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What is an “Effect” (or a “Side Effect”)?

Main Job: Render UI & React to User Input

Evaluate & Render JSX
Manage State & Props
React to (User) Events & Input
Re-evaluate Component upon State & Prop Changes

This all is “baked into” React via the “tools” and features covered in this course (i.e. useState() Hook, Props etc).

Side Effects: Anything Else

Store Data in Browser Storage
Send Http Requests to Backend Servers
Set & Manage Timers
...

These tasks **must happen outside of the normal component evaluation** and render cycle – especially since they might block/ delay rendering (e.g. Http requests)

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Handling Side Effects with the useEffect() Hook

```
useEffect(() => { … }, [ dependencies ]);
```

A function that should be executed AFTER every component evaluation IF the specified dependencies changed

Dependencies of this effect – the function only runs if the dependencies changed

Your side effect code goes into this function.

Specify your dependencies of your function here

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Introducing useReducer() for State Management

Sometimes, you have **more complex state** – for example if it got **multiple states**, **multiple ways of changing** it or **dependencies** to other states

useState() then often **becomes hard or error-prone to use** – it's easy to write bad, inefficient or buggy code in such scenarios

useReducer() can be used as a **replacement** for useState() if you need "**more powerful state management**"

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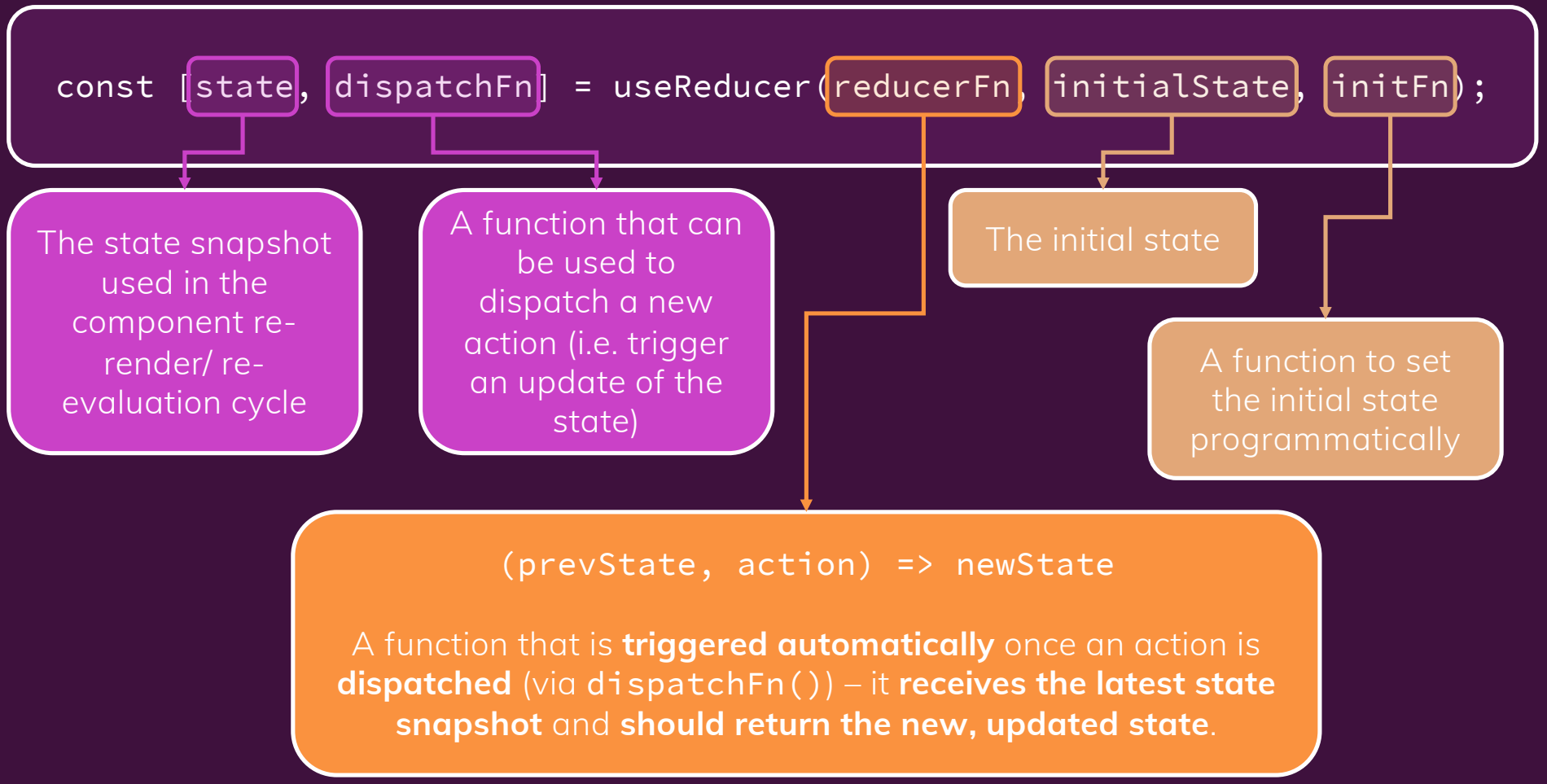
Understanding useReducer()



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useState() vs useReducer()

Generally, you'll know when you need useReducer() (➔ when using useState() becomes cumbersome or you're getting a lot of bugs/ unintended behaviors)

useState()	useReducer()
The main state management "tool"	Great if you need "more power"
Great for independent pieces of state/ data	Should be considered if you have related pieces of state/ data
Great if state updates are easy and limited to a few kinds of updates	Can be helpful if you have more complex state updates

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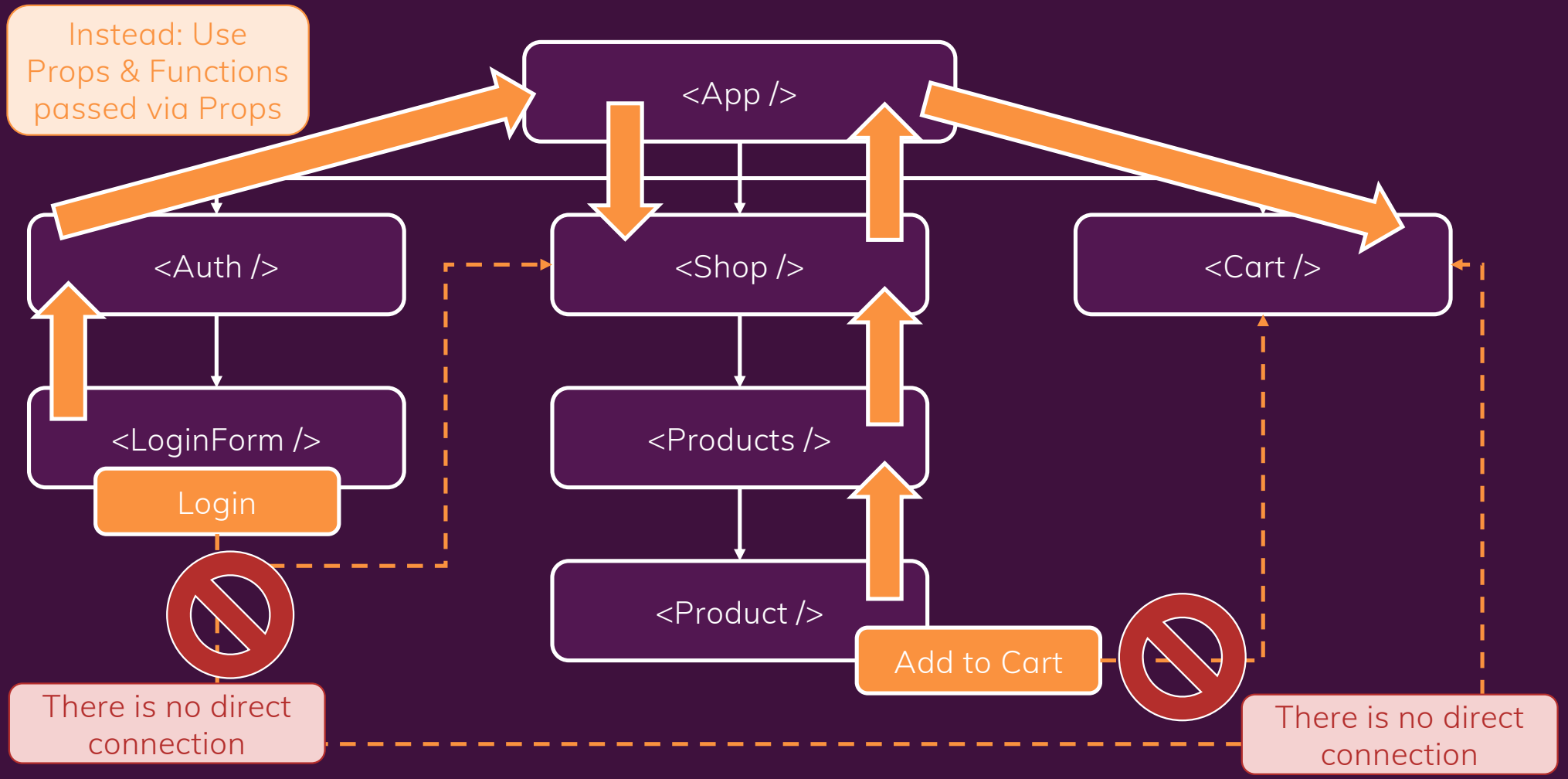
Component Trees & Component Dependencies



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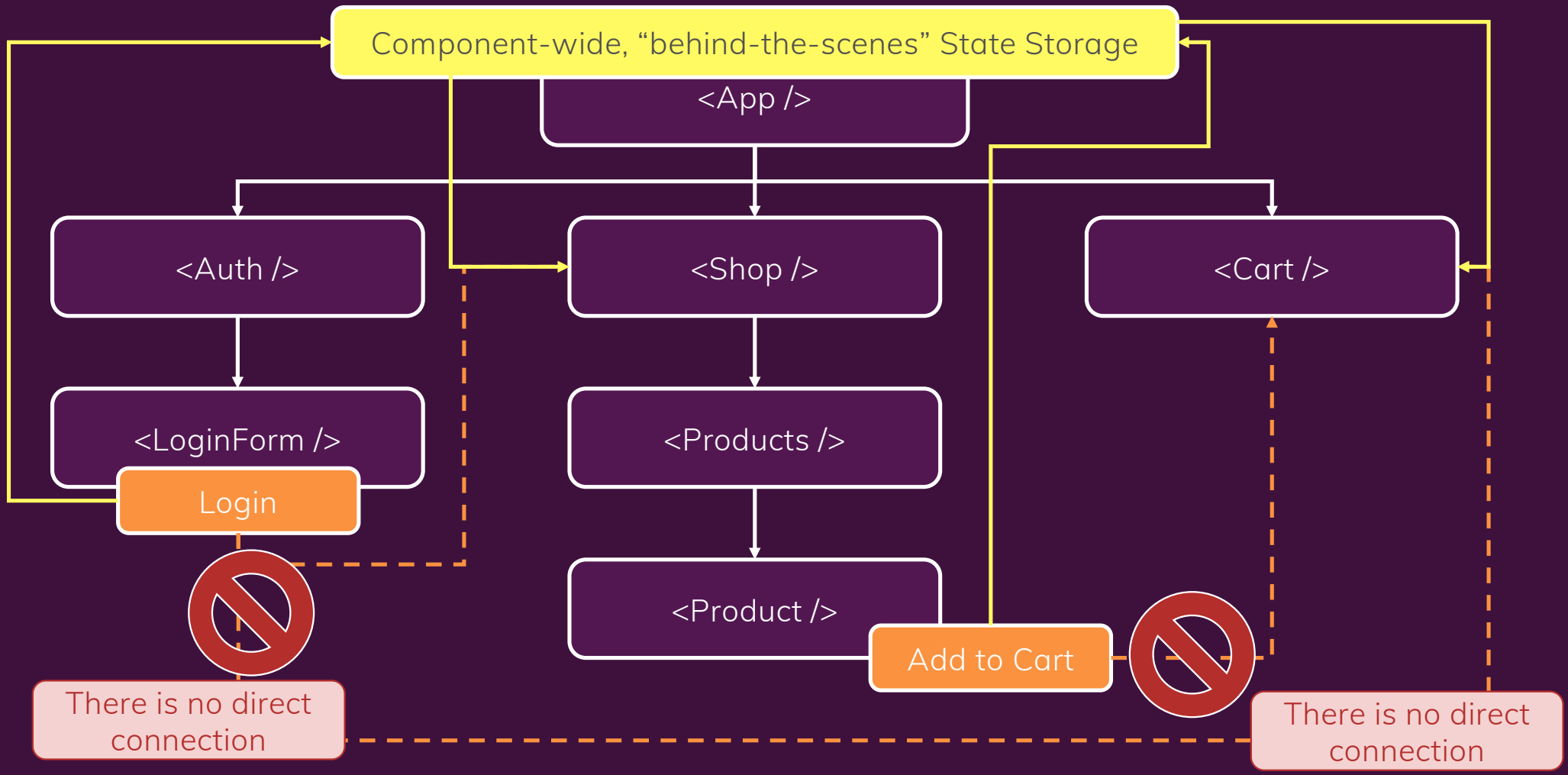
Context to the Rescue!



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Context Limitations

React Context is **NOT optimized** for high frequency changes!

We'll explore a better tool for that, later

React Context also **shouldn't be used to replace ALL** component communications and props

Component should still be configurable via props and short "prop chains" might not need any replacement

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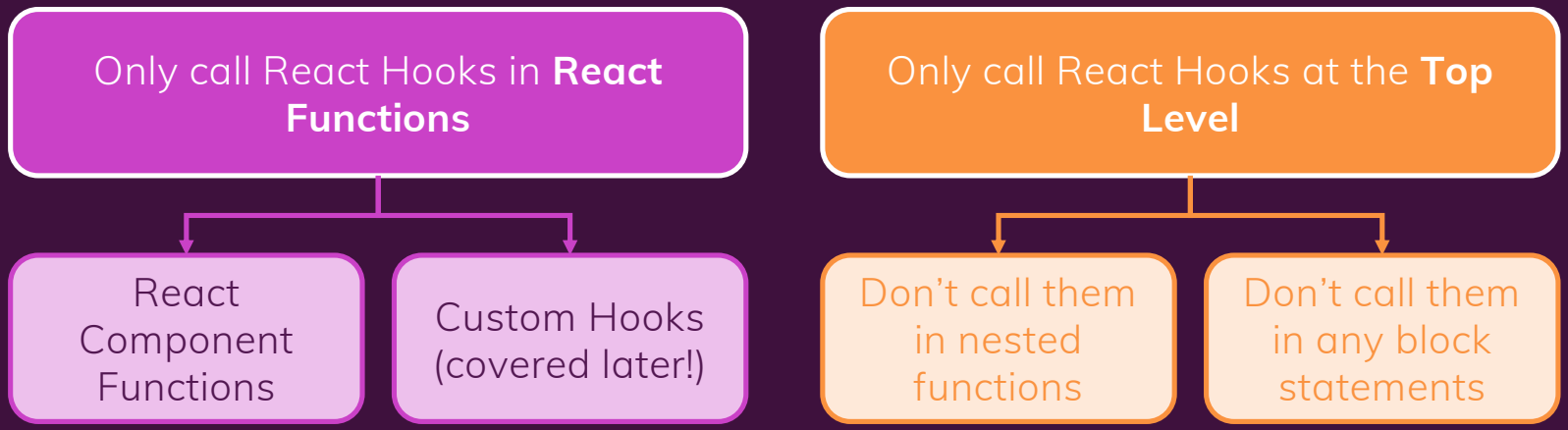
Rules of Hooks



+ extra, unofficial Rule for **useEffect()**: ALWAYS add everything you refer to inside of useEffect() as a dependency!