

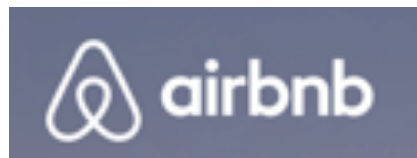
# React

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A JavaScript Library for Building User Interface



# Show Cases



More: <https://github.com/facebook/react/wiki/Sites-Using-React>

# Outline

- React overview
- Hands-on practice: Todo List
- Advanced project: App Store (follow-up)

# React Overview

- Origin of React
  - Solve Facebook's advertisements problem
- JavaScript **Library**, not a Framework
  - *Easy to learn*
  - *Single responsibility*
  - *View of MVC*
- Developed and released by Facebook at 2013

# Hello World

<pre>1 &lt;div id="container"&gt; 2   &lt;!-- This element's contents will be replaced with your component. --&gt; 3 &lt;/div&gt; 4</pre>	HTML ⚙️	1
<pre>1 var Hello = React.createClass({ 2   render: function() { 3     return &lt;div&gt;Hello {this.props.name}&lt;/div&gt;; 4   } 5 }); 6 7 ReactDOM.render( 8   &lt;Hello name="World" /&gt;, 9   document.getElementById('container') 10 ); 11</pre>	BABEL ⚙️	Hello World

[Link: https://jsfiddle.net/ldong/69z2wepo/28629/](https://jsfiddle.net/ldong/69z2wepo/28629/)

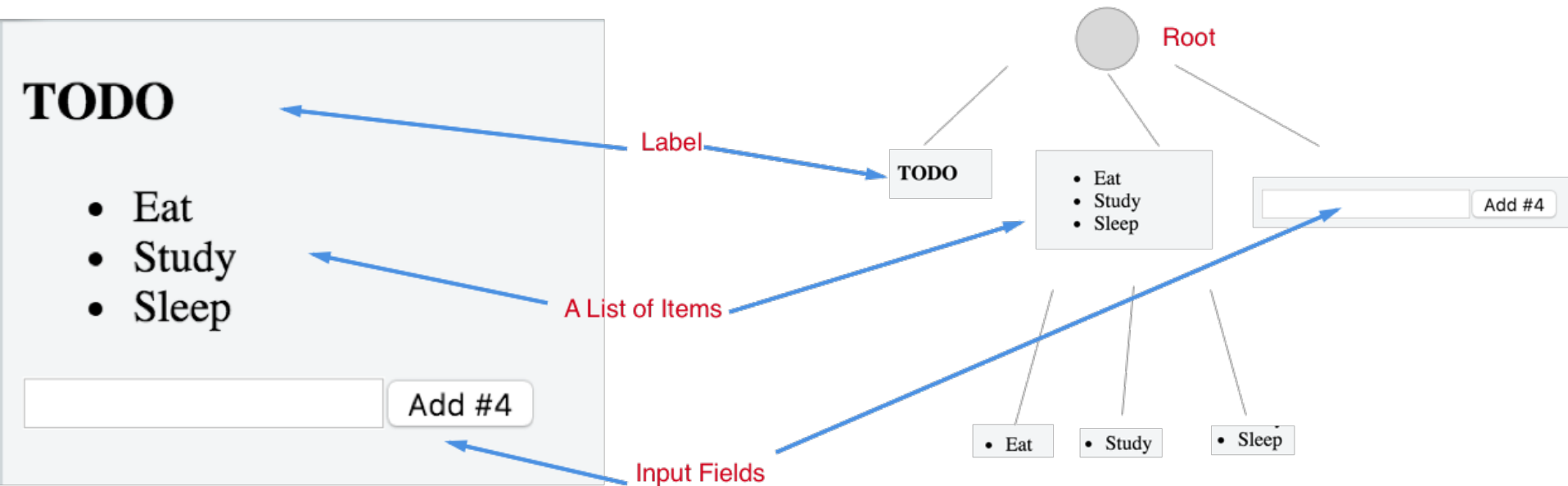
# Todo List

**TODO**

- Eat
- Study
- Sleep

[Full demo](https://jsfiddle.net/ldong/apao5wse/7/): <https://jsfiddle.net/ldong/apao5wse/7/>

# From UI to Components



# Composability

- React is composable from the core
- From pieces to whole

Big Component



Small Component





# Todo List display

jsfiddle Demo

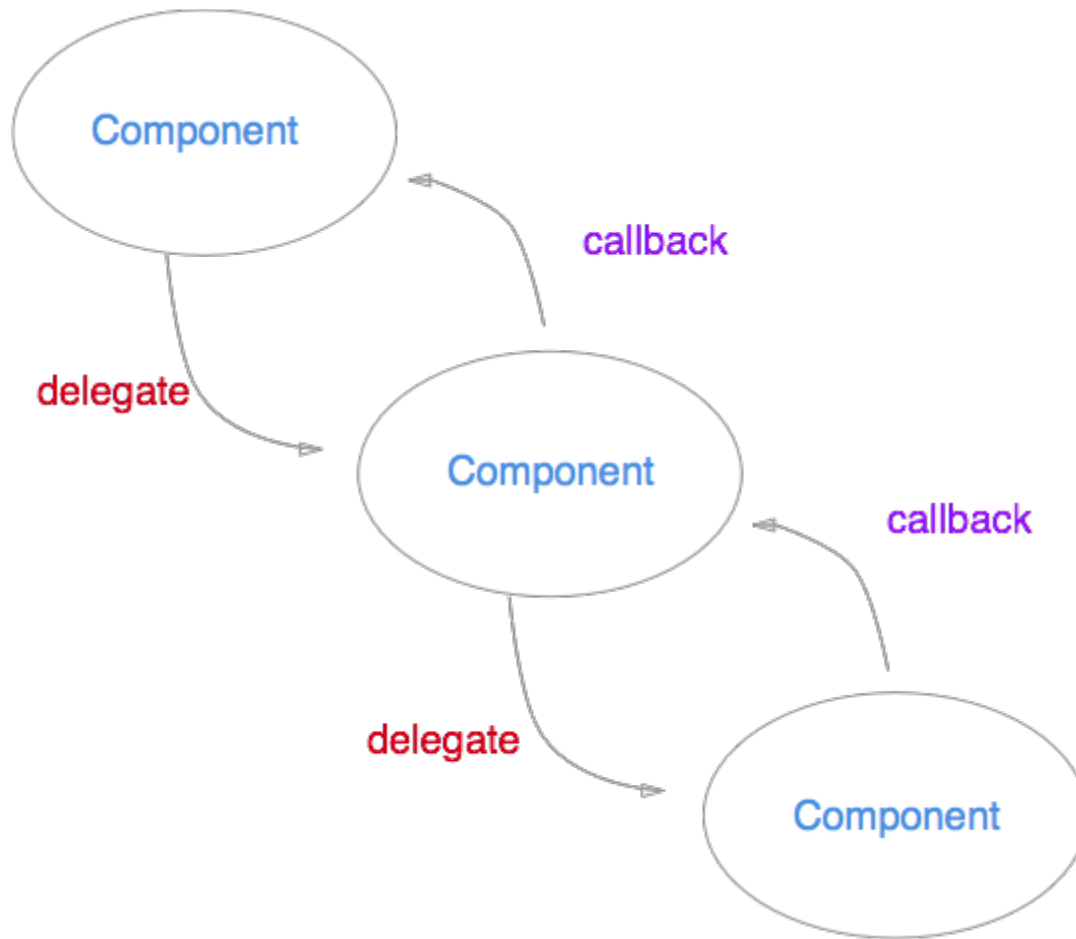
# Todo List event handlers

[jsfiddle Demo](#)

# Todo List state change

jsfiddle Demo

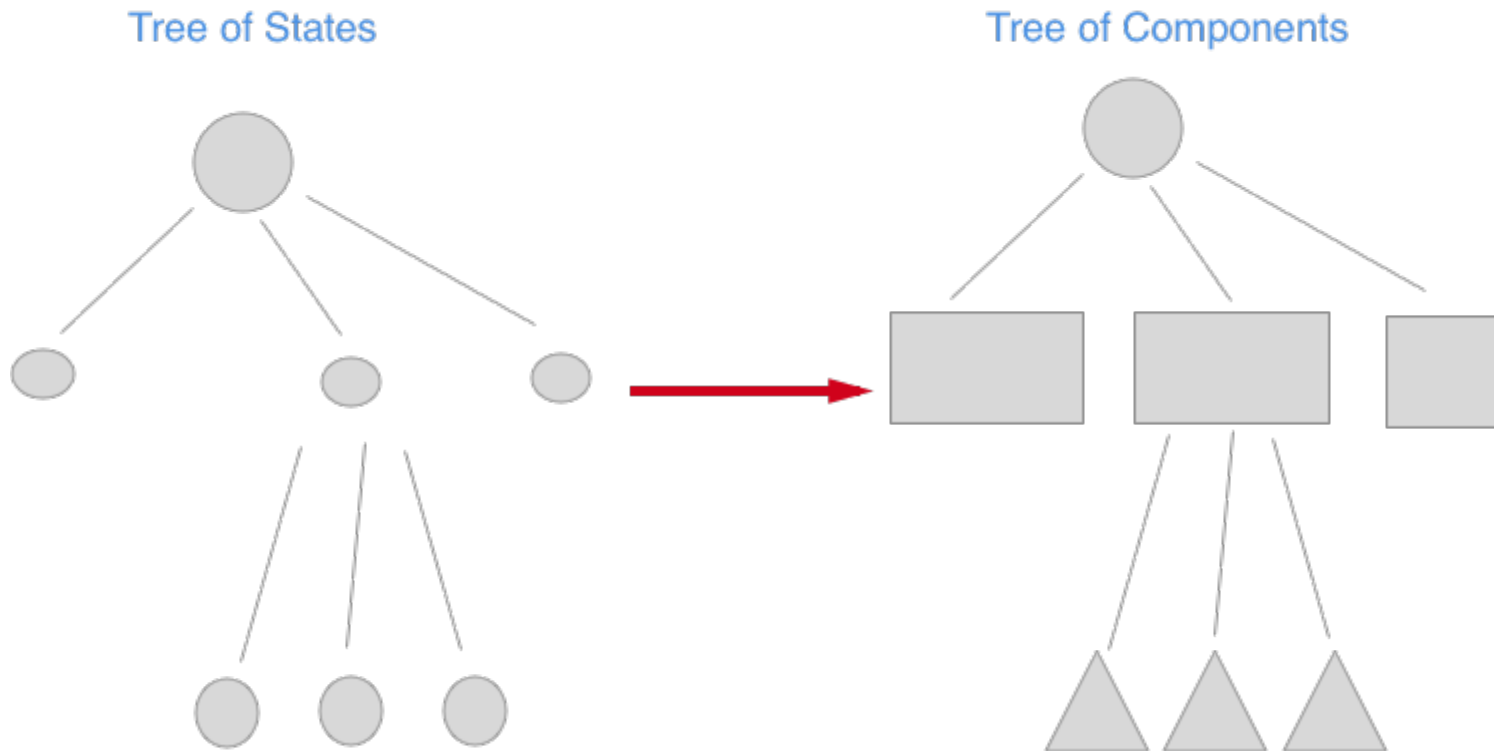
# React Concept: Data Flow



[Thinking in React](https://facebook.github.io/react/docs/thinking-in-react.html): <https://facebook.github.io/react/docs/thinking-in-react.html>

# React Concept: State

- From a tree of **states** to a tree of **components**



# Core Concepts of React

## 1. Component

- Composable
- Reusable
- (Re)-Render

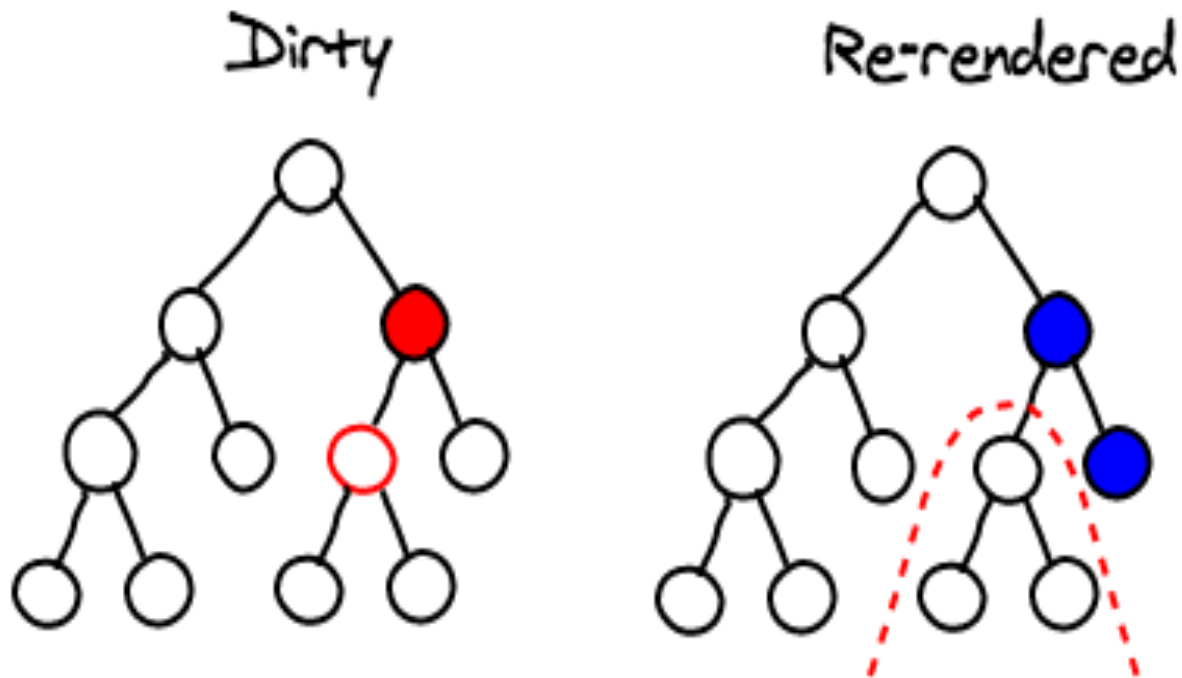
## 2. Data flows

- Parent to children components (top to bottom)

## 3. State describes UI

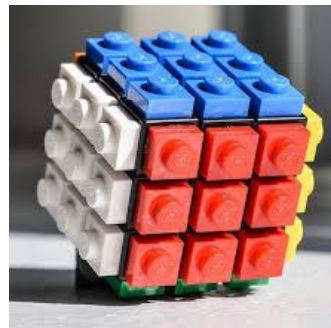
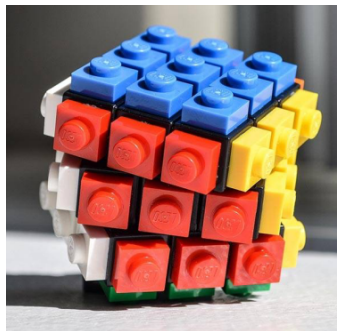
- Reasoning about the states of the UI with dynamically
  - Inspired by game engines: Doom 3

# Virtual DOM



# Virtual DOM

- Efficient diff algorithm,  $O(n)$
- Batch operation
- Render when needed
- Bottom line: increase performance



Diff: <http://calendar.perfplanet.com/2013/diff/>



# Takeaways

- React is powerful JavaScript library
- React  $\Leftrightarrow$  Lego



# Homework

- Add a delete option based on this [jsfiddle](#)
  - *Send your answers on slack or WeChat*



## TODO

- Eat ☐
- Study ☐
- Sleep ☐
- Repeat ☐

Add #5

# Thank you

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A JavaScript Library for Building User Interfaces

