

React Review

You should understand:

- React components as functions
- React components are composable
- Components can pass props to other components
- How to set the state of a component
- State and prop changes trigger re-renders

A Bigger Example

Consider:

```
// ...
if(userState.isLoggedIn) {
  content = <ShowStuff stuff={userState.info}/>;
} else {
  content = <Login onLogin={login}/>;
}

return (
  <div className="app">
    <Nav user={userState} onLogout={logout}/>
    {content}
  </div>
);
```

Conclusions

Readability:

- `login/logout` are functions
 - *inside* the component
- `content` is just for cleanliness

Separation of Concerns:

- `userState` is managed in this component
- other components have it as a **read-only** prop

Side Note: Props are Read Only

Props should be read-only

Common mistake: use them to initialize state

Problems when they change in the ancestor/sibling or on a re-render

Which version is true?

Avoid this: **Props are read-only**

Considering Nav

```
import { fetchLogout } from './services';

const Nav = ({ user, onLogout }) => {
  const logout = () => {
    fetchLogout()
      .then( () => onLogout() );
  };
  return (
    <ul className='nav'>
      <li>{user.username}</li>
      { user.isLoggedIn && <li onClick={logout}>Logout</li> }
    </ul>
  );
};
```

Nav Thoughts?

Why an ``?

- Common menu structure, unrelated to React
- React doesn't change these conventions

`user` isn't called `userState` here

- it's not state, it's a prop
- change is made through `onLogout()`

Service call is encapsulated within `Nav.jsx`

- App doesn't know HOW Nav did the logout

Login

```
return (  
  <div className="login">  
    <p className="error">{error}</p>  
    <input onChange={ (e) => setUsername(e.target.value) }/>  
    { isLoading ?  
      <img alt="spinner" src={spinner}/> :  
      <button onClick={ performLogin }>Login</button>  
    }  
  </div>  
) ;
```

Basic Login Thoughts

So much state **local to component**

- `isLoading`
- `error`
- `username`

Logic in JSX file, but out of JSX syntax

- `performLogin`

Spinner!

More Login code

```
const performLogin = () => {
  if(!username) {
    setError(messages.USERNAME_REQUIRED);
    return;
  }
  setError('');
  setIsLoading(true);

  fetchLogin(username)
    .then( (userInfo) => onLogin(userInfo.username) )
    .catch( (err) => {
      setError(messages[err.code] || 'DEFAULT');
      setIsLoading(false);
    });
};
```

More Login Thoughts

Note lack of state "cleanup"

- Assumes component will be removed after login

What is `messages`? Why CAPS?

- common CONSTANTS convention
- external config file:

```
export default messages = {  
  DEFAULT: 'Oh no! Something went wrong, please try again',  
  USERNAME_REQUIRED: 'Username is required',  
  NETWORK_ERROR: 'There was a problem reaching your network, please try again',  
  LOGIN_REQUIRED: 'You must be logged in to view this content',  
  LOGIN_UNAUTHORIZED: 'You are not permitted to view this content',  
};
```

How to tie interactions to rendering

`useEffect` hook:

- does NOT return anything
- runs when component renders
- or only when any listed vars change

useEffect example

```
useEffect( () => {  
  fetchLoginStatus()  
  .then( userInfo => {  
    setUserState({  
      isLoggedIn: true,  
      username: userInfo.username,  
    });  
  });  
}, []);
```

useEffect thoughts

- Here we are rendering only on **initial** render
 - the `[]` means it only runs once
 - an array of vars means rerun only if they change
 - ...no vars in array, so nothing triggers change
- If component removed and replaced, total new state
 - But that can't happen for this example

useEffect advice

- Use cautiously
- Load state as needed
- Remember spinners to account for delay