

# Fullstack Development

# Data Fetching in React / NextJS

<https://github.com/fullstack-66/data-fetching>

# Time server

## Local

- Clone <https://github.com/fullstack-66/time-server>
- `npm install`, `npm start`
- `http://localhost:3001`

## Cloud

- <https://time-server-production-f0f6.up.railway.app/>

# Setup NextJS project

```
npx create-next-app@latest
```

# Configure import

tsconfig.json

```
{
  "baseUrl": ".",
  "paths": {
    "@app/*": ["app/*"],
    "@components/*": ["components/*"]
  }
}
```

- Note, if you don't define `baseUrl`, you need to prefix the path with `./`.

# API Endpoint

```
./utils/index.ts
```

```
if (!process.env.NEXT_PUBLIC_API_URL) {  
  throw new Error("NEXT_PUBLIC_API_URL is not set");  
}  
export const API_URL = process.env.NEXT_PUBLIC_API_URL;
```

# Create additional page

```
./app/another/page.tsx
```

```
export default function AnotherPage() {  
  return <div>Another Page</div>;  
}
```

# Add navigation

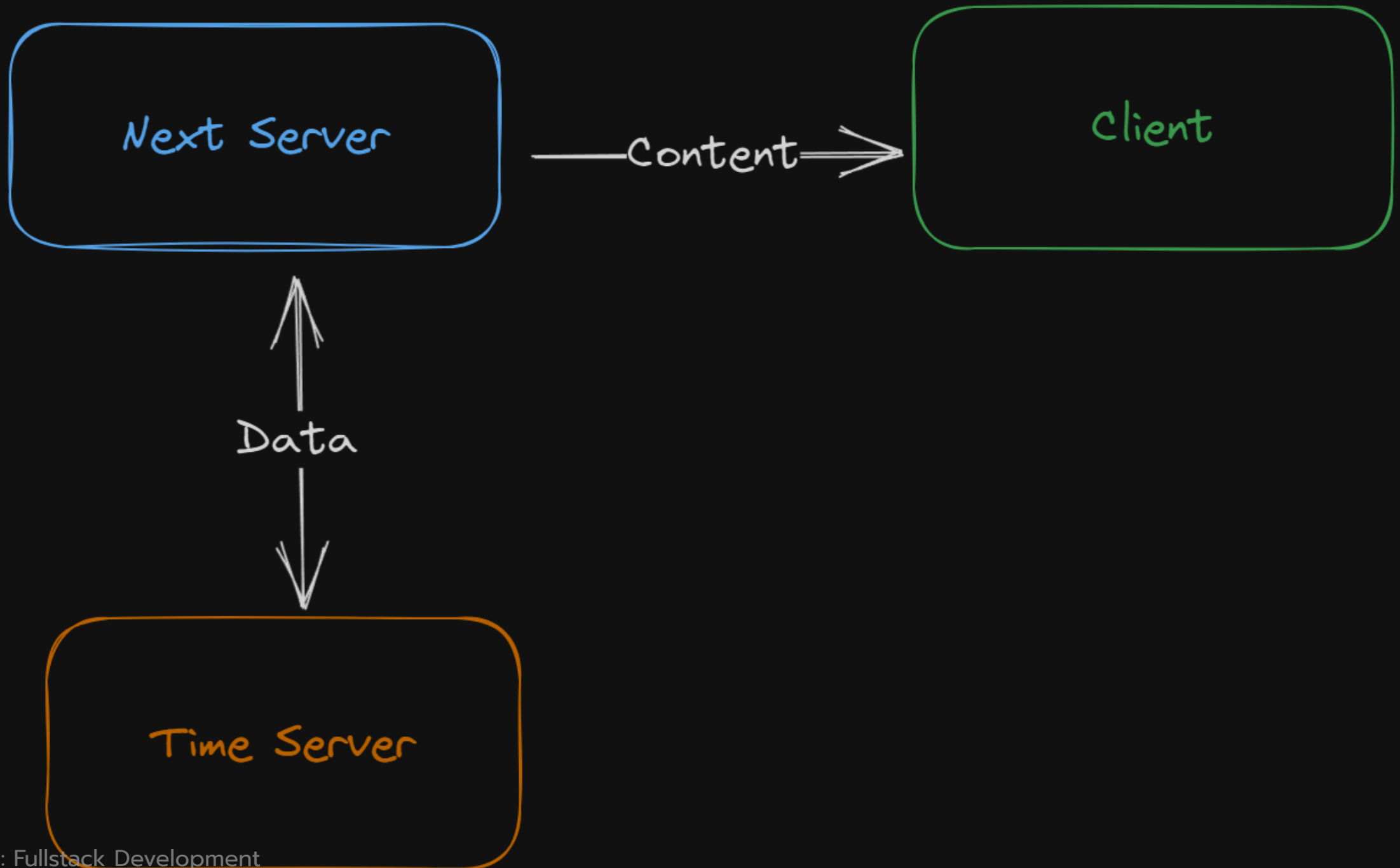
./app/layout.tsx

```
import Link from "next/link";
// ...
export default function RootLayout(...) {
  return (
    <html lang="en">
      <body className={inter.className}>
        <div className="flex gap-2 mb-4">
          <Link href="/">Home</Link> ➡
          <Link href="/another">another</Link> ➡
        </div>
        <div className="m-4">{children}</div>
      </body>
    </html>
  );
}
```



# Fetching #1: Server component

- `./components/t1_serverComponent/index.tsx`
- Notice the caching behavior.



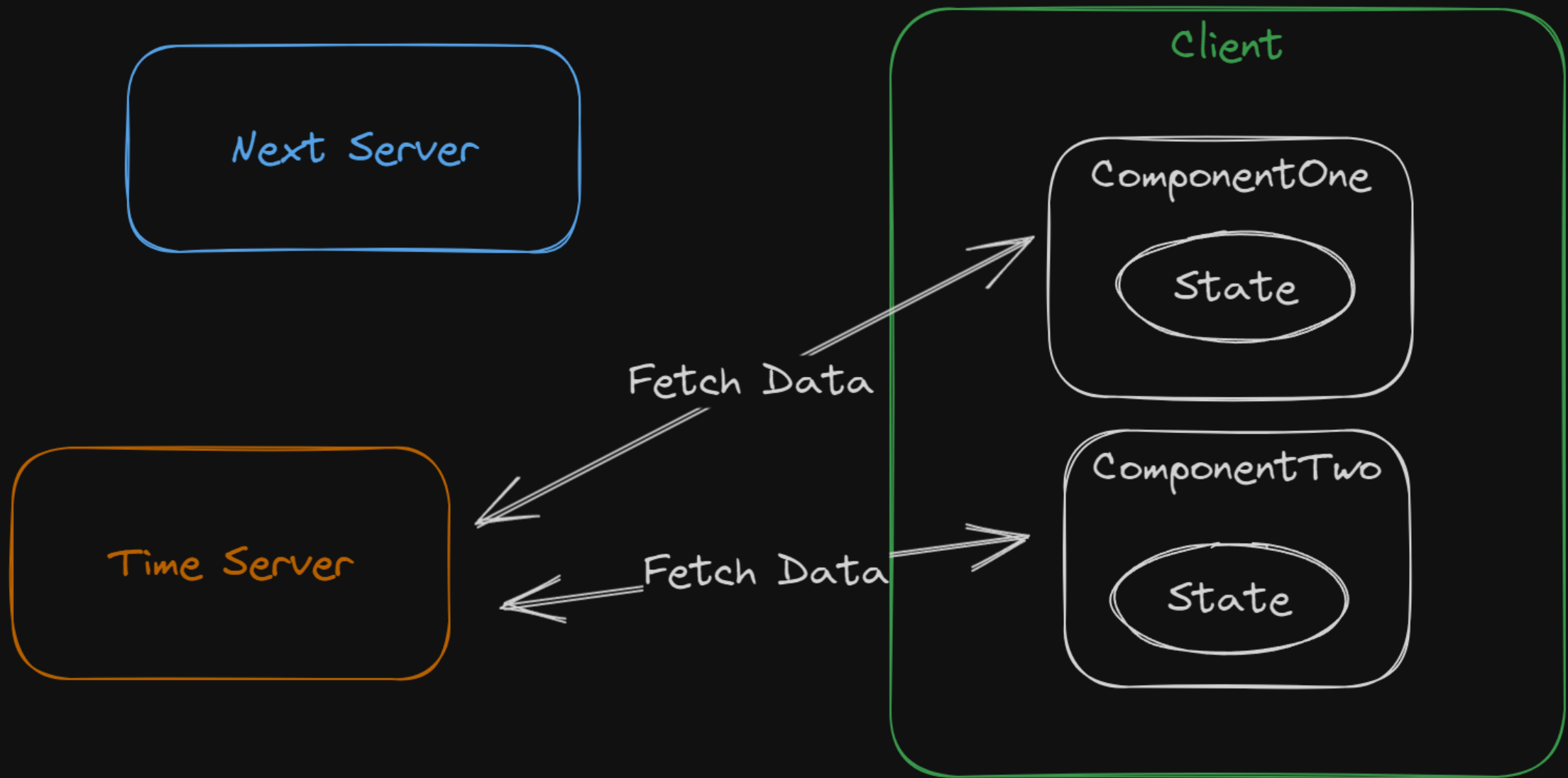
## Also used

- `DisplayTime` component from `./components/utlils/displayTime.tsx`
- Type from `./components/uitls/types.ts`
  - Generated using `Paste as Code` extension.

## Fetching #2: `useEffect` way

```
./t2_clientUseEffectOne/index.ts
```

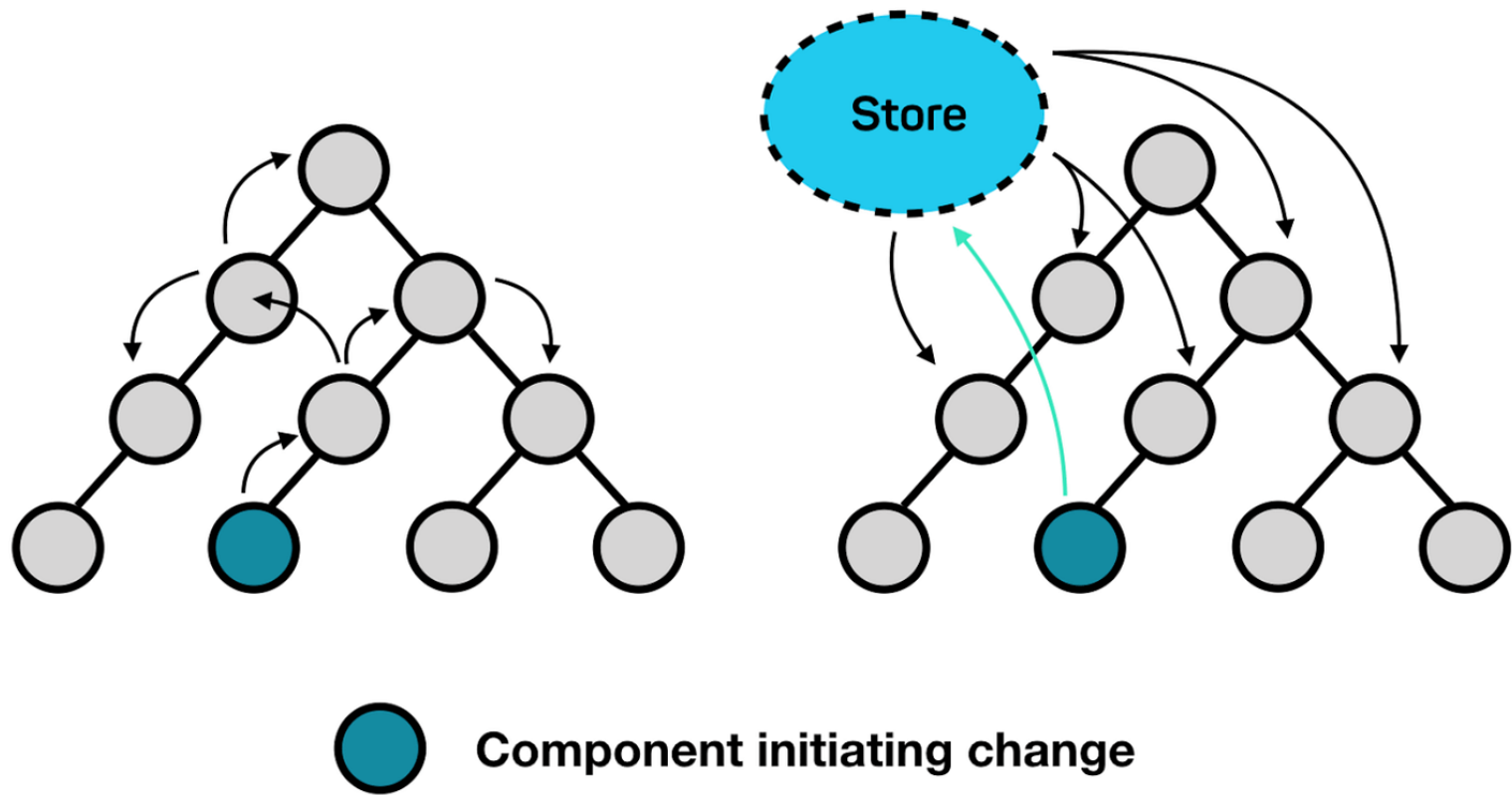
```
./t2_clientUseEffectTwo/index.ts
```



# Global store pattern

What does using a global store solve?

- Multiple copies of states
- Prop drilling
- Unnecessary re-render



# Global store libraries / API

- React Context
- Redux
- Jotai
- Zustand



# React Context

- Native API
- Fine, but...

```
const App = () => {  
  // ... some code  
  return (  
    <>  
      <ReduxProvider value={store}>  
        <ThemeProvider value={theme}>  
          <OtherProvider value={otherValue}>  
            <OtherOtherProvider value={otherOtherValue}>  
              {/** ... other providers*/}  
              <HellProvider value={hell}>  
                <HelloWorld />  
              </HellProvider>  
              {/** ... other providers*/}  
            </OtherOtherProvider>  
          </OtherProvider>  
        </ThemeProvider>  
      </ReduxProvider>  
    </>  
  );  
};
```

# Redux

- Powerful
- Has Redux Dev Tool
- Can be used standalone
- Too much boiler plate for small projects



The official, opinionated, batteries-included toolset for efficient Redux development

Get Started



## Simple

Includes utilities to simplify common use cases like **store setup**, **creating reducers**, **immutable update logic**, and more.



## Opinionated

Provides **good defaults for store setup out of the box**, and includes **the most commonly used Redux addons built-in**.



## Powerful

Takes inspiration from libraries like Immer and Autodux to let you **write "mutative" immutable update logic**, and even **create entire "slices" of state automatically**.



## Effective

Lets you focus on the core logic your app needs, so you can **do more work with less code**.

# You Might Not Need Redux



Dan Abramov · [Follow](#)

3 min read · Sep 20, 2016



42K



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People often choose Redux before they need it. “What if our app doesn’t scale without it?” Later, developers frown at the indirection Redux introduced to their code. “Why do I have to touch three files to get a simple feature working?” Why indeed!

# Zustand

- Minimalist
- Use Redux-style (flux principle)
- No provider

# Jotai

- Another cool library but I never used it.

# Zustand

- `npm install zustand`

./components/utils/store.ts

```
import { create } from "zustand";
import { type Time } from "../types";

interface Store {
  time: Time | null;
  setTime: (time: Time) => void;
}

const useStore = create<Store>((set) => ({
  time: null,
  setTime: (time) => set({ time }),
}));

export default useStore;
```



## Fetching #3: Global store

- `./components/t4_clientGlobalStore/index.ts`
- `./components/t5_clientGlobalStoreUpdate/index.ts`
  - Notice how the data change in both components.

## Fetching #4: React Query

- Data-fetching + state management library
- Highly recommended!

# Installation

- `npm install @tanstack/react-query`
- `npm install -D @tanstack/react-query-devtools`

# Provider

- `./components/utls/reactQueryProvider.tsx`
- `./app/layout.tsx`

```
import ReactQueryProvider from "@components/utls/reactQueryProvider";  
...  
<ReactQueryProvider>  
  <div className="m-4">{children}</div>  
</ReactQueryProvider>  
...
```

# Fetching with React Query

- `./components/t6_clientReactQuery/index.tsx`
- `./components/t7_clientReactQueryTwo/index.tsx`
  - Notice how the data is cached and refetched.

## Extra: use custom hook

- `./components/util/reactQueryData.ts`