API Connections

Session 07

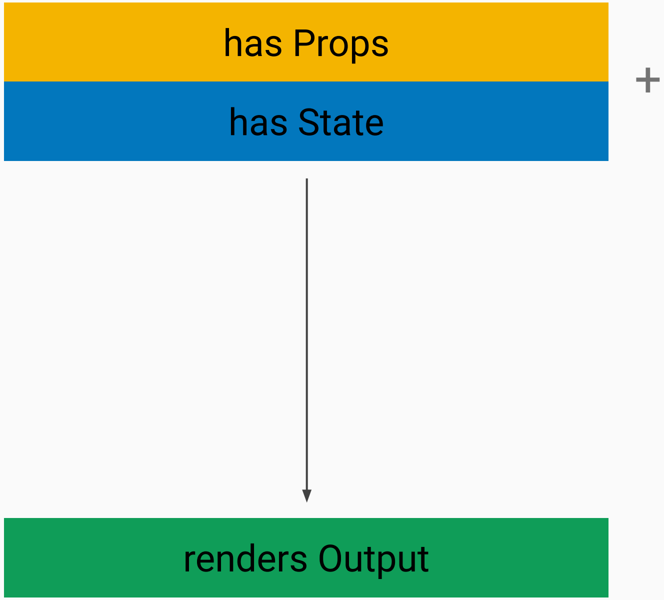
Refreshing the UI in React

What does a React Component?

```
function Counter({label}) {
    const [count, setCount] = useState(0);

    function handleIncrease(){
        setCount(count + 1)
    }

    return (
        <div>
            <p>{label}: {count}</p>
            <button onClick={handleIncrease}>
                Increase
            </button>
        </div>
    )
}
```



has Props

has State

+

renders Output

Rendering updated Output
Requires a **State Update**

How to Trigger State Updates

Events

Usually initiated by **User Interaction**

```
<button onClick >
<form onSubmit >
<input onChange >
```

Events in a React Component

```
function Counter({label}) {
     const [count, setCount] = useState(0);

     function handleIncrease(){
          setCount(count + 1)
     }

     return (
          <div>
               <p>{label}: {count}</p>
               <button onClick={handleIncrease}>
                    Increase
               </button>
          </div>
     )
}
```

How to Trigger State Updates

Events

Usually initiated by **User Interaction**

```
<button onClick >
<form onSubmit >
<input onChange >
```

Side Effects

Initiated by React **after a Component was rendered**

Triggers automatically, without User Interaction

```
useEffect hook
```

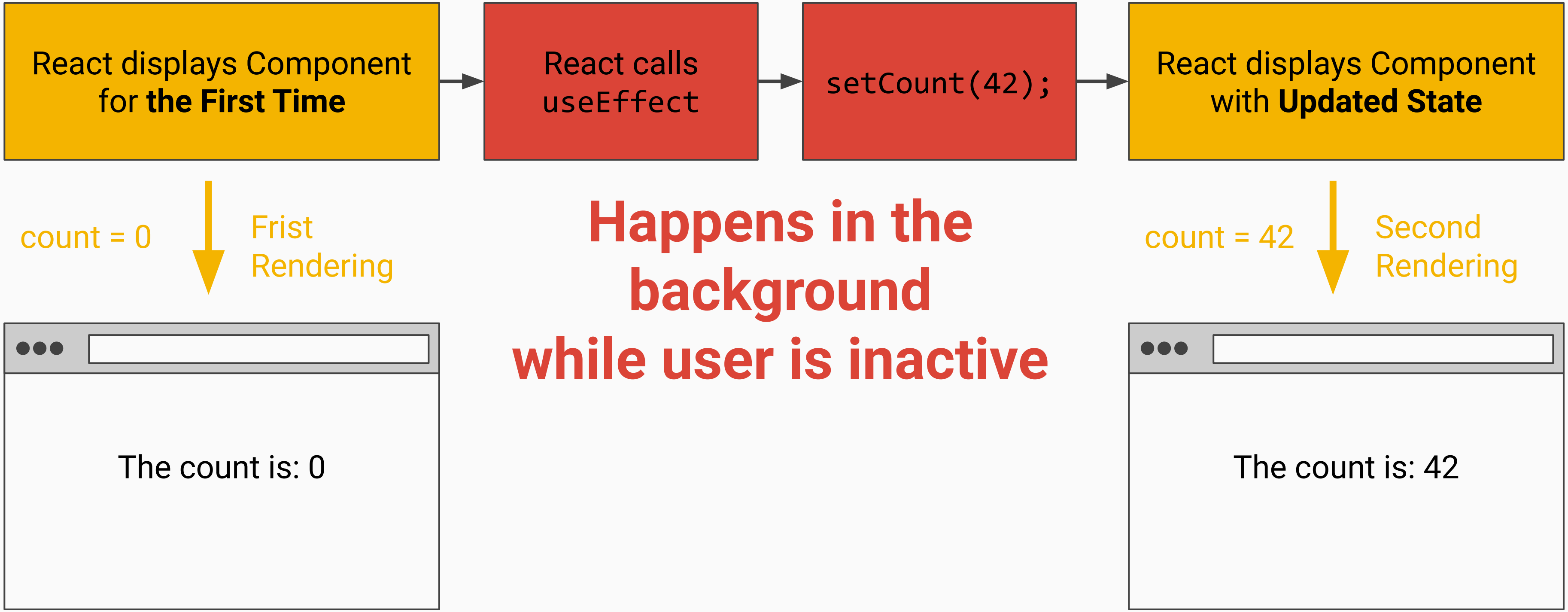
Side Effects in a React Component

```
function Counter({label}) {
    const [count, setCount] = useState(0);

    useEffect(() => {
        setCount(42);
    }, [])

    return (
        <div>
            <p>{label}: {count}</p>
        </div>
    )
}
```

Timeline of an Effect in React



React displays Component for **the First Time**

React calls `useEffect`

`setCount(42);`

React displays Component with **Updated State**

count = 0

Frist Rendering

The count is: 0

Happens in the background while user is inactive

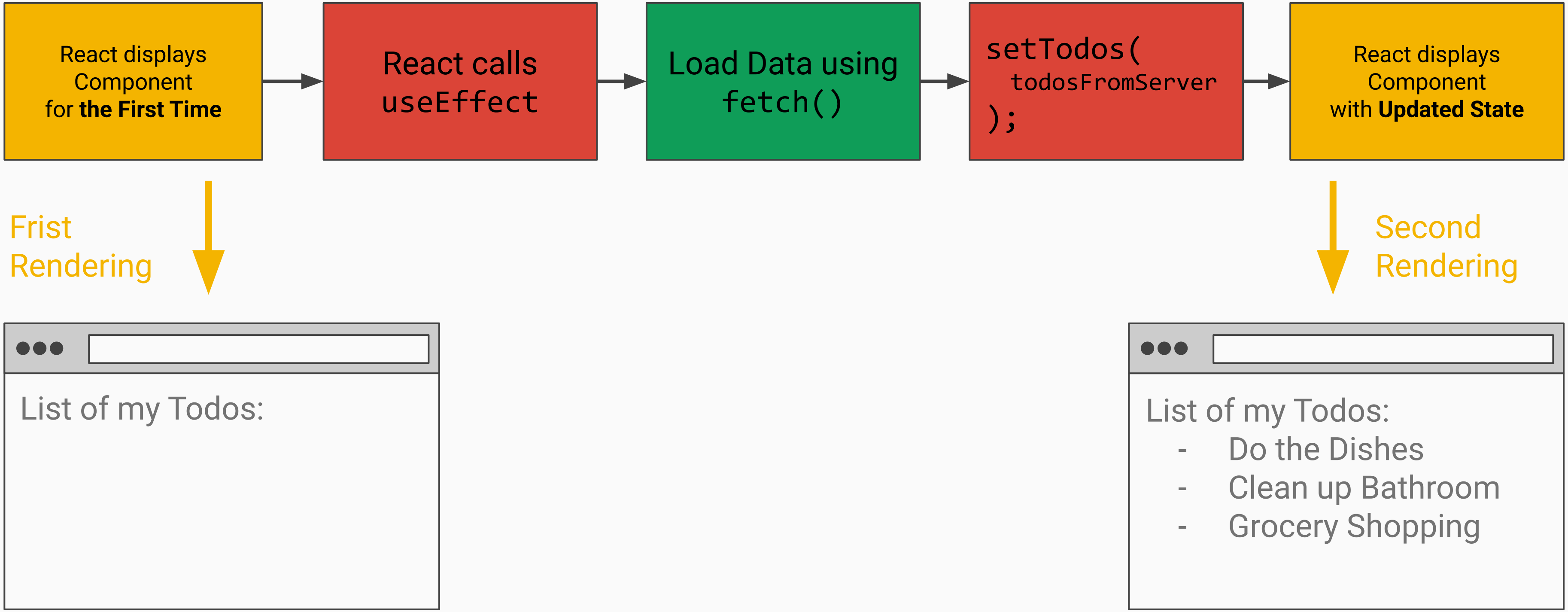
count = 42

Second Rendering

The count is: 42

Use this Pattern to **Fetch Data** from a Server / an API

Fetching Data with a Side Effect (TodoList Example)



React displays Component for **the First Time**

React calls `useEffect`

Load Data using `fetch()`

```
setTodos(
  todosFromServer
);
```

React displays Component with **Updated State**

Frist Rendering

List of my Todos:

Second Rendering

List of my Todos:

- Do the Dishes
- Clean up Bathroom
- Grocery Shopping

Example: TodoList Component

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

function TodoList() {
    const [todos, setTodos] = useState([]);

    async function loadTodos(){
        const response = await fetch("https://my.api.com/todos");
        const data = await response.json();
        setTodos(data);
    }


    useEffect(() => {
        loadTodos();
    }, [])


    return (
        <ul>
            {todos.map( (todo) => (
                <li key={todo.id}>
                    {todo.title}
                </li>
            )}
        </ul>
    )
}
```

Initialize State with Empty Array

Function to Load Data from the Server

State Update at the End

Call this function inside of `useEffect`