="description"
51       element="textarea"
52       label="Description"
53       validators={[VALIDATOR_MINLENGTH(5)]}
54       errorText="Please enter a valid description (at least 5 characters)."
55       onInput = {InputHandler}
56     />
57     <input
58       id="address"
59       element="input"
60       label="address"
61       validators={[VALIDATOR_REQUIRE()]}
62       errorText="Please enter a valid address."
63       onInput = {InputHandler}
64     />
65     <button
66       type="submit"
67       disabled={!formState.isValid}
68     >ADD PLACE
69   </button>
70 </form>
71
Inputjs x
src > shared > components > FormElements > Inputjs > Input
3 import {validate} from '../util/Validators';
4
5 const inputReducer = (state,action) => {
6   switch(action.type) {
7     case 'CHANGE':
8     return {
9       ...state,
10      value: action.val,
11      isValid:validate(action.val, action.validators)
12    };
13     case 'TOUCH':
14     return {
15       ...state,
16       isTouched: true
17     };
18     default:
19     return state;
20   };
21 };
22
23 function Input(props) {
24
25   const [inputState,dispatch] = useReducer(inputReducer,{
26     value: props.initialValue || '',
27     isTouched: false,
28     isValid: props.initialValid || false
29   });
30
31   const {id,onInput} = props
32   const {value,isValid} = inputState
33
34   useEffect(() => {
35     onInput(id,
36       value,
37       isValid
38     ),[id,value,isValid,onInput]);
39
40   const changeHandler = event => {
41     dispatch({type:'CHANGE',
42

```

It's actually kinda slick the way he did it Afterall (I initially did not like the way he did it, but after studying it, I actually understand why he did it that way). When writes state with the reducer function, he also adds a custom validator to validate the input.

He also created a formValidator as well with a custom hook to determine whether the form's input was valid or not. (a little bit of an overkill)

Look at Lesson 62 on how he initially wired up the form validator – As shown below, he is using the form validator to determine whether there is input in all fields and all field's data is valid before he enables the Add Place button (see image below)

The image shows a web form titled "NewPlace" with three input fields: "Title", "Description", and "address". The "Title" and "Description" fields contain the text "dfdfdf". The "address" field is empty and highlighted with a red border. Below the "address" field, there is a red error message that reads "Please enter a valid address.". At the bottom of the form, there is a button labeled "ADD PLACE" which is disabled, indicated by its gray color.

Tip: Redux and react hook – (useState and useReducer)

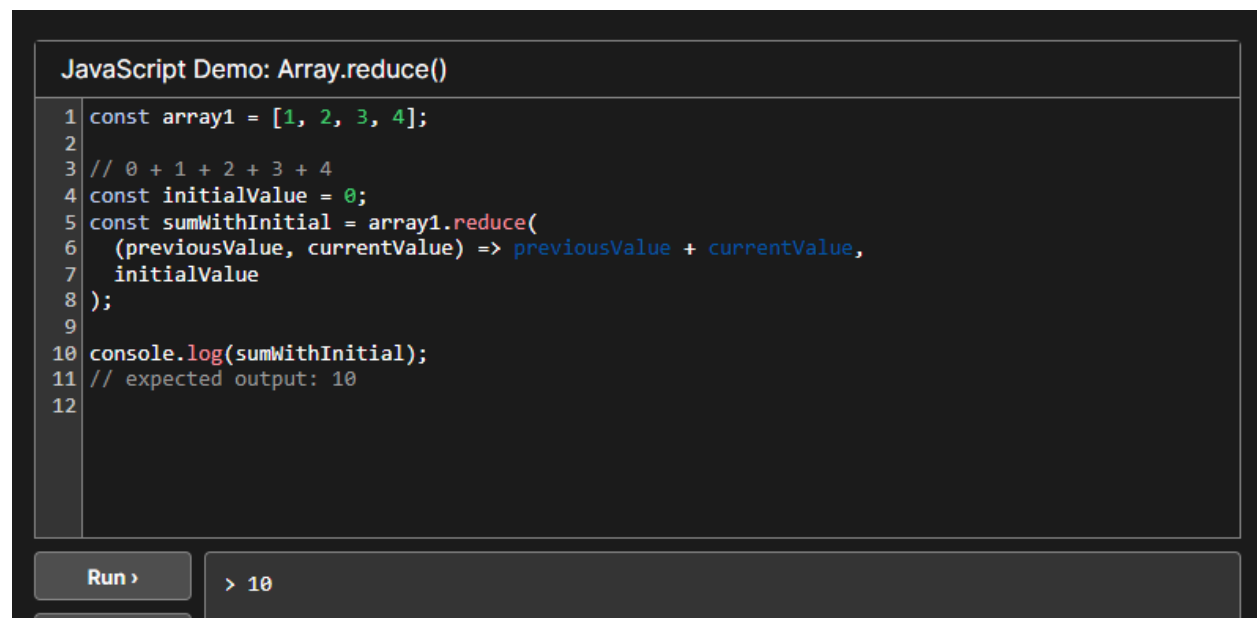
What is a reducer?

The reducer is nothing else but a **simple function** that accepts **two arguments** and **based on those two arguments**, returns a **new state value**.

Javascript Reduce

https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/reduce

The reduce() method executes a **user-supplied "reducer" callback function on each element of the array**, in order, passing in the return value from the calculation on the preceding element. The final result of running the reducer across all elements of the array is a single value.

A screenshot of a web-based JavaScript demo environment. The title bar reads "JavaScript Demo: Array.reduce()". The code editor contains the following code:

```
1 const array1 = [1, 2, 3, 4];
2
3 // 0 + 1 + 2 + 3 + 4
4 const initialValue = 0;
5 const sumWithInitial = array1.reduce(
6   (previousValue, currentValue) => previousValue + currentValue,
7   initialValue
8 );
9
10 console.log(sumWithInitial);
11 // expected output: 10
12
```

Below the code editor, there is a "Run" button and a console output area showing "> 10".

```
const array1 = [1, 2, 3, 4];
const initialValue = 0
const newSum = array1.reduce((prevVal,curVal) => prevVal + curVal,initialValue);
console.log(newSum) //10
```

Works a lot like the JavaScript **.map function**

Another example

```
const reducer = (accumulator, currentValue) => accumulator + currentValue;
[2, 4, 6, 8].reduce(reducer)
//20
```

Reflecting back on what we explained earlier about what a reducer is and what javascript reduce is:

In React, `useReducer` essentially accepts a reducer function that returns a single value:

```
const [count, dispatch] = useReducer(reducer, initialState);
```

The reducer function itself accepts two parameters and returns one value

The first parameter is the **current state**, and the **second is the action**. The state is the data we are manipulating. The **reducer function receives an action**, which is executed by a dispatch function:

```
function reducer(state, action) { }  
dispatch({ type: 'increment' })
```

The **action is like an instruction you pass to the reducer function. Based on the specified action**, the reducer function **executes the necessary state update**.

<https://blog.logrocket.com/react-usereducer-hook-ultimate-guide/#:~:text=type%20is%20dispatched.-,useState%20vs.,you%20can%20do%20with%20useState%20.>

The golden rule still remains. Component state for component state, Redux for application state.

`useReducer`:

How does the `useReducer` Hook work?

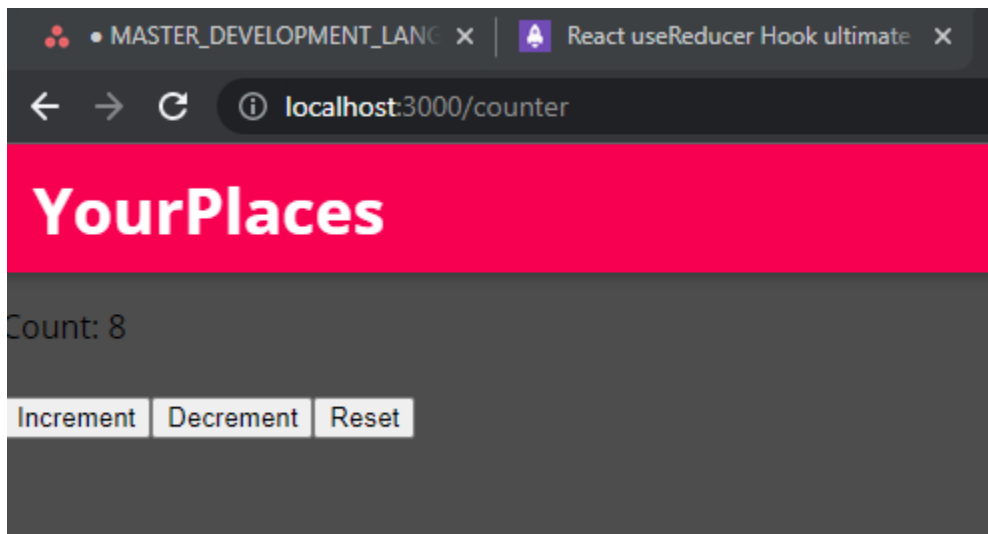
The **`useReducer` Hook** is **used to store and update states**, just like the **`useState` Hook**. It accepts a **reducer function** as its first parameter and the **initial state** as the second.

`useReducer` returns an array that holds the current state value and a dispatch function to which you can pass an action and later invoke it. While this is similar to the pattern Redux uses, there are a few differences.

For example, **the `useReducer` function is tightly coupled to a “specific reducer.”** We dispatch action objects to **that reducer only**, whereas in Redux, the dispatch function sends the action object to the store. At the time of dispatch, the components don't need to know which reducer will process the action.

Putting it all together (I created a component in my project)

```
src > testReducer > testReducer.js > Counter
1  import React from 'react'
2  import { useReducer } from 'react';
3
4
5  const initialState = { count: 0 }
6  // The reducer function
7  function reducer(state, action) {
8    switch (action.type) {
9      case 'increment':
10       return { count: state.count + 1 }
11      case 'decrement':
12       return { count: state.count - 1 }
13      case 'reset':
14       return {count: state.count = 0}
15      default:
16       return { count: state.count }
17    }
18  }
19
20  //below we use array destructuring to:
21  //state is mapped to initialState,
22  //dispatch, "dispatches the reducer function"
23  //The action is like an instruction you pass to the reducer function. Based on the specified action, the reducer function executes the necessary state update.
24  const Counter = () => {
25    const [state, dispatch] = useReducer(reducer, initialState)
26    return (
27      <div>
28        Count: {state.count}
29        <br />
30        <br />
31        <button onClick={() => dispatch({ type: 'increment' })}>Increment</button>
32        <button onClick={() => dispatch({ type: 'decrement' })}>Decrement</button>
33        <button onClick={() => dispatch({ type: 'reset' })}>Reset</button>
34      </div>
35    )
36  }
37
38  export default Counter
```



useState vs. useReducer

useState is a basic Hook for managing simple state transformation, and useReducer is an additional Hook for managing more complex state logic. However, it's worth noting that useState uses useReducer internally, implying that you could use useReducer for everything you can do with useState.

When to use useReducer

useReducer provides more predictable state transitions than useState, which becomes more important when state changes become so complex that you want to have one place to manage state, like the render function.

A good rule of thumb is that when you move past managing primitive data, i.e., a string, integer, or Boolean, and instead must manage a complex object, like with arrays and additional primitives, you're likely better off with useReducer.

From

<https://blog.logrocket.com/react-usereducer-hook-ultimate-guide/#:~:text=type%20is%20dispatched.-,useState%20vs.,you%20can%20do%20with%20useState%20.>

Excellent example below


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

export default function LoginUseState() {
  const [username, setUsername] = useState('');
  const [password, setPassword] = useState('');
  const [isLoading, showLoader] = useState(false);
  const [error, setError] = useState('');
  const [isLoggedIn, setIsLoggedIn] = useState(false);
  const onSubmit = async (e) => {
    e.preventDefault();
    setError('');
    showLoader(true);
    try {
      await function login({ username, password }) {
        return new Promise((resolve, reject) => {
          setTimeout(() => {
            if (username === 'ejiro' && password === 'password') {
```

First, let's create the login component with `useState` :

```
<form className='form' onSubmit={onSubmit}>
  {error && <p className='error'>{error}</p>}
  <p>Please Login!</p>
  <input
    type='text'
    placeholder='username'
    value={username}
    onChange={(e) => setUsername(e.currentTarget.value)}
  />
  <input
    type='password'
    placeholder='password'
    autoComplete='new-password'
    value={password}
    onChange={(e) => setPassword(e.currentTarget.value)}
  />
  <button className='submit' type='submit' disabled={isLoading}>
```

Notice how we are dealing with all these state transitions, like username, password, isLoading, error, and isLoggedIn, when we really should be more focused on the action that the user wants to take on the login component.

We used five `useState` Hooks, and we had to worry about when each of these states is transitioned.

We can refactor the code above to use `useReducer` and encapsulate all our logic and state transitions in one reducer function:

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

function loginReducer(state, action) {
  switch (action.type) {
    case 'field': {
      return {
        ...state,
        [action.fieldName]: action.payload,
      };
    }
    case 'login': {
      return {
        ...state,
        error: '',
        isLoading: true,
      };
    }
  }
}
```

```

    };
    export default function LoginUseReducer() {
      const [state, dispatch] = useReducer(loginReducer, initialState);
      const { username, password, isLoading, error, isLoggedIn } = state;
      const onSubmit = async (e) => {
        e.preventDefault();
        dispatch({ type: 'login' });
        try {
          await function login({ username, password }) {
            return new Promise((resolve, reject) => {
              setTimeout(() => {
                if (username === 'ejiro' && password === 'password') {

```

encapsulate all our logic and state transitions in one reducer function:

```

      type='text'
      placeholder='username'
      value={username}
      onChange={(e) =>
        dispatch({
          type: 'field',
          fieldName: 'username',
          payload: e.currentTarget.value,
        })
      }
    />
    <input
      type='password'
      placeholder='password'
      autoComplete='new-password'
      value={password}
      onChange={(e) =>
        ...
      }
    />

```

Notice how the new implementation with useReducer has made us more focused **on the action the user** is going to take.

After reading this article I can see why useReducer actually is more cleaner than handling a bunch of useState transitions.

Tip: Working with react router dom

npm i react-router-dom

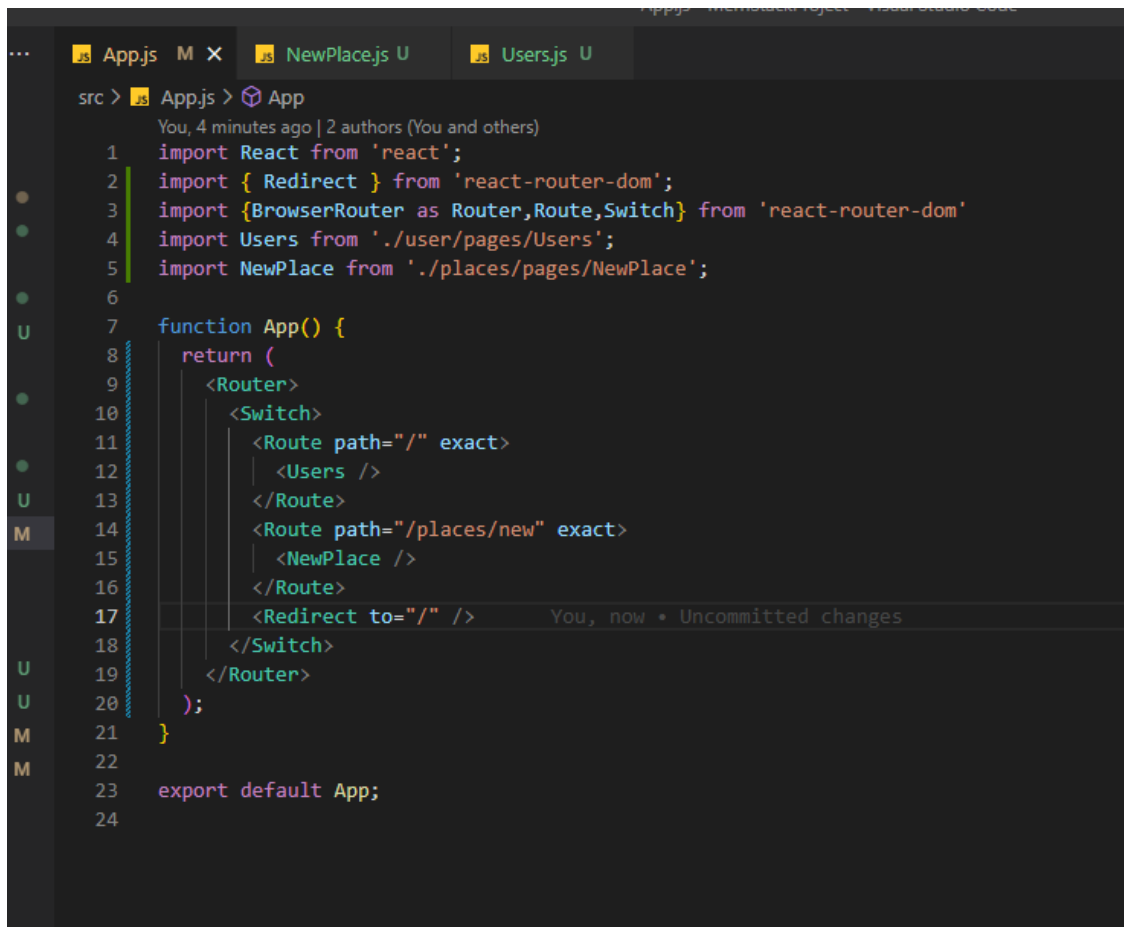
Tips Below on Routing:

The path "/" means default route

The exact means that the route needs to be exact

The <Redirect to "/" means that if a route is entered that does not exist, use the default route

The <Switch> means that since routes are executed in order, it acts like a switch statement in code to stop at the entered route

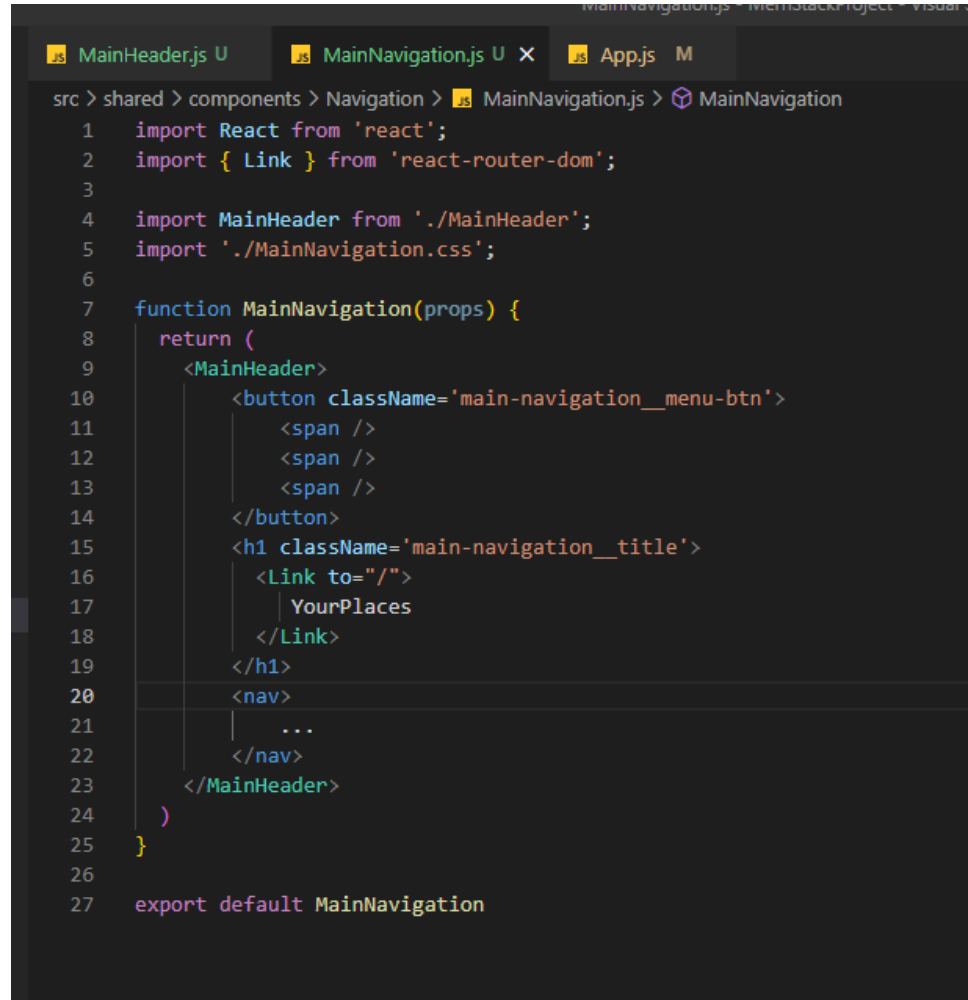


```
src > App.js > App
You, 4 minutes ago | 2 authors (You and others)
1 import React from 'react';
2 import { Redirect } from 'react-router-dom';
3 import { BrowserRouter as Router, Route, Switch } from 'react-router-dom';
4 import Users from './user/pages/Users';
5 import NewPlace from './places/pages/NewPlace';
6
7 function App() {
8   return (
9     <Router>
10      <Switch>
11        <Route path="/" exact>
12          <Users />
13        </Route>
14        <Route path="/places/new" exact>
15          <NewPlace />
16        </Route>
17        <Redirect to="/" />
18      </Switch>
19    </Router>
20  );
21 }
22
23 export default App;
24
```

Tip: props.children in react

Below is a perfect example of props.children

Props.children takes all of the content passed in (**html elements etc..**) and you reference all of the content via props.children (AHHHHHHHHH....)



```
src > shared > components > Navigation > MainNavigation.js > MainNavigation
1  import React from 'react';
2  import { Link } from 'react-router-dom';
3
4  import MainHeader from './MainHeader';
5  import './MainNavigation.css';
6
7  function MainNavigation(props) {
8    return (
9      <MainHeader>
10        <button className='main-navigation__menu-btn'>
11          <span />
12          <span />
13          <span />
14        </button>
15        <h1 className='main-navigation__title'>
16          <Link to="/">
17            YourPlaces
18          </Link>
19        </h1>
20        <nav>
21          ...
22        </nav>
23      </MainHeader>
24    )
25  }
26
27  export default MainNavigation
```

```
..  MainHeader.js U X  MainNavigation.js U  App.js M
src > shared > components > Navigation > MainHeader.js > [🔗] default
1  import React from 'react';
2
3  import './MainHeader.css';
4
5  function MainHeader(props) {
6    return (
7      <header className='main-header'>
8        {props.children}
9      </header>
10   )
11 }
12
13 export default MainHeader
```

Tip: React Fragment

React Fragment allows you have more than one root element. Javascript has a limitation of only allow for one root element when rendering, so in order to get around it, you have to wrap two root elements in a `React.Fragment`

```
src > shared > components > Navigation > MainNavigation.js > MainNavigation
1  import React from 'react';
2  import { Link } from 'react-router-dom';
3
4  import MainHeader from './MainHeader';
5  import './MainNavigation.css';
6  import NavLinks from './NavLinks';
7  import SideDrawer from './SideDrawer';
8
9  function MainNavigation(props) {
10   return (
11     <React.Fragment>
12       <SideDrawer>
13         <nav className="main-navigation__drawer-nav">
14           <NavLinks />
15         </nav>
16       </SideDrawer>
17       <MainHeader>
18         <button className="main-navigation__menu-btn">
19           <span />
20           <span />
21           <span />
22         </button>
23         <h1 className="main-navigation__title">
24           <Link to="/">YourPlaces</Link>
25         </h1>
26         <nav className="main-navigation__header-nav">
27           <NavLinks />
28         </nav>
29       </MainHeader>
30     </React.Fragment>
31   );
32 }
33
34 export default MainNavigation
```


Tip: Conditionally render content

Component: MainNavigation.js

Method One – Using ternary way:

```
import MainHeader from './MainHeader';
import './MainNavigation.css';
import NavLinks from './NavLinks';
import SideDrawer from './SideDrawer';

function MainNavigation(props) {
  const [drawerIsOpen, setDrawerIsOpen] = useState(false);
  return (
    <React.Fragment>
      { drawerIsOpen ? (
        <SideDrawer>
          <nav className="main-navigation__drawer-nav">
            <NavLinks />
          </nav>
        </SideDrawer>) : null}
      <MainHeader>
        <button className="main-navigation__menu-btn">
```

Method 2: (Preferred shortcut way)

```
function MainNavigation(props) {
  const [drawerIsOpen, setDrawerIsOpen] = useState(false);
  return (
    <React.Fragment>
      { drawerIsOpen && (
        <SideDrawer>
          <nav className="main-navigation__drawer-nav">
            <NavLinks />
          </nav>
        </SideDrawer>)}
      <MainHeader>
        <button className="main-navigation__menu-btn">
```

– I used this method also in my Nutrition Service Application as well

```
elp AlertSmall.js - HISDNutritionServices - Visual Studio Code

Search.js AlertSmall.js X

src > components > ReusableAppComponents > AlertSmall.js > AlertSmall
p00149021@houstonisd.org Mag17615@7, 7 days ago | 1 author (p00149021@houstonisd.org Mag17615@7)
1 import React from 'react'
2 import {Button,
3 } from 'react-bootstrap';
4
5 function AlertSmall(props) {
6   return (props.show) && (
7     <div class={props.alertClassType} role="alert">
8       {props.msgBody}
9       <hr />
10      <div>
11        <Button onClick={props.toggleAlert} variant="outline-success">
12          Dismiss
13        </Button>
14      </div>
15    </div>
16  );
17 }
18
19 export default AlertSmall
```

Tip: Portals

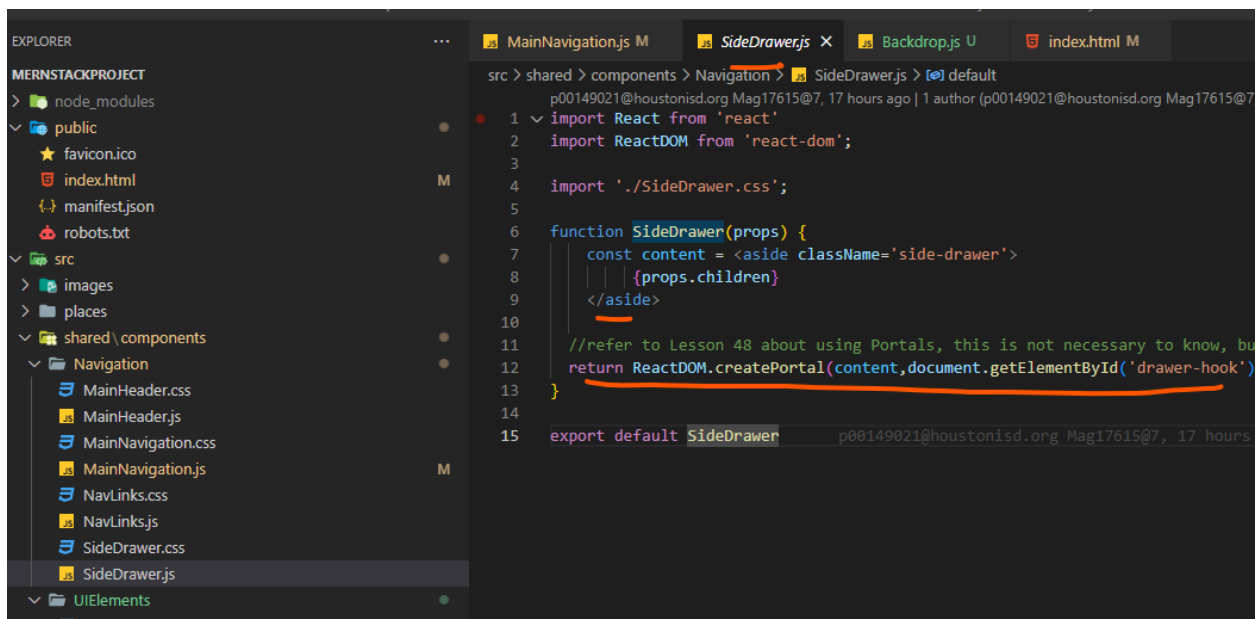
<https://reactjs.org/docs/portals.html>

Portals provide a first-class way to render children into a DOM node that exists outside the DOM hierarchy of the parent component.

In Your index.html file:

```
25 | Learn how to configure a non-root public URL by running `npm run build`.
26 | -->
27 | <title>React App</title>
28 | </head>
29 | <body>
30 |   <noscript>You need to enable JavaScript to run this app.</noscript>
31 |   <div id="backdrop-hook"></div>
32 |   <div id="drawer-hook"></div>
33 |   <div id="root"></div>
34 |   <!--
35 |     This HTML file is a template.
36 |     If you open it directly in the browser, you will see an empty page.
37 |
38 |     You can add webfonts, meta tags, or analytics to this file.
39 |     The build step will place the bundled scripts into the <body> tag.
40 |
41 |     To begin the development, run `npm start` or `yarn start`.
42 |     To create a production bundle, use `npm run build` or `yarn build`.
43 |   -->
44 | </body>
45 | </html>
46 |
```

We can create a hovered component for navigation



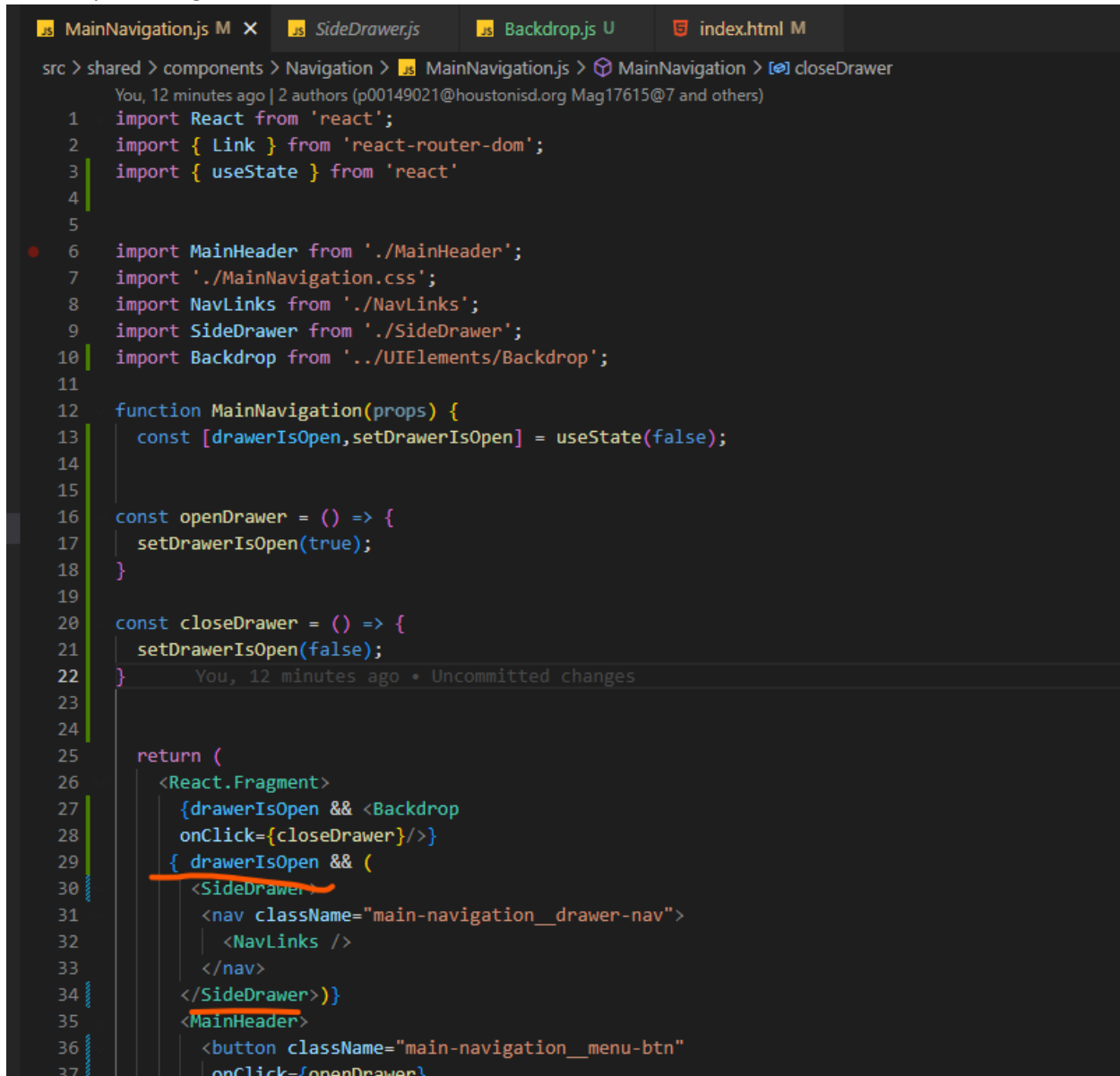
The screenshot shows the VS Code interface. On the left, the Explorer pane displays the project structure for 'MERNSTACKPROJECT'. The 'src' directory is expanded, showing 'shared' and 'components'. The 'components' directory is further expanded, showing a 'Navigation' folder. The 'SideDrawer.js' file is selected and its content is displayed in the editor. The code defines a 'SideDrawer' component that uses the 'ReactPortal' API to render its content into a container with the ID 'drawer-hook'.

```
1 | import React from 'react'
2 | import ReactDOM from 'react-dom';
3 |
4 | import './SideDrawer.css';
5 |
6 | function SideDrawer(props) {
7 |   const content = <aside className='side-drawer'>
8 |     {props.children}
9 |   </aside>
10 |
11 |   //refer to Lesson 48 about using Portals, this is not necessary to know, but
12 |   return ReactDOM.createPortal(content, document.getElementById('drawer-hook'))
13 | }
14 |
15 | export default SideDrawer
```

https://www.w3schools.com/tags/tag_aside.asp

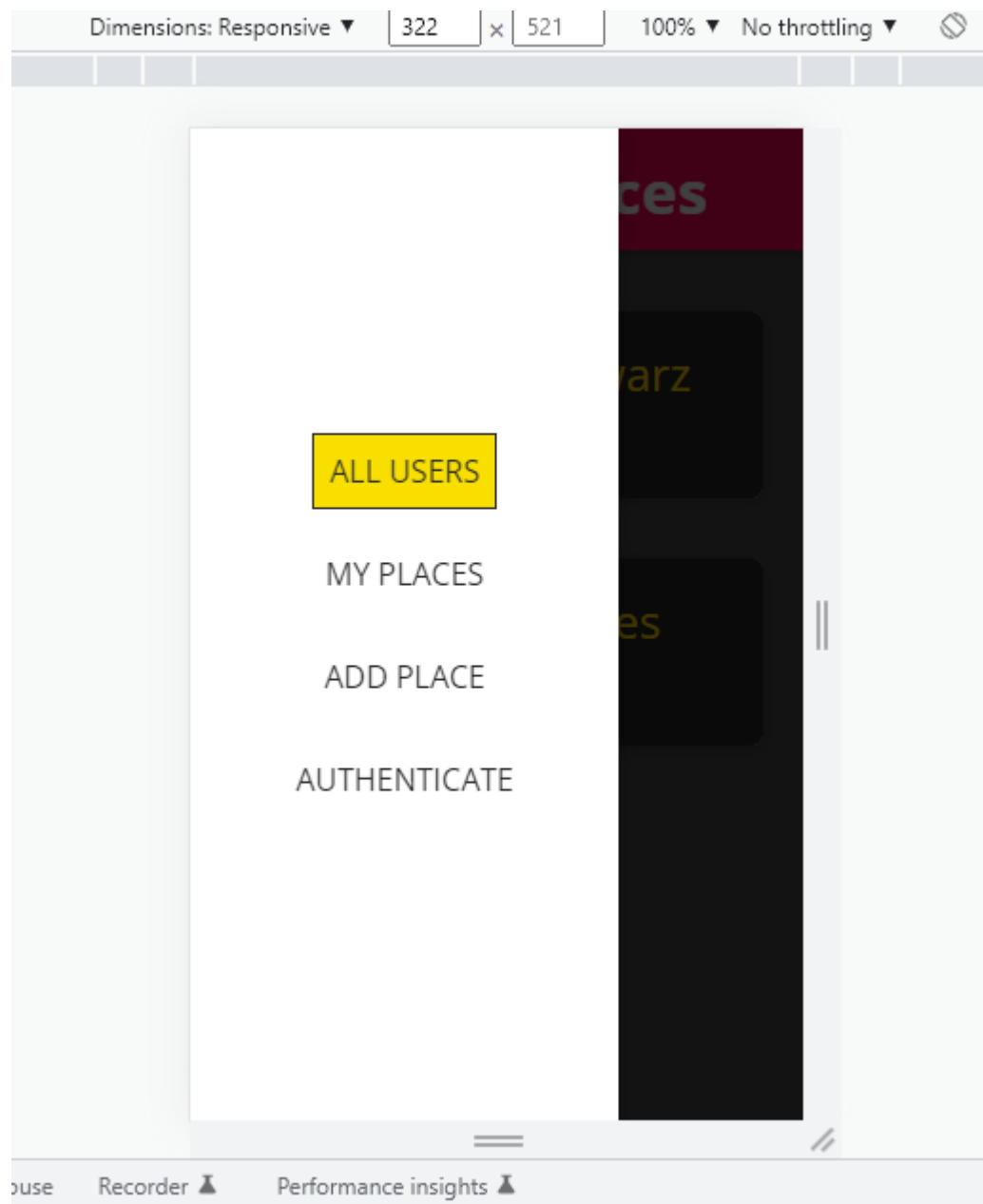
The <aside> tag defines some content aside from the content it is placed in. The aside content should be indirectly related to the surrounding content. Tip: The <aside> content is often placed as a sidebar in a document.

Then in your navigation



```
src > shared > components > Navigation > MainNavigation.js > MainNavigation > closeDrawer
You, 12 minutes ago | 2 authors (p00149021@houstonisd.org Mag17615@7 and others)
1 import React from 'react';
2 import { Link } from 'react-router-dom';
3 import { useState } from 'react'
4
5
6 import MainHeader from './MainHeader';
7 import './MainNavigation.css';
8 import NavLinks from './NavLinks';
9 import SideDrawer from './SideDrawer';
10 import Backdrop from '../UIElements/Backdrop';
11
12 function MainNavigation(props) {
13   const [drawerIsOpen, setDrawerIsOpen] = useState(false);
14
15
16   const openDrawer = () => {
17     setDrawerIsOpen(true);
18   }
19
20   const closeDrawer = () => {
21     setDrawerIsOpen(false);
22   }
23
24
25   return (
26     <React.Fragment>
27       {drawerIsOpen && <Backdrop
28         onClick={closeDrawer}/>}}
29       { drawerIsOpen && (
30         <SideDrawer>
31           <nav className="main-navigation__drawer-nav">
32             <NavLinks />
33           </nav>
34         </SideDrawer>)}
35       <MainHeader>
36         <button className="main-navigation__menu-btn"
37           onClick={openDrawer}
```

You can toggle on and off





YourPlaces



Max Schwarz

3Places



David Jones

5Places

Tip: Setting up google maps for your project
First go over to Google Maps Platform
Since google charges, I will use the free mapbox

<https://account.mapbox.com/auth/signup/>

1 Account Details **2** Billing Details

Create your Mapbox account

Already have an account? [Log in >](#)

Username*

Email*

Password*

First name*

Last name*

Company



I agree to the Mapbox [Terms of Service](#) and [Privacy Policy](#).

Next step

pwd= bflu@ (Not going to implement maps) because it still requires a credit card
<https://www.udemy.com/course/react-nodejs-express-mongodb-the-mern-fullstack-guide/learn/lecture/16855052#overview>

Tips: Props destructuring

Destructuring was introduced in ES6. It's a JavaScript feature that allows us to extract multiple pieces of data from an array or object and assign them to their own variables.

<https://medium.com/@lcriswell/destructuring-props-in-react-b1c295005ce0>

Imagine you have a person object with the following properties:

```
const person = {  
  firstName: "Lindsay",  
  lastName: "Criswell",  
  city: "NYC"  
}
```

Before ES6, you had to access each property individually:

```
console.log(person.firstName) // Lindsay  
console.log(person.lastName) // Criswell  
console.log(person.city) // NYC
```

Destructuring lets us streamline this code:

```
const { firstName, lastName, city } = person;
```

is equivalent to

```
const firstName = person.firstName  
const lastName = person.lastName  
const city = person.city
```

So in our project:

```
Input.js  x
rc > shared > components > FormElements > Input.js > Input > changeHandler
16
17     return {
18       ...state,
19       isTouched: true
20     };
21   default:
22     return state;
23 };
24
25 const [inputState, dispatch] = useReducer(inputReducer, {value: '',
26                                           isTouched: false,
27                                           isValid: false});
28
29
30
31
32 const {id, onInput} = props
33 const {value, isValid} = inputState
34
35 useEffect(() => {
36   onInput(id,
37     value,
38     isValid)
39 }, [id, value, isValid, onInput]);
40
41 const changeHandler = event => {
42   dispatch({type: 'CHANGE',
43     val: event.target.value,
44     validators: props.validators});
45 };
46
47 const touchHandler = () => {
48   dispatch({
49     type: 'TOUCH'
50   });
51 };
52
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```

Notice how we are passing in single prop for footer that consists of two components. You can pass in two components this way by way of React.Fragment

```

// PlaceItem.js
<Modal>
  show={showMap}
  onCancel={closeMapHandler}
  header={props.address}
  contentClass="place-item_modal-content"
  footerClass="place-item_modal-actions"
  footer={
    <Button onClick={closeMapHandler}>CLOSE</Button>
  }
  <div className="map-container">
    <h2><Map
      center={props.coordinates}
      zoom={16}
    /></h2>
  </div>
</Modal>
<Modal>
  show={showConfirmModal}
  onCancel={cancelDeleteHandler}
  header="Are you sure?"
  footerClass="place-item_modal-actions"
  footer={
    <React.Fragment>
      <Button inverse
        onClick={cancelDeleteHandler}
      >CANCEL</Button>
      <Button danger
        onClick={confirmDeleteHandler}
      >DELETE</Button>
    </React.Fragment>
  }
</Modal>
<p>
  Do you want to proceed and delete this place?, Please note
</p>
</Modal>
<li className="place-item">
  <Card className="place-item_content">
    <div className="place-item_image">
      <img src={props.image} alt={props.title}/>
    </div>
  </li>

```

```

// ModalOverlay.js
const ModalOverlay = props => {
  const content = (
    <div className={`modal ${props.className}`} style={props.style}>
      <header className={`modal_header ${props.headerClass}`}>
        <h2>{props.header}</h2>
      </header>
      <form>
        <div className={`modal_content ${props.contentClass}`}>
          {props.children}
        </div>
        <div className={`modal_footer ${props.footerClass}`}>
          {props.footer}
        </div>
      </form>
    </div>
  );
  return ReactDOM.createPortal(content, document.getElementById('modal-hook'));
};

function Modal(props) {
  return <React.Fragment>
    {props.show && <Backdrop onClick={props.onCancel}/>}
    <CSSTransition
      in={props.show}
      mountOnEnter
      unmountOnExit
      timeout={200}
      classNames="modal"
    >
      <ModalOverlay {...props} />
    </CSSTransition>
  </React.Fragment>

```

He also is using React.Portal to give the Modal a Z index outward render. (Like a popup)

Tip: How he setup form validation using a custom hook and re-usable components

The way this was setup is a little confusing but explained below:

He uses custom input controls, the file:

import Input from '../shared/components/FormElements/Input'

```

return (
  <form
    className="place-form"
    onSubmit={placeSubmitHandler}>
    <Input
      id="title"
      element="input"
      type="text"
      label="Title"
      validators={[VALIDATOR_REQUIRE()]}
      errorText="Please enter a valid title."
      onInput = {InputHandler}
    />
    <Input
      id="description"
      element="textarea"
      label="Description"
      validators={[VALIDATOR_MINLENGTH(5)]}
      errorText="Please enter a valid description (at least 5 characters)."
      onInput = {InputHandler}
    />
  </form>
)

```

Input.js is the custom input component

```
Input.js  X
src > shared > components > FormElements > Input.js > ...
19     return state;
20   };
21 };
22
23 function Input(props) {
24
25   const [inputState,dispatch] = useReducer(inputReducer,{
26     value: props.initialValue || '',
27     isTouched: false,
28     isValid: props.initialValid || false
29   });
30
31
32
33
34   const {id, onInput} = props
35   const {value, isValid} = inputState
36
37   useEffect(() => {
38     onInput(id,
39       value,
40       isValid)
41   },[id,value,isValid,onInput]);
42
43   const changeHandler = event => {
44     dispatch({type:'CHANGE',
45       val: event.target.value,
46       validators:props.validators});
47   };
48
49   const touchHandler = () => {
50     dispatch({
51       type: 'TOUCH'
52     })
53   }
54
55   const element = props.element === 'input' ? (<input
56     id={props.id}
57     type={props.type}
58     placeholder={props.placeholder}
59     onChange={changeHandler}
60     value={inputState.value}
61     onBlur={touchHandler}
62     />
```

He passes his props for the custom input control the normal way. Any change made to any data in any controls receives events through his custom input control, input.js

The Input.js file receives the validator type as a parameter, the data to validate from the data passed in as props (e.target.value)

When a handler is fired off, it dispatches an action to the input reducer in the input.js file, this reducer calls the validate action from the Validators file

```

12 //using currently
13 export const VALIDATOR_REQUIRE = () => ({ type: VALIDATOR_TYPE_REQUIRE });
14 //using currently
15 export const VALIDATOR_MINLENGTH = val => ({
16   type: VALIDATOR_TYPE_MINLENGTH,
17   val: val
18 });
19
20
21 export const VALIDATOR_FILE = () => ({ type: VALIDATOR_TYPE_FILE });
22 export const VALIDATOR_MAXLENGTH = val => ({
23   type: VALIDATOR_TYPE_MAXLENGTH,
24   val: val
25 });
26 export const VALIDATOR_MIN = val => ({ type: VALIDATOR_TYPE_MIN, val: val });
27 export const VALIDATOR_MAX = val => ({ type: VALIDATOR_TYPE_MAX, val: val });
28 export const VALIDATOR_EMAIL = () => ({ type: VALIDATOR_TYPE_EMAIL });
29
30 export const validate = (value, validators) => {
31   let isValid = true;
32   for (const validator of validators) {
33     if (validator.type === VALIDATOR_TYPE_REQUIRE) {
34       isValid = isValid && value.trim().length > 0;
35     }
36     if (validator.type === VALIDATOR_TYPE_MINLENGTH) {
37       isValid = isValid && value.trim().length >= validator.val;
38     }
39     if (validator.type === VALIDATOR_TYPE_MAXLENGTH) {
40       isValid = isValid && value.trim().length <= validator.val;
41     }
42     if (validator.type === VALIDATOR_TYPE_MIN) {
43       isValid = isValid && +value >= validator.val;
44     }
45     if (validator.type === VALIDATOR_TYPE_MAX) {
46       isValid = isValid && +value <= validator.val;
47     }
48     if (validator.type === VALIDATOR_TYPE_EMAIL) {
49       isValid = isValid && /^S+@S+\.S+$/i.test(value);
50     }
51   }
52 }

```

Based on the type specified, it validates the data against his logic to determine whether the data is valid or not and returns a isValid flag

To further validate the form, there is a callback

```

return (
  <form
    className='place-form'
    onSubmit={placeSubmitHandler}>
    <Input
      id="title"
      element='input'
      type="text"
      label="Title"
      validators={[VALIDATOR_REQUIRE()]}
      errorText='Please enter a valid title.'
      onInput = {InputHandler}
    />

```

Whenever there is a state change, the useEffect method calls this via a custom hook

```

const {id, onInput} = props
const {value, isValid} = inputState

useEffect(() => {
  onInput(id,
    value,
    isValid)
}, [id, value, isValid, onInput]);

const changeHandler = event => {
  dispatch({type: 'CHANGE',
    val: event.target.value,
    validators: props.validators});
};

const touchHandler = () => {
  dispatch({
33
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    });
    return (
      <form
        className='place-form'
        onSubmit={placeSubmitHandler}>
        <Input
          id="title"
          element='input'
          type="text"
          label="Title"
          validators={[VALIDATOR_REQUIRE()]}
          errorText='Please enter a valid title.'
          onInput = {InputHandler}
        />
        <Input
          id="description"

```

When the change is made in state, it triggers logic in the custom hook's form reducer that determine's whether the form is valid based on input in the input field (the isValid flag that is set in the input reducer).

It's a lot to wire-up and understand, but once you break it down, it's not that difficult to grasp. Still kind of an overkill.

Tip: How to use the useContext Hook for security in our app

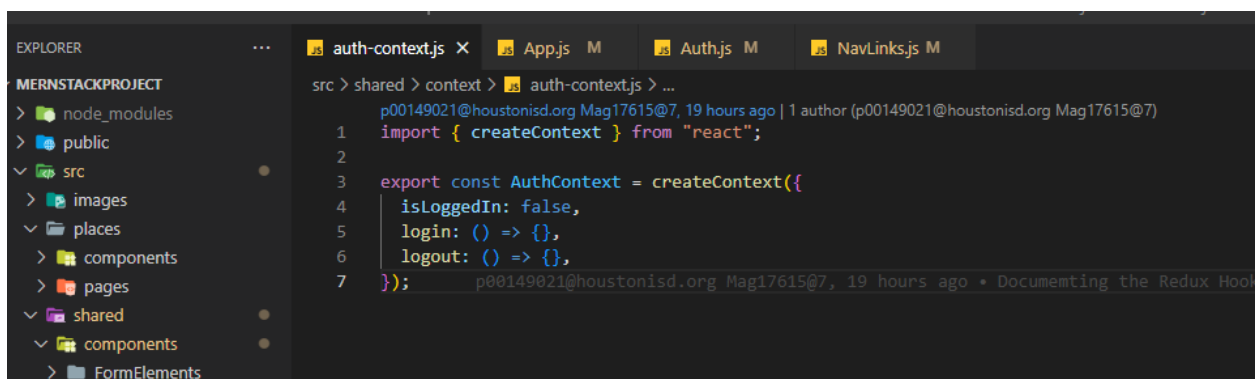
<https://reactjs.org/docs/hooks-reference.html#usecontext>

React Context is a way to manage state globally.

It can be used together with the useState Hook to **share state between deeply nested components more easily than with useState alone.**

Wireup for security in my app

First we create the context component



The screenshot shows a code editor with a file explorer on the left and a code editor on the right. The file explorer shows a project structure with folders like 'node_modules', 'public', 'src', 'images', 'places', 'components', 'pages', 'shared', and 'FormElements'. The code editor shows the file 'auth-context.js' with the following code:

```

1 import { createContext } from "react";
2
3 export const AuthContext = createContext({
4   isLoggedIn: false,
5   login: () => {},
6   logout: () => {},
7 });

```

Above we recreate anonymous functions as pointers to functions we want to include in our context
Then in our app.js, we wrap the Context object around all of our components

```
src > App.js > App > login
8 import UpdatePlace from './places/pages/UpdatePlace';
9 import Counter from './testReducer/testReducer';
10 import Auth from './user/pages/Auth';
11 import { AuthContext } from './shared/context/auth-context';
12
13 function App() {
14
15     const [isLoggedIn, setisLoggedIn] = useState(false);
16
17     const login = useCallback(() => {
18         | setisLoggedIn(true)
19     }, [])
20
21     const logout = useCallback(() => {
22         | setisLoggedIn(false)
23     }, [])
24
25     return (
26         <AuthContext.Provider value={
27             {
28                 isLoggedIn: isLoggedIn,
29                 login: login,
30                 logout: logout
31             }
32         >
33
34         <Router>
35             <MainNavigation />
36             <main>
37                 <Switch>
38                     <Route path="/" exact>
39                         <Users />
40                     </Route>
41
```

We set the anonymous functions up.
Then to consume the context object
In our NavLinks

auth-context.js

App.js M

Auth.js M

NavLinks.js M X

src > shared > components > Navigation > NavLinks.js > NavLinks

You, 14 minutes ago | 2 authors (You and others)

```
1 import React, {useContext} from 'react'
2 import { NavLink } from 'react-router-dom';
3 import { AuthContext } from '../../context/auth-context';
4
5 import './NavLinks.css';
6
7 function NavLinks(props) {
8   const auth = useContext(AuthContext)
9
10  return (
11    <ul className="nav-links">
12      <li>
13        <NavLink to="/" exact>
14          ALL USERS
15        </NavLink>
16      </li>
17      {auth.isLoggedIn && (
18        <li>
19          <NavLink to="/u1/places">MY PLACES</NavLink>
20        </li>
21      )}
22      {auth.isLoggedIn && (
23        <li>
24          <NavLink to="/places/new">ADD PLACE</NavLink>
25        </li>
26      )}
27      {!auth.isLoggedIn && (
28        <li>
29          <NavLink to="/auth">AUTHENTICATE</NavLink>
30        </li>
31      )}
32    </ul>
33  );
```

PROBLEMS

OUTPUT

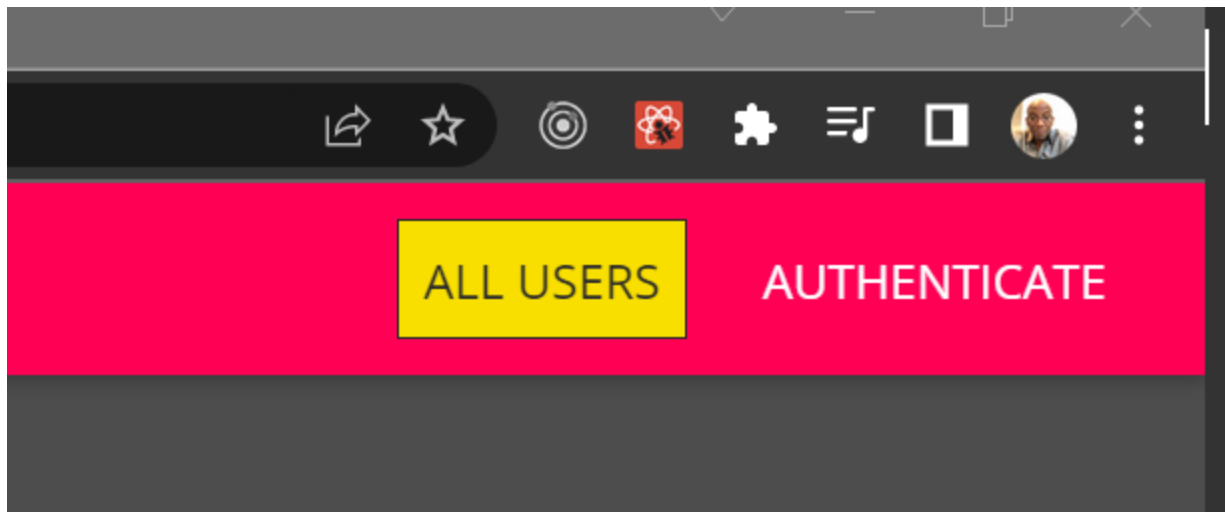
DEBUG CONSOLE

TERMINAL

JUPYTER

GITLENS

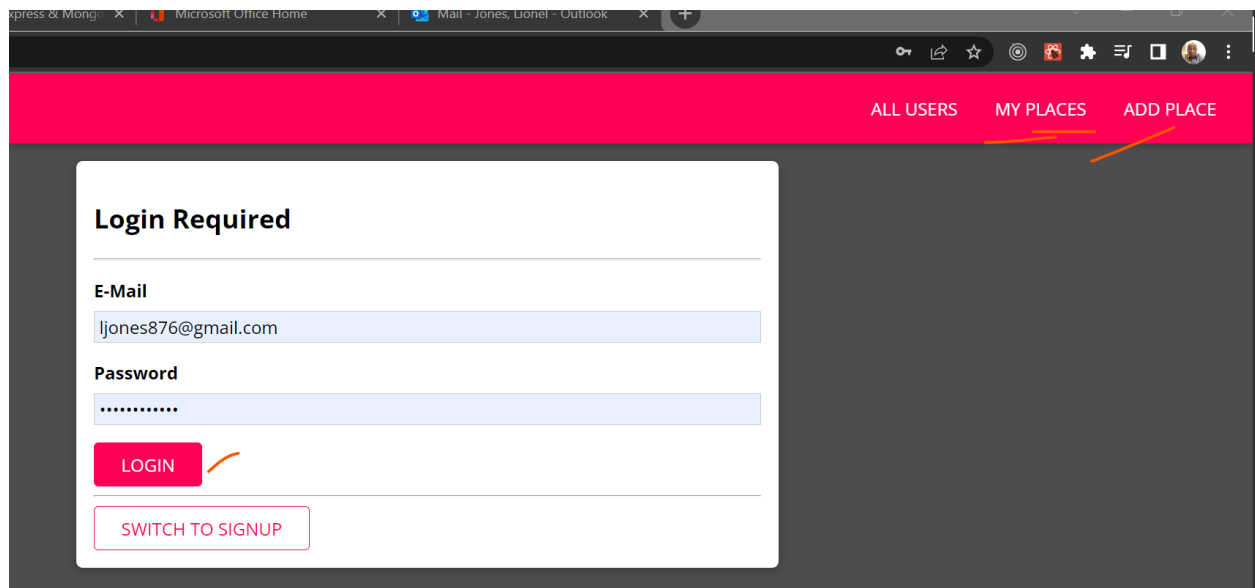
Compiled successfully!



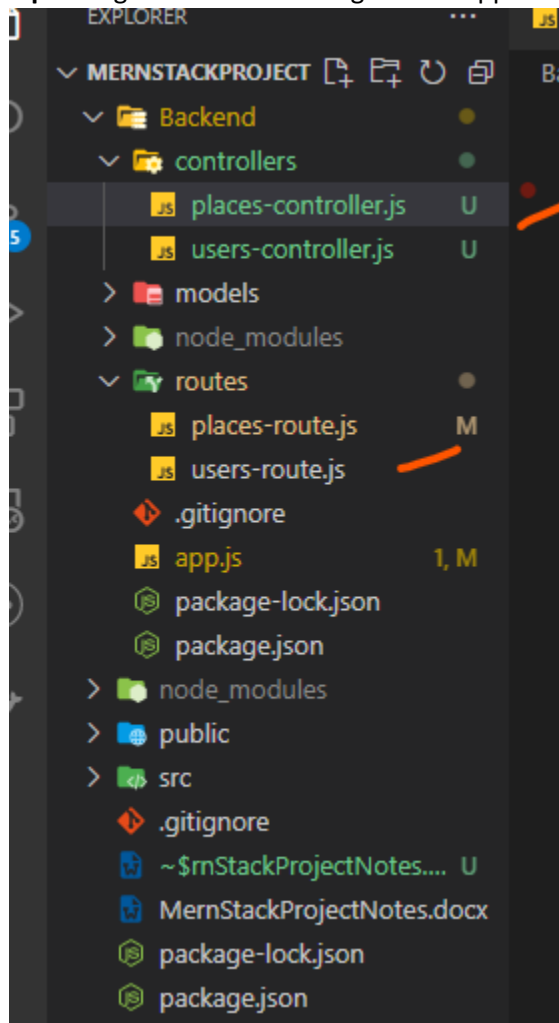
In our user, auth login page

src > user > pages > Auth.js > Auth > authSubmitHandler

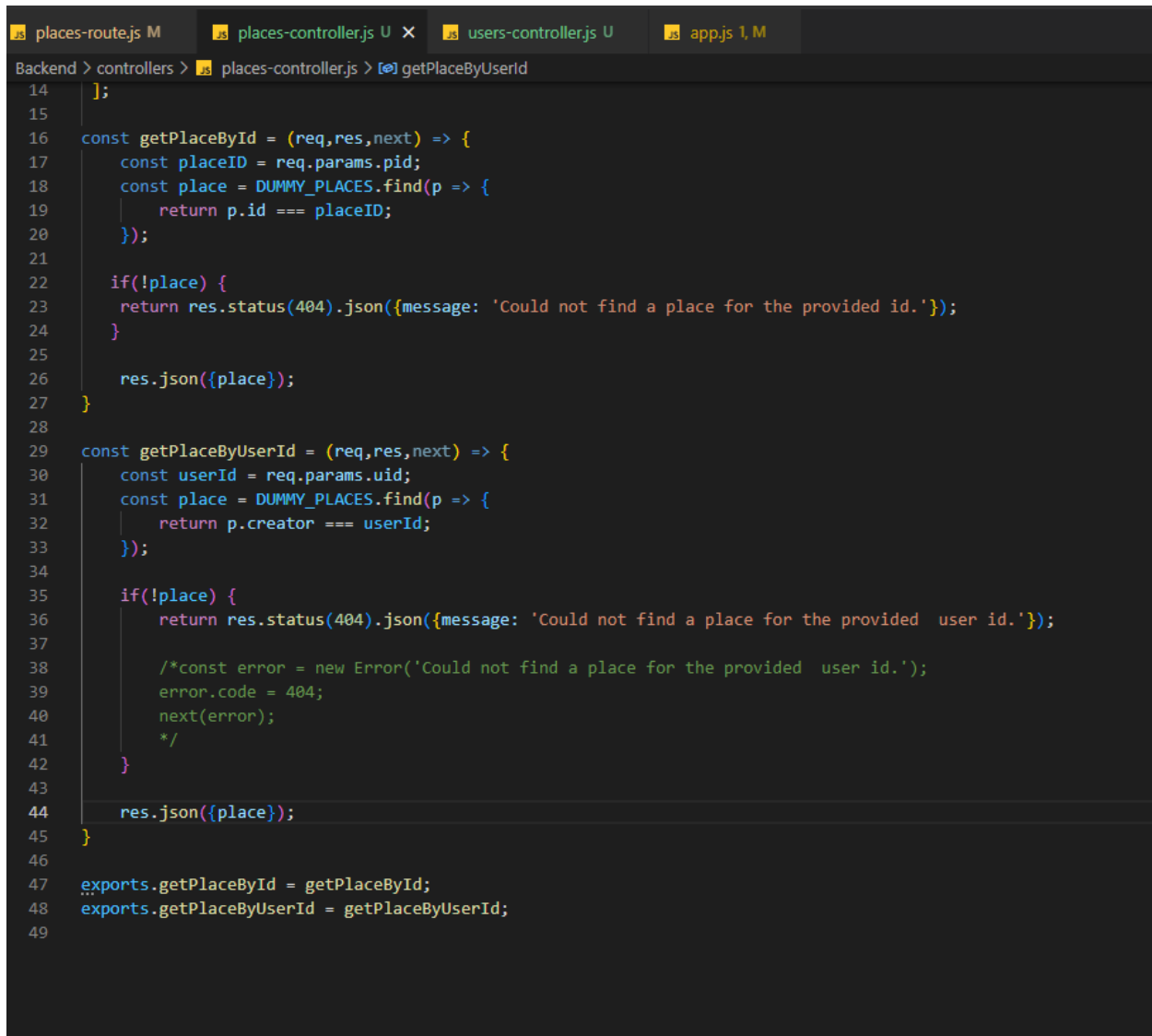
```
8     VALIDATOR_MINLENGTH,
9     VALIDATOR_REQUIRE} from '../../shared/util/Validators'
10 import { useForm } from '../../shared/hooks/form-hook'
11 import '../../places/pages/PlaceForm.css'
12 import { AuthContext } from '../../shared/context/auth-context'
13
14
15
16 function Auth() {
17     const auth = useContext(AuthContext)
18     const [isLoginMode, setIsLoginMode] = useState(true);
19
20     const [formState, inputHandler, setFormData] = useForm({
21         email: {
22             value: '',
23             isValid: false
24         },
25         password: {
26             value: '',
27             isValid: false
28         }
29     }, false)
30
31     const authSubmitHandler = (event) => {
32         event.preventDefault();
33         console.log(formState)
34         auth.login();
35     }
36
37     const switchModeHandler = () => {
38         if(!isLoginMode) {
39             setFormData({
40                 ...formState.inputs,
41                 name: undefined
```



Tip: Using a model View design in our app for our express.js routes



We create a controllers folder and add the following code:



```
14   };
15
16   const getPlaceById = (req, res, next) => {
17     const placeID = req.params.pid;
18     const place = DUMMY_PLACES.find(p => {
19       return p.id === placeID;
20     });
21
22     if(!place) {
23       return res.status(404).json({message: 'Could not find a place for the provided id.'});
24     }
25
26     res.json({place});
27   }
28
29   const getPlaceByUserId = (req, res, next) => {
30     const userId = req.params.uid;
31     const place = DUMMY_PLACES.find(p => {
32       return p.creator === userId;
33     });
34
35     if(!place) {
36       return res.status(404).json({message: 'Could not find a place for the provided user id.'});
37
38       /*const error = new Error('Could not find a place for the provided user id.');
39       error.code = 404;
40       next(error);
41       */
42     }
43
44     res.json({place});
45   }
46
47   exports.getPlaceById = getPlaceById;
48   exports.getPlaceByUserId = getPlaceByUserId;
49
```

Notice how we export the file (we are not using the module.exports way)

Then to use the file in our routes:

```
JS places-route.js M X JS places-controller.js U JS users-controller.js U JS app.js 1, M
Backend > routes > JS places-route.js > ...
You, 4 minutes ago | 2 authors (p00149021@houstonisd.org Mag17615@7 and others)
1  const express = require('express');
2
3  const router = express.Router();
4
5  const placesControllers = require('../controllers/places-controller');
6
7  // /api/places/<p1>
8  router.get('/:pid', placesControllers.getPlaceById);
9
10 // /api/places/user/<u1>
11 router.get('/user/:uid', placesControllers.getPlaceByUserId);
12
13 module.exports = router;
```

Tip: Working with Express Validator for validating routes

<https://www.npmjs.com/package/express-validator>

npm i express-validator

```
places-route.js M X users-route.js M places-controller.js M users-controller.js 1, M app.js M
Backend > routes > places-route.js > ...
You, 10 minutes ago | 2 authors (You and others)
1 const express = require('express');
2 //npm i express-validator
3 const {check} = require('express-validator');
4
5 const router = express.Router();
6
7 const placesControllers = require('../controllers/places-controller');
8
9 // /api/places/<p1>
10 router.get('/:pid', placesControllers.getPlaceById);
11
12 // /api/places/user/<u1>
13 router.get('/user/:uid', placesControllers.getPlacesByUserId);
14 p00149021@houstonisd.org Mag17615@7, 2 days ago * added some more middleware logic ...
15
16 router.post("/",
17   [check("title").not().isEmpty(),
18     check("description").isLength({min:5}),
19     check("address").not().isEmpty(),
20   ],
21   placesControllers.createPlace
22 );
23
24 router.patch('/:pid', placesControllers.updatePlace)
25
26 router.delete('/:pid', placesControllers.deletePlace)
27
28 module.exports = router;
```

```
Backend > controllers > places-controller.js > createPlace > createdPlace
You, 7 minutes ago | 2 authors (p00149021@houstonisd.org Mag17615@7 and others)
1 const uuid = require('uuid').v4;
2 const {validationResult} = require('express-validator');
3
4 let DUMMY_PLACES = [
```

```

3
4 const createPlace = (req,res,next) => {
5   const errors = validationResult(req);
6   if(!errors.isEmpty()){
7     return res.status(500).json({message: 'Failed to add a place, missing required field information.'});
8   }
9
10  const {title,description,coordinates, address, creator} = req.body;
11  const createdPlace = {      p00149021@houstonisd.org Mag17615@7, 2 days ago * added some more middleware log
12    id: uuid(),
13    title,
14    description,
15    location: coordinates,
16    address,
17    creator,
18  };
19
20  DUMMY_PLACES.push(createdPlace);
21  res.status(201).json({place: createdPlace})
22
23 };
24
25 const updatePlace = (req,res,next) => {

```

Tip: Encode URI for passing in invalid characters in an URL

https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/encodeURIComponent

Guides MDN Plus

Theme



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> Standard built-in objects > encodeURIComponent()

encodeURIComponent()

The `encodeURIComponent()` function encodes a [URI](#) by replacing each instance of certain characters by one, two, three, or four escape sequences representing the [UTF-8](#) encoding of the character (will only be four escape sequences for characters composed of two "surrogate" characters).

Try it

JavaScript Demo: Standard built-in objects - encodeURIComponent()

```

1 // encodes characters such as ?,/,&,:
2 console.log(`?x=${encodeURIComponent('test?')}`);
3 // expected output: "?x=test%3F"
4
5 console.log(`?x=${encodeURIComponent('шеллы')}`);
6 // expected output: "?x=%D1%88%D0%B5%D0%BB%D0%BB%D1%8B"
7

```

In this article

Try it

Syntax

Description

Examples

Specifications

Browser compat

See also

Tip: Specifying you own database name for MONGO DB Atlas

In our MernStack2022 project, we did not specify a database in our connection string. So when we created documents, it created a database called “TEST”

The screenshot shows the MongoDB Atlas interface. The top navigation bar includes tabs for Overview, Real Time, Metrics, Collections (which is selected), Search, and Profiler. Below the navigation bar, it states 'DATABASES: 2' and 'COLLECTIONS: 9'. On the left sidebar, there is a '+ Create Database' button and a 'Search Namespaces' input field. Under the 'NutritionServices' namespace, the 'SchoolListing' collection is highlighted. Below it, several other collections are listed: SchoolYears, tblFoodsToBeOmmited, tblMilkSub, tblSupplementName, and tblTrainingType. At the bottom of the sidebar, there is a 'test' database listed. The main content area displays the 'NutritionServices.SchoolListing' collection. It shows 'STORAGE SIZE: 20KB', 'TOTAL DOCUMENTS: 5', and 'INDEXES TOTAL S'. There are tabs for 'Find', 'Indexes', and 'Schema Anti-Patterns'. A filter bar is present with a 'FILTER' button and a placeholder '{ field: 'value' }'. Below the filter bar, it says 'QUERY RESULTS: 1-5 OF 5'. The first document is displayed with the following fields: '_id: ObjectId("626d8a1fcee210c4313e247c")', 'NameOfInstution: "ABC East/SOAR CNTR"', and 'SchoolID: "1"'. The second document is partially visible at the bottom, showing '_id: ObjectId("626d8a1fcee210c4313e247d")' and 'NameOfInstution: "Baylor College of Medicine (Ryan M'.

To specify our what we would want our Database to be, we can add it to our connection string:


```
app.use('/api/users',userRoutes); //=> /api/users/...

//add some middleware to handle invalid URL requests (THIS WORKS!!!)
app.use((req,res,next) => {
  const error = 'Could not locate the URL from request';
  res.status(500);
  res.json({message: error})
})

mongoose
  .connect('mongodb+srv://lionel5116:Mag17615%40@cluster0.jwcnt.mongodb.net/places?retryWrites=true&w=majority')
  .then( () => {
    console.log('Connected to Mongo DB.. App Starting on PORT 5000')
    app.listen(5000);
  })
  .catch(err => {
    console.log(err)
  });

You, now * Uncommitted changes
```

EMS OUTPUT DEBUG CONSOLE TERMINAL JUPYTER GITLENS

Then when we create our documents in this project, we will see them created in the places database as

included in our connection string above.

chrome

Search

import

POST Create a New Post

+

...

Posts / Create a New Post

POST

▼

http://localhost:5000/api/places/

Params

Authorization

Headers (10)

Body

Pre-request Script

Tests

Settings

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

JSON

▼

```
1  [
2  --"title": "Rick James Bitch!!",
3  --"description": "Rick James Crib",
4  --"address": "12345 Causeway Cort",
5  --"creator": "lionel5116"
6  ]
```

Body

Cookies

Headers (7)

Test Results

Status: 201 Cr

Pretty

Raw

Preview

Visualize

JSON

▼

≡

```
1  {
2    "place": {
3      "title": "Rick James Bitch!!",
4      "description": "Rick James Crib",
5      "image": "https://images.pexels.com/photos/106399/pexels-photo-106399.jpeg?auto=compress&cs=tinysrgb&dpr=1&w=600",
6      "address": "12345 Causeway Cort",
7      "location": {
8        "lat": 40.78444474,
9        "lng": -73.9887655
10     },
11     "creator": "lionel5116",
12     "_id": "62be32ae8d80e311bf91e23f",
13     "__v": 0
14   }
15 }
```

Atlas

App Services

Charts

LIONEL'S ORG - 2022-03-29 > PROJECT 0 > DATABASES

ClusterO

EW

Overview

Real Time

Metrics

Collections

Search

Profiler

Performance Advisor

Online Archive

Cmd

DATABASES: 3 COLLECTIONS: 10

+ Create Database

Q Search Namespaces

NutritionServices

places

places

test

places.places

STORAGE SIZE: 36KB TOTAL DOCUMENTS: 1 INDEXES TOTAL SIZE: 36KB

Find

Indexes

Schema Anti-Patterns

Aggregation

Search Indexes

FILTER

{ field: 'value' }

QUERY RESULTS: 1-1 OF 1

_id: ObjectId("62be32ae8d80e311bf91e23f")

title: "Rick James Bitch!!"

description: "Rick James Crib"

image: "https://images.pexels.com/photos/106399/pexels-photo-106399.jpeg?auto=..."

address: "12345 Causeway Cort"

location: Object

creator: "lionel5116"

__v: 0

Tip: Difference between find and findById (id vs a property)

FILTER { field: 'value' }

QUERY RESULTS: 1-3 OF 3

_id: ObjectId("62be32ae8d80e311bf91e23f")

title: "Rick James Bitch!!"

description: "Rick James Crib"

image: "https://images.pexels.com/photos/106399/pexels-photo-106399.jpeg?auto=..."

address: "12345 Causeway Cort"

location: Object

creator: "lionel5116"

__v: 0

```

0
1 const getPlaceById = async (req,res,next) => {
2   const placeID = req.params.pid;
3   //const place = Place.findById(placeID).exec() --if you wanted to get a real promise back (use exec)
4   console.log('The request-Param Id is = ' + req.params.pid)
5   let place;
6   try {
7     place = await Place.findById(placeID);
8   }
9   catch (error) {
10    return res.status(500).json({message: 'There was a problem fetching the place by ID.'});
11  }
12
13  if(!place) {
14    return res.status(404).json({message: 'Could not find a place for the provided id.'});
15  }
16
17  //res.json({place});
18  res.json({place: place.toObject({getters: true})}); //we are using this syntax to bring back the _id as id on the returned result
19 }
20

```

By a property other than the id field, you would use the syntax below:

<https://www.mongodb.com/docs/manual/reference/method/db.collection.find/>

```

0
1 const getPlacesByUserId = async (req,res,next) => {
2   const userId = req.params.uid;
3
4   let places;
5   try{
6     places = await Place.find({creator : userId});
7   }
8   catch(error)
9   {
10    return res.status(404).json({message: error});
11  }
12
13  You, now * Uncommitted changes
14  if(!places || places.length === 0) {
15    return res.status(404).json({message: 'Could not find places for the provided user id.'});
16  }
17
18  res.json({places});
19 }
20

```

Tip: Creating a relationship between two collections (two tables)

Whenever you want to create a relationship between two collections there are a few steps you have to follow:

First you have to add a reference in your model(s)

```
File Edit Selection View Go Run Terminal Help place.js - MernStackProject - Visual Studio Co

EXPLORER
MERNSTACKPROJECT
  Backend
  controllers
  models
    place.js M
    user.js M
  node_modules
  routes
    places-route.js
    users-route.js
  util
  .gitignore
  app.js
  package-lock.json
  package.json
  node_modules
  public
  src
  .gitignore
  ~$mStackProjectNotes.docx M
  MernStackProjectNotes.docx
  package-lock.json
  package.json

Backend > models > place.js > ...
You, 2 seconds ago | 2 authors (p00149021@houstonisd.org Mag17615@7 and others)
1 const mongoose = require('mongoose');
2 const Schema = mongoose.Schema;
3
4 const placeSchema = new Schema ({
5   title: { type: String, required: true},
6   description: { type: String, required: true},
7   image:{ type: String, required: true},
8   address:{ type: String, required: true},
9   location: {
10     lat:{ type: Number, required: true},
11     lng: { type: Number, required: true}
12   },
13   //this is how you do referential integrity between two document object
14   creator: { type: mongoose.Types.ObjectId, required: true, ref: 'User'}
15 });
16
17 //The naming convention for our model: UpperCase FirstLetter,
18 //No S, Mongo DB will make it plural and also name the document as places
19 module.exports = mongoose.model('Place',placeSchema);
20
```

```
Final Help user.js - MernStackProject - Visual Studio Code
users-controller.js 2, M places-controller.js 3, M app.js place.js M user.js M X

Backend > models > user.js > userSchema
You, 41 minutes ago | 2 authors (p00149021@houstonisd.org Mag17615@7 and others)
1 const mongoose = require('mongoose');
2 const uniqueValidator = require('mongoose-unique-validator');
3 const Schema = mongoose.Schema;
4
5 const userSchema = new Schema({
6   name:{ type: String, required: true},
7   email:{ type: String, required: true, unique: true},
8   password:{ type: String, required: true, minlength: 6},
9   image:{ type: String, required: true},
10
11   //the brackets mean that a user can have more than one place
12   places: [{type: mongoose.Types.ObjectId, required: true, ref: 'Place'}]
13 });
14
15 userSchema.plugin(uniqueValidator);
16 module.exports = mongoose.model('User',userSchema);
17
```

Then implement the code below when added a record with a relative relationship

```

let coordinates = await getCoordsForAddress(address);

const createdPlace = new Place({
  title,
  description,
  location: coordinates,
  address,
  image: 'https://images.pexels.com/photos/106399/pexels-photo-106399.jpeg?auto=compress&cs=tinysrgb&dpr=1&w=500',
  creator
});

let user;
try {
  user = await User.findById(creator);
} catch (error) {
  return res.status(500).json({message: 'There was an issue fetching the related user....' + error});
}

console.log(user)

if(!user)
{
  return res.status(500).json({message: 'User does not exist to create relationship'});
}

try {
  const _session = await mongoose.startSession();
  _session.startTransaction();
  await createdPlace.save({session: _session});
  user.places.push(createdPlace);
  await user.save({session: _session});
  await _session.commitTransaction();
} catch (err){
  return res.status(500).json({message: 'Failed to add a place, missing required field information.' + err});
}

res.status(201).json({place: createdPlace})
};

```

(**Tip:** Using transactions to write records)

Notice the session code, this is the same as in SQL Server whenever you want to do a BEGIN/END trans. This allows you to roll-back any updates if either one fails. Above we are creating a new place and updating the related collection as well.

Search

POST http://localhost:5000/ × POST http://localhost:5000/ + ...

http://localhost:5000/api/users/signup

POST

http://localhost:5000/api/users/signup

Params Authorization Headers (8) Body Pre-request Script Tests Settings

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

JSON

1

2

3

4

5

6

7

8

9

10

11

12

1

2

3

4

5

6

7

8

9

10

11

12

Body Cookies Headers (7) Test Results

Pretty

Raw

Preview

Visualize

JSON

1

2

3

4

5

6

7

8

9

10

11

12

1

2

3

4

5

6

7

8

9

10

11

12

```
1  {
2    "name": "Rick James",
3    "email": "rickjames@hotmail.com",
4    "password": "password98765",
5    "image": "https://images.pexels.com/photos/106399/pexels-photo-106399.jpeg?auto=compress&cs=tinysrgb&dpr=1&w=500",
6    "places": [],
7    "_id": "62c71b8678a8893065053551",
8    "__v": 0,
9    "id": "62c71b8678a8893065053551"
10  }
11
12
```

POST http://localhost:5000/

POST http://localhost:5000/

+

...

10 http://localhost:5000/api/places

POST http://localhost:5000/api/places

Params Authorization Headers (8) Body Pre-request Script Tests Settings

none form-data x-www-form-urlencoded raw binary GraphQL JSON

```
1 {
2   "title": "My Second Crib",
3   "description": "Carribean dream",
4   "address": "Thi is an insane second crib",
5   "creator": "62c71b8678a8893065053551"
6 }
```

Body Cookies Headers (7) Test Results

Pretty Raw Preview Visualize JSON

```
1 {
2   "place": {
3     "title": "My Second Crib",
4     "description": "Carribean dream",
5     "image": "https://images.pexels.com/photos/106399/pexels-photo-106399.jpeg?auto=compress&cs=tinysrgb&dpr=1&w=500",
6     "address": "Thi is an insane second crib",
7     "location": {
8       "lat": 40.78444474,
9       "lng": -73.9887655
10    },
11    "creator": "62c71b8678a8893065053551",
12    "_id": "62c71d0a78a889306505355b",
13    "__v": 0
14  }
15 }
```


places.users

STORAGE SIZE: 36KB TOTAL DOCUMENTS: 1 INDEXES TOTAL SIZE: 72KB

[Find](#)[Indexes](#)[Schema Anti-Patterns 0](#)[Aggregation](#)[Search Indexes ●](#)

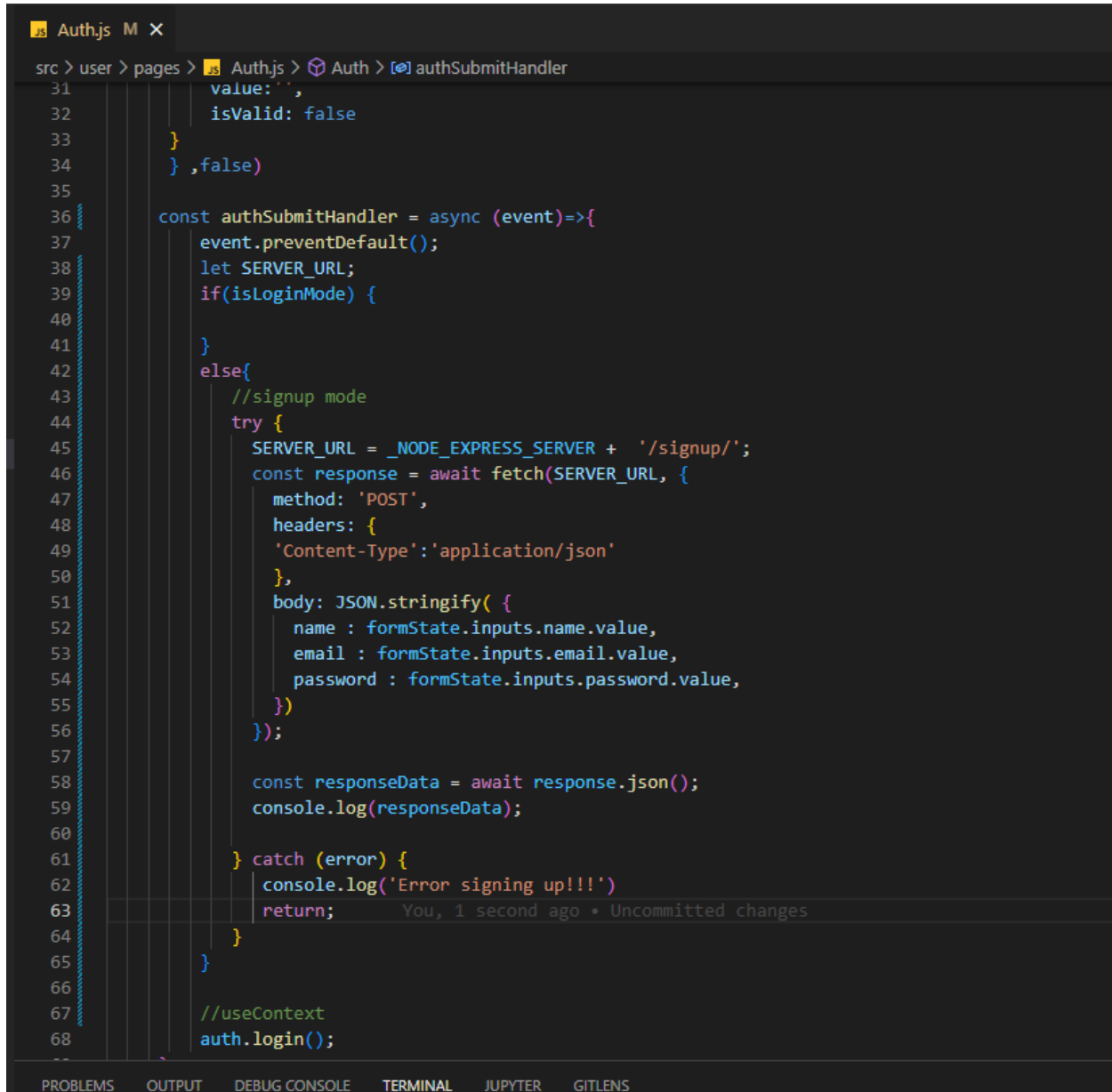
FILTER { field: 'value' }

QUERY RESULTS: 1-1 OF 1

```
_id: ObjectId("62c71b8678a8893065053551")
name: "Rick James"
email: "rickjames@hotmail.com"
password: "password98765"
image: "https://images.pexels.com/photos/106399/pexels-photo-106399.jpeg?auto=..."
places: Array
  0: ObjectId("62c71bfd78a8893065053555")
  1: ObjectId("62c71d0a78a889306505355b")
__v: 2
```

Tip: Writing to MongoDB from the front-end using **fetch** and adding CORS

We are using the built-in javascript fetch as opposed to AXIOS

A screenshot of a VS Code editor window with a dark theme. The file explorer on the left shows the path 'src > user > pages > Auth.js'. The editor displays the 'authSubmitHandler' function. The code includes logic for login and signup modes, using the 'fetch' API to send POST requests to a backend server. It also includes error handling and a console log. The bottom of the editor shows tabs for 'PROBLEMS', 'OUTPUT', 'DEBUG CONSOLE', 'TERMINAL', 'JUPYTER', and 'GITLENS'.

```
31     value: '',
32     isValid: false
33   }
34   }, false)
35
36   const authSubmitHandler = async (event) => {
37     event.preventDefault();
38     let SERVER_URL;
39     if (isLoginMode) {
40
41     }
42     else {
43       //signup mode
44       try {
45         SERVER_URL = _NODE_EXPRESS_SERVER + '/signup/';
46         const response = await fetch(SERVER_URL, {
47           method: 'POST',
48           headers: {
49             'Content-Type': 'application/json'
50           },
51           body: JSON.stringify({
52             name: formState.inputs.name.value,
53             email: formState.inputs.email.value,
54             password: formState.inputs.password.value,
55           })
56         });
57
58         const responseData = await response.json();
59         console.log(responseData);
60
61       } catch (error) {
62         console.log('Error signing up!!!')
63         return;
64       }
65     }
66
67     //useContext
68     auth.login();
```

Adding CORS to our api

```

Backend > app.js > ...
You, 1 second ago | 2 authors (p00149021@houstonisd.org Mag17615@7 and others)
1 //npm start (see your package.json - we are using nodemon for hot re-load (npm install n
2
3 const express = require('express');
4 const bodyParser = require('body-parser');
5 const mongoose = require('mongoose');
6
7 const placesRoutes = require('./routes/places-route')
8 const userRoutes = require('./routes/users-route');
9
10 const app = express();
11
12 app.use(bodyParser.json());
13
14 //allow CORS
15 app.use((req,res,next) => {
16   res.setHeader('Access-Control-Allow-Origin','*');
17   res.setHeader(
18     "Access-Control-Allow-Headers",
19     "Origin,X-Requested-With,Content-Type,Accept,Authorization"
20   );
21   res.setHeader('Allow-Control-Allow-Methods','GET,POST,PATCH,DELETE');
22   next();
23 });
24 You, 1 second ago • Uncommitted changes
25 app.use('/api/places',placesRoutes); //=> /api/places/...
26 app.use('/api/users',userRoutes); //=> /api/users/...
27

```

(Tip:Fixing the Headers already sent to client error/ unhandled exception)
Remove this from your api method

```
42 }
43
44 if(existingUser){
45   return res.status(500).json({message: 'User exists already.. please login instead..'});
46 }
47
48
49 const createdUser = new User({
50   name,
51   email,
52   image: 'https://images.pexels.com/photos/106399/pexels-photo-106399.jpeg?auto=compress&cs=tinysrgb&dpr=1&w=500',
53   password,
54   places:[]
55 });
56
57
58 await createdUser.save().then(() => {
59   //res.status(201).json({user: createdUser})
60   res.status(201).json({user: createdUser.toObject({getters: true})});
61 })
62 .catch((error) => {
63   return res.status(500).json({message: 'Failed to sign up user. please try again: -' + error});
64 });
65
66 res.status(201);
67 //res.json({message: 'User Created'});
68
69 }
70
```

It was in the exception message what line it was breaking on