Codesandbox

- https://codesandbox.io/

Topics

- List and Keys
- Multiple Components
- Props vs State
- Refs
- Lifecycle Methods

Lists in React

- Use `map` to create a list of elements
- Each element needs a **unique** `key` prop

> “ Warning: Each child in a list should have a unique "key" prop. ”

- `key` is used by React to identify which items have changed, added, or removed

Multiple components

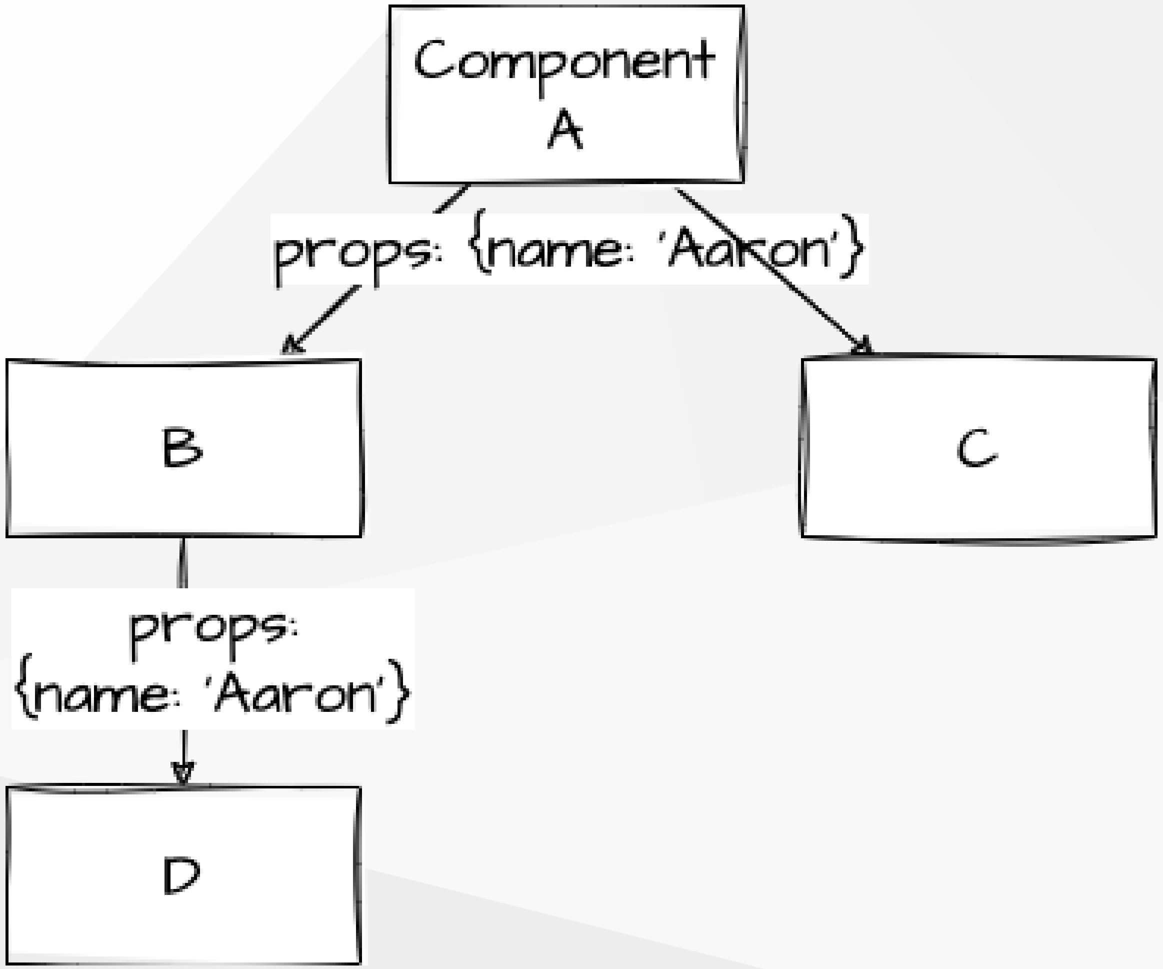
multiple-components.jsx

- presentational components vs. container components
- presentational components: only render UI
- container components: manage state

Props

props.jsx

- `props` is immutable
- `props` is passed from parent to child, **uni-directional**
- `props` change would trigger re-render
- callback functions can be passed as `props`



Prop Types

- `prop-types` package

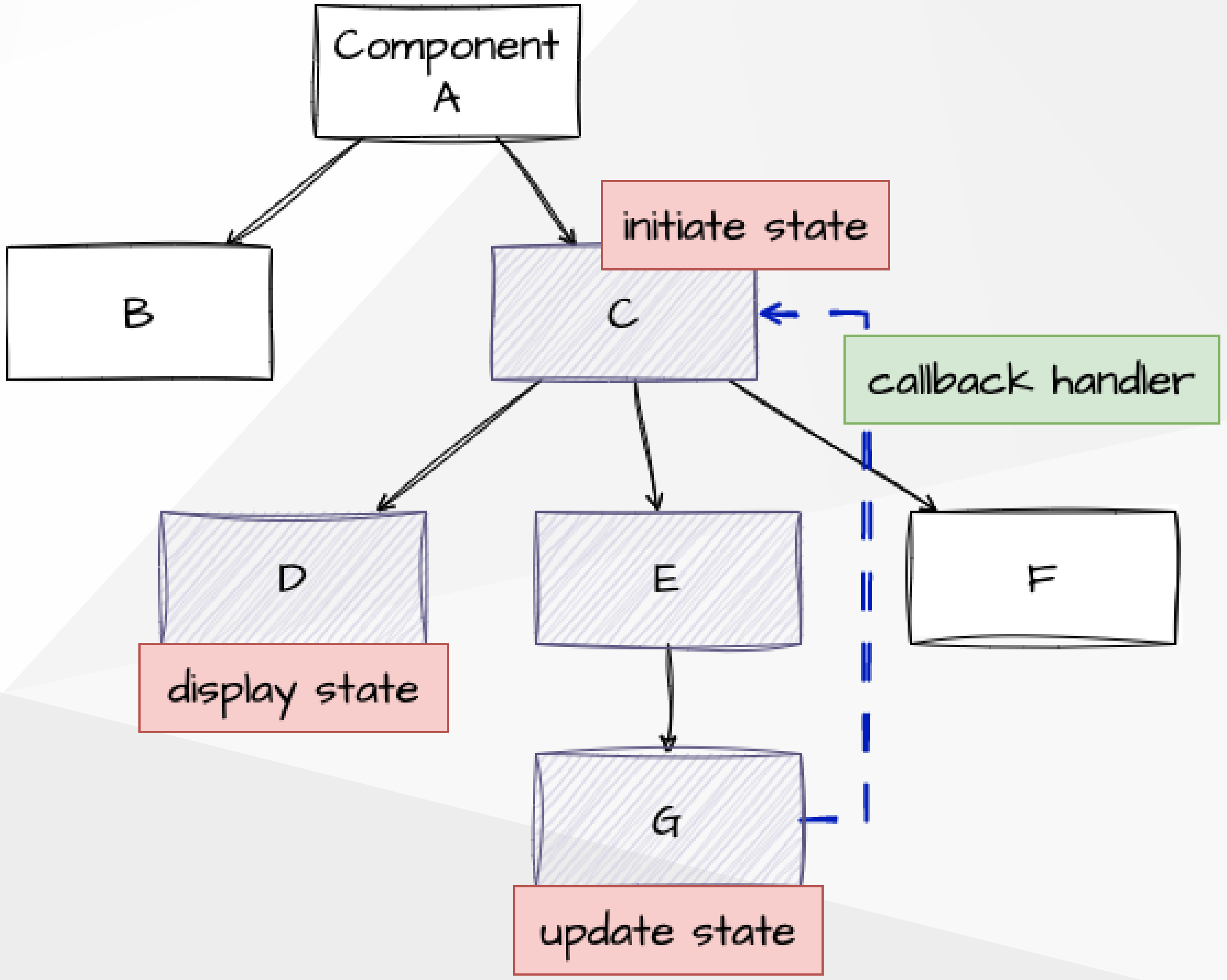
Props vs State

- `props` is immutable
- `state` is mutable with `setState`
- `props` is passed from parent to child, while `state` is local to the component
- `props` and `state` change would trigger re-render

Callbacks in Props

callbacks.jsx

- Callback functions can be passed as `props`
- Callback functions can be used to pass data from child to parent



Controlled Components

- https://reactjs.org/docs/forms.html#controlled-components

Refs

- `ref` is used to access DOM elements, or React components
- focus, text selection, media playback, triggering imperative animations, etc.
- how to use
  - `React.createRef()` create a ref
  - `ref={this.myRef}` assign the ref to a DOM element
  - `this.myRef.current` access the DOM element
- should not overuse `ref`, use `state` instead

`forwardRef`

- https://reactjs.org/docs/forwarding-refs.html

Component Lifecycle

- What is the lifecycle of a React component?
- What are the lifecycle methods?
- What are the use cases of lifecycle methods?

Lifecylce Methods

lifecycles.jsx

- Mounting: when a component is being inserted into the DOM
  - `constructor()`
  - `componentWillMount()`
  - `render()`
  - `componentDidMount()`
  - `render()`
- Updating: when a component is being re-rendered by changes in props or state, or `forceUpdate()`
  - `componentDidUpdate()` / `shouldComponentUpdate()`
- Unmounting: when a component is being removed from the DOM
  - `componentWillUnmount()`

Lifecycle in Components Tree

lifecycleChild.jsx

- `componentDidMount()` is called after all children are mounted
- children's updating lifecycle methods are called before parent's
- execution is recursive in depth-first order

Example: Clock

clock.jsx

How to start with React?

1. According to the design and requirements, write down the HTML structure
2. Break down the HTML structure into React components
3. Confirm the data flow (props and state) between components
4. Display state - connect the components with data flow
5. Modify state - add event handlers to specific components / lifecycle methods
6. Beautify the UI with CSS
7. Refactor the code from step 2 to 6