1. React Hooks

- Hook可以让你在不编写 `class`组件 的情况下使用 `state`

2. 搭建项目

```
npx create-react-app zhufeng_hooks
cd zhufeng_hooks
yarn start
```

3. useState

- `useState` 会返回一对值: 当前状态和一个让你更新它的函数
- `useState` 唯一的参数就是初始 `state`

```
const [state, setState] =
useState(initialState);
```

3.1 使用

```
import React from 'react';
import ReactDOM from 'react-dom';
function Counter(){

```

```
    const [number,setNumber] =
React.useState(0);
    return (
        <>
            <p>{number}</p>
            <button onClick=
{()=>setNumber(number+1)}>+</button>
        </>
    )
}
function render(){

 ReactDOM.render(<Counter/>,document.getElementB
yId('root'));
}
render();
```

3.2 实现

```
import React from 'react';
import ReactDOM from 'react-dom';
+let lastState;
+function useState(initialState){
+    lastState = lastState||initialState;
+    function setState(newState){
+        lastState = newState;
```

```
+        render();
+    }
+    return [lastState,setState];
+}

function Counter(){
    const [number,setNumber] = useState(0);
    return (
        <>
            <p>{number}</p>
            <button onClick=
{()=>setNumber(number+1)}>+</button>
        </>
    )
}
function render(){

ReactDOM.render(<Counter/>,document.getElementBy
Id('root'));
}
render();
```

4. 多useState

4.1 使用

```
import React from 'react';
import ReactDOM from 'react-dom';
function Counter(){
    const [number1,setNumber1] =
React.useState(0);
    const [number2,setNumber2] =
React.useState(0);
    return (
        <>
            <p>{number1}</p>
            <button onClick=
{()=>setNumber1(number1+1)}>+</button>
            <hr/>
            <p>{number2}</p>
            <button onClick=
{()=>setNumber2(number2+1)}>+</button>
        </>
    )
}
function render(){

 ReactDOM.render(<Counter/>,document.getElementB
yId('root'));
}
```

```
render();
```

4.2 实现

```
import React from 'react';
import ReactDOM from 'react-dom';
let hookStates = [];
let hookIndex = 0;
function useState(initialState){
    //如果有老值取老值,没有取默认值

 hookStates[hookIndex]=hookStates[hookIndex]||in
itialState;
    //暂存索引
    let currentIndex = hookIndex;
    function setState(newState){
      hookStates[currentIndex]=newState;
      render();
    }
    return [hookStates[hookIndex++],setState];
}
function Counter(){
    const [number1,setNumber1] = useState(0);
    const [number2,setNumber2] = useState(0);
    return (
        <>
```

```
                <p>{number1}</p>
                <button onClick=
{()=>setNumber1(number1+1)}>+</button>
                <hr/>
                <p>{number2}</p>
                <button onClick=
{()=>setNumber2(number2+1)}>+</button>
            </>
        )
}
function render(){
    hookIndex =0;

 ReactDOM.render(<Counter/>,document.getElementB
yId('root'));
}
render();
```

5. 优化

- 我们可以使用`useMemo`和`useCallback`来减少渲染

5.1 使用

```
import React from 'react';
import ReactDOM from 'react-dom';
```

```
let  Child = ({ onButtonClick, data }) => {
    console.log("Child render");
    return <button onClick={onButtonClick}>
{data.number}</button>;
}
Child = React.memo(Child);

function App() {
    const [number, setNumber] =
React.useState(0);
    const [name, setName] =
React.useState("zhufeng");
    const addClick = React.useCallback(() =>
setNumber(number + 1), [number]);
    const data = React.useMemo(() => ({ number
}), [number]);
    return (
      <div>
        <input value={name} onChange={(e) =>
setName(e.target.value)} />
        <Child onButtonClick={addClick} data=
{data} />
      </div>
    );
  }
function render(){
```

```
    ReactDOM.render(<App
/>,document.getElementById('root'));
}
render();
```

5.2 实现

```
import React from 'react';
import ReactDOM from 'react-dom';
+let hookStates = [];//放着此组件的所有的hooks数据
+let hookIndex = 0;//代表当前的hooks的索引
+function useState(initialState){
+  //如果有老值取老值,没有取默认值
+
hookStates[hookIndex]=hookStates[hookIndex]||ini
tialState;
+  //暂存索引
+  let currentIndex = hookIndex;
+  function setState(newState){
+    hookStates[currentIndex]=newState;
+    render();
+  }
+  return [hookStates[hookIndex++],setState];
+}
+function useCallback(callback,dependencies){
+  if(hookStates[hookIndex]){
```

```
+    let [lastCallback,lastCallbackDeps] =
hookStates[hookIndex];
+    let same =
dependencies.every((item,index)=>item ===
lastCallbackDeps[index]);
+    if(same){//如果老依赖和新的依赖都相同,则直接返回
老的,如果不一相同,则返回新的
+      hookIndex++;
+      return lastCallback;
+    }else{
+      hookStates[hookIndex++]=
[callback,dependencies];
+      return callback;
+    }
+  }else{
+    hookStates[hookIndex++]=
[callback,dependencies];
+    return callback;
+  }
+}
+
+function useMemo(factory,dependencies){
+  if(hookStates[hookIndex]){
+    let [memo,lastDeps] =
hookStates[hookIndex];
```

```
+    let same =
dependencies.every((item,index)=>item ===
lastDeps[index]);
+    if(same){//如果老依赖和新的依赖都相同,则直接返回
老的,如果不一相同,则返回新的
+      hookIndex++;
+      return memo;
+    }else{
+      let newMemo = factory();
+      hookStates[hookIndex++]=
[newMemo,dependencies];
+      return newMemo;
+    }
+  }else{
+    let newMemo = factory();
+    hookStates[hookIndex++]=
[newMemo,dependencies];
+    return newMemo;
+  }
+}


let  Child = ({ onButtonClick, data }) => {
    console.log("Child render");
    return <button onClick={onButtonClick}>
{data.number}</button>;
}
```

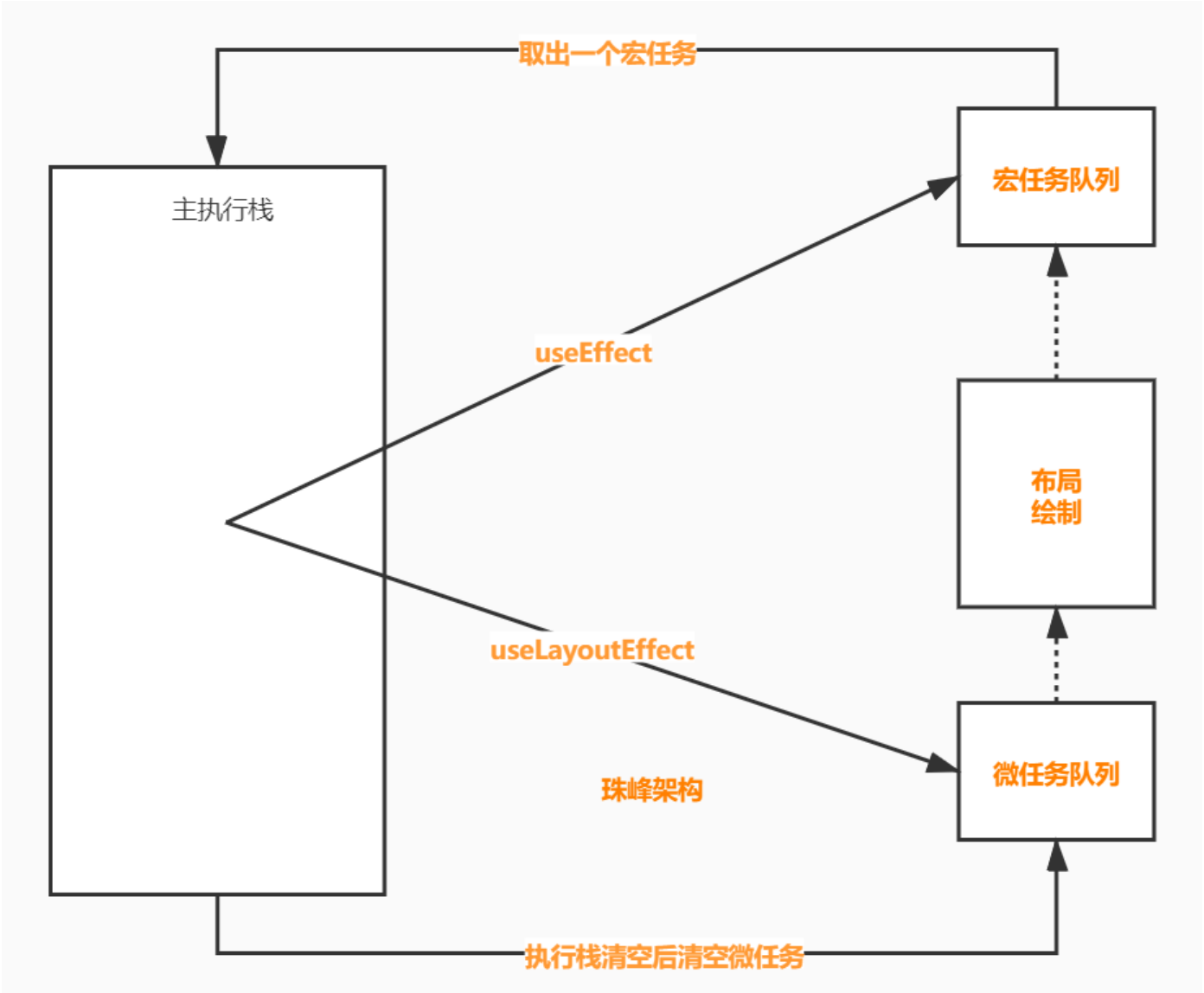
```
Child = React.memo(Child);

function App() {
    const [number, setNumber] = useState(0);
    const [name, setName] = useState("zhufeng");
    const addClick = useCallback(() =>
setNumber(number + 1), [number]);
    const data = useMemo(() => ({ number }),
[number]);
    return (
      <div>
        <input value={name} onChange={(e) =>
setName(e.target.value)} />
        <Child onButtonClick={addClick} data=
{data} />
      </div>
    );
}
function render(){
  hookIndex =0;
  ReactDOM.render(<App
/>,document.getElementById('root'));
}
render();
```

6. useEffect

- useEffect 就是一个 Effect Hook，给函数组件增加了操作副作用的能力
- 它跟 class 组件中的 `componentDidMount`、`componentDidUpdate` 和 `componentWillUnmount` 具有相同的用途，只不过被合并成了一个 API

```
useEffect(didUpdate)
```



6.1 使用

```
import React from 'react';
import ReactDOM from 'react-dom';

function Counter(){
    const [name,setName] = React.useState('珠
峰');
    const [number,setNumber] =
React.useState(0);
    React.useEffect(() => {
        console.log(number);
     }, [number]);
    return (
        <>
            <p>{name}:{number}</p>
             <button onClick={()=>setName('架
构')}>修改名称</button>
            <button onClick=
{()=>setNumber(number+1)}>+</button>
        </>
    )
}
function render(){
```

```
 ReactDOM.render(<Counter/>,document.getElementB
yId('root'));
}
render();
```

6.2 实现useEffect

```
import React from 'react';
import ReactDOM from 'react-dom';

+let hookStates = [];
+let hookIndex = 0;
+function useState(initialState){
+
hookStates[hookIndex]=hookStates[hookIndex]||ini
tialState;
+  let currentIndex = hookIndex;
+  function setState(newState){
+    hookStates[currentIndex]=newState;
+    render();
+  }
+  return [hookStates[hookIndex++],setState];
+}

+function useEffect(callback,dependencies){
```

```
+  if(hookStates[hookIndex]){
+      let lastDeps = hookStates[hookIndex];
+      let same =
dependencies.every((item,index)=>item ===
lastDeps[index]);
+      if(same){
+        hookIndex++;
+      }else{
+        hookStates[hookIndex++]=dependencies;
+         setTimeout(callback);
+      }
+  }else{
+     hookStates[hookIndex++]=dependencies;
+      setTimeout(callback);
+  }
+}

function Counter(){
    const [name,setName] = useState('珠峰');
    const [number,setNumber] = useState(0);
    useEffect(() => {
        console.log(number);
     }, [number]);
    return (
        <>
            <p>{name}:{number}</p>
```

```
                <button onClick={()=>setName('架
构')}>修改名称</button>
                <button onClick=
{()=>setNumber(number+1)}>+</button>
            </>
        )
}
function render(){
  hookIndex=0;

ReactDOM.render(<Counter/>,document.getElementBy
Id('root'));
}
render();
```

7. useLayoutEffect

- 其函数签名与 `useEffect` 相同，但它会在所有的 `DOM` 变更之后同步调用 effect
- `useEffect`不会阻塞浏览器渲染，而 `useLayoutEffect` 会浏览器渲染
- `useEffect`会在浏览器渲染结束后执行,`useLayoutEffect` 则是在 `DOM` 更新完成后,浏览器绘制之前执行

7.1 使用

```
import React from 'react';
import ReactDOM from 'react-dom';

const Animate = () => {
  const red = React.useRef();
  const green = React.useRef();
  React.useLayoutEffect(() => {
    red.current.style.transform =
`translate(500px)`;
    red.current.style.transition = `all 500ms`;
  });
  React.useEffect(() => {
    green.current.style.transform =
`translate(500px)`;
    green.current.style.transition = `all
500ms`;
  });
  let style = { width: '100px', height: '100px'
}
  return (
    <div>
      <div style={{ ...style, backgroundColor:
'red' }} ref={red}></div>
```

```
      <div style={{ ...style, backgroundColor:
'green' }} ref={green}></div>
    </div>
  )
}
function render() {
  ReactDOM.render(<Animate />,
document.getElementById('root'));
}
render();
```

7.2 实现

```
import React from 'react';
import ReactDOM from 'react-dom';

+let hookStates = [];
+let hookIndex = 0;
+function useEffect(callback,dependencies){
+  if(hookStates[hookIndex]){
+      let lastDeps = hookStates[hookIndex];
+      let same =
dependencies.every((item,index)=>item ===
lastDeps[index]);
+      if(same){
+        hookIndex++;
```

```
+      }else{
+        hookStates[hookIndex++]=dependencies;
+        setTimeout(callback);
+      }
+  }else{
+     hookStates[hookIndex++]=dependencies;
+     setTimeout(callback);
+  }
+}
+function useLayoutEffect(callback,dependencies)
{
+  if(hookStates[hookIndex]){
+      let lastDeps = hookStates[hookIndex];
+      let same =
dependencies.every((item,index)=>item ===
lastDeps[index]);
+      if(same){
+        hookIndex++;
+      }else{
+        hookStates[hookIndex++]=dependencies;
+        queueMicrotask(callback);
+      }
+  }else{
+     hookStates[hookIndex++]=dependencies;
+     queueMicrotask(callback);
+  }
+}
```

```
const Animate = () => {
  const red = React.useRef();
  const green = React.useRef();
  useLayoutEffect(() => {
    red.current.style.transform =
`translate(500px)`;
    red.current.style.transition = `all 500ms`;
  });
  useEffect(() => {
    green.current.style.transform =
`translate(500px)`;
    green.current.style.transition = `all
500ms`;
  });
  let style = { width: '100px', height: '100px'
}
  return (
    <div>
      <div style={{ ...style, backgroundColor:
'red' }} ref={red}></div>
      <div style={{ ...style, backgroundColor:
'green' }} ref={green}></div>
    </div>
  )
}
function render() {
```

```
  ReactDOM.render(<Animate />,
document.getElementById('root'));
}
render();
```

8. useContext

- 接收一个 `context` 对象并返回该 `context` 的当前值

8.1 使用

```
import React from 'react';
import ReactDOM from 'react-dom';
const CounterContext = React.createContext();
function Counter(){
  let {state,setState} =
React.useContext(CounterContext);
  return (
      <>
        <p>{state.number}</p>
        <button onClick={() =>
setState({number:state.number+1})}>+</button>
        <button onClick={() =>
setState({number:state.number-1})}>-</button>
      </>
  )
```

```
}
function App(){
    const [state, setState] =
React.useState({number:0});
    return (
        <CounterContext.Provider value=
{{state,setState}}>
            <Counter/>
        </CounterContext.Provider>
    )
}
function render(){

 ReactDOM.render(<App/>,document.getElementById(
'root'));
}
render();
```

8.2 实现

```
import React from 'react';
import ReactDOM from 'react-dom';
const CounterContext = React.createContext();
+function useContext(context){
+  return context._currentValue;
+}
```

```
function Counter(){
  let {state,setState} =
useContext(CounterContext);
  return (
      <>
        <p>{state.number}</p>
        <button onClick={() =>
setState({number:state.number+1})}>+</button>
        <button onClick={() =>
setState({number:state.number-1})}>-</button>
      </>
  )
}
function App(){
    const [state, setState] =
React.useState({number:0});
    return (
        <CounterContext.Provider value=
{{state,setState}}>
            <Counter/>
        </CounterContext.Provider>
    )
}
function render(){

ReactDOM.render(<App/>,document.getElementById('
root'));
```

```
}
render();
```

9. useReducer

- 它接收一个形如 (state, action) => newState 的 reducer，并返回当前的 state 以及与其配套的 dispatch 方法

9.1 使用

```
import React from 'react';
import ReactDOM from 'react-dom';

function reducer(state, action) {
  switch (action.type) {
    case 'increment':
      return state+1;
    case 'decrement':
      return state-1;
    default:
      throw new Error();
  }
}
function Counter(){
    const [state, dispatch] =
React.useReducer(reducer, 0);
```

```
    return (
        <>
          Count: {state}
          <button onClick={() => dispatch({type:
'increment'})}>+</button>
          <button onClick={() => dispatch({type:
'decrement'})}>-</button>
        </>
    )
}
function render(){

 ReactDOM.render(<Counter/>,document.getElementB
yId('root'));
}
render();
```

9.2 实现

```
import React from 'react';
import ReactDOM from 'react-dom';
+let hookStates = [];
+let hookIndex = 0;
+function useState(initialState){
```

```
+
hookStates[hookIndex]=hookStates[hookIndex]||ini
tialState;
+    let currentIndex = hookIndex;
+    function setState(newState){
+      hookStates[currentIndex]=newState;
+      render();
+    }
+    return [hookStates[hookIndex++],setState];
+}
+function useReducer(reducer, initialState) {
+
hookStates[hookIndex]=hookStates[hookIndex]||ini
tialState;
+  let currentIndex = hookIndex;
+  function dispatch(action) {
+
hookStates[currentIndex]=reducer(hookStates[curr
entIndex],action);
+    render();
+  }
+  return [hookStates[hookIndex++], dispatch];
+}
const reducer = (state=0,action)=>{
  switch(action.type){
    case 'add':
      return state+1;
```

```
    default:
      return state;
  }
}
function Counter(){
    const [number1,setNumber1] = useState(0);
    const [number2,dispatch] =
useReducer(reducer,0);
    return (
        <>
            <p>{number1}</p>
            <button onClick=
{()=>setNumber1(number1+1)}>+</button>
            <hr/>
            <p>{number2}</p>
            <button onClick={() =>
dispatch({type: 'add'})}>+</button>
        </>
    )
}
function render(){
    hookIndex=0;

ReactDOM.render(<Counter/>,document.getElementBy
Id('root'));
}
render();
```