

React全家桶02

React全家桶02

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知识要点

使用react-redux

每次都重新调用render和getState太low了，想用更react的方式来写，需要react-redux的支持

```
npm install react-redux --save
```

提供了两个api

1. Provider 为后代组件提供store
2. connect 为组件提供数据和变更方法

全局提供store, index.js

```
import React from 'react'
import ReactDOM from 'react-dom'
import App from './App'
import store from './store/ReactReduxStore'

import { Provider } from 'react-redux'
ReactDOM.render(
  <Provider store={store}>
    <App/>
  </Provider>,
  document.querySelector('#root')
)
```

获取状态数据, ReactReduxPage.js

```
import React, { Component } from "react";
import { connect } from "react-redux";

class ReactReduxPage extends Component {
  render() {
    const { num, add, minus, asyAdd } =
this.props;
    return (
      <div>
```

```

    <h1>ReactReduxPage</h1>
    <p>{num}</p>
    <button onClick={add}>add</button>
    <button onClick={minus}>minus</button>
    { /* <button onClick=
const asyAdd}>asyAdd</button> */}
  </div>
);
}
}

const mapStateToProps = state => {
  return {
    num: state,
  };
};

const mapDispatchToProps = {
  add: () => {
    return { type: "add" };
  },
  minus: () => {
    return { type: "minus" };
  },
  //Actions must be plain objects. Use custom
middleware for async actions.
  // asyAdd: () => {
    //   //console.log("omh", dispatch);
    //   setTimeout(() => {
    //     return { type: "add" };

```

```
    // }, 1000);  
    // },  
};  
  
export default connect(  
  mapStateToProps, //状态映射 mapStateToProps  
  mapDispatchToProps, //派发事件映射  
) (ReactReduxPage);
```

connect中的参数：state映射和事件映射

实现react-redux

实现kReact-redux.js

```
import React from 'react'  
import PropTypes from 'prop-types'  
import {bindActionCreators} from './kkb-redux'  
  
export const connect = (mapStateToProps =  
state=>state, mapDispatchToProps = {}) =>  
(WrapComponent) => {  
  return class ConnectComponent extends  
React.Component{  
    // class组件中声明静态contextTypes可以获取  
    上下文Context  
    static contextTypes = {
```

```

    store: PropTypes.object
  }
  constructor(props, context){
    super(props, context)
    this.state = {
      props:{}
    }
  }
  componentDidMount(){
    const {store} = this.context
    store.subscribe(()=>this.update())
    this.update()
  }
  update(){
    const {store} = this.context
    // state => ({num: state.counter})

    const stateProps =
mapStateToProps(store.getState())
    // {add:()=>({type:'add'})}
    // {add:...args) =>
dispatch(creator(...args))}

    const dispatchProps =
bindActionCreators(mapDispatchToProps,
store.dispatch)

    this.setState({
      props:{
        ...this.state.props, // 之前的值
        ...stateProps, // num: state.counter

```

```

        ...dispatchProps // add:(...args) =>
dispatch(creator(...args))
    }
  })
}
render() {
  return <WrapComponent
{...this.state.props}></WrapComponent>
}
}
}

```

```

export class Provider extends React.Component {
  static childContextTypes = {
    store: PropTypes.object
  }
  getChildContext() {
    return { store: this.store }
  }
  constructor(props, context) {
    super(props, context)
    this.store = props.store
  }
  render() {
    return this.props.children
  }
}

```

//实现bindActionCreators

```

function bindActionCreators(creator, dispatch) {

```

```

    return (...args) =>
dispatch(creator(...args))
}
export function
bindActionCreators(creators, dispatch){
    // {add:()=>({type:'add'})}
    // {add:(...args) =>
dispatch(creator(...args))}
    return
Object.keys(creators).reduce((ret, item)=>{
    ret[item] =
bindActionCreators(creators[item], dispatch)
    return ret
}, {})
}

```

用hooks实现:

```

import React, { useContext, useState, useEffect
} from "react";

const Context = React.createContext();

export function Provider({ store, children }) {
    return <Context.Provider value={store}>
{children}</Context.Provider>;
}

export const connect = (

```



```

    mapStateToProps = state => state,
    mapDispatchToProps = {},
  ) => Cmp => props => {
    const store = useContext(Context);
    const getMoreProps = () => {
      const stateProps =
mapStateToProps(store.getState());
      const dispatchProps = bindActionCreatorsCreators(
        mapDispatchToProps,
        store.dispatch,
      );
      return { ...stateProps, ...dispatchProps };
    };
    const [moreProps, setMoreProps] =
useState(getMoreProps());
    useEffect(() => {
      store.subscribe(() => {
        setMoreProps({ ...moreProps,
...getMoreProps() });
      });
    }, []);
    return <Cmp {...props} {...moreProps} />;
  };

```

//这两个函数可在redux源码中查看，不懂的地方课
 console.log打印查看，建议打印下actionCreators和key
 function bindActionCreators(creator, dispatch) {
 return (...args) =>
 dispatch(creator(...args));
 }

```
}  
function bindActionCreators(actionCreators,  
dispatch) {  
  const boundActionCreators = {};  
  for (const key in actionCreators) {  
    boundActionCreators[key] =  
bindActionCreator(actionCreators[key],  
dispatch);  
  }  
  return boundActionCreators;  
}
```

react-router

react-router包含3个库，react-router、react-router-dom和react-router-native。react-router提供最基本的路由功能，实际使用的时候我们不会直接安装react-router，而是根据应用运行的环境选择安装react-router-dom（在浏览器中使用）或react-router-native（在rn中使用）。react-router-dom和react-router-native都依赖react-router，所以在安装时，react-router也会自动安装，创建web应用，使用：

安装

```
npm install --save react-router-dom
```

基本使用

react-router中奉行一切皆组件的思想，路由器-**Router**、链接-**Link**、路由-**Route**、独占-**Switch**、重定向-**Redirect**都以组件形式存在

创建RouterPage.js

```
import React, { Component } from "react";
import { BrowserRouter, Link, Route } from
"react-router-dom";
import HomePage from "./HomePage";
import UserPage from "./UserPage";

export default class RouterPage extends
Component {
  render() {
    return (
      <div>
        <h1>RouterPage</h1>
        <BrowserRouter>
          <nav>
            <Link to="/">首页</Link>
            <Link to="/user">用户中心</Link>
          </nav>
          { /* 根路由要添加exact, 实现精确匹配 */ }
          <Route exact path="/" component=
{HomePage} />

```

```
        <Route path="/user" component=
{UserPage} />
      </BrowserRouter>
    </div>
  );
}
}
```

Route渲染内容的三种方式

Route渲染优先级：children>component>render。

三者能接收到同样的[route props]，包括match, location and history，但是当不匹配的时候，children的match为null。

这三种方式互斥，你只能用一种，它们的不同之处可以参考下文：

children: func

有时候，不管location是否匹配，你都需要渲染一些内容，这时候你可以用children。

除了不管location是否匹配都会被渲染之外，其它工作方法与render完全一样。

```
import React, { Component } from "react";
```

```

import ReactDOM from "react-dom";
import { BrowserRouter as Router, Link, Route }
from "react-router-dom";

function ListItemLink({ to, name, ...rest }) {
  return (
    <Route
      path={to}
      children={({ match }) => (
        <li className={match ? "active" : ""}>
          <Link to={to} {...rest}>
            {name}
          </Link>
        </li>
      )}
    />
  );
}

export default class RouteChildren extends
Component {
  render() {
    return (
      <div>
        <h3>RouteChildren</h3>
        <Router>
          <ul>
            <ListItemLink to="/somewhere"
name="链接1" />

```

```

        <ListItemLink to="/somewhere-else"
name="链接2" />
      </ul>
    </Router>
  </div>
);
}
}

```

render: func

但是当你用render的时候，你调用的只是个函数。但是它和component一样，能访问到所有的[route props]。

```

import React from "react";
import ReactDOM from "react-dom";
import { BrowserRouter as Router, Route } from
"react-router-dom";

// 方便的内联渲染
ReactDOM.render(
  <Router>
    <Route path="/home" render={() =>
<div>Home</div>} />
  </Router>,
  node
);

// wrapping/composing

```

```

//把route参数传递给你的组件
function FadingRoute({ component: Component,
...rest }) {
  return (
    <Route
      {...rest}
      render={routeProps => (
        <FadeIn>
          <Component {...routeProps} />
        </FadeIn>
      )}
    />
  );
}

ReactDOM.render(
  <Router>
    <FadingRoute path="/cool" component=
{Something} />
  </Router>,
  node
);

```

component: component

只在当location匹配的时候渲染。

当你用 `component` 的时候，Router 会用你指定的组件和 `React.createElement` 创建一个新的 [React element]。这意味着当你提供的是一个内联函数的时候，每次 render 都会创建一个新的组件。这会导致不再更新已经现有组件，而是直接卸载然后再去挂载一个新的组件。因此，当用到内联函数的内联渲染时，请使用 `render` 或者 `children`。

```
import React, { Component } from "react";
import ReactDOM from "react-dom";
import { BrowserRouter, Route } from "react-router-dom";

class Foo extends Component {
  componentDidMount() {
    console.log("Foo componentDidMount");
  }
  componentWillUnmount() {
    console.log("Foo componentWillUnmount");
  }
  render() {
    const { counter } = this.props;
    return <div>Foo: {counter}</div>;
  }
}

export default class RouterPage extends
Component {
  constructor(prop) {
    super(prop);
  }
}
```



```

    this.state = { counter: 1 };
  }
  render() {
    const { counter } = this.state;
    return (
      <div>
        <button onClick={() => this.setState({
counter: counter + 1 })}>
          {counter}
        </button>
        <BrowserRouter>
          { /* 渲染component会调用
React.createElement, 如果使用下面这种匿名函数的形式,

```

每次都会生成一个新的匿名函数, 导致生成的组件的type总不相同, 会产生重复的卸载和挂载。

所以请正确使用Route中的component和render。

```

    */}
    { /* <Route component={() => <Foo
counter={this.state.counter} /> } /> */}

    { /* 以下才是正确使用 */}
    <Route render={() => <Foo counter=
{this.state.counter} /> } />
    </BrowserRouter>
  </div>
);
}
}

```

动态路由

使用:id的形式定义动态路由

定义路由:

```
<Route path="/search/:id" component={Search} />
```

添加导航链接:

```
<Link to={"/search/" + searchId}>搜索</Link>
```

创建Search组件并获取参数:

```
import React, { Component } from "react";
import { BrowserRouter, Link, Route } from
"react-router-dom";
import HomePage from "./HomePage";
import UserPage from "./UserPage";

function Search({ match, history, location }) {
  const { id } = match.params;
  return (
    <div>
      <h1>Search: {id}</h1>
    </div>
  )
}
```

```

    );
}

export default class RouterPage extends
Component {
  render() {
    const searchId = "1234";
    return (
      <div>
        <h1>RouterPage</h1>
        <BrowserRouter>
          <nav>
            <Link to="/">首页</Link>
            <Link to="/user">用户中心</Link>
            <Link to={"/search/" + searchId}>搜索</Link>
          </nav>
          { /* 根路由要添加exact, 实现精确匹配 */ }
          <Route exact path="/" component=
{HomePage} />
          <Route path="/user" component=
{UserPage} />
          <Route path="/search/:id" component=
{Search} />
        </BrowserRouter>
      </div>
    );
  }
}

```

嵌套

Route组件嵌套在其他页面组件中就产生了嵌套关系

修改Search，添加新增和详情

```
function Detail() {  
  return (  
    <div>  
      <h1>Detail</h1>  
    </div>  
  );  
}  
  
function Search({ match, history, location }) {  
  const { id } = match.params;  
  return (  
    <div>  
      <h1>Search: {id}</h1>  
      <nav>  
        <Link to="/search/add">新增</Link>  
        <Link to={"/search/detail/" + id}>详情  
</Link>  
      </nav>  
      <Route path="/search/add" component={() => <h1>add</h1>} />  
      <Route path={"/search/detail/:" + id} component={Detail} />  
    </div>  
  );  
}
```

```
    </div>
  );
}
```

404页面

设定一个没有path的路由在路由列表最后面，表示一定匹配

```
{/* 添加Switch表示仅匹配一个*/}
<Switch>
  {/* 根路由要添加exact，实现精确匹配 */}
  <Route exact path="/" component={HomePage} />
  <Route path="/user" component={UserPage} />
  <Route path="/search/:id" component={Search}
/>
  <Route render={() => <h1>404</h1>} />
</Switch>
```

路由守卫

思路：创建高阶组件包装Route使其具有权限判断功能

创建PrivateRoute

```
import React, { Component } from "react";
```

```
import { Route, Redirect } from "react-router-dom";
import { connect } from "react-redux";

class PrivateRoute extends Component {
  render() {
    const { path, component, isLogin } =
this.props;
    if (isLogin) {
      return <Route path={path} component=
{component} />;
    } else {
      return (
        <Redirect
          to={{
            pathname: "/login",
            state: { redirect: path },
          }}
        />
      );
    }
  }
}

export default connect(state => state.user)
(PrivateRoute);
```

创建LoginPage.js

```
import React, { Component } from "react";
import { Redirect } from "react-router-dom";
import { connect } from "react-redux";

class LoginPage extends Component {
  render() {
    const { isLogin, login, location } =
this.props;
    const { redirect = "/" } = location.state
|| {};
    if (isLogin) {
      return <Redirect to={redirect} />;
    }
    return (
      <div>
        <h3>LoginPage</h3>
        <button onClick={login}>login</button>
      </div>
    );
  }
}

export default connect(
  state => state.user,
  {
    login: () => ({
      type: "loginSuccess",
    }),
  },
);
```

```
)(LoginPage);
```

在RouterPage.js配置路由，RouterPage

```
<Route exact path="/login" component=
{LoginPage} />
<PrivateRoute path="/user" component={UserPage}
/>
```

整合redux，获取和设置登录态，创建./store/index.js

```
import { createStore, combineReducers } from
"redux";

const initialUserInfo = {
  isLogin: false,
  user: {
    name: "小明",
  },
};

function loginReducer(state = {
  ...initialUserInfo }, action) {
  switch (action.type) {
    case "getUserInfo":
      return { ...initialUserInfo };
    case "loginSuccess":
      return { ...state, isLogin: true };
    case "loginFailure":
      return { ...state, isLogin: true };
    default:
```



```

        return { ...state };
    }
}
const store = createStore(
  combineReducers({
    user: loginReducer,
  }),
);

export default store;

```

src/index.js

```

import React from "react";
import ReactDOM from "react-dom";
import "./index.css";
import App from "./App";
import { Provider } from "react-redux";
import store from "./store";

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

```

作业：UserPage可以再设置一个退出登录

```

import React, { Component } from "react";

```

```

import { connect } from "react-redux";

class UserPage extends Component {
  render() {
    const { logout } = this.props;
    return (
      <div>
        <h1>UserPage</h1>
        <button onClick={logout}>退出登
录</button>
      </div>
    );
  }
}

export default connect(
  state => state.user,
  {
    logout: () => ({
      type: "loginFailure",
    }),
  },
)(UserPage);

```

与HashRouter对比：

1. HashRouter最简单，不需要服务器端渲染，靠浏览器的#

的来区分path就可以，BrowserRouter需要服务器端对不同的URL返回不同的HTML，后端配置可[参考](#)。

2. BrowserRouter使用HTML5历史API（pushState，replaceState和popstate事件），让页面的UI同步与URL。
3. HashRouter不支持location.key和location.state，动态路由跳转需要通过?传递参数。
4. Hash history 不需要服务器任何配置就可以运行，如果你刚刚入门，那就使用它吧。但是我们不推荐在实际线上环境中用到它，因为每一个 web 应用都应该渴望使用 `browserHistory`。

MemoryRouter

把 URL 的历史记录保存在内存中的 `<Router>`（不读取、不写入地址栏）。在测试和非浏览器环境中很有用，如React Native。

](<https://facebook.github.io/react-native/>)。

拓展

react-router秉承一切皆组件，因此实现的核心就是BrowserRouter、Route、Link

实现BrowserRouter

BrowserRouter: 历史记录管理对象history初始化及向下传递, location变更监听

创建测试页面MyRouterPage.js,

```
import React, { Component } from "react";
import { BrowserRouter, Link, Route } from
"./my-react-router-dom";
import HomePage from "./HomePage";
import UserPage from "./UserPage";

export default class MyRouterPage extends
Component {
  render() {
    return (
      <div>
        <h3>MyRouterPage</h3>
        <BrowserRouter>
          <Link to="/">首页</Link>
          <Link to="/user">用户中心</Link>
          <Route path="/" exact component=
{HomePage} />
          <Route path="/user" component=
{UserPage} />
        </BrowserRouter>
      </div>
    );
  }
}
```

my-react-router-dom.js, 首先实现BrowserRouter

```
import { createBrowserHistory } from "history";

const RouterContext = React.createContext();

class BrowserRouter extends Component {
  constructor(props) {
    super(props);

    this.history =
createBrowserHistory(this.props);

    this.state = {
      location: this.history.location
    };

    this.unlisten =
this.history.listen(location => {
      this.setState({ location });
    });
  }

  componentWillUnmount() {
    if (this.unlisten) this.unlisten();
  }
}
```

```
render() {  
  return (  
    <RouterContext.Provider  
      children={this.props.children || null}  
      value={{  
        history: this.history,  
        location: this.state.location  
      }}  
    />  
  );  
}
```

实现Route

路由配置，匹配检测，内容渲染

```
export function Route(props) {  
  const ctx = useContext(RouterContext);  
  const { path, component: Cmp } = props;  
  const { location } = ctx;  
  let match = path === location.pathname;  
  return match ? <Cmp /> : null;  
}
```

实现Link

Link.js: 跳转链接，处理点击事件

```
export class Link extends Component {
  handleClick(event, history) {
    event.preventDefault();
    history.push(this.props.to);
  }

  render() {
    const { to, children } = this.props;

    return (
      <RouterContext.Consumer>
        {context => {
          return (
            <a
              {...rest}
              onClick={event =>
                this.handleClick(event, context.history)}
              href={to}
            >
              {children}
            </a>
          );
        }}
      </RouterContext.Consumer>
    );
  }
}
```

```
}  
  
}
```

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