Refactoring Into React Hooks

Matteo Antony Mistretta

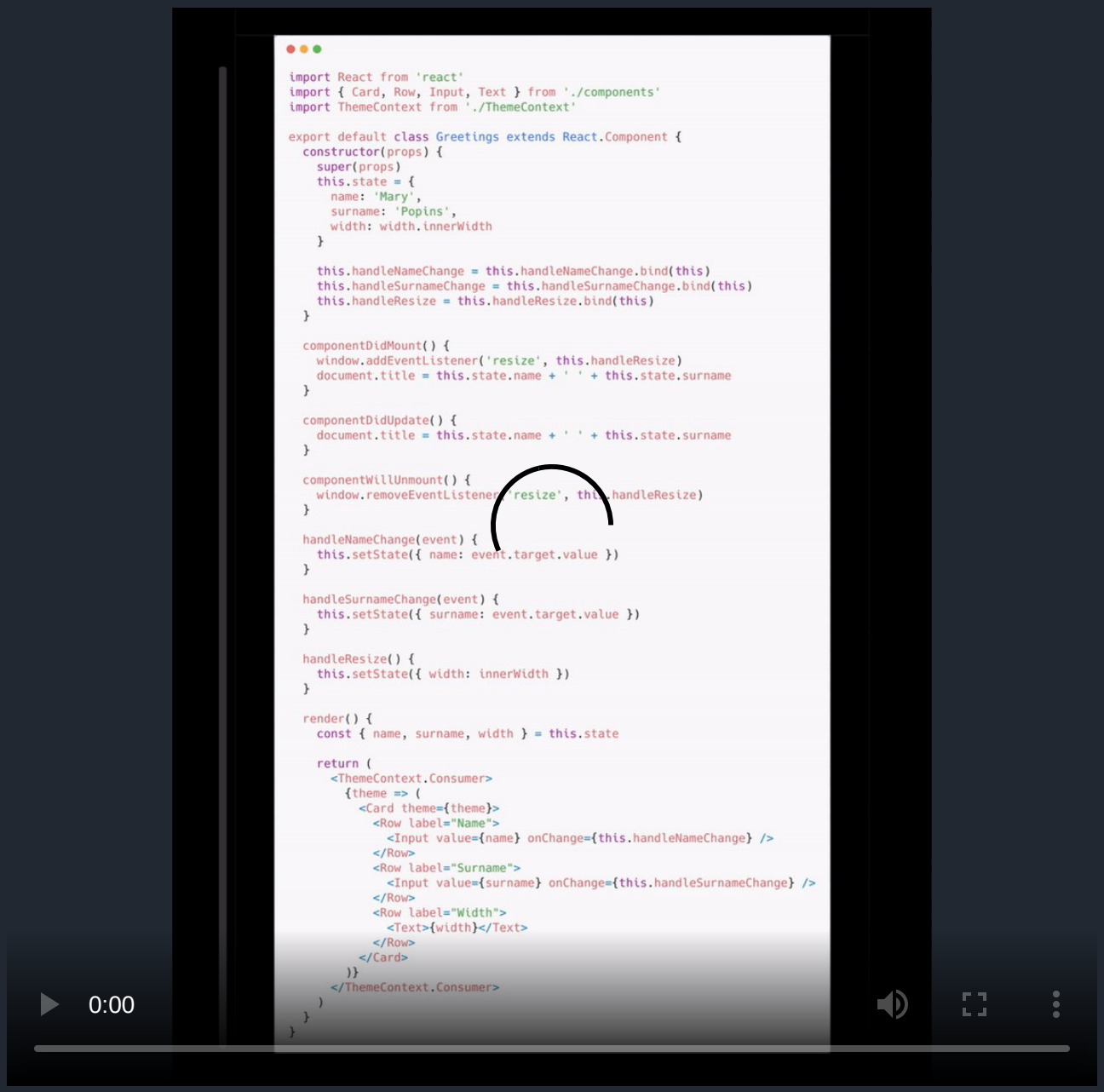
Inglorious Coderz

@antonymistretta

Why

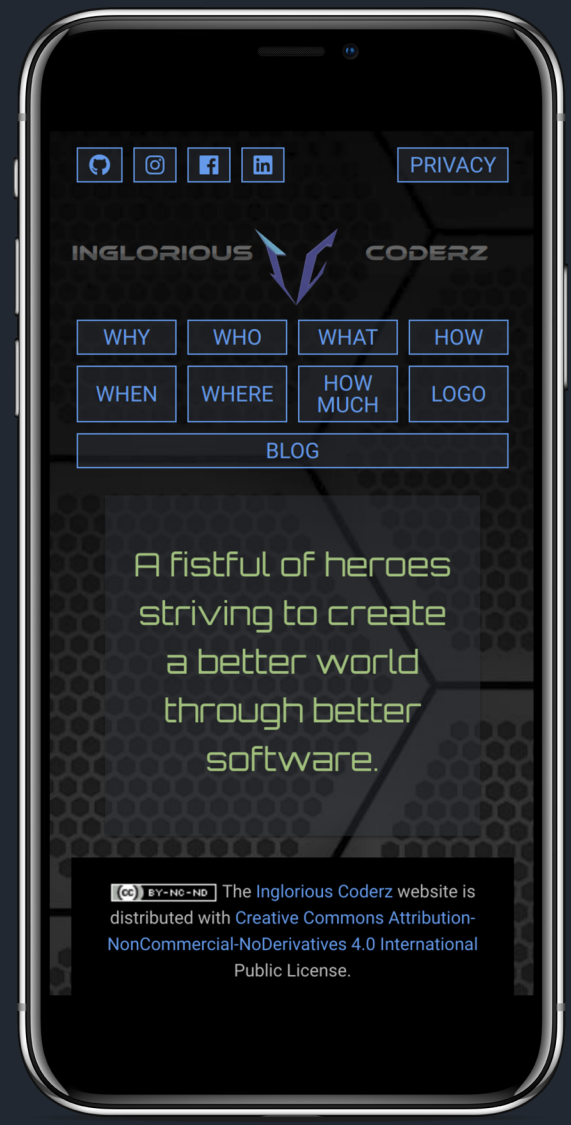
- They are stable
- They separate stateful logic
- They flatten our component hierarchy
- They allow us to go fully functional

Separation Of Concerns



Pavel Prichodko's tweet

```
antony@ingloriouscoderz ~> whoami
```




REFACTOR ALL THE THINGS!

Let's refactor...

1. *State*
2. Refs and Instance Attributes
3. Lifecycle Methods
4. Higher-Order Components
5. Render Props
6. Context API
7. Reducers
8. Redux

Hello world!

Hello world!

```
class MyComponent extends Component {
  state = { text: 'Hello world!' }

  handleChange = event => {
    this.setState({ text: event.target.value })
  }

  render() {
    const { text } = this.state
    return (
      <>
        <h1>{text}</h1>
        <input value={text} onChange={this.handleChange} />
      </>
    )
  }
}

render(<MyComponent />)
```

Hello world!

Hello world!

```
function MyComponent() {
  const [text, setText] = useState('Hello world!')

  function handleChange(event) {
    setText(event.target.value)
  }

  return (
    <>
      <h1>{text}</h1>
      <input value={text} onChange={handleChange} />
    </>
  )
}

render(MyComponent)
```

Let's refactor...

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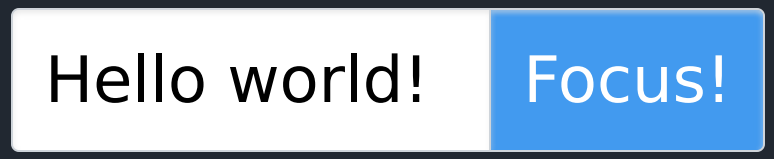
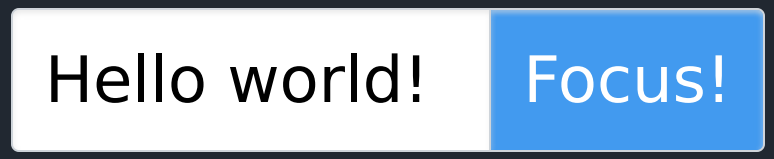



```jsx
class MyComponent extends Component {
  myRef = React.createRef()

  handleClick = () => this.myRef.current.focus()

  render() {
    return (
      <div className="input-group">
        <input defaultValue="Hello world!" ref={this.myRef} />
        <button onClick={this.handleClick}>Focus!</button>
      </div>
    )
  }
}

render(MyComponent)
```




```
function MyComponent() {
  const myRef = useRef()
  const handleClick = () => myRef.current.focus()
  return (
    <div className="input-group">
      <input defaultValue="Hello world!" ref={myRef} />
      <button onClick={handleClick}>Focus!</button>
    </div>
  )
}

render(MyComponent)
```

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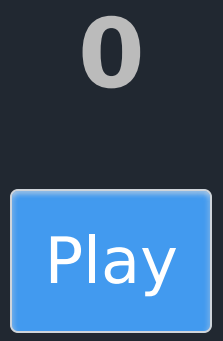
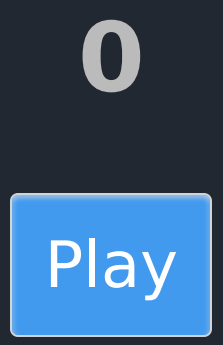



```
class MyComponent extends Component {
  state = { count: 0, play: false }

  start = () => {
    this.interval = setInterval(
      () => this.setState(({ count }) => ({ count: count + 1 })),
      1000,
    )
  }

  stop = () => clearInterval(this.interval)

  toggle = () => this.setState(({ play }) => ({ play: !play }))

  componentDidMount() {
    const { play } = this.state
    if (play) {
      this.start()
    }
  }

  componentDidUpdate(prevProps, prevState) {
    const { play } = this.state
    if (play !== prevState.play) {
      if (play) {
        this.start()
      } else {
        this.stop()
      }
    }
  }

  componentWillUnmount() {
    this.stop()
  }

  render() {
    const { count, play } = this.state
    return (
      <>
        <h1>{count}</h1>
        <button onClick={this.toggle}>{play ? 'Pause' : 'Play'}</button>
      </>
    )
  }
}

render(MyComponent)
```




```jsx
function MyComponent() {
  const [count, setCount] = useState(0)
  const [play, setPlay] = useState(false)

  function toggle() {
    setPlay(play => !play)
  }

  useEffect(() => {
    let interval = null

    function start() {
      interval = setInterval(() => setCount(count => count + 1), 1000)
    }

    function stop() {
      clearInterval(interval)
    }

    if (play) {
      start()
    } else {
      stop()
    }

    return () => stop()
  }, [play])

  return (
    <>
      <h1>{count}</h1>
      <button onClick={toggle}>{play ? 'Pause' : 'Play'}</button>
    </>
  )
}

render(MyComponent)
```

Let's refactor...

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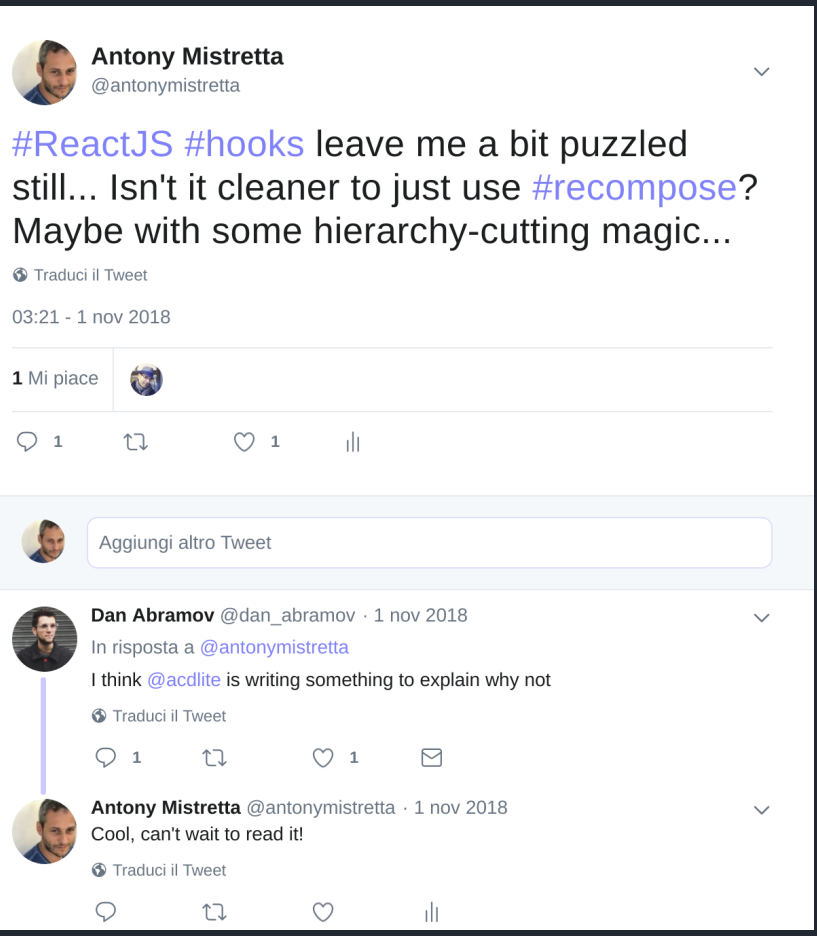
Antony Mistretta
@antonymistretta
#ReactJS #hooks leave me a bit puzzled still... Isn't it cleaner to just use #recompose? Maybe with some hierarchy-cutting magic...
Traduci il Tweet
03:21 - 1 nov 2018
1 Mi piace
1
1
Aggiungi altro Tweet
Dan Abramov @dan_abramov · 1 nov 2018
In risposta a @antonymistretta
I think @acdlite is writing something to explain why not
Traduci il Tweet
1
1
Antony Mistretta @antonymistretta · 1 nov 2018
Cool, can't wait to read it!
Traduci il Tweet

Hello world!

Hello world!

```
const enhance = compose(
  withState('text', 'setText', 'Hello world!'),
  withHandlers({
    onChange: ({ setText }) => event => setText(event.target.value),
  }),
  pure,
)

const MyComponent = enhance(({ text, onChange }) => (
  <>
    <h1>{text}</h1>
    <input value={text} onChange={onChange} />
  </>
))

render(MyComponent)
```

Hello world!

Hello world!

```
const MyComponent = memo(function MyComponent() {
  const text = useText()
  return (
    <>
      <h1>{text.value}</h1>
      <input {...text} />
    </>
  )
})

function useText() {
  const [text, setText] = useState('Hello world!')
  const handleChange = event => setText(event.target.value)
  return { value: text, onChange: handleChange }
}

render(MyComponent)
```

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```jsx
class Toggler extends Component {
  state = { on: this.props.defaultOn }

  toggle = () => this.setState(({ on }) => ({ on: !on }))

  render() {
    const { children } = this.props
    const { on } = this.state
    return children({ on, toggle: this.toggle })
  }
}

function Child({ on, toggle }) {
  return <button onClick={toggle}>{on ? 'Turn off' : 'Turn on'}</button>
}

function Parent() {
  return (
    <Toggler defaultOn={false}>
      {({ on, toggle }) => <Child on={on} toggle={toggle} />}
    </Toggler>
  )
}

render(Parent)
```


```jsx
function useToggle(defaultOn) {
  const [on, setOn] = useState(defaultOn)
  const toggle = useCallback(() => setOn(!on), [on])
  return { on, toggle }
}

function Child() {
  const { on, toggle } = useToggle(false)
  return <button onClick={toggle}>{on ? 'Turn off' : 'Turn on'}</button>
}

function Parent() {
  return <Child />
}

render(Parent)
```

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Hello Antony!

```jsx
const UserContext = createContext()
const ThemeContext = createContext()

function Parent() {
  return (
    <UserContext.Provider value="Antony">
      <ThemeContext.Provider value={{ color: '#e06c75' }}>
        <Child />
      </ThemeContext.Provider>
    </UserContext.Provider>
  )
}

function Child() {
  return (
    <UserContext.Consumer>
      {user => (
        <ThemeContext.Consumer>
          {theme => <h1 style={theme}>Hello {user}!</h1>}
        </ThemeContext.Consumer>
      )}
    </UserContext.Consumer>
  )
}

render(Parent)
```

Hello Antony!

```jsx
const UserContext = createContext()
const ThemeContext = createContext()

function Parent() {
  return (
    <UserContext.Provider value="Antony">
      <ThemeContext.Provider value={{ color: '#e06c75' }}>
        <Child />
      </ThemeContext.Provider>
    </UserContext.Provider>
  )
}

function Child() {
  const user = useContext(UserContext)
  const theme = useContext(ThemeContext)
  return <h1 style={theme}>Hello {user}!</h1>
}

render(Parent)
```

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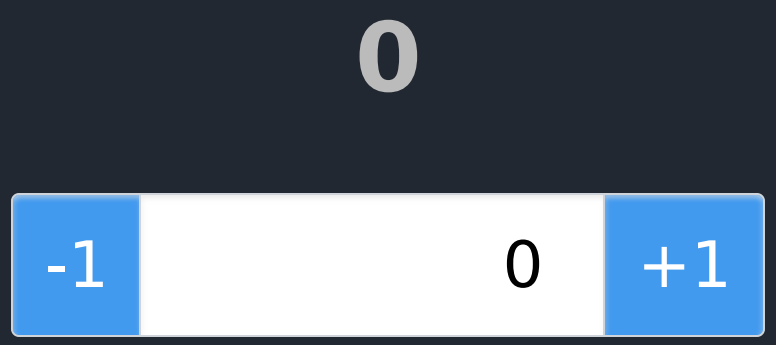
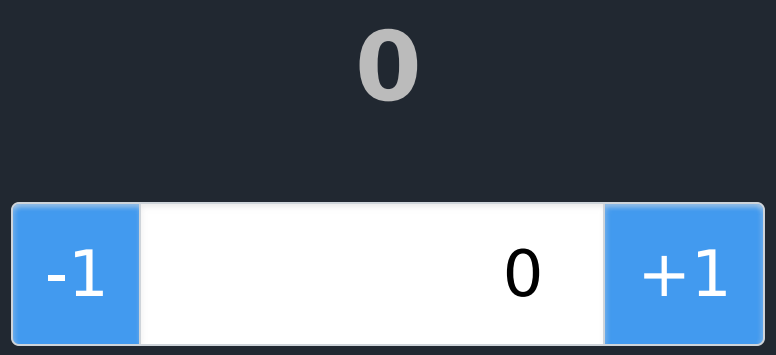



```
function counter(state = 0, action) {
  const { type, payload } = action
  switch (type) {
    case 'INCREMENT':
      return state + 1
    case 'DECREMENT':
      return state - 1
    case 'SET_VALUE':
      return payload
    default:
      return state
  }
}

const enhance = compose(
  withReducer('count', 'dispatch', counter, 0),
  withHandlers({
    increment: ({ dispatch }) => () => dispatch({ type: 'INCREMENT' }),
    decrement: ({ dispatch }) => () => dispatch({ type: 'DECREMENT' }),
    setValue: ({ dispatch }) => value =>
      dispatch({ type: 'SET_VALUE', payload: value }),
  }),
  withHandlers({
    handleChange: ({ setValue }) => event =>
      setValue(parseInt(event.target.value)),
  }),
)

const Counter = enhance(({ count, increment, decrement, handleChange }) => (
  <>
    <h1>{count}</h1>
    <div className="input-group">
      <button onClick={decrement}>-1</button>
      <input type="number" value={count} onChange={handleChange} />
      <button onClick={increment}>+1</button>
    </div>
  </>
))

render(Counter)
```




```jsx
function Counter() {
  const { count, increment, decrement, handleChange } = useCounter()
  return (
    <>
      <h1>{count}</h1>
      <div className="input-group">
        <button onClick={decrement}>-1</button>
        <input type="number" value={count} onChange={handleChange} />
        <button onClick={increment}>+1</button>
      </div>
    </>
  )
}

function useCounter() {
  const [count, dispatch] = useReducer(counter, 0)
  const increment = () => dispatch({ type: 'INCREMENT' })
  const decrement = () => dispatch({ type: 'DECREMENT' })
  const setValue = value => dispatch({ type: 'SET_VALUE', payload: value })
  const handleChange = event => setValue(parseInt(event.target.value))
  return { count, increment, decrement, handleChange }
}

render(Counter)
```

```jsx
function counter(state = 0, action) {
  const { type, payload } = action
  switch (type) {
    case 'INCREMENT':
      return state + 1
    case 'DECREMENT':
      return state - 1
    case 'SET_VALUE':
      return payload
    default:
      return state
  }
}
```

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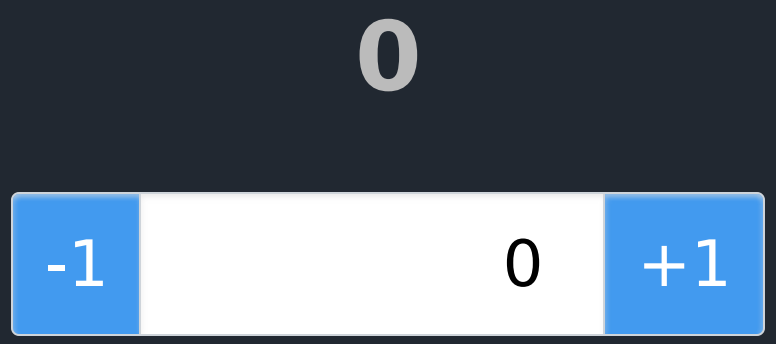


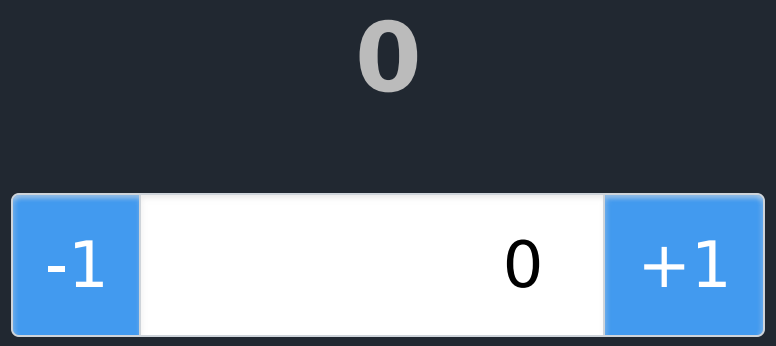

```jsx
function counter(state = 0, action) {
  const { type, payload } = action
  switch (type) {
    case 'INCREMENT':
      return state + 1
    case 'DECREMENT':
      return state - 1
    case 'SET_VALUE':
      return payload
    default:
      return state
  }
}

const CounterContext = createContext()

class Parent extends Component {
  dispatch = action =>
    this.setState(({ count }) => ({ count: counter(count, action) }))
  increment = () => this.dispatch({ type: 'INCREMENT' })
  decrement = () => this.dispatch({ type: 'DECREMENT' })
  setValue = value => this.dispatch({ type: 'SET_VALUE', payload: value })
  handleChange = event => this.setValue(parseInt(event.target.value))
  state = {
    count: 0,
    increment: this.increment,
    decrement: this.decrement,
    handleChange: this.handleChange,
  }

  render() {
    return (
      <CounterContext.Provider value={this.state}>
        <Child />
      </CounterContext.Provider>
    )
  }
}

function Child() {
  const { count, increment, decrement, handleChange } = useContext(
    CounterContext,
  )
  return (
    <>
      <h1>{count}</h1>
      <div className="input-group">
```




```jsx
function counter(state = 0, action) {
  const { type, payload } = action
  switch (type) {
    case 'INCREMENT':
      return state + 1
    case 'DECREMENT':
      return state - 1
    case 'SET_VALUE':
      return payload
    default:
      return state
  }
}

function useCounter() {
  const [count, dispatch] = useReducer(counter, 0)
  const increment = () => dispatch({ type: 'INCREMENT' })
  const decrement = () => dispatch({ type: 'DECREMENT' })
  const setValue = value => dispatch({ type: 'SET_VALUE', payload: value })
  const handleChange = event => setValue(parseInt(event.target.value))
  return { count, increment, decrement, handleChange }
}

const CounterContext = createContext()
```

```jsx
function Parent() {
  const counter = useCounter()

  return (
    <CounterContext.Provider value={counter}>
      <Child />
    </CounterContext.Provider>
  )
}

function Child() {
  const { count, increment, decrement, handleChange } = useContext(
    CounterContext,
  )
  return (
    <>
      <h1>{count}</h1>
      <div className="input-group">
        <button onClick={decrement}>-1</button>
        <input type="number" value={count} onChange={handleChange} />
        <button onClick={increment}>+1</button>
      </div>
    </>
```

Hooks:

- Are still completely optional
- Simplify and organize code
- Are composable
- Will give performance gains
- Are subject to rules
- Will not replace everything else

Thank you.

Questions?

source code