MORE ON REDUX

Christelle

https://github.com/tnt-summer-academy/Curriculum/wiki

Microsoft / TNTs

Learning objectives

- TNTs will review Redux
- TNTs will learn about combining reducers
- TNTs will work with examples

HOW DO YOU FEEL ABOUT REDUX?

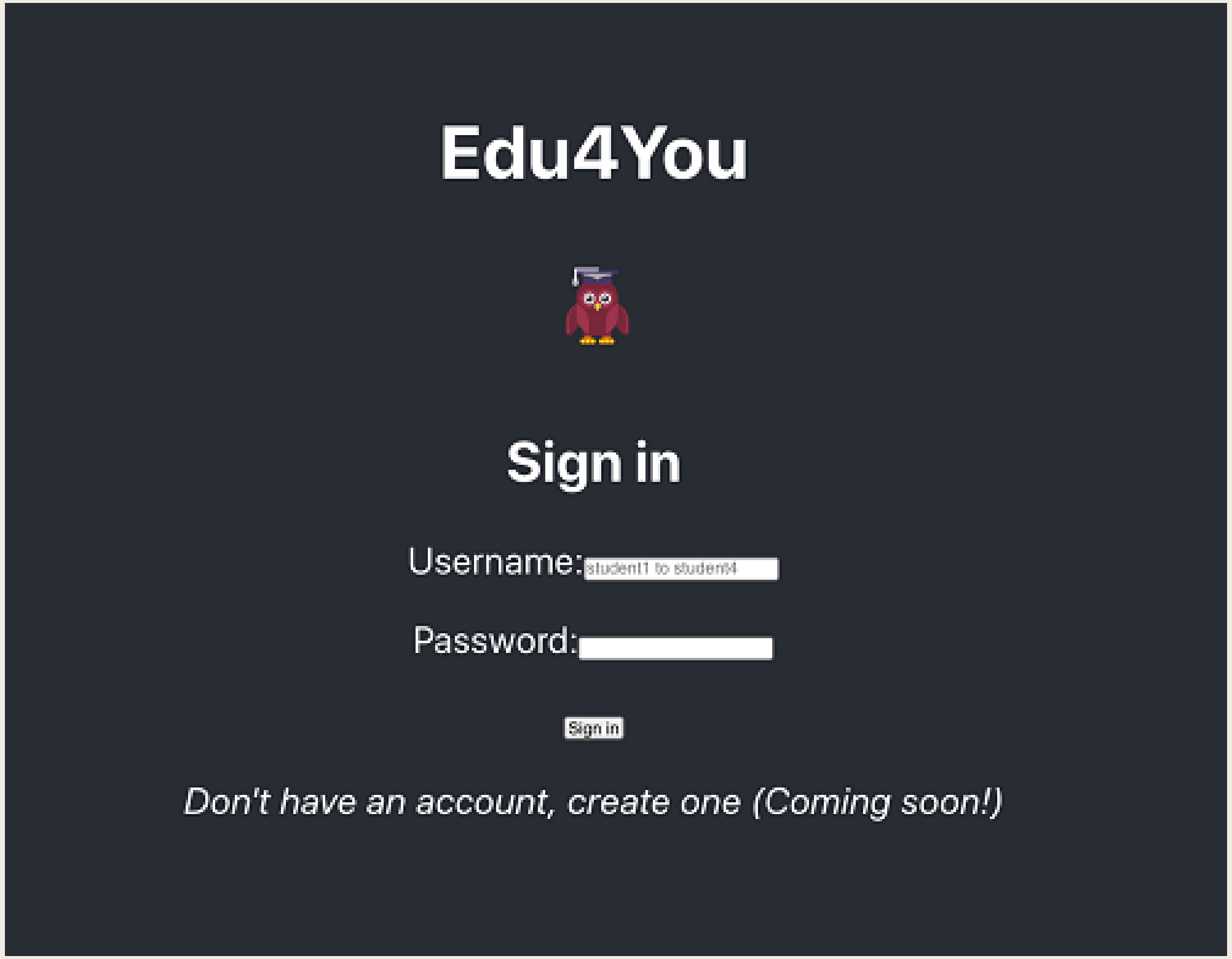
CODE FOR TODAY

HTTPS://GITHUB.COM/TNT-SUMMER-ACADEMY/SAMPLES/TREE/MAIN/STRETCH

combine-redux and courses-redux

npm install

We will build this during the session…



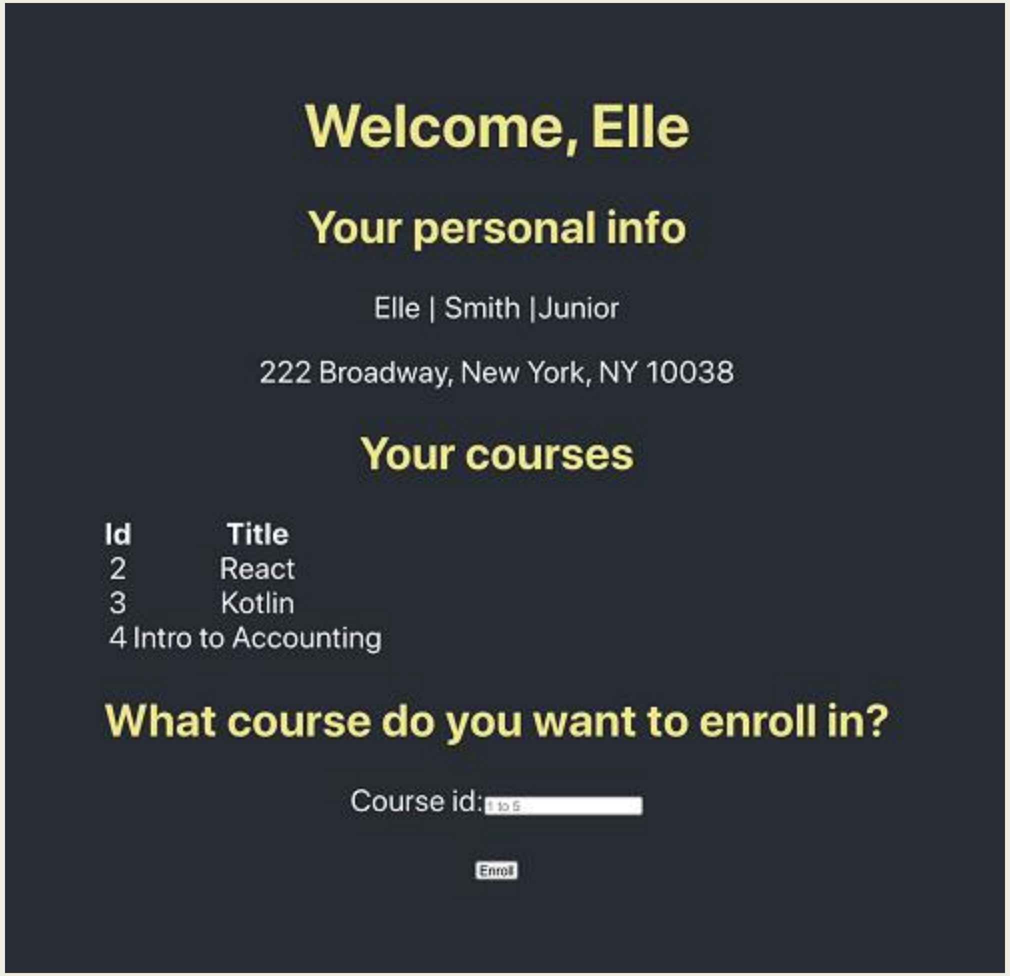
Edu4You

Sign in

Username: student1 to student4

Password:

Don't have an account, create one (Coming soon!)



Welcome, Elle

Your personal info

Elle | Smith |Junior

222 Broadway, New York, NY 10038

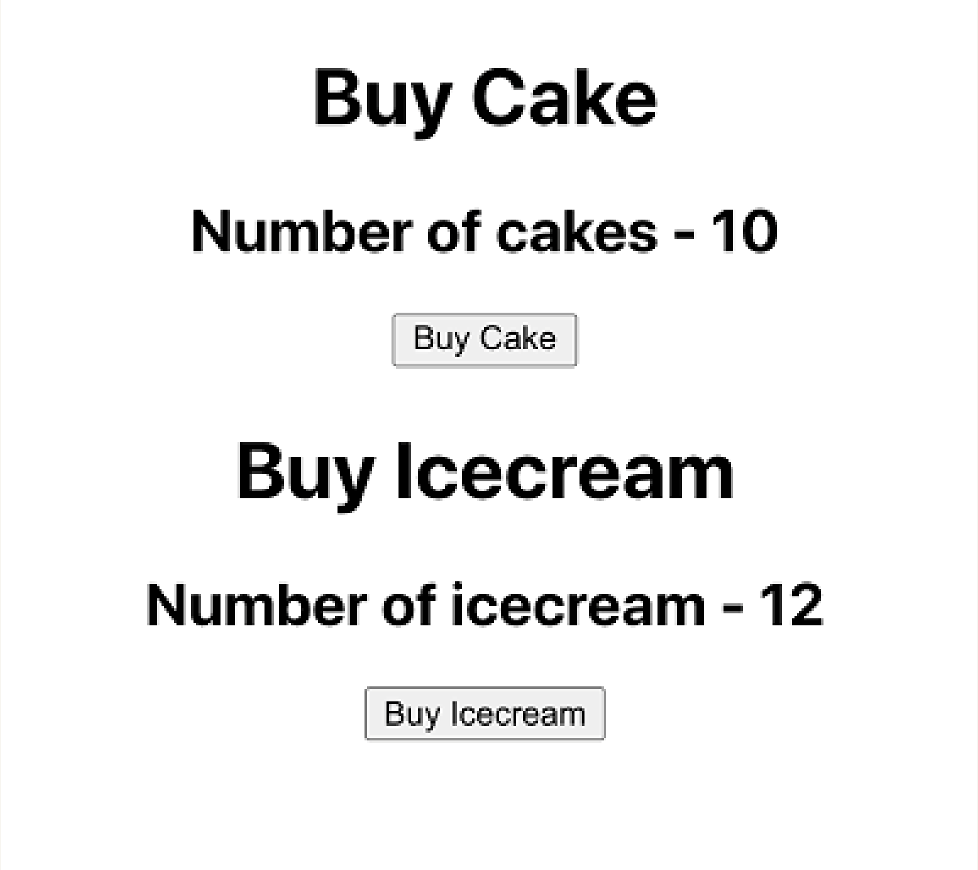
Your courses

Id	Title
2	React
3	Kotlin
4	Intro to Accounting

What course do you want to enroll in?

Course id: 1 to 5

We will build this during the session…



Buy Cake

Number of cakes - 10

Buy Icecream

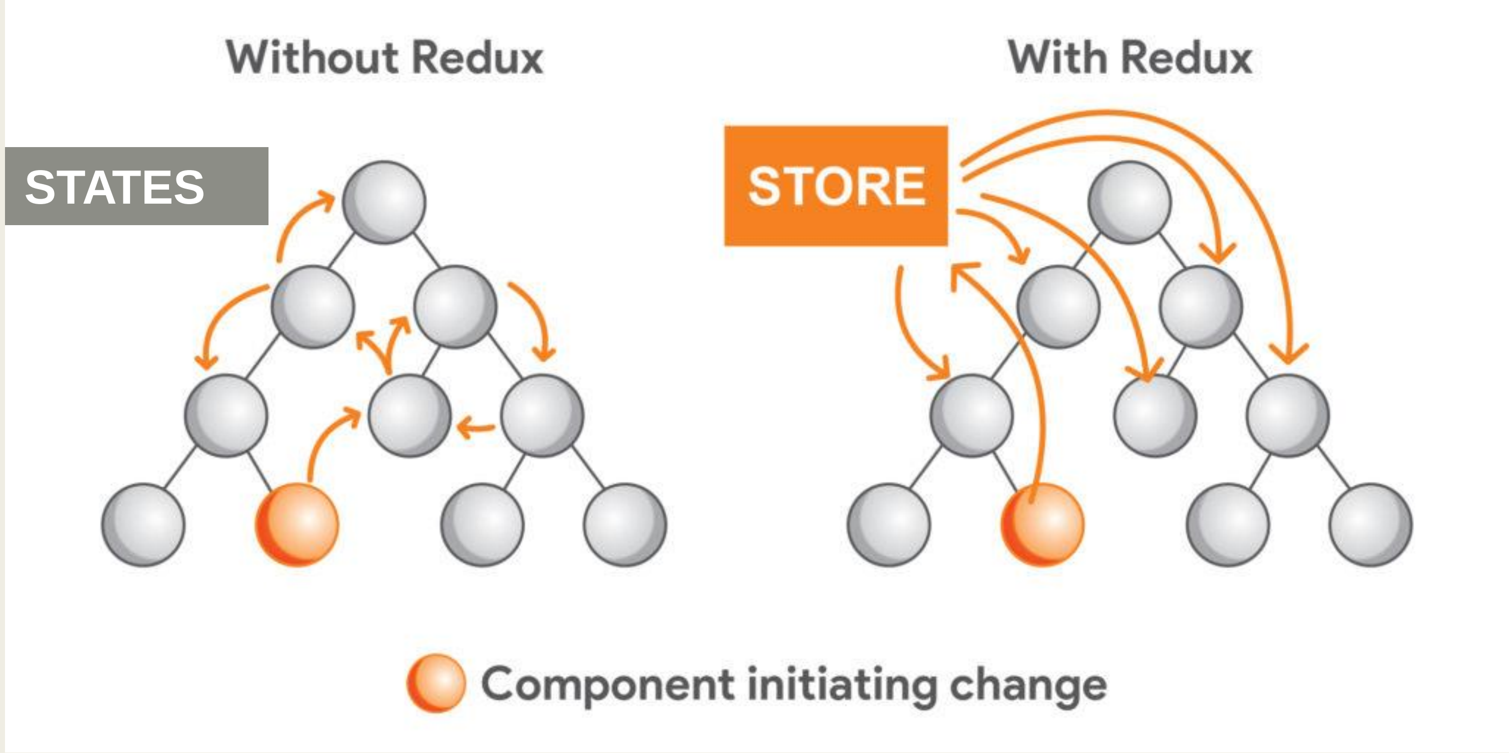
Number of icecream - 12

DATA IN APPS

Data

- Hard coded
- JSON file
- Database – SQL or No SQL
  - *for an app or several apps, persistent data*
- State
  - *for a component, changing data*
- Redux store
  - *for an app, changing data*
- Etc.

States versus Store



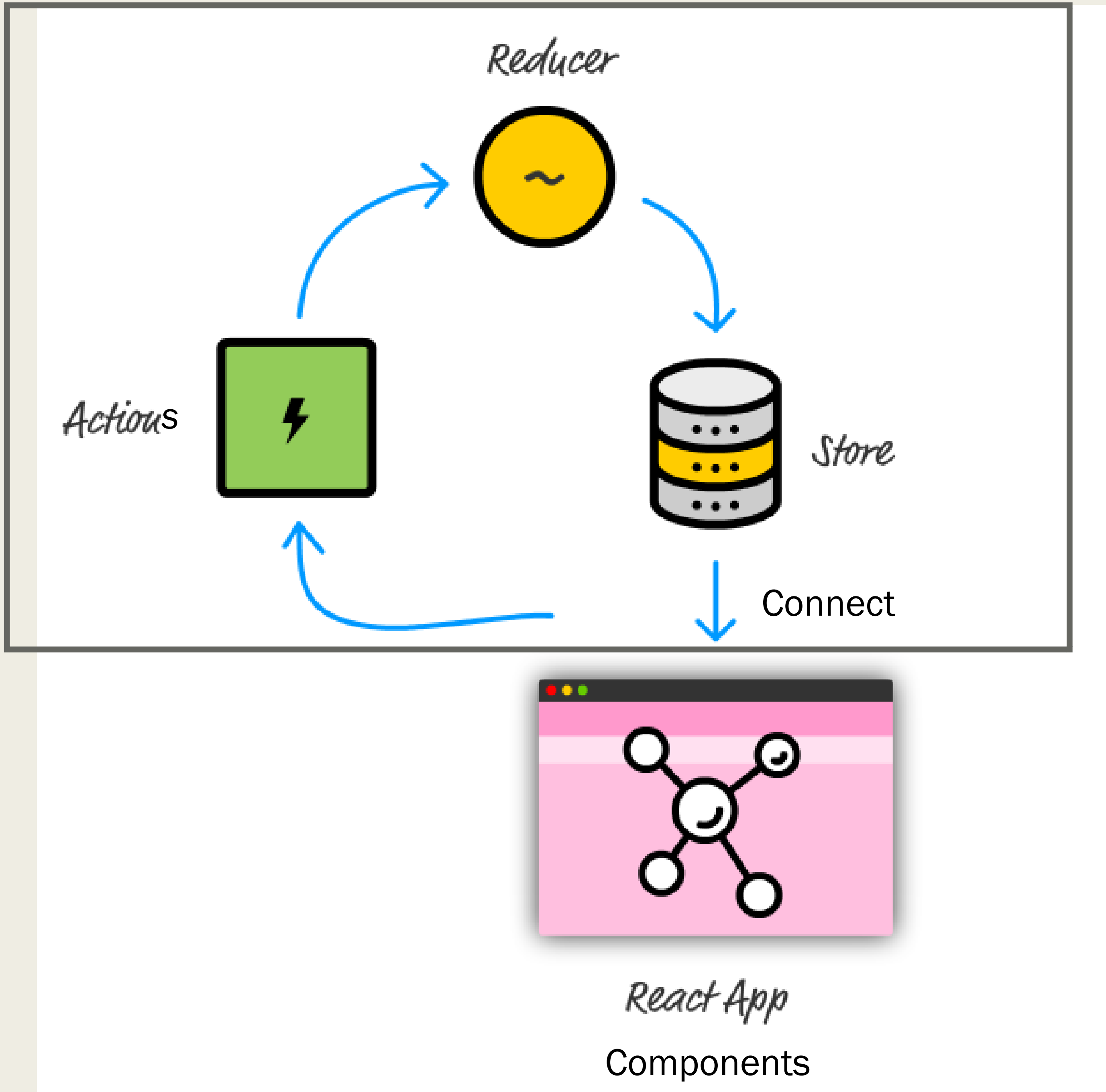
https://www.systango.com/blog/free-react-redux-starter-kit

ARCHITECTURE OF REDUX

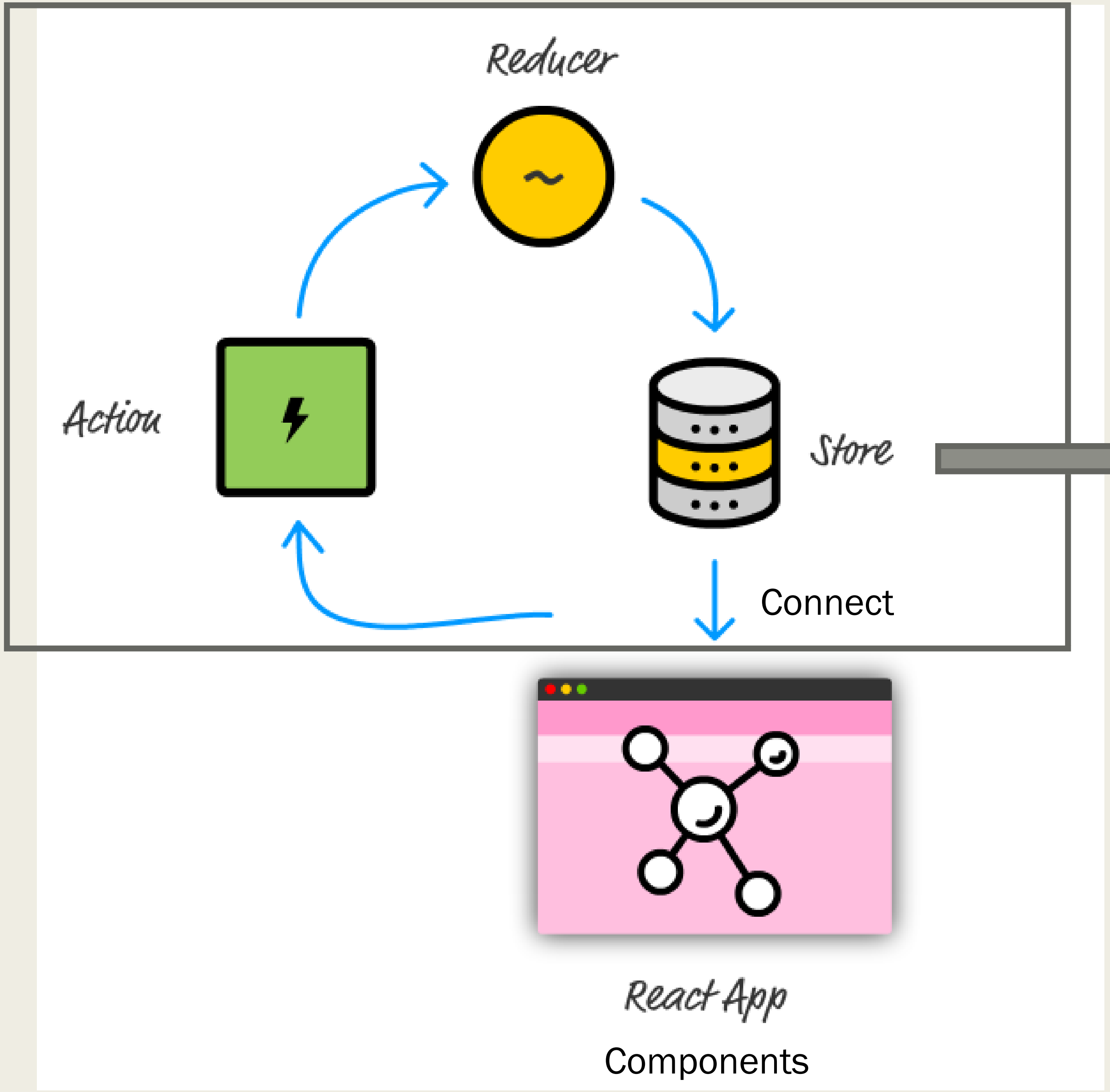
ARCHITECTURE MEANS THAT THERE ARE LAYERS

Complex at first but simpler for large apps…

Redux



STORE



Connect

Components

Redux

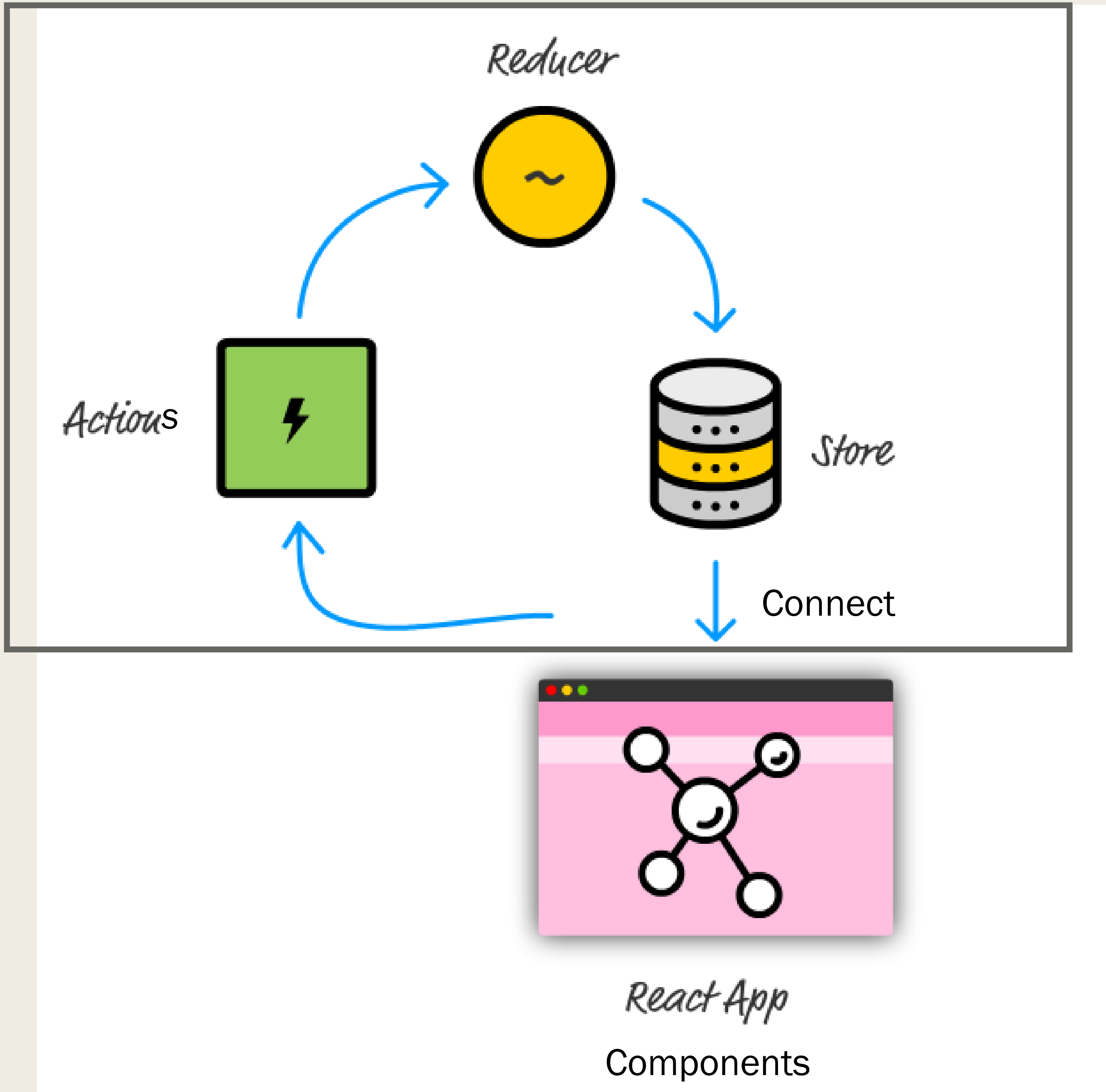
Make the state available to all components
<Provider> tag
createStore

What is the state of the app?

ACTIONS

Actions have type (and payload)

Specific way to be defined

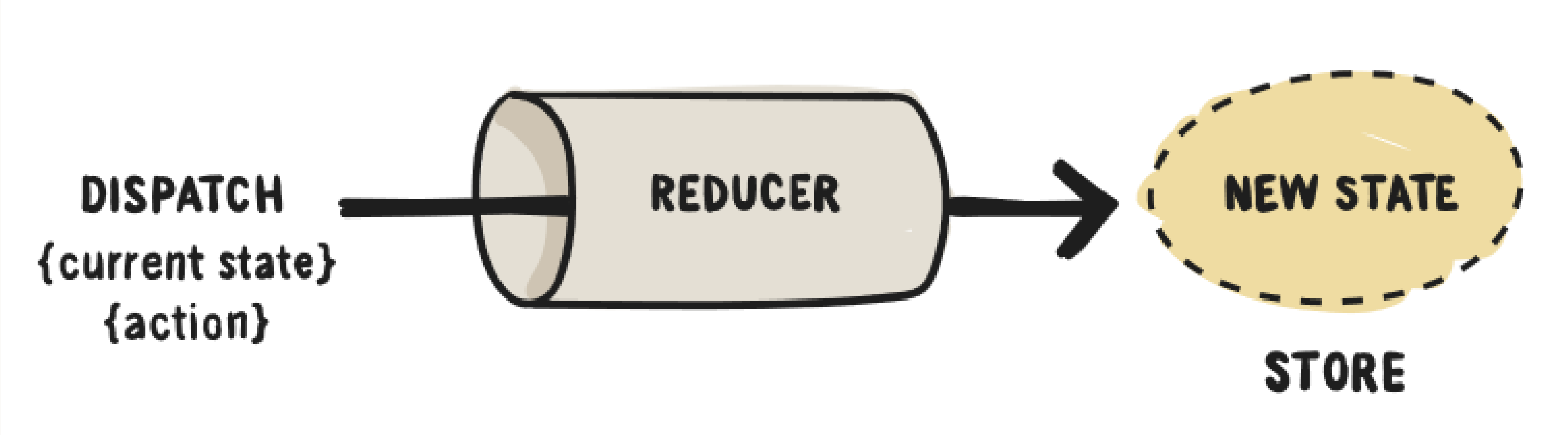


Connect

Components

Redux

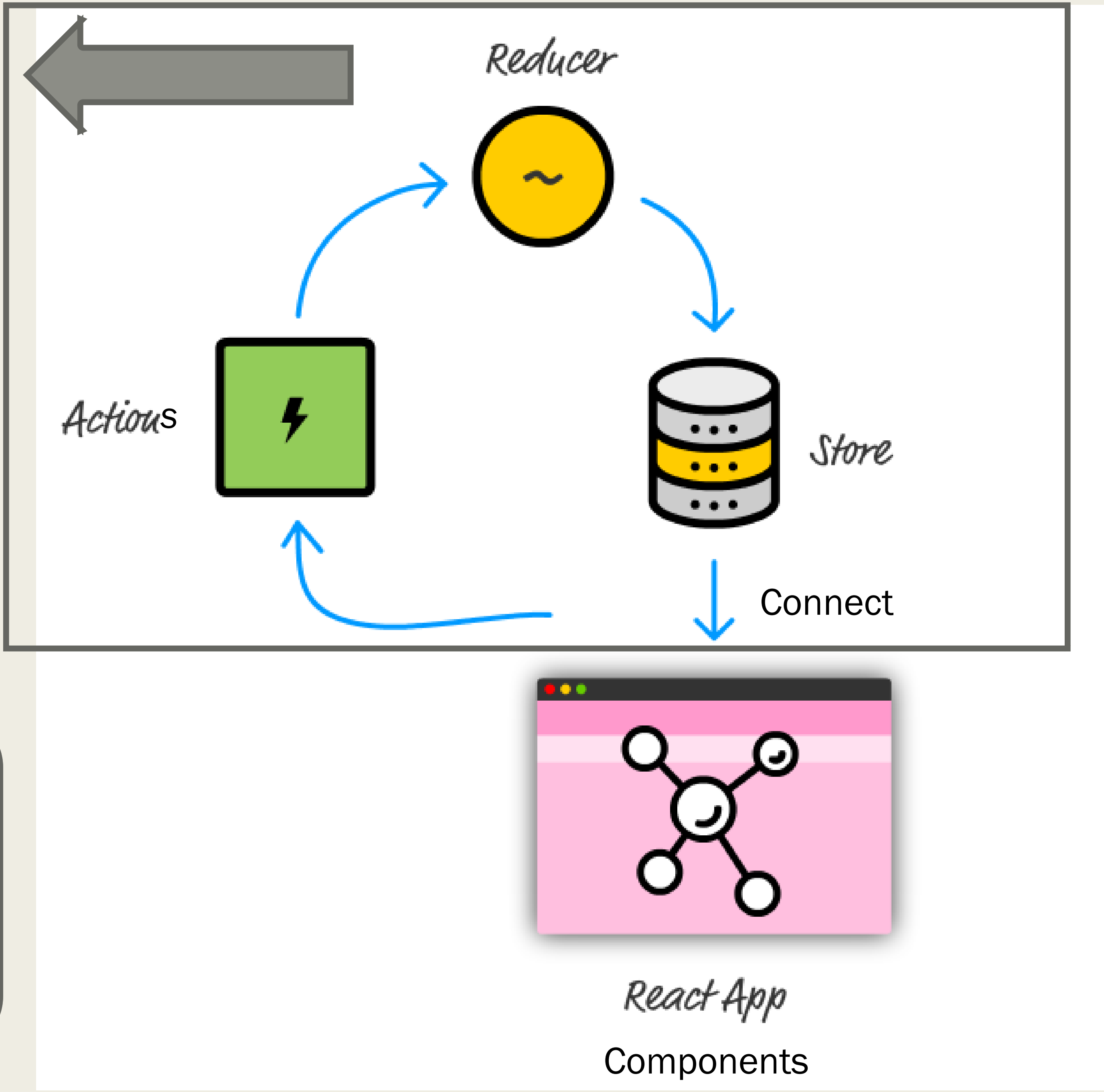
REDUCER



REDUCER

(appstate, action)
=>
new appstate

Deep copy of the state (no shallow copy)



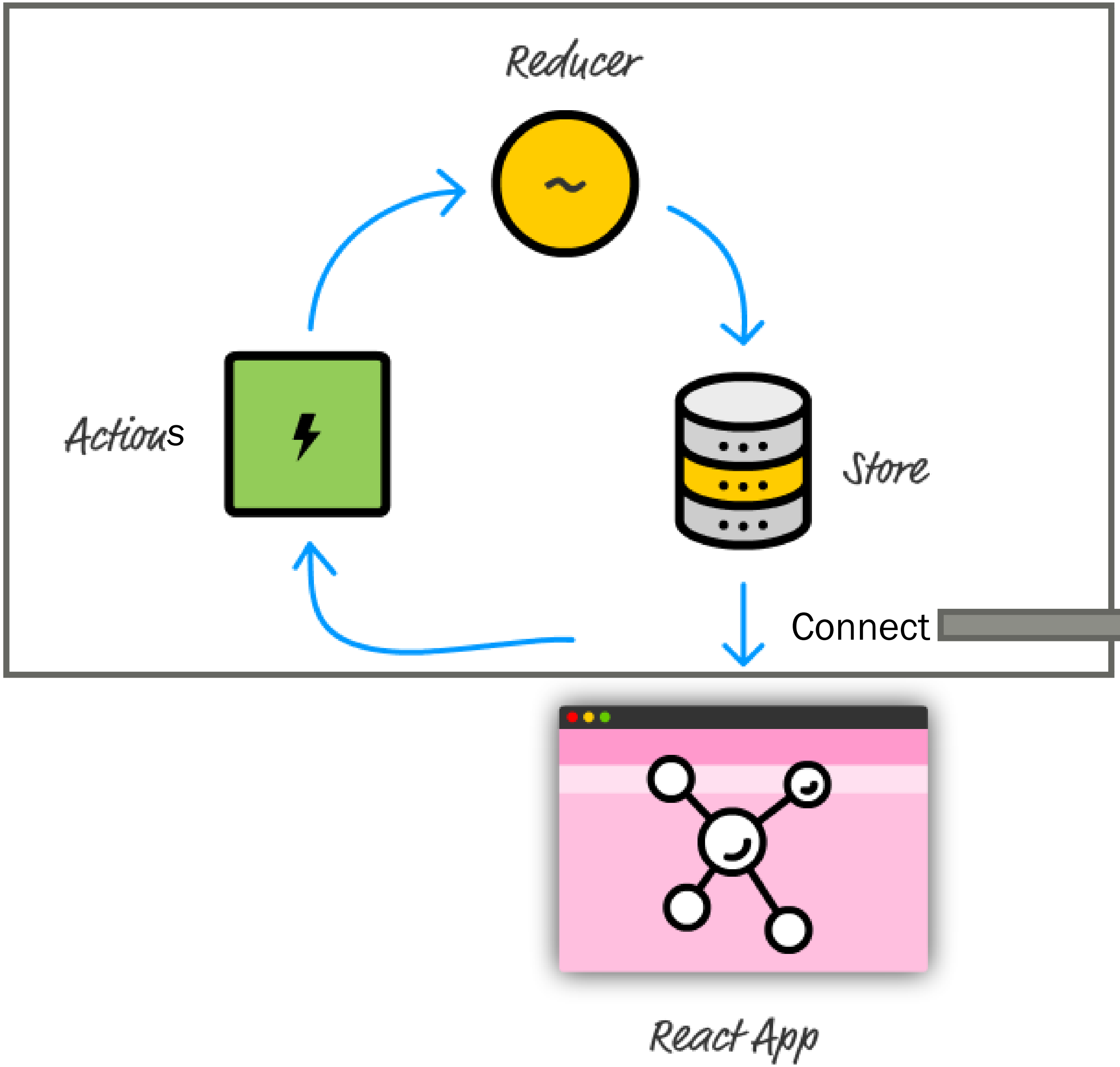
Connect

Components

Redux

CONNECT

Redux



Components

In Redux:
mapStateToProps
mapDispatchToProps
Connect

STATE, ACTIONS

In the component:

PROPS

STEPS FOR IMPLEMENTING REDUX

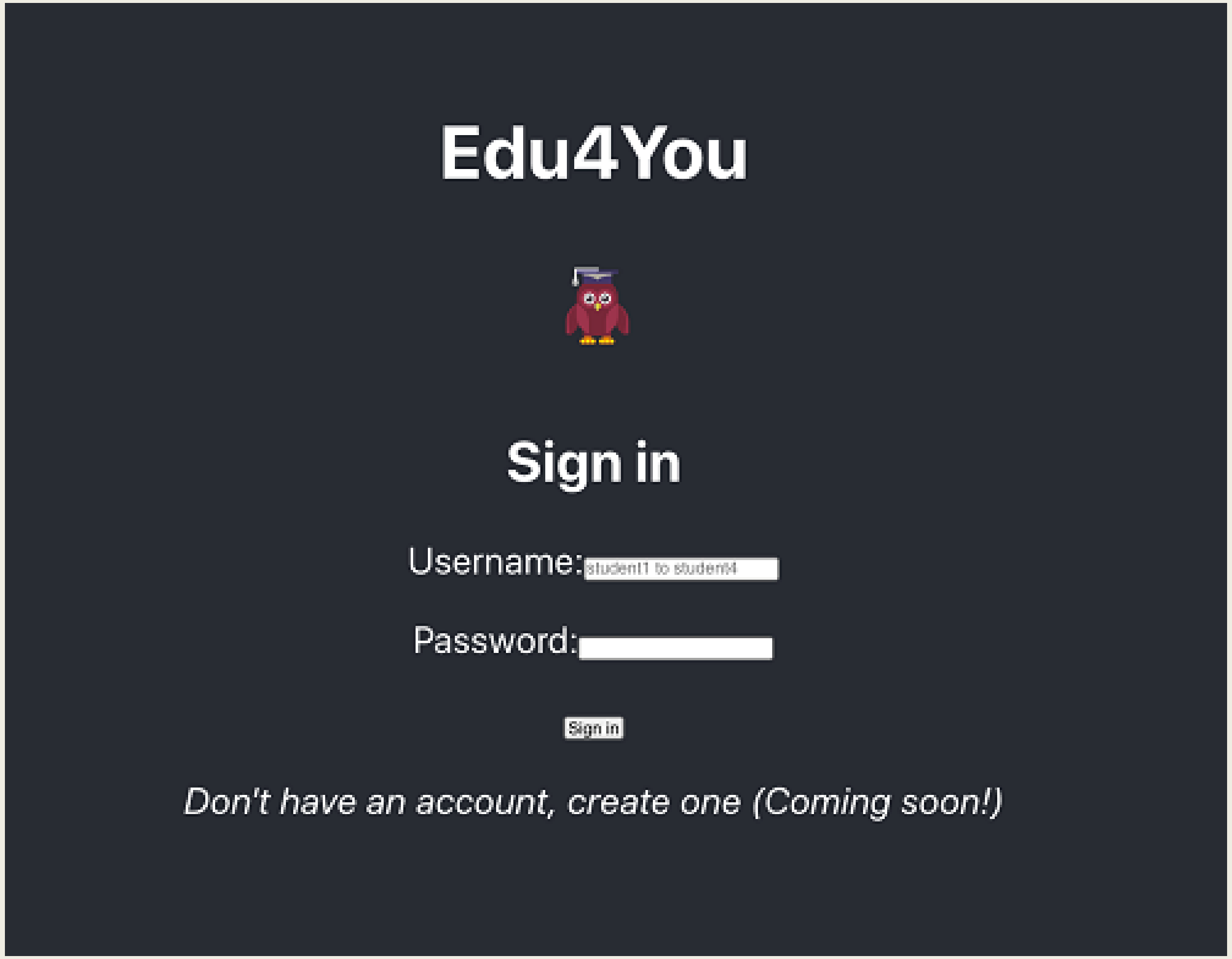
Summary of the steps

- Step 0: Setup Redux [index.tsx]
- Step 1: What state do we need for the app?
- Step 2: Represent the state of the app [types.tsx]
- Step 3: Represent the actions [actions.tsx]
- Step 4: Write the reducer to make the actions happen [reducer.tsx]
  - *Switch based on the type of the actions*
- Step 5: Use the state in your components
  - *mapStateToProps and mapDispatchToProps*
  - *Connect*
  - *Props in the component*

REDUX EXAMPLE

courses-redux

What state do we need for the app?



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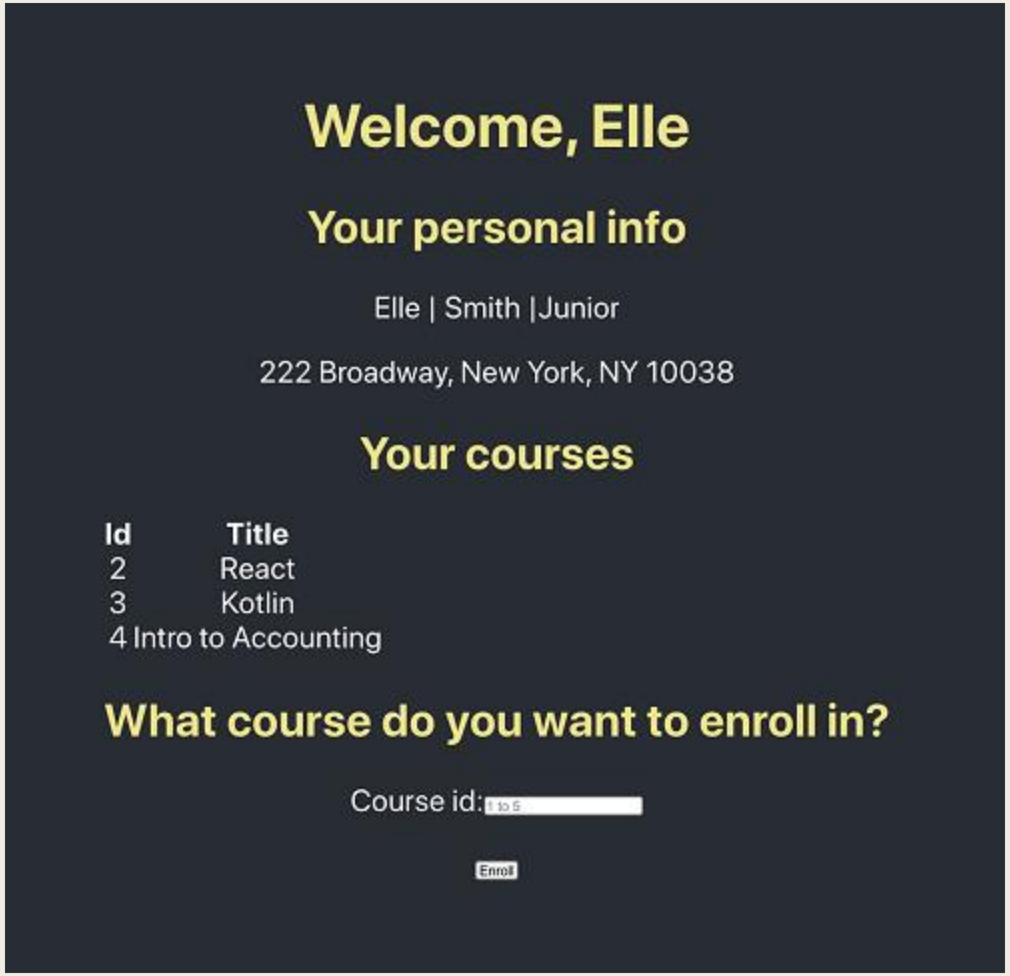

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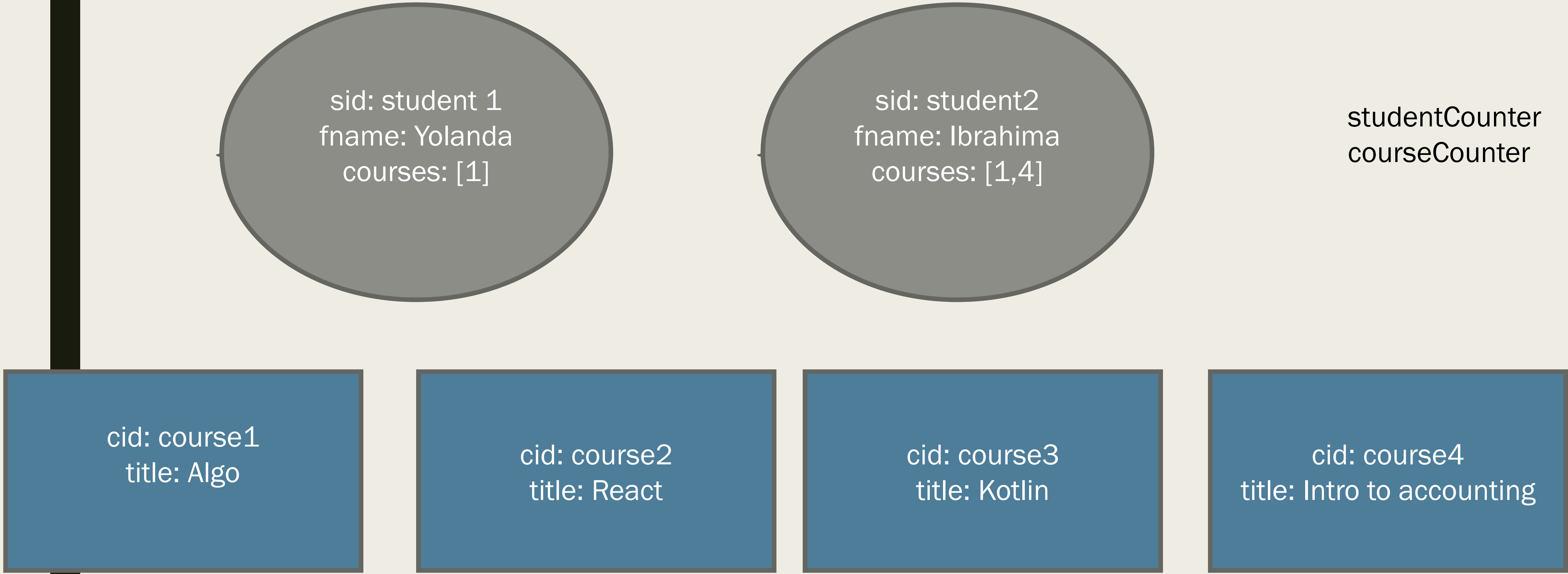
Course id: 1 to 5

What state do we need for the app?



sid: student 1
fname: Yolanda
courses: [1]

sid: student2
fname: Ibrahima
courses: [1,4]

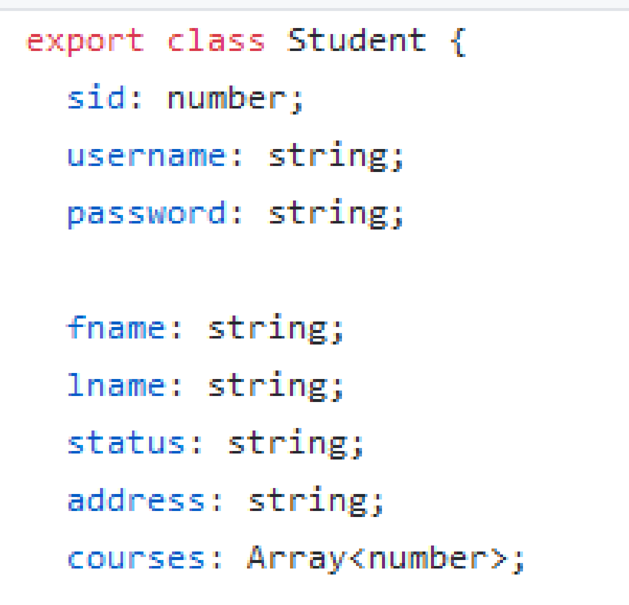
studentCounter
courseCounter

cid: course1
title: Algo

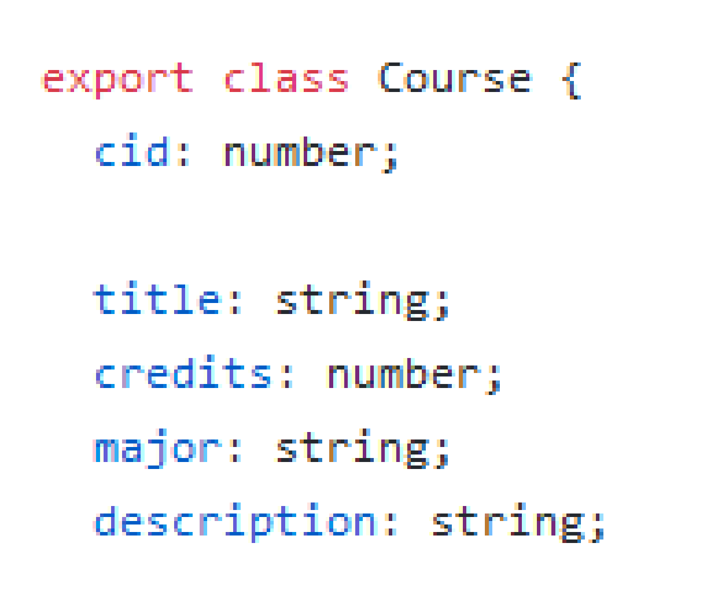
cid: course2
title: React

cid: course3
title: Kotlin

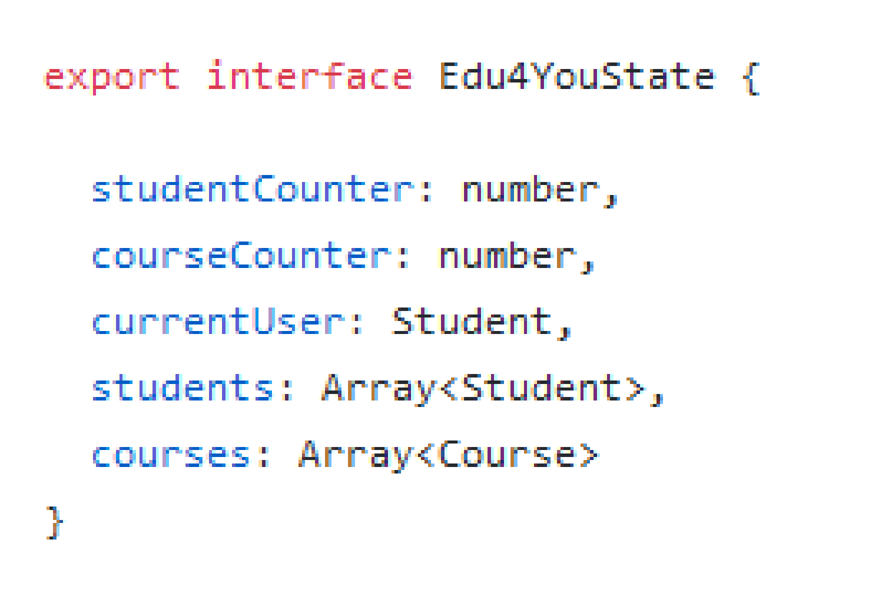
cid: course4
title: Intro to accounting



```
export class Student {
  sid: number;
  username: string;
  password: string;

  fname: string;
  lname: string;
  status: string;
  address: string;
  courses: Array<number>;
```



```
export class Course {
  cid: number;

  title: string;
  credits: number;
  major: string;
  description: string;
```



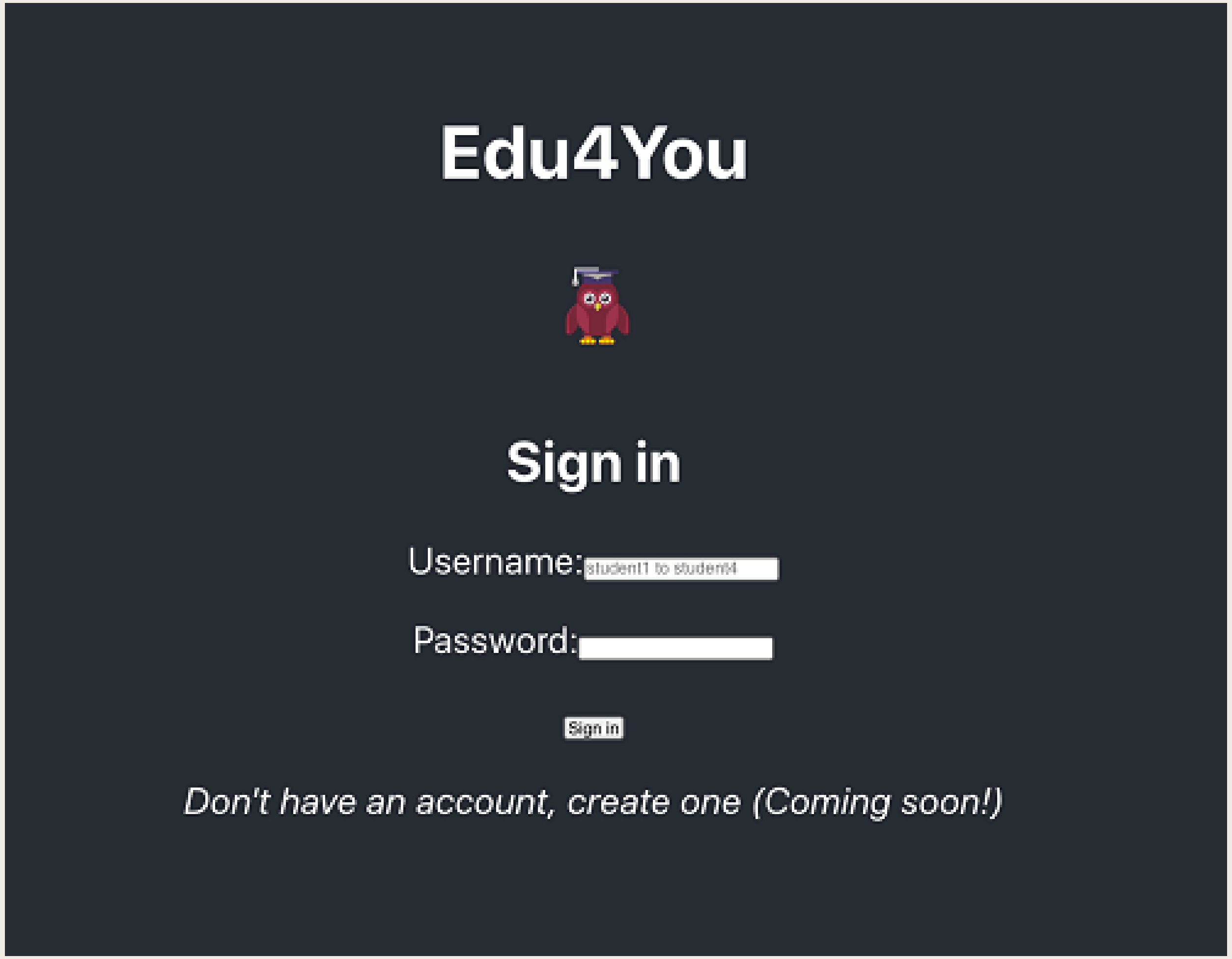
```
export interface Edu4YouState {

  studentCounter: number,
  courseCounter: number,
  currentUser: Student,
  students: Array<Student>,
  courses: Array<Course>
}
```

How does it work?

- When we click on Signin
- We update the current user in the store
- We go to the next page and show the username

- Redux
  - *Current user*

SignInpage.tsx



Edu4You

Sign in

Username: student1 to student4

Password:

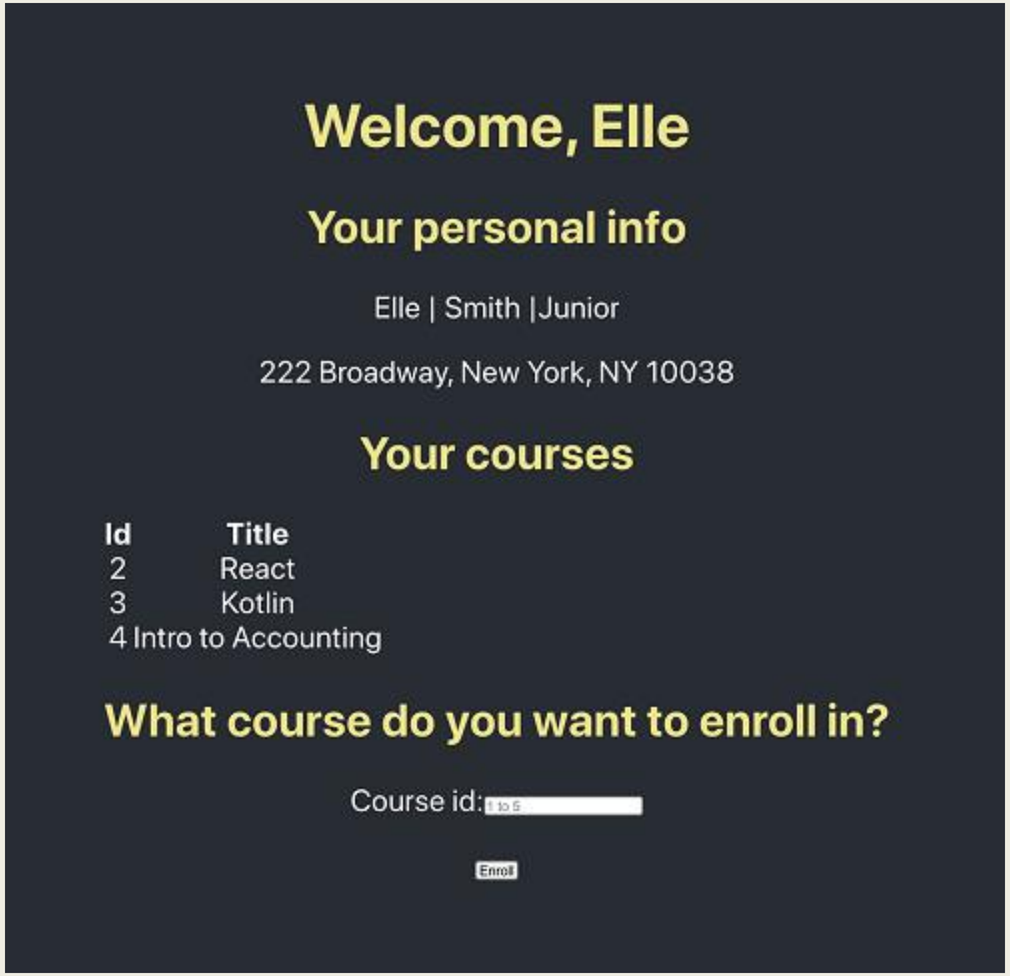
Don't have an account, create one (Coming soon!)

What state do we need for the app?

- When we click on Enroll
- We update the list of courses taken by the user in the store
- We update the UI of the page
- Troubleshooting: The reducer needs to do a deep copy of the initial state!

- Redux
  - *List of courses taken by a user*

MainPage.tsx



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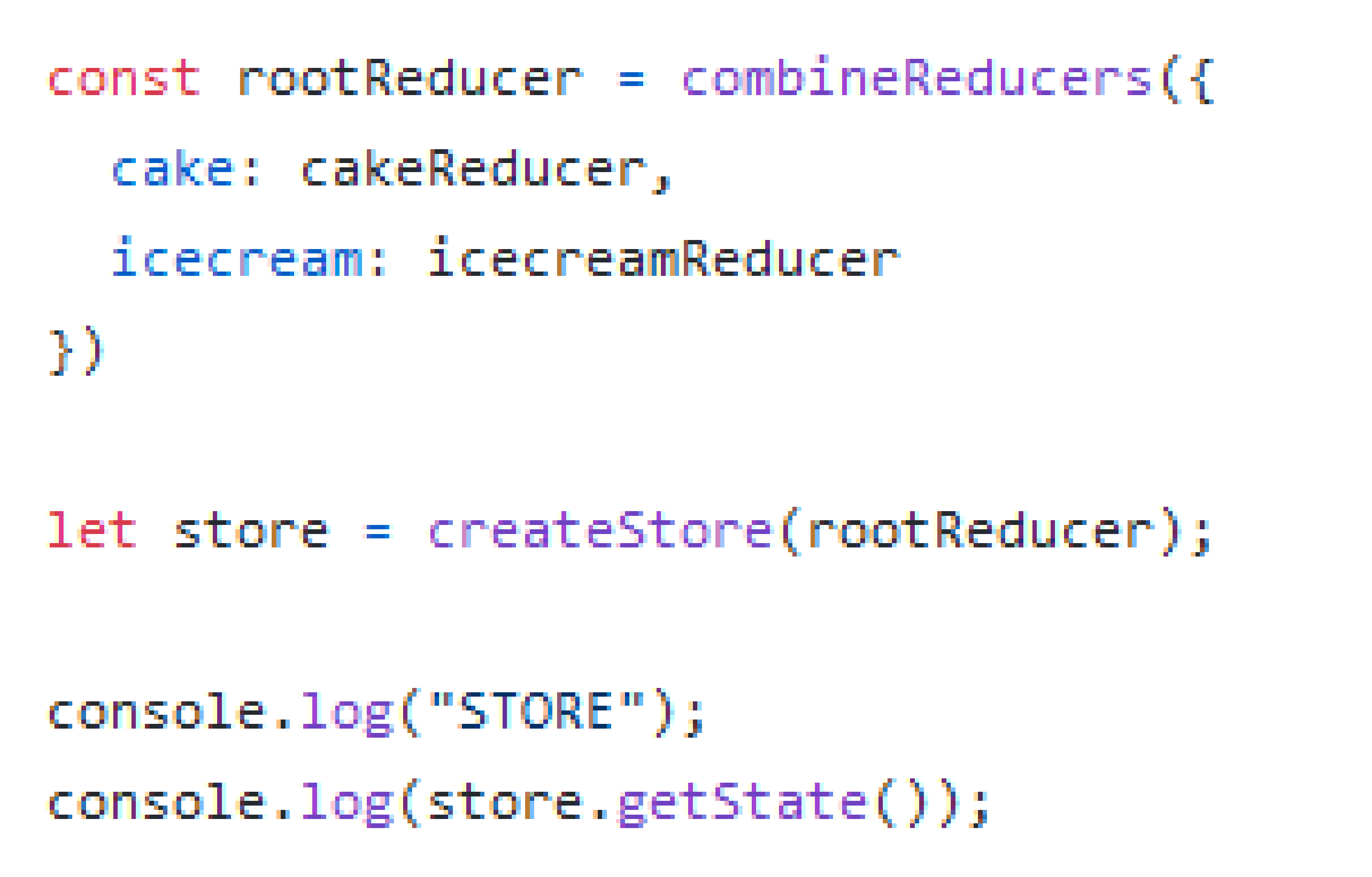
COMBINING REDUCERS

combine-redux

Why would you combine reducers?

- As your app grows more complex, you'll want to split your reducing function into separate functions, each managing independent parts of the state
- The **combineReducers** function is used to combine reducers and it is used in **createStore**
- The resulting reducer calls every child reducer, and gathers their results into a single state object. The state produced by combineReducers() namespaces the states of each reducer
- https://redux.js.org/api/combinereducers



```
const rootReducer = combineReducers({
  cake: cakeReducer,
  icecream: icecreamReducer
})

let store = createStore(rootReducer);

console.log("STORE");
console.log(store.getState());
```

THERE ARE MORE TOPICS BUT WE WILL STOP HERE…

GOOD LUCK WITH YOUR APP