React组件化

课堂目标

1. 学习react组件化
2. 掌握容器组件 VS 展示组件
3. 掌握高阶组件
4. PureComponent
5. 掌握render props
6. 了解异步渲染组件
7. 了解函数化组件Hooks

知识要点

1. 组件化
2. antd组件库使用
3. 组件通信
4. 组件的多个模式

资源

1. antd

起步

试用 ant-design组件库

安装：`npm install antd --save`

试用button

```
import React, { Component } from 'react'
import Button from 'antd/lib/button'
import "antd/dist/antd.css"
class App extends Component {
  render() {
    return (
      <div className="App">
        <Button type="primary">Button</Button>
      </div>
    )
  }
}

export default App
```

配置按需加载

安装react-app-rewired取代react-scripts，可以扩展webpack的配置 ，类似vue.config.js

`npm install react-app-rewired@2.0.2-next.0 babel-plugin-import --save`

容器组件 VS 展示组件

基本原则：容器组件负责数据获取，展示组件负责根据props显示信息

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

// 容器组件
export default class CommentList extends Component {
  constructor(props) {
    super(props);
    this.state = {
      comments: []
    };
  }
  componentDidMount() {
    setTimeout(() => {
      this.setState({
        comments: [
          { body: "react is very good", author: "facebook" },
          { body: "vue is very good", author: "youyuxi" }
        ]
      });
    }, 1000);
  }
  render() {
    return (
      <div>
        {this.state.comments.map((c, i) => (
          <Comment key={i} data={c} />
        ))}
      </div>
    );
  }
}
```

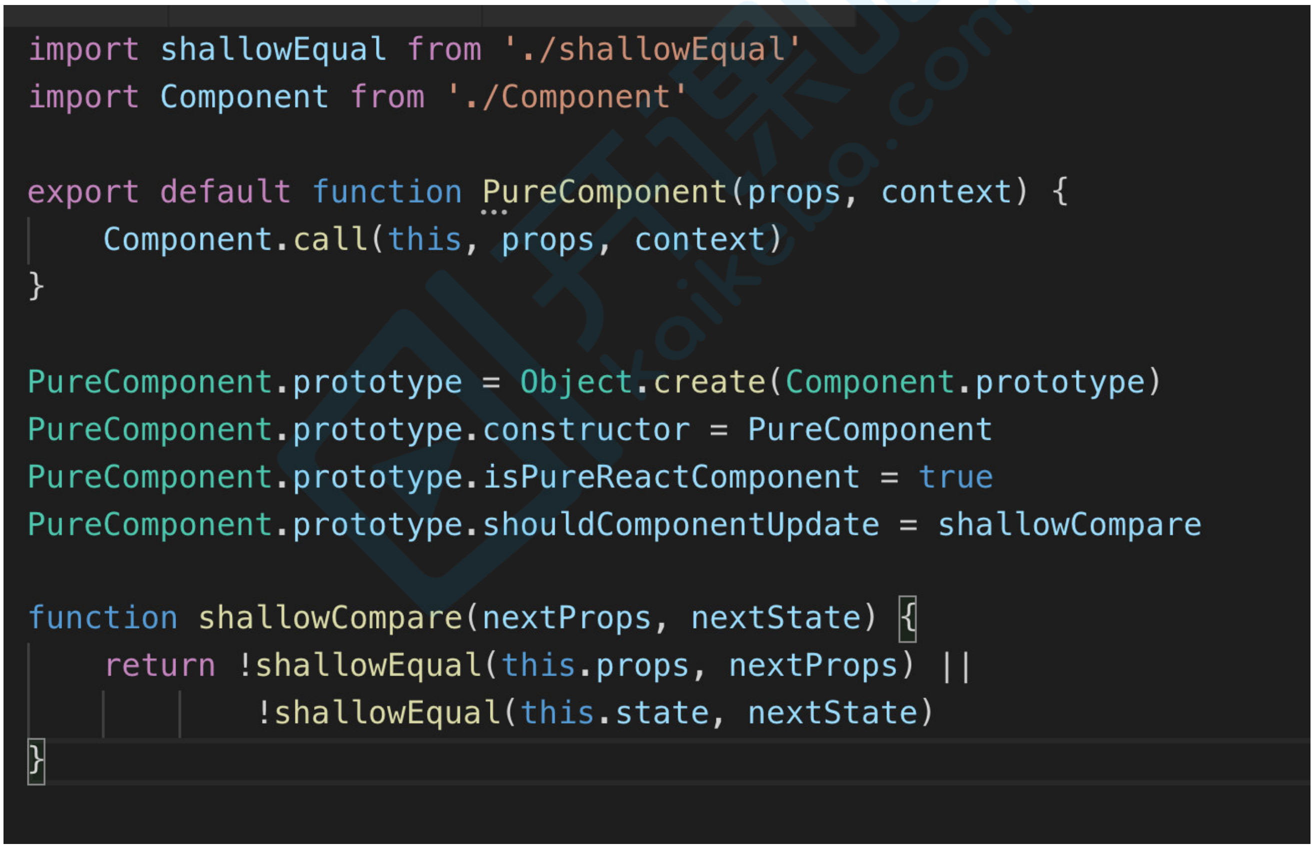
```
// 展示组件
function Comment({ data }) {
  return (
    <div>
      <p>{data.body}</p>
      <p> --- {data.author}</p>
    </div>
  );
}
```

PureComponent

定制了shouldComponentUpdate后的Component（浅比较）

```
class Comp extends React.PureComponent {}
```

实现原理：

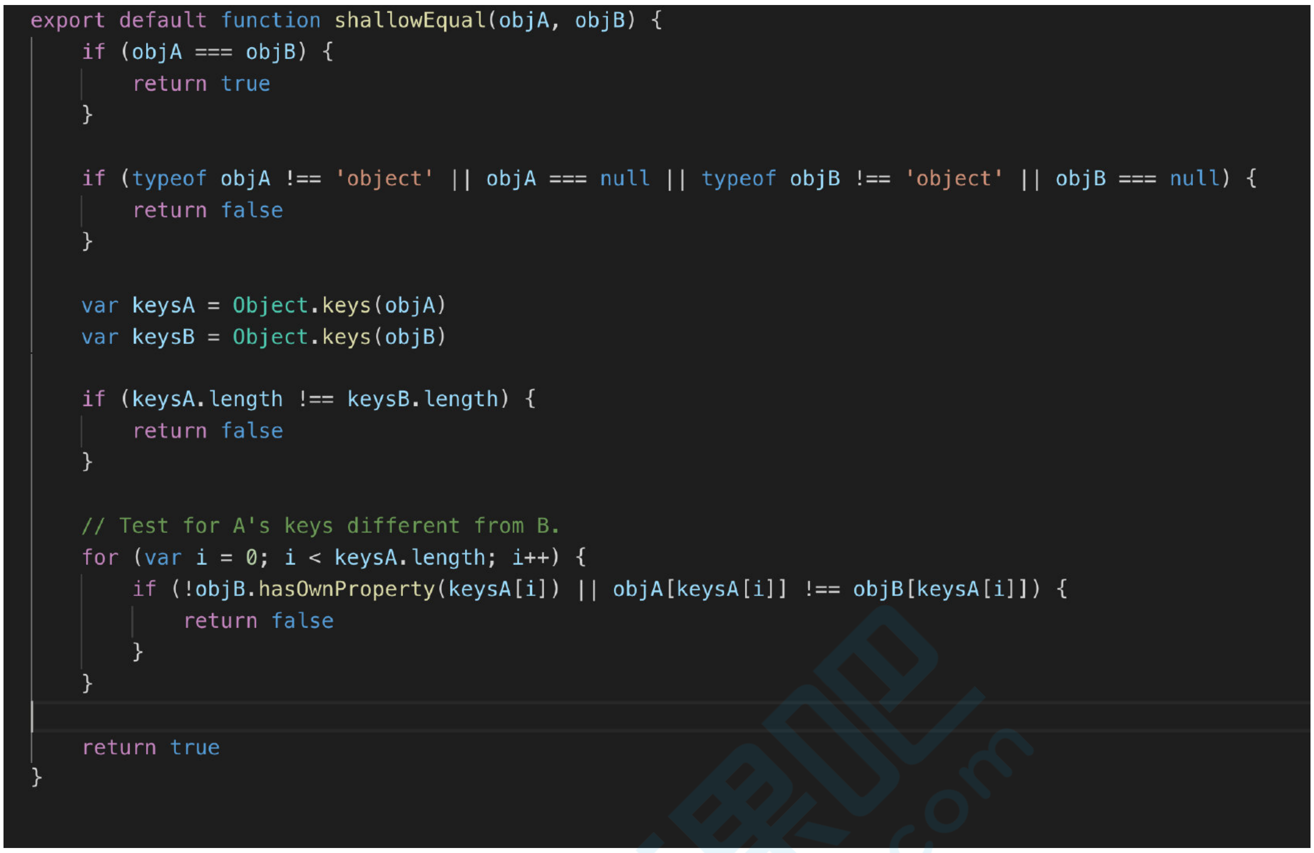


```
import shallowEqual from './shallowEqual'
import Component from './Component'

export default function PureComponent(props, context) {
    Component.call(this, props, context)
}

PureComponent.prototype = Object.create(Component.prototype)
PureComponent.prototype.constructor = PureComponent
PureComponent.prototype.isPureReactComponent = true
PureComponent.prototype.shouldComponentUpdate = shallowCompare

function shallowCompare(nextProps, nextState) {
    return !shallowEqual(this.props, nextProps) ||
            !shallowEqual(this.state, nextState)
}
```



```
export default function shallowEqual(objA, objB) {
    if (objA === objB) {
        return true
    }

    if (typeof objA !== 'object' || objA === null || typeof objB !== 'object' || objB === null) {
        return false
    }

    var keysA = Object.keys(objA)
    var keysB = Object.keys(objB)

    if (keysA.length !== keysB.length) {
        return false
    }

    // Test for A's keys different from B.
    for (var i = 0; i < keysA.length; i++) {
        if (!objB.hasOwnProperty(keysA[i]) || objA[keysA[i]] !== objB[keysA[i]]) {
            return false
        }
    }

    return true
}
```

React.memo

React v16.6.0 之后的版本，可以使用 `React.memo` 让函数式的组件也有PureComponent的功能

```
const Joke = React.memo(() => (
    <div>
        {this.props.value || 'loading...' }
    </div>
));
```

高阶组件

在React里就有了HOC（Higher-Order Components）的概念

高阶组件也是一个组件，但是他返回另外一个组件，产生新的组件可以对属性进行包装，甚至重写部分生命周期

```
const withKaikeba = (Component) => {
  const NewComponent = (props) => {
    return <Component {...props} name="开课吧高阶组件" />;
  };
  return NewComponent;
};
```

上面withKaikeba组件，其实就是代理了Component，只是多传递了一个name参数

高阶链式调用

高阶组件最巧妙的一点，是可以链式调用。

```
import React, { Component } from 'react'
import {Button} from 'antd'

const withKaikeba = (Component) => {

  const NewComponent = (props) => {
    return <Component {...props} name="开课吧高阶组件" />;
  };
  return NewComponent;
};

const withLog = Component=>{
  class NewComponent extends React.Component{
    render(){
      return <Component {...this.props} />;
    }
    componentDidMount(){
      console.log('didMount',this.props)
    }
  }
  return NewComponent
}


class App extends Component {
  render() {
    return (
      <div className="App">
      <h2>hi,{this.props.name}</h2>
        <Button type="primary">Button</Button>
      </div>
    )
  }
}

export default withKaikeba(withLog(App))
```

高阶组件装饰器写法

ES7装饰器可用于简化高阶组件写法

`npm install --save-dev babel-plugin-transform-decorators-legacy`

```
const { injectBabelPlugin } = require('react-app-rewired')
```

```
module.exports = function override(config) {
  config = injectBabelPlugin(
    ['import', { libraryName: 'antd', libraryDirectory: 'es', style: 'css' }],
    config,
  )

  config = injectBabelPlugin(
    ['@babel/plugin-proposal-decorators', { "legacy": true }],
    config,
  )


  return config
}
```

使用装饰器

```
import React, { Component } from 'react'
import {Button} from 'antd'

const withKaikeba = (Component) => {

  const NewComponent = (props) => {
    return <Component {...props} name="开课吧高阶组件" />;
  };
  return NewComponent;
};

const withLog = Component=>{
  class NewComponent extends React.Component{
    render(){
      return <Component {...this.props} />;
    }
    componentDidMount(){
      console.log(Component.name ,'didMount',this.props)
    }
  }
  return NewComponent
}

@withKaikeba
@withLog
class App extends Component {
  render() {
    return (
      <div className="App">
      <h2>hi,{this.props.name}</h2>
        <Button type="primary">Button</Button>
      </div>
    )
  }
}
```

```
export default App
```

组件跨层级通信 - 上下文

组件跨层级通信可使用Context

这种模式下有两个角色，Provider和Consumer

Provider为外层组件，用来提供 数据；内部需要数据时用Consumer来读取

使用上下文

```
const FormContext = React.createContext()
const FormProvider = FormContext.Provider
const FormConsumer = FormContext.Consumer

let store ={
  name:'开课吧',
  sayHi(){
    console.log(this.name)
  }
}

let withForm = Component=>{
  const NewComponent = (props) => {
    return <FormProvider value={store}>
      <Component {...props}  />
    </FormProvider>
  };
  return NewComponent;
}
@withForm
class App extends Component {
  render() {
    return <FormConsumer>
      {
        store=>{
          return <Button onClick={()=>store.sayHi()}>
            {store.name}
          </Button>
        }
      }
    </FormConsumer>
  }
}
```