

# React (v19)

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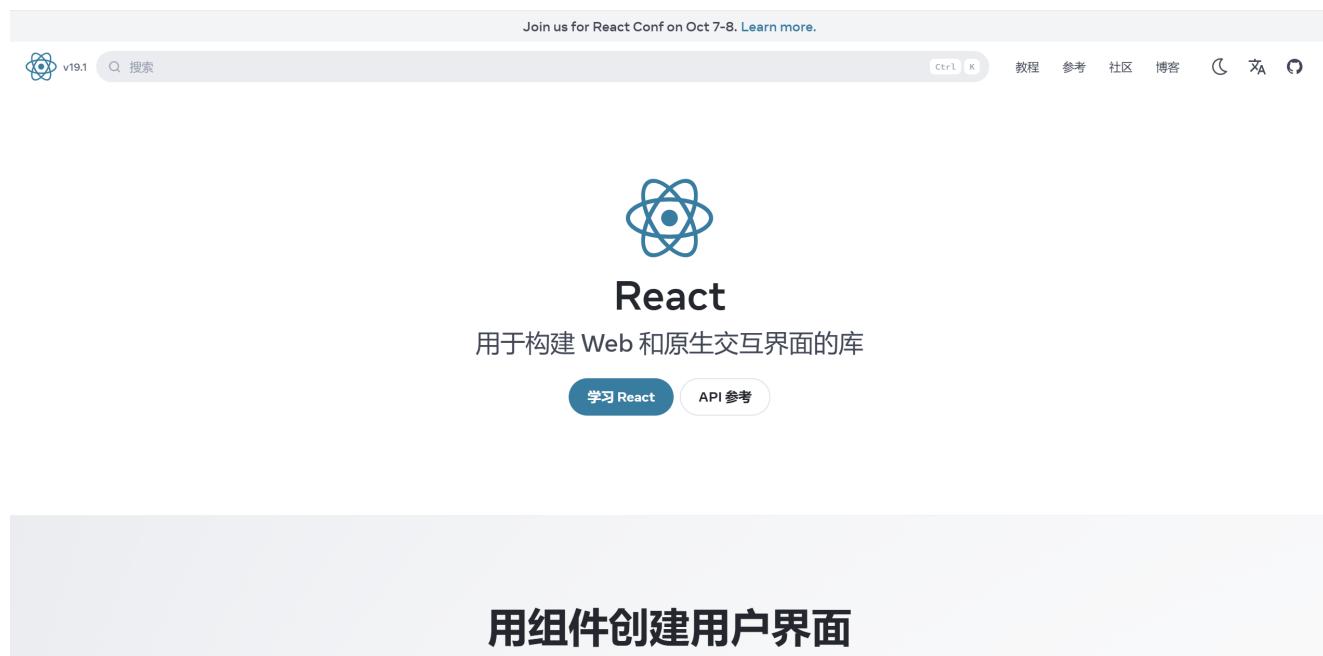
日期： -- 2025-08-25

## 01. 官网

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≡ <https://zh-hans.react.dev/>

- UI



## 1.1 入门

≡ <https://zh-hans.react.dev/learn>

### ● UI

The screenshot shows the React documentation homepage. At the top, there's a navigation bar with links for 'Join us for React Conf on Oct 7-8. Learn more.', 'Ctrl K', '教程' (Tutorial), '参考' (Reference), '社区' (Community), '博客' (Blog), and icons for dark mode, font size, and refresh.

The main content area has a sidebar on the left with sections like '起步' (Getting Started), '快速入门' (Quick Start) which is selected, '教程' (Tutorial), 'React 哲学' (React Philosophy), '安装' (Installation), '配置' (Configuration), 'React Compiler', '学习 React', '描述 UI', '添加交互', '状态管理', and '脱困机制'. A search bar is at the top of the sidebar.

The main content area has a title '快速入门' (Quick Start) and a sub-section '你将会学到' (What you'll learn) with a list of topics: '如何创建和嵌套组件', '如何添加标签和样式', '如何显示数据', '如何渲染条件和列表', '如何对事件做出响应并更新界面', and '如何在组件间共享数据'.

On the right side, there's a '目录' (Table of Contents) with sections like '概览' (Overview), '创建和嵌套组件', '使用 JSX 编写标签', '添加样式', '显示数据', '条件渲染', '渲染列表', '响应事件', '更新界面', '使用 Hook', '组件间共享数据', and '下一节' (Next section).

At the bottom, there's a code snippet example:

```
function MyButton() {
  return (
    <button>我是一个按钮</button>
  )
}
```

## 1.2 参考手册

≡ <https://zh-hans.react.dev/reference/react>

### ● UI

The screenshot shows the React v19.1 API Reference website. The left sidebar has sections for react@19.1 (Hooks, Components, API) and react-dom@19.1 (Hooks, Components, API). The main content area is titled 'React 参考总览' (React Reference Overview). It includes a summary of the reference documentation, a list of components, and detailed sections for 'React' and 'React DOM'. The 'React' section covers Hooks, Components, API, and Render Props. The 'React DOM' section covers Static APIs, React Compiler, Configuration, and Compiling Libraries. A right sidebar provides links to 'React', 'React DOM', 'React Compiler', 'Rules of React', and '过时的 API'.

## 1.3 环境

≡ react & react-dom | vite | @vitejs/plugin-react

### 1.3.1 手动安装

≡ 环境依赖 | vite 配置文件 | main.jsx | App.jsx | index.html 单文件模版

- npm



```
npm init --yes
npm install react react-dom
npm install vite @vitejs/plugin-react -D
```

- package.json

```
● ● ●

{

  "name": "react",
  "version": "1.0.0",

  "scripts": {
    "dev": "vite",
    "build": "vite build"
  },

  "keywords": [],
  "author": "",
  "license": "ISC",
  "description": "",

  "dependencies": {
    "react": "^19.1.1",
    "react-dom": "^19.1.1"
  },

  "devDependencies": {
    "@vitejs/plugin-react": "^5.0.1",
    "vite": "^7.1.3"
  },
  "type": "module"
}
```

- vite.config.js

```
● ● ●

import { defineConfig } from "vite";
import react from "@vitejs/plugin-react";

export default defineConfig(
  {
    plugins: [
      react(),
    ]
  }
);
```

- [src/App.jsx](#)

```
● ● ●  
export function App() {  
  return (  
    <div>  
      <h1>react</h1>  
    </div>  
  )  
}
```

- [src/main.jsx](#)

```
● ● ●  
import { App } from "./App";  
  
import { createRoot } from "react-dom/client";  
  
const root = document.getElementById("root");  
  
createRoot(root).render(<App/>);
```

- [index.html](#)

```
● ● ●  
<!doctype html>  
<html lang="en">  
  <head>  
    <meta charset="UTF-8">  
    <title>React</title>  
  </head>  
  <body>  
    <div id="root"></div>  
    <script type="module" src=".//src/main.jsx"></script>  
  </body>  
</html>
```

- <http://localhost:5173/>



```
npm run dev
```

### 1.3.2 模版

```
≡ npm create vite@latest
```

- **console**



```
>> Project name: » >>> 输入项目名称
```

```
>> Vanilla  
>> Vue  
>> React >>> 选择此项  
>> Preact  
>> Lit  
>> Svelte  
>> Solid  
>> Qwik  
>> Others
```

```
>>> TypeScript  
>>> TypeScript + SWC  
>>> JavaScript  
>>> JavaScript + SWC >>> 选择此项  
>>> Remix
```

- **npm**



```
>> cd project-name  
>> npm install  
>> npm run dev
```

## 02. 样式

≡ 推荐 行内 结合 Tailwind 方案

### 2.1 行内

≡ <element style={ stylesObject }>

- `src/App.jsx`



```
export function App() {  
  return (  
    <div style={ container }>  
      <h1 style={ title }>react</h1>  
    </div>  
  )  
}  
  
const container = {  
  padding: "64px",  
  backgroundColor: "oklch(64.5% 0.246 16.439)",  
}  
  
const title = {  
  fontSize: "64px",
```

```
    textAlign: "center",
    color: "white",
}
```

## 2.2 Tailwind

≡ <https://tailwindcss.com/>

### 2.2.1 官网

- UI

The screenshot shows the official TailwindCSS website. At the top, there's a navigation bar with links for Docs, Blog, Showcase, Sponsor, Plus, and a search icon. Below the navigation is a large hero section with the text "Rapidly build modern websites without ever leaving your HTML." in a large, bold, black font. Below this text, there's a brief description of TailwindCSS as a utility-first CSS framework. At the bottom left, there's a dark box containing a snippet of HTML/CSS code for a card component. To the right of the code box is a small image of three people.

```
1 <div class="flex flex-col items-center p-7 rounded-2xl">
2   <div>
3     
4   </div>
5   <div class="flex">
6     <span>Class Warfare</span>
7     <span>The Anti-Patterns</span>
8     <span class="flex">
9       <span>No. 4</span>
10      <span>...</span>
11    </span>
12  </div>
13</div>
```

## 2.2.2 手册

≡ <https://tailwindcss.com/docs/installation/using-vite>

- UI

The screenshot shows the Tailwind CSS documentation website. The left sidebar has sections like Documentation, Components, Templates, UI Kit, Playground, Course (NEW), and Community. Under 'GETTING STARTED', 'Installation' is selected, showing sub-sections for Editor setup, Compatibility, and Upgrade guide. The main content area is titled 'Get started with Tailwind CSS'. It explains how Tailwind CSS works by scanning HTML files, generating styles, and writing them to a static CSS file. It's described as fast, flexible, and reliable with zero-runtime. Below this is a 'Installation' section with tabs for 'Using Vite', 'Using PostCSS', 'Tailwind CLI', 'Framework Guides', and 'Play CDN'. The 'Using Vite' tab is active. It provides three steps: 1. Create your project (Terminal command: npm create vite@latest my-project cd my-project), 2. Install Tailwind CSS (Terminal command: npm install tailwindcss @tailwindcss/vite), and 3. Configure the Vite plugin (vite.config.ts code: import { defineConfig } from 'vite').

## 2.2.3 环境

≡ npm install tailwindcss @tailwindcss/vite -D

- package.json

The screenshot shows a code editor displaying a package.json file. The file contains the following JSON code:

```
{
  "name": "react",
  "version": "1.0.0",
  "scripts": {
    "dev": "vite",
    "build": "vite build"
  },
  "keywords": []
}
```

```
"author": "",  
"license": "ISC",  
"description": "",  
"dependencies": {  
    "react": "^19.1.1",  
    "react-dom": "^19.1.1"  
},  
"devDependencies": {  
    "@tailwindcss/vite": "^4.1.12",  
    "@vitejs/plugin-react": "^5.0.1",  
    "tailwindcss": "^4.1.12",  
    "vite": "^7.1.3"  
},  
"type": "module"  
}
```

### ● vite.config.js

```
● ● ●  
  
import { defineConfig } from "vite";  
  
import react from "@vitejs/plugin-react";  
import tailwindcss from "@tailwindcss/vite";  
  
export default defineConfig(  
{  
    plugins: [  
        react(), tailwindcss(),  
    ]  
});
```

### ● src/style.css

```
● ● ●  
  
@import "tailwindcss";
```

### ● src/main.jsx



```
import "./style.css";

import { App } from "./App";

import { createRoot } from "react-dom/client";

const root = document.getElementById("root");

createRoot(root).render(<App/>);
```

### ● src/App.jsx



```
export function App() {
  return (
    <div className="p-32 bg-rose-500">
      <h1 className="text-6xl md:text-7xl lg:text-9xl duration-300">
        <span className="font-mono text-white">React</span>
      </h1>
    </div>
  )
}
```

## 2.2.4 动态类样式

≡ npm install clsx tailwind-merge

### ● package.json



```
{
  "name": "react",
  "version": "1.0.0",
  "scripts": {
    "dev": "vite",
    "build": "vite build"
  },
}
```

```

"keywords": [],
"author": "",
"license": "ISC",
"description": "",
"dependencies": {
  "clsx": "^2.1.1",
  "react": "^19.1.1",
  "react-dom": "^19.1.1",
  "tailwind-merge": "^3.3.1"
},
"devDependencies": {
  "@tailwindcss/vite": "^4.1.12",
  "@vitejs/plugin-react": "^5.0.1",
  "tailwindcss": "^4.1.12",
  "vite": "^7.1.3"
},
"type": "module"
}

```

### ● src/tailwind/index.js

```

● ● ●

import { clsx } from "clsx";
import { twMerge } from "tailwind-merge";

// 部分 UI 库带有该函数
export function cn(...classes) {
  return twMerge(clsx(...classes));
}

```

### ● clsx-for-tailwind

```

● ● ●

npm install clsx-for-tailwind

import { cn } from "clsx-for-tailwind";

```

### ● src/App.jsx



```
import { cn } from "./lib/tailwind";

export function App() {
    return (
        <div className={ cn("p-32 bg-rose-500", 2 > 1 && "p-48 font-bold") }>
            <h1 className="text-6xl md:text-7xl lg:text-9xl duration-300">
                <span className="font-mono text-white">React</span>
            </h1>
        </div>
    )
}
```

## ≡ 典型

- **src/App.jsx**



```
export function App() {
    return (
        <div className="bg-slate-200 p-10">
            <div className="flex h-80 flex-col md:flex-row gap-10">

                <div className="w-full min-h-full bg-linear-to-tr from-cyan-500 to-purple-500">
                    <div className="size-full flex justify-center items-center">
                        <h1 className="font-mono text-6xl text-white">React</h1>
                    </div>
                </div>

                <div className="w-full min-h-full" style={ bgLines }>
                    <div className="size-full flex justify-center items-center">
                        <h1 className="font-mono text-6xl">Tailwind</h1>
                    </div>
                </div>

            </div>
        </div>
    )
}

const bgLines = {
    backgroundImage: "linear-gradient(#000 2px, transparent 2px)",
    backgroundSize: "20px 20px",
    backgroundPosition: "center center",
```

}

## 03. Jsx

≡ 特殊的 JavaScript & HTML 混写语法形式、以组织 React 组件逻辑

### 3.1 基本行为

≡ JSX 文件以 .jsx 名称作为文件后缀 有且仅有一个根元素 组件名首字母须大写

- src/App.jsx



```
export function App() {
  return (
    <div className="p-32 bg-rose-500">
      <h1 className="text-8xl text-white">jsx</h1>
    </div>
  )
}
```

- src/App.jsx



```
export function App() {
  return (
    <>
      <h1 className="text-9xl bg-rose-500 p-10 text-white">react</h1>
      <h1 className="text-9xl bg-rose-500 p-10 text-white">jsx</h1>
    </>
  )
}
```

## 3.2 变量绑定

≡ { 表达式 } 方式绑定变量 仅在 return (<element> </element>) 范围生效

- ✓ 表达式须有明确的返回值: number | string | boolean | array 等

- `src/App.jsx`



```
export function App() {

  const username = "天气预报";

  function fn() {
    return "Hello World";
  }

  const user = {
    username: "天气预报",
    gender: "male",
  }

  const jsx = (
    <div>
      <i>element</i>
    </div>
  );

  const innerHTML = "<i>element</i>"

  return (
    <>
      <h1>{username}</h1>
      <h1>{fn()}</h1>
      <h1>{user}</h1>
      <h1>{jsx}</h1>
      <h1>{innerHTML}</h1>
    </>
  )
}
```

```

<div className="p-20 bg-rose-500 space-y-10 text-white text-4xl">
  <p>{ username }</p>
  <p>{ fn() }</p>
  <p>{ 665 + 1 }</p>

  /* 不可直接绑定布尔变量 3 > 2 */
  <p>{ 3 > 2 ? "Yes" : "No" }</p>

  /* 不可直接绑定对象变量 { user } */
  <p>{ user.username } : { user.gender }</p>

  <div>{ jsx }</div>

  <p>{ innerHTML }</p>

  <div dangerouslySetInnerHTML={ { __html: innerHTML } }/>

  <p>{ [ 1, 2, 3, 4, 5, 6, 7, 8, 9, ] }</p>
</div>
)
}

```

### 3.3 条件渲染

≡ React 组件允许条件逻辑组织返回 JSX | 或者表达式获取 JSX

- `src/App.jsx`

```

● ● ●

export function App() {

  const boolean = false;

  if (boolean) {
    return (
      <div>
        <h1>react yes</h1>
      </div>
    )
  }

  return (
    <div>
      <h1>react no</h1>
    </div>
  )
}

```

```
)  
}
```

### ● src/App.jsx

```
● ● ●  
export function App() {  
  
  const boolean = true;  
  
  return (  
    <>  
    {  
      boolean && (  
        <div>  
          <h1>react yes</h1>  
        </div>  
      )  
    }  
  </>  
)  
}
```

### ● src/App.jsx

```
● ● ●  
export function App() {  
  
  const boolean = true;  
  
  return boolean && (  
    <div>  
      <h1>react yes</h1>  
    </div>  
  )  
}
```

### ● src/App.jsx



```
export function App() {
    const boolean = true;
    return boolean ? (<h1>react yes</h1>) : (<h1>react no</h1>)
}
```

## 3.4 列表渲染

列表渲染逻辑为 将数组中的每一个元素 映射为 对应的 JSX 变量

- ✓ 需为每一项 JSX 变量标记 key 属性 以使 React 内部区分每一项
- ✓ key 属性通常使用数据中的 唯一标识 作为标识值 仅当无唯一标识时使用 遍历 index
- ✓ 遍历项因 UI 操作使得顺序、数量产生变化时 不得使用 index 作为 key

### ● src/index.jsx



```
export function App() {
    const arr = [ 1, 2, 3, 4, 5, 6, 7, ];
    return (
        <ul className="flex gap-10 p-10">
            {
                arr.map((element, index) => (
                    <li className="w-32 aspect-video bg-rose-500 hover:bg-cyan-400 p-2"
                        key={ index }>
                        { element }
                    </li>
                ))
            }
        </ul>
    )
}
```

● `src/index.jsx`

```
● ● ●

export function App() {

  const userList = [
    {
      id: 1,
      username: "John",
    },
    {
      id: 2,
      username: "Jackson",
    },
    {
      id: 3,
      username: "Mary",
    },
  ];

  return (
    <ul className="flex gap-10 p-10">
      {
        userList.map(({ id, username }) => (
          <li className="w-32 aspect-video bg-rose-500 hover:bg-cyan-400 p-2"
              key={ id }>
            { username }
          </li>
        ))
      }
    </ul>
  )
}
```

● `src/App.jsx`

```
● ● ●

import { v4 as uuid } from "uuid";

export function App() {

  const userList = [
    {
      username: "John",
      gender: "male",
    },
    {
      username: "Jackson",
    },
  ];

  return (
    <ul className="flex gap-10 p-10">
      {
        userList.map(({ id, username }) => (
          <li key={ id }>
            { username }
          </li>
        ))
      }
    </ul>
  )
}
```

```

        gender: "male",
    },
{
    username: "Mary",
    gender: "female",
},
];
}

// 将原始数据处理为包含 ID 的数据、后续使用新数据
const users = userList.map((user) => ({ ...user, id: uuid() }));

return (
    <ul className="flex gap-10 p-10">
        {
            users.map(({ id, username, gender }) => (
                <li className="w-32 aspect-video bg-rose-500 hover:bg-cyan-400 p-2"
                    key={ id }
                    { username } : { gender }
                </li>
            ))
        }
    </ul>
)
}

```

≡ key 值变化将会使得绑定区域重新渲染

- src/App.jsx

● ● ●

```

export function App() {

    return (
        <div className="bg-slate-100 p-32" key={ 1 change to 2 ... }>
            <input className="block w-1/2 p-5 border-2 border-emerald-600"
                type="text"/>
        </div>
    )
}

```

## 3.5 事件绑定

≡ onClick | onChange | on + 事件名大写 ...

- ✓ 事件回调函数要么无参 要么有且仅有一个 event 事件对象作为参数

- src/App.jsx



```
export function App() {
    return (
        <div className="bg-slate-300 p-32">
            <button className="bg-black px-10 py-4 text-white text-xl cursor-
pointer"
                    onClick={() => console.log(Math.random())}>
                click
            </button>
        </div>
    )
}
```

- src/App.jsx



```
export function App() {
    return (
        <div className="bg-slate-300 p-32">
            <button className="bg-black px-10 py-4 text-white text-xl cursor-
pointer"
                    onClick={(event) => console.log(event.target)}>
                click
            </button>
        </div>
    )
}
```

≡ 多参数时 将逻辑处理函数 放入事件回调函数中调用即可

- `src/App.jsx`



```
export function App() {
    function clickCallback(event) {
        clickLogic(event, 100);
    }

    function clickLogic(event, other) {
        console.log(event.target, other);
    }

    return (
        <div className="bg-slate-300 p-32">
            <button className="bg-black px-10 py-4 text-white text-xl cursor-pointer"
                    onClick={ clickCallback }>
                click
            </button>
        </div>
    )
}
```

## 3.6 嵌套组件

≡ `<Nav/> | <Banner> ... </Banner>` 将组件作为 HTML 元素使用即可

- `src/components/Nav.jsx`



```
export function Nav() {
    return (
        <nav className="bg-rose-500">
            <section className="max-w-7xl mx-auto h-20 flex items-center">
                <ul className="flex gap-5">

```

```
        <li><a href="">react</a></li>
            <li><a href="">next</a></li>
                <li><a href="">tailwind</a></li>
                    <li><a href="">motion</a></li>
                        <li><a href="">zustand</a></li>
                            </ul>
                        </section>
                    </nav>
    )
}
```

## ● src/components/Banner.jsx

```
● ● ●

export function Banner() {
    return (
        <div className="bg-slate-300 py-48">
            <h1 className="text-center text-9xl font-mono">Example</h1>
        </div>
    )
}
```

## ● src/App.jsx



```
import { Nav } from "./components/Nav.jsx";
import { Banner } from "./components/Banner.jsx";

export function App() {

  return (
    <div>
      <Nav/>
      <Banner/>
    </div>
  )
}
```

## 3.7 图标

[≡ https://react-icons.github.io/react-icons/](https://react-icons.github.io/react-icons/)

- UI

The screenshot shows the homepage of the [react-icons](https://react-icons.github.io/react-icons/) GitHub repository. The page features a sidebar on the left containing links to other icon sets like Ant Design Icons, Bootstrap Icons, BoxIcons, Circum Icons, css.gg, Devicons, Feather, Flat Color Icons, Font Awesome 5, Font Awesome 6, Game Icons, Github Octicons icons, Grommet-Icons, Heroicons, IcoMoon Free, Icons8 Line Awesome, Ionicons 4, Ionicons 5, Material Design icons, Phosphor Icons, Radix Icons, Remix Icon, Simple Icons, Simple Line Icons, Tabler Icons, Themify Icons, Typicons, and Weather Icons. The main content area displays a grid of cards, each representing a different icon set with its name, icon count, and a preview of the icons.

≡ npm install react-icons

● src/App.jsx

```
● ● ●

import {
  FaApple,
  FaTwitter,
  FaYahoo,
  FaGoogle,
  FaMicrosoft,
  FaFacebook
} from "react-icons/fa";

export function App() {

  return (
    <div className="p-32 flex gap-10 bg-black">
      <FaApple size={ 48 } color={ "white" }/>
      <FaTwitter size={ 48 } color={ "white" }/>
      <FaYahoo size={ 48 } color={ "white" }/>
      <FaGoogle size={ 48 } color={ "white" }/>
      <FaMicrosoft size={ 48 } color={ "white" }/>
      <FaFacebook size={ 48 } color={ "white" }/>
    </div>
  )
}
```

## 04. Props

≡ 组件函数参数被称为 PROP [React 赋予概念]

## 4.1 声明方式

- `src/components/Link.jsx`



```
import { cn } from "../lib/tailwind";

export function Link(props) {
    return (
        <a className={ cn("block w-fit px-10 py-3 bg-slate-100 text-xl",
props.className) } href={ props.href }>
            { props.text }
        </a>
    )
}
```

- `src/components/Link.jsx [解构形式]`



```
import { cn } from "../lib/tailwind";

export function Link({ className, href, text }) {
    return (
        <a className={ cn("block w-fit px-10 py-3 bg-slate-100 text-xl",
className) } href={ href }>
            { text }
        </a>
    )
}
```

- `src/App.jsx`



```
import { Link } from "./components/Link.jsx";

export function App() {

    return (
        <div className="p-10">
            <Link className="bg-rose-500 text-white"
                href="https://www.example-plus.work/"
                text="example"/>
        </div>
    )
}
```

## 4.2 key

≡ 组件总是具备 key 属性、一般用于触发重新渲染、遍历项标识

- src/components/Link.jsx



```
import { Link } from "./components/Link.jsx";

export function App() {

    return (
        <div className="p-10">
            <Link className="bg-rose-500 text-white"
                href={ "https://www.example-plus.work/" }
                text={ "example" }
                key="unique-key-name"/>
        </div>
    )
}
```

## 4.3 children

≡ 组件总是具备 `children` 属性、表示 `<Component>` 此处内容 `</Component>`

- `src/components/Link.jsx`



```
import { cn } from "../lib/tailwind";

export function Link({ className, href, children }) {
  return (
    <a className={ cn("block w-fit p-5 bg-slate-100 text-xl", className) } href={ href }>
      { children }
    </a>
  )
}
```

- `src/App.jsx`



```
import { Link } from "./components/Link.jsx";

export function App() {

  return (
    <div className="p-10">
      <Link className="bg-black text-white"
        href="https://www.example-plus.work/"
        key="unique-key-name">

        <span className="text-purple-600 font-mono">example</span>

      </Link>
    </div>
  )
}
```

## 4.4 数据类型

≡ string | number ... object | ref | function ... JSX

- `src/components/Component.jsx`



```
export function Component({ number, string, user, fn, jsx }) {
  return (
    <div className="p-10 bg-rose-500 space-y-10">
      <p>{ number }</p>
      <p>{ string }</p>
      <p>{ user.username } : { user.age }</p>
      <p onClick={ fn }>click</p>
      <p>{ jsx }</p>
    </div>
  )
}
```

- `src/App.jsx`



```
import { Component } from "./components/Component.jsx";

export function App() {

  return (
    <div className="p-10 bg-slate-200">
      <Component number={ 100 }
                 string="hello"
                 user={ { username: "John", age: 18 } }
                 fn={ () => console.log(Math.random()) }
                 jsx={ ( <i>element</i> ) } />
    </div>
  )
}
```

## 05. Hooks

≡ REACT 组件渲染过程中预留给开发者的 钩子函数 被赋予特定执行功能

- ✓ HOOK 是内置预留约定函数、必须在组件顶层作用域调用、且推荐调用置于组件开头

### 5.01 useRef

≡ 相对组件而言的全局变量 | DOM 元素引用句柄

#### 5.1.1 存储数据

≡ const ref = useRef(value);

- src/App.jsx

```
● ● ●  
import { useRef } from "react"  
  
export function App() {  
  
  const ref = useRef(100);  
  
  function handle() {  
    ref.current += 1;  
    console.log(ref.current);  
  }  
  
  return (  
    <div className="p-32 bg-rose-500">  
      ref.current : { ref.current }  
      <button className="p-5 bg-blue-500" onClick={ handle }>+1</button>  
    </div>  
  )  
}
```

}

## 5.1.2 引用元素

≡ const ref = useRef(null); | <element ref={ ref }>

- src/App.jsx

● ● ●

```
import { useRef } from "react"

export function App() {

  const ref = useRef(null);

  return (
    <div className="p-32 flex">
      <input className="block p-5 border-2"
        type="text"
        ref={ ref }/>
      <button className="p-5 bg-blue-500 text-white"
        onClick={ () => ref.current.focus() }>
        focus
      </button>
    </div>
  )
}
```

## 5.02 useState

≡ 组件内的快捷 短ID、不同组件内调用、ID一定不同、通常用作拼接 ID 前缀

- src/App.jsx



```

import { useState } from "react"

export function App() {

  const [id] = useState();

  const usernameId = id + "username";
  const passwordId = id + "password";

  return (
    <div className="p-32">
      <form className="space-x-5" action="">
        <input className="border-2" id={usernameId} name="username"
        type="text"/>
        <input className="border-2" id={passwordId} name="password"
        type="password"/>
      </form>
      <p>{ id } : { usernameId } : { passwordId }</p>
    </div>
  )
}

```

## 5.03 useState

≡ 相对组件而言的全局状态变量、值变更将触发组件再次渲染

### 5.3.1 重新渲染

≡ 状态变量一旦发生变化、将使得组件内部所有代码再次执行一遍、UI 同时更新

- src/App.jsx



```

import { useState } from "react"

export function App() {

```

```

const [ number, setNumber ] = useState(100);

console.log(Math.random());

return (
    <div className="p-32 bg-slate-200">
        <p className="text-6xl">{ number }</p>
        <p>
            <button className="p-5 bg-amber-500"
                onClick={ () => setNumber(number + 1) }>+1
            </button>
        </p>
    </div>
)
}

```

### 5.3.2 重新渲染影响

☰ 重新渲染不会影响父组件、不会影响 children 子组件、但会影响嵌套子组件

- src/App.jsx [不会影响 children 子组件]



```

import { Child, Current } from "./components/Current.jsx";

export function App() {

    return (
        <div >
            <Current>
                <Child/>
            </Current>
        </div>
    )
}

```

- src/components/Current.jsx



```
import { useState } from "react";
```

```

export function Child() {
    console.log("Child : " + Math.random());

    return (
        <div className="p-10 bg-slate-300">
            <h1>Child</h1>
        </div>
    )
}

export function Current({ children }) {
    const [ number, setNumber ] = useState(1);

    console.log("Current : " + Math.random());

    return (
        <div className="p-10 bg-slate-200">
            <h1>Current : { number }</h1>
            <button className="p-5 bg-amber-500"
                    onClick={ () => setNumber(prev => prev + 1) }>+1
            </button>
            <div>{ children }</div>
        </div>
    )
}

```

## ● src/components/Current.jsx

● ● ●

```

import { useState } from "react";

export function Child() {
    console.log("Child : " + Math.random());

    return (
        <div className="p-10 bg-slate-300">
            <h1>Child</h1>
        </div>
    )
}

export function Current() {

    const [ number, setNumber ] = useState(1);

    console.log("Current : " + Math.random());

    return (
        <div className="p-10 bg-slate-200">

```

```

        <h1>Current : { number }</h1>
        <button className="p-5 bg-amber-500"
            onClick={ () => setNumber(prev => prev + 1) }>+1
        </button>
        <Child/>
    </div>
)
}

```

- `src/App.jsx` [会影响嵌套子组件]



```

import { Current } from "./components/Current.jsx";

export function App() {

    return (
        <div>
            <Current/>
        </div>
    )
}

```

### 5.3.3 正确更新状态变量

≡ `setState(value)` 处于复杂嵌套函数或异步操作时、调用需注意以下区别

- ✓ 不依赖旧 state ⇒ `setState(newState)`
- ✓ 需依赖旧 state ⇒ `setState(prev => 返回 prev 运算结果)`

- `src/App.jsx`



```
import { useState } from "react"
```

```

export function App() {

    const [ number, setNumber ] = useState(100);

    console.log(Math.random());

    return (
        <div className="p-32 bg-slate-200">
            <p className="text-6xl">{ number }</p>
            <p>
                <button className="p-5 bg-amber-500"
                    onClick={() => setNumber(prev => prev + 1)}>+1
                </button>
            </p>
        </div>
    )
}

// () => setNumber(number + 1)
// () => setNumber(prev => prev + 1) 此处两种方式都无问题 简单情况时 可使用第一种方式

// 一些特殊情况：比如某些 hook 仅执行一次 假设为 useFn()
useFn() {
    setState(number 此方式的 number 被锁定为首次渲染值)
}

```

### 5.3.4 典型运用一

#### ≡ 按钮唯一性选择

- src/App.jsx

● ● ●

```

import { useState } from "react";
import { cn } from "./lib/tailwind/index.js";

export function App() {

    const [ selected, setSelected ] = useState(0);

    const arr = [ "tailwind", "react", "next", "motion", "zustand" ];

    return (
        <ul className="p-20 flex gap-5">
            {

```

```

        arr.map(({title, index}) => (
            <li className={ cn("px-8 py-2 bg-green-500 text-white cursor-pointer",
                selected === index && "bg-rose-500") }
                onClick={() => setSelected(index)}
                key={ index }>
                { title }
            </li>
        ))
    }
</ul>
)
}

```

### 5.3.5 典型运用二

#### ≡ 图片循环轮播

- src/App.jsx



```

import { useState } from "react";

import { FaAngleLeft, FaAngleRight } from "react-icons/fa";

export function App() {

    const [ index, setIndex ] = useState(3);

    function wrap(min, max, value) {
        const range = max - min;
        return (((value - min) % range) + range) % range + min;
    }

    const images = [
        "https://cdn.pixabay.com/photo/2023/03/15/16/17/feather-7854908_1280.jpg",
        "https://cdn.pixabay.com/photo/2022/08/05/10/22/purple-bells-7366491_1280.jpg",
        "https://cdn.pixabay.com/photo/2023/03/02/03/01/bird-7824442_1280.jpg",
        "https://cdn.pixabay.com/photo/2022/10/24/09/31/flower-7543035_1280.jpg",
        "https://cdn.pixabay.com/photo/2024/12/18/01/27/lightning-9274136_1280.jpg",
        "https://cdn.pixabay.com/photo/2025/06/23/18/09/blossom-9676411_1280.jpg",
    ]

```

```

        "https://cdn.pixabay.com/photo/2023/03/08/13/20/nature-
7837757_1280.jpg",
        "https://cdn.pixabay.com/photo/2019/01/22/16/38/winter-
3948461_1280.jpg",
    ];

    return (
        <div className="w-7xl mx-auto h-160 mt-10 relative">
            <img className="size-full object-center select-none" src={images[index]} alt="" />

            <FaAngleLeft className="absolute left-10 top-1/2 -translate-y-1/2
                text-white cursor-pointer"
                size={64}
                onClick={() => setIndex(wrap(0, images.length, index -
1))} />
            <FaAngleRight className="absolute right-10 top-1/2 -translate-y-1/2
                text-white cursor-pointer"
                size={64}
                onClick={() => setIndex(wrap(0, images.length, index +
1))} />
        </div>
    )
}

```

### 5.3.6 二次封装

≡ 二次 HOOK 必须有对 内置 HOOK 的调用

- src/lib/hooks/index.js

```

● ● ●

import { useState } from "react";

export function useToggle(boolean) {
    const [ value, setValue ] = useState(!boolean);

    function toggle() {
        setValue(prev => !prev);
    }

    return {
        value, toggle,
    }
}

```

```

export function useCounter(value) {

    // check type ...

    const [ count, setCount ] = useState(value ?? 0);

    function increment() {
        setCount(prev => prev + 1);
    }

    function decrement() {
        setCount(prev => prev - 1);
    }

    return {
        count, increment, decrement,
    }
}

```

### ● src/App.jsx

● ● ●

```

import { useToggle } from "./lib/hooks";

export function App() {

    const { value, toggle } = useToggle(true);

    return (
        <div className="p-32">
            <button className="p-5 bg-rose-500 text-white" onClick={toggle}>
                show / hidden
            </button>
            {
                value && (
                    <div className="size-48 bg-rose-500 mt-10">Box</div>
                )
            }
        </div>
    )
}

```

## 5.04 useEffect

≡ 异步执行便捷钩子、可跟踪变量再次触发参数函数执行

### 5.4.1 异步执行

≡ useEffect(fn, []) ⇒ fn 将被异步执行

- src/App.jsx

```
● ● ●

import { useEffect } from "react";

export function App() {

  console.log("A");

  useEffect(() => console.log("B"), []);

  console.log("C");

  // console log A C B

  return (
    <div className="p-32 bg-rose-500"/>
  )
}
```

### 5.4.2 变量跟踪

≡ useEffect(fn, []) ⇒ [] 无依赖变量仅在组件首次渲染执行 可跟踪非 state 变量

- src/App.jsx [状态变量]



```
import { useState, useEffect } from "react";

export function App() {

  const [ number, setNumber ] = useState(100);

  useEffect(() => console.log(Math.random()), [ number ]);

  return (
    <div className="p-32 bg-rose-500">
      <button className="p-5 bg-green-500"
             onClick={ () => setNumber(number + 1) }>+1
      </button>
    </div>
  )
}
```

### ● src/App.jsx [非状态变量]



```
import { useState, useEffect } from "react";

let counter = 0;

export function App() {

  const [ number, setNumber ] = useState(100);

  useEffect(() => console.log(Math.random()), [ counter ]);

  return (
    <div className="p-32 bg-rose-500">
      <button className="p-5 bg-green-500"
             onClick={ () => {
               setNumber(number + 1);
               counter++;
             } }>+1
      </button>
    </div>
  )
}
```

### 5.4.3 组件卸载

≡ useEffect(() => { return fn }, []) fn 将在组件卸载时执行

- src/components/Box.jsx



```
import { useEffect } from "react";

export function Box() {

  useEffect(() => {
    // ...

    return () => {
      console.log(Math.random()); // 此处使用外部变量易产生错误
    }
  }, []);

  return (
    <div className="p-10 bg-green-500">Box</div>
  )
}
```

- src/App.jsx



```
import { useState } from "react";
import { Box } from "./components/Box.jsx";

export function App() {

  const [ show, setShow ] = useState(true);

  return (
    <div className="p-32 bg-slate-300 space-y-10">
      <button className="p-5 bg-rose-500" onClick={()=> setShow(!show)}>
        show / hidden
      </button>
      {
        show && (
          <Box/>
        )
      }
    </div>
  )
}
```

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

## 5.4.4 二次封装

≡ 下案例易错说明：useEffect 在首次渲染将持有回调函数引用不再更新、useRef 保证重新渲染获取实时函数引用

- `src/lib/hooks/index.js`

```
● ● ●  
  
import { useRef, useEffect } from "react";  
  
export function useUnmount(callback) {  
  
  const ref = useRef(callback);  
  ref.current = callback;  
  
  useEffect(() => () => {  
    ref.current()  
  }, []);  
  
}
```

- `src/components/Box.jsx`



```
import { useUnmount } from "../lib/hooks";

export function Box() {

  useUnmount(()=> console.log(Math.random()));

  return (
    <div className="p-10 bg-green-500">Box</div>
  )
}
```

## 5.05 useMemo

≡ 缓存耗时计算结果、即使组件被多次重新渲染、即贯穿组件多次渲染周期

- `src/App.jsx`



```
import { useMemo, useState } from "react";

const a = 2;
const b = 3;

export function App() {

  const [ number, setNumber ] = useState(100);

  function add(one, other) {
    console.log("add function called ...");
    return one + other;
  }

  const sum = add(a, b);

  const cache = useMemo(() => {
    console.log("useMemo function called ...");
    return a + b;
  }, [ a, b ]);

  return (
    <div className="p-32 bg-rose-500">
      <p>sum : { sum }</p>
    </div>
  );
}
```

```

<p>sum : { sum }</p>
<p>sum : { sum }</p>

<p>cache : { cache }</p>
<p>cache : { cache }</p>
<p>cache : { cache }</p>

<p>number : { number }</p>

<button className="p-5 bg-green-500"
        onClick={() => setNumber(number + 1)}>+1
    </button>
</div>
)
}

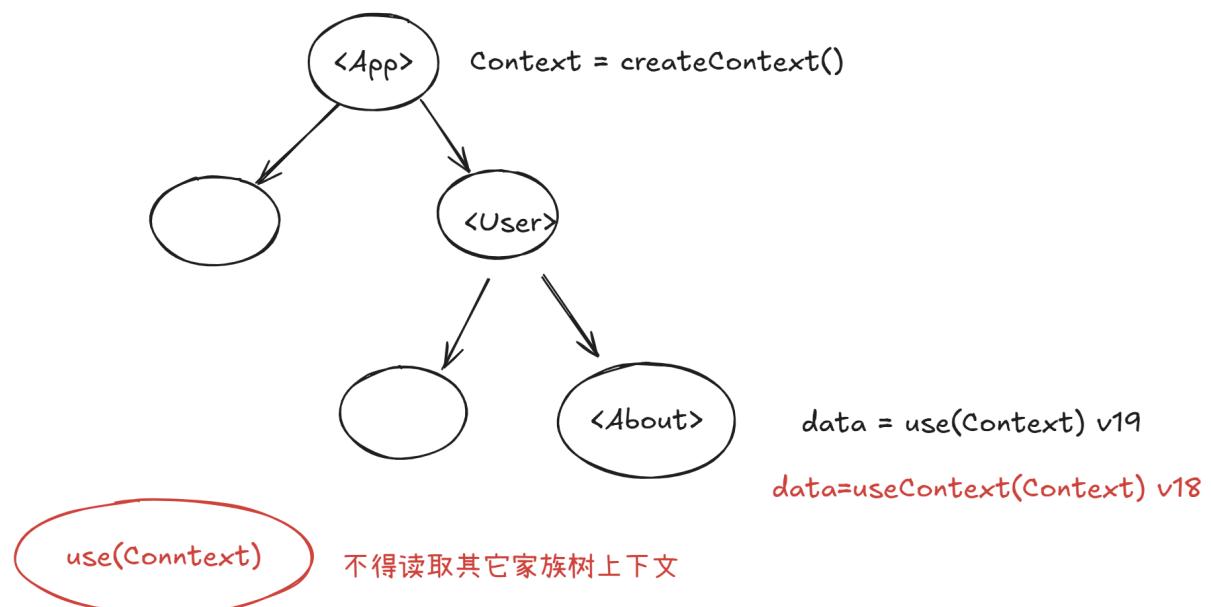
```

## 5.06 useContext

☰ createContext | useContext | use 深层级组件树传值和取值

- ✓ createContext | use 是 API、但 use() 仍需遵守 hook 顶层调用约定
- ✓ 上下文必须自上而下 不得倒置

- UI



- **src/App.jsx**

```

● ● ●

import { createContext, useState } from "react";
import { User } from "./components/User.jsx";
export const AnyContext = createContext(null);

export function App() {

  const [ number, setNumber ] = useState(1000);

  return (
    <AnyContext value={ number }>
      <div className="p-32 bg-rose-500">
        <p>{ number }</p>
        <button className="p-5 bg-amber-500"
          onClick={() => setNumber(number + 1)}>+1
        </button>

        <User number={ number }/>
      </div>
    </AnyContext>
  )
}

// <AnyContext.Provider value> v18
// <AnyContext value> v19

```

- **src/components/User.jsx**

```

● ● ●

import { About } from "./About.jsx";

export function User({ number }) {
  return (
    <div className="p-5 bg-slate-300">
      <p>User : { number }</p>
      <About/>
    </div>
  )
}

```

- [src/components/About.jsx](#)

```
● ● ●

import { useState } from "react";
import { AnyContext } from "../App.jsx";

export function About() {

  const number = useState(AnyContext);

  return (
    <div className="p-5 bg-slate-600">
      <p>About : { number }</p>
    </div>
  )
}
```

## 5.07 useCallback

≡ 缓存函数对象自身、以避免组件重新渲染过程反复创建函数

✓ `cacheFn = useCallback(fn, [dependencies])` 一般用在二次 hook 作为优化手段

### 5.7.1 使用方式

≡ 通常较少在组件内主动使用

- [src/App.jsx](#)

```
● ● ●

import { useState, useCallback } from "react";
```

```

export function App() {

  const [ number, setNumber ] = useState(1000);

  const increment = useCallback(() => {
    setNumber(prev => prev + 1);
  }, []);

  return (
    <div className="p-32 bg-rose-500">
      <p>{ number }</p>
      <button className="p-5 bg-amber-500"
              onClick={ increment }>+1
      </button>
    </div>
  )
}

```

## 5.7.2 二次封装

### ≡ 一般用作优化手段

- `src/lib/hooks/index.js`

```

● ● ●

import { useState, useCallback } from "react";

export function useCounter(initial) {
  const [ count, setCount ] = useState(initial ?? 0);

  const increment = useCallback(() => {
    setCount(x => x + 1);
  }, []);

  const decrement = useCallback(() => {
    setCount(x => x - 1);
  }, []);

  return {
    count,
    increment,
    decrement,
  }
}

```

☰ 仍需注意使用外部变量造成的错误陷阱

- `src/App.jsx`



```
import { useState, useCallback } from "react";

export function App() {

  const [ number, setNumber ] = useState(1000);

  const increment = useCallback(() => {
    // setNumber(prev => prev + 1);
    setNumber(number + 1);
  }, []);

  return (
    <div className="p-32 bg-rose-500">
      <p>{ number }</p>
      <button className="p-5 bg-amber-500"
             onClick={ increment }>+1
      </button>
    </div>
  )
}
```

## 5.08 useReducer

☰ 较 useState 允许将 setState 复杂逻辑提取到一个 Fn

✓ `const [state, dispatch] = useReducer(fn, initialValue, initMapFn?)`

- `src/App.jsx`



```
import { useReducer } from "react";
```

```

function reducer(user, action) {

    if (action.type === "+") {
        return {
            ...user,
            age: user.age + action.number
        }
    }

    if (action.type === "-") {
        return {
            ...user,
            age: user.age - action.number
        }
    }

    return user;
}

export function App() {

    const [ user, dispatch ] = useReducer(reducer, { username: "jackson", age: 18 }, undefined);

    return (
        <div className="p-32 bg-rose-500">
            <p>{ user.username } : { user.age }</p>
            <button className="p-5 bg-amber-500"
                    onClick={ () => dispatch({ type: "+", number: 10 }) }>age +
            10</button>
            <br/>
            <button className="p-5 bg-amber-500"
                    onClick={ () => dispatch({ type: "-", number: 20 }) }>age -
            20</button>
        </div>
    )
}

```

## 5.09 useOptimistic

≡ 检测状态变更操作时立即触发重新渲染、而非等待状态变更操作后续代码执行完毕

✓ `const [state, triggerStateFn] = useOptimistic(initState, updateStateFn);`

## ● src/App.jsx

```

● ● ●

import { useState } from "react";

async function sleep(ms) {
    return new Promise(resolve => setTimeout(resolve, ms));
}

function updateState(userList, optimistic) {
    return userList.filter(user => user.id !== optimistic);
}

let userList = [
    {
        id: 1,
        name: "John",
    },
    {
        id: 2,
        name: "James",
    },
    {
        id: 3,
        name: "Jersey",
    }
];

export function App() {

    const [ state, addOptimistic ] = useState(userList, updateState);

    async function deleteById(id) {
        console.log(id);
        addOptimistic(id); // 触发重新渲染
        userList = userList.filter(user => user.id !== id); // 难以优化的业务操作
        [网络请求]
        await sleep(3000); // 故意的耗时操作
    }

    return (
        <div className="p-10 bg-slate-200">
            <ul className="flex flex-col gap-5">
                {
                    state.map((user) => (
                        <li className="flex gap-5 items-center" key={ user.id }>
                            <span>{ user.name }</span>
                            <form action={ deleteById.bind(null, user.id) } className="flex flex-col gap-5">
                                <button className="p-2 bg-rose-500 text-white cursor-pointer" type="submit">
                                    delete
                                </button>
                            </form>
                    ))
                }
            </ul>
        </div>
    );
}

```

```

        </li>
    ))
}
</ul>
</div>
)
}

```

## ● src/App.jsx [useState 版本]



```

import { useOptimistic, useState } from "react";

async function sleep(ms) {
    return new Promise(resolve => setTimeout(resolve, ms));
}

function updateState(userList, optimistic) {
    return userList.filter(user => user.id !== optimistic);
}

let userList = [
    {
        id: 1,
        name: "John",
    },
    {
        id: 2,
        name: "James",
    },
    {
        id: 3,
        name: "Jersey",
    }
];

export function App() {

    // const [ state, addOptimistic ] = useOptimistic(userList, updateState);

    const [ state, setState ] = useState(userList);

    async function deleteById(id) {
        console.log(id);

        // addOptimistic(id);
        setState(p => p.filter(user => user.id !== id));

        userList = userList.filter(user => user.id !== id);
        await sleep(3000);
    }
}

```

```

return (
  <div className="p-10 bg-slate-200">
    <ul className="flex flex-col gap-5">
      {
        state.map((user) => (
          <li className="flex gap-5 items-center" key={ user.id }>
            <span>{ user.name }</span>
            <form action={ deleteById.bind(null, user.id) }>
              className="flex flex-col gap-5">
                <button className="p-2 bg-rose-500 text-white
cursor-pointer"
                      type="submit">
                  delete
                </button>
              </form>
            </li>
          ))
      }
    </ul>
  </div>
)
}

```

## 5.10 useTransition

≡ useTransition | startTransition 异步更新状态、且返回耗时标识

- src/App.jsx

```

● ● ●

import { useTransition } from "react";
import { useCounter } from "usehooks-ts";

export function App() {

  const { count, increment } = useCounter(1000);

  const [ isPending, startTransition ] = useTransition();

  function h() {
    startTransition(async () => {
      await new Promise(resolve => setTimeout(resolve, 1000));
    });
  }

  return (
    <div>
      <p>Count: { count }</p>
      <p>Is Pending: { isPending }</p>
      <button onClick={ h }>Update</button>
    </div>
  );
}

```

```
        increment();
    });
}

return (
    <div className="p-10">
        <p>{ count }</p>
        <button className="p-5 bg-green-500 disabled:bg-slate-500
disabled:cursor-not-allowed"
            onClick={ h } disabled={ isPending }>
            increment
        </button>
    </div>
)
}
```

## ● src/App.jsx

```
● ● ●

import { useCounter } from "usehooks-ts";
import { startTransition } from "react";

export function App() {

    const { count, increment } = useCounter(1000);

    function h() {
        startTransition(async () => {
            await new Promise(resolve => setTimeout(resolve, 1000));
            increment();
        })
    }

    return (
        <div className="p-10">
            <p>{ count }</p>
            <button className="p-5 bg-green-500"
                onClick={ h }>
                increment
            </button>
        </div>
    )
}
```

## 5.11 useLayoutEffect

≡ useLayoutEffect 是 useEffect 同步版本会在真实 DOM 绘制之前执行 [会阻止渲染UI]

- src/App.jsx



```
import { useLayoutEffect } from "react";

export function App() {

  useLayoutEffect(() => {

    function task() {
      const start = Date.now();
      while (Date.now() - start < 3000) {
        Math.sqrt(Math.random() ** 2);
      }
      console.log("task end ...")
    }

    task();
  }, []);

  return (
    <div className="p-32 bg-rose-500"/>
  )
}
```

## 06. Hooks Library

≡ React Hooks 生态较为丰富、Hooks 自行封装极易出错、推荐使用三方库

## 6.1 流行库

≡ usehooks | rooks | react-use ...

### 6.1.1 usehooks

≡ <https://usehooks-ts.com/>

- UI



## usehooks-ts

React hook library, ready to use, written in Typescript.

[Explore the docs >](#)

## Features



### Lightweight

usehooks-ts is a tiny library without any dependencies, ensuring a lean and



### Type-Safe

Catch compile-time errors with ease and unlock strong typing benefits.



### Tree-Shakable

Eliminating unused code and delivering leaner bundles for lightning-fast load



### 6.1.2 rooks

≡ <https://rooks.vercel.app/docs>

## ● UI

The screenshot shows the Rooks.js website. On the left is a sidebar with a tree view of various React hooks categorized under 'Hooks' (e.g., Hooks, Animation & Timing, Browser APIs, Development & Debugging, Event Handling). The main content area has a title 'Rooks.js' and a section 'Introduction' with the text 'Collection of awesome react hooks'. To the right is a 'Contributors' section featuring a grid of 30 small profile pictures of people.

### 6.1.3 react-use

≡ <https://github.com/streamich/react-use>

## ● UI

The screenshot shows the GitHub README page for the react-use repository. At the top, there are links for 'README', 'Contributing', 'Unlicense license', and 'Security'. Below that is a search bar containing the text 'npm i react-use'. The main content area features a heading 'Sensors' followed by a list of various sensor-related hooks, each with a 'demo' button. The hooks listed include `useBattery`, `useGeolocation`, `useHover_and_useHoverDirty`, `useHash`, `useIdle`, `useIntersection`, `useKey`, `useKeyPress`, `useKeyboard`, `useKeyPressEvent`, `useLocation`, `useSearchParam`, `useLongPress`, `useMedia`, `useMediaDevices`, `useMotion`, `useMouse`, `useMouseHovered`, `useMouseWheel`, `useNetworkState`, `useOrientation`, `usePageLeave`, `useScratch`, `useScroll`, `useScrolling`, and `useStartTyping`.

## 6.2 usehooks

≡ <https://usehooks-ts.com/>

- npm



```
npm install usehooks-ts
```

### 6.2.1 useHover

≡ JavaScript Hover 控制

- src/App.jsx



```
import { useHover } from "usehooks-ts";
import { useRef } from "react";

export function App() {

  const ref = useRef(null);
  const isHover = useHover(ref);

  return (
    <div className="p-20 bg-rose-500">
      <h1 className="bg-green-500 p-10 cursor-pointer" ref={ref}>
        { isHover ? "Hover" : "Not Hover" }
      </h1>
    </div>
  )
}
```

- src

```
● ● ●

import { useState } from "react";
import type { RefObject } from "react";
import { useEventListener } from "usehooks-ts";

export function useHover<T extends HTMLElement = HTMLElement>(elementRef: RefObject<T>): boolean {
  const [ value, setValue ] = useState<boolean>(false);

  const handleMouseEnter = () => {
    setValue(true);
  }
  const handleMouseLeave = () => {
    setValue(false);
  }

  useEventListener("mouseenter", handleMouseEnter, elementRef);
  useEventListener("mouseleave", handleMouseLeave, elementRef);

  return value;
}
```

## 6.2.2 useInterval

≡ 无须清理的定时器实现

- src/App.jsx

```
● ● ●

import { useState } from "react";
import { useInterval } from "usehooks-ts";
import dayjs from "dayjs";

export function App() {

  const [ datetime, setDateDateTime ] = useState(new Date());
  useInterval(() => setDateDateTime(dayjs().toDate()), 1000);
}
```

```

useInterval(() => setDate(new Date(), 1000);

return (
  <div className="p-20 bg-rose-500">
    <h1 className="bg-green-500 p-10 cursor-pointer">
      { dayjs(datetime).format("YYYY-MM-DD HH:mm:ss") }
    </h1>
  </div>
)
}

```

- **src**

● ● ●

```

import { useEffect, useRef } from "react";

import { useIsomorphicLayoutEffect } from "usehooks-ts";

export function useInterval(callback: () => void, delay: number | null) {
  const savedCallback = useRef(callback);

  useIsomorphicLayoutEffect(() => {
    savedCallback.current = callback
  }, [callback]);

  useEffect(() => {
    if (delay === null) {
      return;
    }

    const id = setInterval(() => {
      savedCallback.current();
    }, delay);
  });

  return () => {
    clearInterval(id);
  }
}, [delay]);
}

```

## 6.2.3 useToggle

### ≡ 布尔切换

- `src/App.jsx`



```
import { useToggle } from "usehooks-ts";

export function App() {

    const [ visibility, toggle ] = useToggle(true);

    return (
        <div className="p-20">
            <button className="bg-black p-5 text-white" onClick={ toggle }>
                show / hidden
            </button>
            {
                visibility && (
                    <div className="w-60 aspect-3/4 bg-cyan-400 mt-10"/>
                )
            }
        </div>
    )
}
```

- `src`



```
import { useCallback, useState } from "react";

import type { Dispatch, SetStateAction } from "react";

export function useToggle(defaultValue?: boolean): [
    boolean,
    () => void,
    Dispatch<SetStateAction<boolean>>
] {

    const [ value, setValue ] = useState(!defaultValue);

    const toggle = useCallback(() => {
        setValue(x => !x);
    }, []);

    return [ value, setValue, toggle ];
}
```

```
        return [ value, toggle, setValue ];
    }
```

## 6.2.4 useMediaQuery

### ≡ 媒体查询

- `src/App.jsx`

● ● ●

```
import { useMediaQuery } from "usehooks-ts";

export function App() {

    const matches = useMediaQuery("(max-width: 640px)");

    if (matches) {
        return (
            <div className="p-10 bg-rose-500">mobile</div>
        )
    }

    return (
        <div className="p-10 bg-blue-500">PC</div>
    )
}
```

## 6.2.5 useIntersectionObserver

### ≡ 元素视口检测

- `src/App.jsx`



```

import { useIntersectionObserver } from "usehooks-ts";
import { cn } from "clsx-for-tailwind";

function Box() {

    const { isIntersecting, ref } = useIntersectionObserver({
        threshold: 0.8
    });

    return (
        <div className={ cn("w-80 aspect-3/4 bg-slate-600 opacity-30 duration-300 scale-90",
            isIntersecting && "bg-purple-700 opacity-100 scale-100") } ref={ ref }>
        )
    }
}

export function App() {

    return (
        <div className="p-20 bg-black space-y-40">
            <Box/>
            <Box/>
            <Box/>
            <Box/>
            <Box/>
            <Box/>
            <Box/>
            <Box/>
        </div>
    )
}

```

## 6.2.6 useCopyToClipboard

≡ 文本复制

- src/App.jsx



```

import { useCopyToClipboard } from "usehooks-ts";
import { useRef } from "react";

export function App() {

    const [ copiedText, copyFn ] = useCopyToClipboard();
    const ref = useRef(null);

    return (
        <div className="p-20 bg-rose-500 space-y-20">
            <p className="text-6xl text-white" ref={ ref }>千里之行、始于足下。</p>
            <p className="text-6xl text-white">
                <span onClick={ async () => await
copyFn(ref.current.textContent) }>
                    点击复制到此处:
                </span>
                { copiedText }
            </p>
        </div>
    )
}

```

## 6.2.7 useDebounceValue

≡ 防抖状态

- src/App.jsx



```

import { useDebounceValue } from "usehooks-ts";

export function App() {

    const [ debounce, setDebounce ] = useDebounceValue(18, 1000); // value, ms

    return (
        <div className="p-10 bg-rose-500">
            <p>{ debounce }</p>
            <button className="p-5 bg-cyan-400 text-white"
                onClick={ () => setDebounce(debounce + 1) }>+1
        </div>
    )
}

```

```
        </button>
    </div>
)
}
```

## 6.2.8 useDocumentTitle

### ≡ 文档标题

- src/App.jsx

```
● ● ●

import { useDocumentTitle } from "usehooks-ts";

export function App() {

  useDocumentTitle("App - Home");

  return (
    <div className="p-20 bg-rose-500">
      <h1 className="text-6xl text-white">Home</h1>
    </div>
  )
}
```

## 6.2.9 setTimeout

### ≡ 无须清理延时实现

- src/App.jsx



```
import { useTimeout } from "usehooks-ts";

export function App() {

  useTimeout(() => alert("delay 3s"), 3000);

  return (
    <div className="p-10 bg-rose-500"/>
  )
}
```

## 07. 注意事项

---

### 7.1 根元素

≡ react 要求组件必须有且唯一根元素

- src/App.jsx



```
export function App() {
  return (
    <>
      <div className="p-20 bg-rose-500">
        <h1 className="text-6xl text-white">root</h1>
      </div>
    </>
  )
}
```

## ● src/App.jsx

```
● ● ●

import { Fragment } from "react";

export function App() {
  return (
    <div className="p-10 bg-slate-200">
      {
        [ ...Array(6) ].map((_, i) => (
          <Fragment key={ i }>
            <p>p : { i }</p>
            <span>span : { i }</span>
          </Fragment>
        ))
      }
    </div>
  )
}
```

## ● src/App.jsx

```
● ● ●

import { Fragment, useState } from "react";
import { cn } from "clsx-for-tailwind";
import { FiRefreshCcw } from "react-icons/fi";

function Refresh({ children, className }) {

  const [ randomKey, setRandomKey ] = useState(Math.random());

  return (
    <Fragment key={ randomKey }>
      <div className={ cn("max-w-7xl mx-auto py-20 relative", className) }>
        { children }
        <button className="absolute top-5 right-5 p-2 cursor-pointer
          hover:rotate-180 duration-300"
          onClick={ () => setRandomKey(Math.random()) }>
          <FiRefreshCcw className="text-white text-2xl"/>
        </button>
      </div>
    </Fragment>
  )
}

export function App() {
  return (
    <>
```

```

        <Refresh className="bg-slate-900 px-5">
            <div>something</div>
        </Refresh>
    </>
)
}

```

## ≡ 自定义根元素

- **src/App.jsx**

● ● ●

```

function Box({ as = "div", children, className, ...props }) {
    if (as === "h1" ||
        as === "h2" ||
        as === "h3" ||
        as === "h3" ||
        as === "h4" ||
        as === "h5" ||
        as === "h6" ||
        as === "p" ||
        as === "div") {

        // 不可省略该操作 确保自定义 Tag 首字母大写
        const Tag = as;

        return (
            <Tag className={ className } { ...props }>{ children }</Tag>
        )
    }

    return null;
}

export function App() {
    return (
        <div className="p-20 bg-rose-500">
            <Box as="h2" className="bg-purple-700 p-10"><i>e</i></Box>
        </div>
    )
}

```

}

## ≡ jsx/jsxs 函数

### ● src/App.jsx

● ● ●

```
import { jsx, jsxs } from "react/jsx-runtime";

export function Box({ as }) {

    if (as === "h1" || as === "h2" || as === "h3" || as === "h4" || as === "h5"
    || as === "h6") {

        const title = "jsx-runtime";
        const content = "react/jsx-runtime";

        return jsxs(as,
            {
                children: [
                    jsx("p",
                        {
                            children: title,
                            className: "p-5 bg-rose-500 text-white",
                        }),
                    jsx("p",
                        {
                            children: content,
                            className: "p-5 bg-rose-400 text-white",
                        }),
                ],
                className: "bg-slate-300 p-20"
            });
    }

    return null;
}

export function App() {
    return (
        <div>
            <Box as="h1"/>
        </div>
    )
}
```

## 7.2 延迟组件加载

```
≡ lazy(() => import(""))
```

- ✓ `import` 可当作类似函数调用 实现对模块异步导入

- `src/App.jsx`



```
export function App() {  
  
    async function readPackageJson() {  
        const json = await import("../package.json").then(module =>  
module.default);  
        console.log(json);  
    }  
  
    readPackageJson();  
  
    return (  
        <div className="p-20 bg-rose-500"/>  
    )  
}
```

- `src/components/Box.jsx`



```
export default function Box() {  
    return (  
        <div className="p-20 bg-slate-200">box</div>  
    )  
}
```

- **src/App.jsx**

```
● ● ●

import { lazy } from "react";

const Box = lazy(() => import("./components/Box.jsx"));

export function App() {

  return (
    <div className="p-20 bg-rose-500">
      <Box/>
    </div>
  )
}
```

## 7.3 组件缓存

≡ props 未产生变化的被动重新渲染、组件卸载后渲染挂载引起的状态丢失

### 7.3.1 被动重新渲染

≡ 如直接被嵌套的组件会因当前组件的重新渲染而渲染、期望 PROP 不变而触发重新渲染使用

- **src/components/Box.jsx**



```
import { memo } from "react";

export const Box = memo(function ({ number }) {
    console.log(Math.random());
    return (
        <div className="bg-white">box : { number }</div>
    )
});
```

### ● src/App.jsx



```
import { useCounter } from "usehooks-ts";
import { Box } from "./components/Box.jsx";

export function App() {
    const { count, increment } = useCounter(100);
    return (
        <div className="p-20 bg-rose-500">
            <p>{ count }</p>
            <button onClick={ increment }>increment</button>
            <Box number={ 100 + count } />
        </div>
    )
}
```

## 7.3.2 组件卸载

≡ 组件卸载后重新挂载是一次全新的渲染、即上次渲染的状态全部丢失

- ✓ 推荐优先使用 `display: none` 思路 | 使用父组件状态或数据

● src/App.jsx

```
● ● ●

import { useCounter, useToggle } from "usehooks-ts";

export function App() {

  const { count, increment } = useCounter(100);
  const [ value, toggle ] = useToggle(true);

  return (
    <div className="p-20 bg-rose-500">
      <button onClick={ toggle }>show / hidden</button>
      <div style={ {
        display: value ? "block" : "none",
      } }>
        <p>{ count }</p>
        <button onClick={ increment }>increment</button>
      </div>
    </div>
  )
}

}
```

● src/App.jsx

```
● ● ●

import { useState } from "react";
import { cn } from "clsx-for-tailwind";

export function App() {

  const titles = [ "react", "next", "motion", "gsap", "zustand" ];
  const [ selected, setSelected ] = useState("react");

  // state ...

  return (
    <div className="p-20">
      <ul className="flex gap-5">
        {
          titles.map((title) => (
            <li key={ title }>
              <button
                className={ cn("p-5 bg-slate-900 text-white
cursor-pointer",

```

```

        selected === title && "bg-rose-500")
    }
        onClick={() => setSelected(title)}
        { title }
    </button>
</li>
))
}
</ul>
<div className="my-10">
{
    selected === "react" && (
        <div className="p-32 bg-cyan-400">react</div>
    )
}
{
    selected === "next" && (
        <div className="p-32 bg-black text-white">next</div>
    )
}
{
    selected === "motion" && (
        <div className="p-32 bg-yellow-400">motion</div>
    )
}
{
    selected === "gsap" && (
        <div className="p-32 bg-green-500">gsap</div>
    )
}
{
    selected === "zustand" && (
        <div className="p-32 bg-slate-500">zustand</div>
    )
}
</div>
</div>
)
}

```

≡ npm install react-activation

- src/App.jsx



```
import { useCounter, useToggle } from "usehooks-ts";
import { KeepAlive, AliveScope } from "react-activation";

function Box() {
    const { count, increment } = useCounter();

    return (
        <div className="p-20 bg-slate-500">
            <p>{ count }</p>
            <button onClick={ increment }>increment</button>
            <div className="h-60 overflow-y-auto">
                <div className="h-screen"/>
            </div>
        </div>
    )
}

export function App() {
    const [ show, toggle ] = useToggle(true);

    return (
        <div className="p-20 bg-rose-500">
            <button className="cursor-pointer" onClick={ toggle }>show / hidden</button>
            <AliveScope>
                {
                    show && (
                        <KeepAlive>
                            <Box/>
                        </KeepAlive>
                    )
                }
            </AliveScope>
        </div>
    )
}
```

## 7.4 后备组件

≡ 逻辑变量变更、数据请求前后、组件渲染耗时期望 Loading 组件代替目标组件

### 7.4.1 数据处理

≡ 设计需借助 状态变量 触发重新渲染以获得目标 UI

- `src/App.jsx`



```
import { useState } from "react";
import { useTimeout } from "usehooks-ts";

export function App() {

  const [ number, setNumber ] = useState(0);

  useTimeout(() => setNumber(1), 3000);

  return (
    <div>
      {
        number === 1 && (
          <div className="p-10 bg-rose-500">ui</div>
        )
      }
      {
        number === 0 && (
          <div className="p-10 bg-blue-500">loading</div>
        )
      }
    </div>
  )
}
```

### ⓘ Note

- ✓ 注意产生数据请求时一般是三个状态：请求前 -1 | 请求到期望数据 1 | 请求到非期望数据 0

## 7.4.2 Suspense

≡ Suspense React 内置后备组件手段、仅支持异步组件 Promise<Component>

- ✓ Suspense 通过确认异步组件 待定状态 控制后备组件和目标组件的切换

- src/App.jsx

```
● ● ●

import { lazy, Suspense } from "react";

const Box = lazy(() => new Promise(resolve => setTimeout(() => {
    resolve({
        default: function () {
            return (
                <div className="p-10 bg-blue-500 text-white">Box</div>
            )
        }
    });
}, 3000));
);

function Loading() {
    return (
        <div className="flex items-center gap-5">
            <span className="size-8 border-2 border-white border-r-transparent rounded-full animate-spin"/>
            <span className="text-white">loading</span>
        </div>
    )
}

export function App() {
    return (
        <div className="p-10 bg-rose-500">
            <Suspense fallback={<Loading/>}>
```

```
        <Box/>
      </Suspense>
    </div>
  )
}
```

## 7.5 数据请求

```
≡ npm install swr
```

- `src/App.jsx`

```
● ● ●

import useSWR from "swr";

const fetcher = (url) => fetch(url).then(response => response.json())

export function App() {

  const url = "https://jsonplaceholder.typicode.com/posts/1";

  const { data, isLoading } = useSWR(url, fetcher);

  if (isLoading) {
    return (
      <div className="p-20 bg-green-500">Loading...</div>
    )
  }

  return (
    <div className="p-20 bg-rose-500">
      { JSON.stringify(data, null, 2) }
    </div>
  )
}
```

## 7.6 文档结构

≡ createPortal(Component, selector) 指定 DOM 位置渲染

- src/App.jsx

```
● ● ●  
import { createPortal } from "react-dom";  
  
function Box() {  
  return (  
    <div className="size-48 bg-green-500"></div>  
  )  
}  
  
export function App() {  
  
  return (  
    <div className="p-10 bg-rose-500">  
      { createPortal(<Box/>, document.body) }  
    </div>  
  )  
}
```

## 08. 状态管理

---

≡ 全局的状态变量、可在任意无关联的组件中使用状态

## 8.1 流行库

≡ redux | mobx | zustand | jotai

### 8.1.1 Redux

≡ <https://redux.js.org/>

#### ● UI

The screenshot shows the official Redux website homepage. At the top, there's a navigation bar with links to 'Getting Started', 'Tutorial', 'Usage Guide', 'API', 'FAQ', 'Best Practices', 'GitHub', 'Need help?', and a search bar. The main title 'Redux' is prominently displayed in a large white font against a purple background. Below it, a subtitle reads 'A JS library for predictable and maintainable global state management'. A 'Get Started' button is visible. The page then lists four key features with corresponding icons:

- Predictable**: Represented by a checkmark icon. Text: 'Redux helps you write applications that **behave consistently**, run in different environments (client, server, and native), and are **easy to test**'.
- Centralized**: Represented by a stack of cubes icon. Text: 'Centralizing your application's state and logic enables powerful capabilities like **undo/redo**, **state persistence**, and much more.'
- Debuggable**: Represented by a bug icon with a target symbol. Text: 'The Redux DevTools make it easy to trace **when, where, why, and how your application's state changed**. Redux's architecture lets you log changes, use "**time-travel debugging**", and even send complete error reports to a server.'
- Flexible**: Represented by a gear icon. Text: 'Redux **works with any UI layer**, and has a **large ecosystem of addons** to fit your needs.'

### 8.1.2 Mobx

≡ <https://mobx.js.org/README.html>

#### ● UI

**MobX ua**

API Reference 中文 한국어 Sponsors  

**Introduction**  
About MobX  
About this documentation  
Installation  
The gist of MobX

**MobX core**  
Observable state  
Actions  
Computed  
Reactions (⭐)  
API

**MobX and React**  
React integration  
React optimizations (⭐)

**Tips & Tricks**  
Defining data stores  
Understanding reactivity  
Subclasing  
Analyzing reactivity (⭐)  
Computed with arguments (⭐)  
MobX-utils (⭐)  
Custom observables (⭐)  
Lazy observables (⭐)  
Collection utilities (⭐)  
Intercept & Observe (⭐)

**MobX**  
*Simple, scalable state management.*

discuss on GitHub npm package 6.13.7 backers 117 sponsors 97 changelegs.xyz Explore Changeleg



Introduction  
A quick example  
Getting started  
Further resources  
The MobX book  
Videos  
Credits

MobX is made possible by the generosity of the sponsors below, and many other individual backers.  
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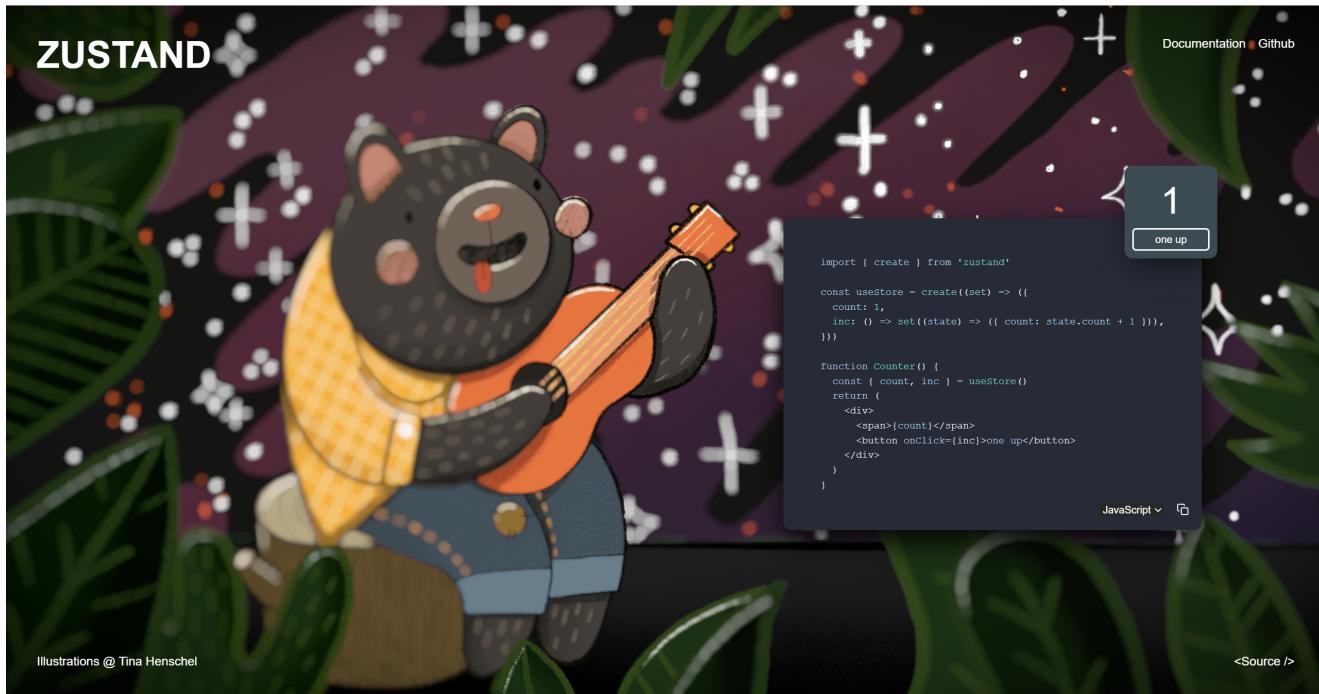
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Silver sponsors (\$500+ total contributions):

### 8.1.3 Zustand

≡ <https://zustand-demo.pmnd.rs/>

- UI



The screenshot shows a dark-themed website for Zustand. In the center, there's a cartoon bear wearing a yellow vest and blue pants, playing an orange guitar. The background is a purple gradient with white star-like shapes. On the right side, there's a dark modal window containing a code editor with some JavaScript code. The code defines a store and a counter component. The modal also shows a button labeled "one up" which increments a counter from 1 to 2. At the bottom left, it says "Illustrations @ Tina Henschel". At the top right, there are links for "Documentation" and "Github".

```

import { create } from 'zustand'

const useStore = create((set) => ({
  count: 1,
  inc: () => set((state) => ({ count: state.count + 1 })),
}))

function Counter() {
  const [count, inc] = useStore()
  return (
    <div>
      <span>{count}</span>
      <button onClick={inc}>one up</button>
    </div>
  )
}

```

one up

Documentation Github

Illustrations @ Tina Henschel

<Source />

## 8.1.4 Jotai

≡ <https://tutorial.jotai.org/>

- UI



Quick start Examples Playground

## 8.2 Zustand

≡ npm install zustand

### 8.2.1 定义

≡ create( (set)⇒ ({ 状态定义 }) )

- src/zustand/index.js



```
import { create } from "zustand";

export const globalUserState = create((set) => ({
    counter: 100,

    increment: () => {
        set((state) => ({ counter: state.counter + 1 }))
    },

    decrement: () => {
        set((state) => ({ counter: state.counter - 1 }))
    },

    update: (value) => {
        set((state) => ({ counter: state.counter + value }))
    },
}));
```

## 8.2.2 使用

≡ const property = globalUserState(state => state.property)

- src/App.jsx



```
import { globalUserState } from "./zustand/user";
import { User } from "./components/User.jsx";

export function App() {

    const counter = globalUserState(state => state.counter);
    const increment = globalUserState(state => state.increment);

    return (
        <div className="p-20 bg-rose-500">
            <p>{ counter }</p>
            <button onClick={ increment }>increment</button>
            <User/>
        </div>
    )
}
```

}

### 8.2.3 持久化

```
≡ import { persist } from "zustand/middleware"; [根据业务可选]
```

- src/zustand/user/index.js

● ● ●

```
import { create } from "zustand";
import { persist, createJSONStorage } from "zustand/middleware";

export const globalUserState = create()(persist((set) => ({
    counter: 100,
    increment: () => {
        set((state) => ({ counter: state.counter + 1 }));
    },
    decrement: () => {
        set((state) => ({ counter: state.counter - 1 }));
    },
    update: (value) => {
        set((state) => ({ counter: state.counter + value }));
    },
}), {
    name: "user-state-in-session",
    storage: createJSONStorage(() => window.sessionStorage),
});
```

### 8.2.4 注意事项

 Note

**zustand** 操作的状态对象始终是不可变的

- **src/zustand/user/index.js**



```
import { create } from "zustand";

export const globalUserState = create((set) => ({
    user: {
        username: null,
        age: 18,
    },
    incrementAge: () => {
        set((state) => ({ ...state.user, age: state.user.age + 1 }));
    },
    decrementAge: () => {
        set((state) => ({ ...state.user, age: state.user.age - 1 }));
    },
    updateAge: (value) => {
        set((state) => ({ ...state.user, age: state.user.age + value }));
    },
}));
```

## 09. 面试题型

---

### 9.1 useState

≡ 考察重新渲染的正确认识

- 判断以下代码是否正确运行并解释原因

● ● ●

```
import { useState } from "react";

export function App() {
  const [ number, setNumber ] = useState(0);

  function init() {
    setNumber(1);
  }

  init();

  return (
    <div>
      <p>{ number }</p>
      <button onClick={() => setNumber(number + 1)}>+1</button>
    </div>
  )
}
```

#### ① Note

- 以上代码无法正确运行、会陷入死循环
- 调用 `init()` 时组件还未完成渲染、并再次触发重新渲染、React 不允许渲染阶段触发重新渲染

## 9.2 useEffect

### ≡ 考察 `useEffect` 执行时机

- 解答输出顺序并解释 `useEffect(fn)` `fn` 执行时机

● ● ●

```
import { useEffect } from "react";

export function App() {
```

```
console.log(1);
console.log(2);

useEffect(() => {
    console.log(4);
}, []);

async function asyncFn() {
    console.log(3);
}

asyncFn();
```

### ① Note

- ✓ 程序输出：1 2 3 4
- ✓ 组件解析流程 1. 翻译 jsx | 2. 调用组件内代码 | 3. 生成虚拟DOM | 4. 挂载真实DOM  
| 5. useEffect

## 9.3 useEffect

### ≡ useEffect(fn) | useEffect(fn, []) 区别

- ✓ useEffect(fn) -- 组件首次挂载执行、且任意形式的组件重新渲染依然执行
- ✓ useEffect(fn, []) -- 仅组件首次挂载执行、明确通知 React 无依赖项无须再次执行