BUILDING HIGH PERFORMANCE REACT APPLICATIONS

@JOEKLASSON1
I AM

JOE KARLSSON

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@JOEKARLSSON1
WHY?
MY SITE IS FAST ENOUGH

- No One Ever
40% of users abandon an article if it doesn't load after six seconds.

- Danny Bernstein, Google
+100ms delay
-1% Amazon's sales
$1,070,000,000

WHY IS REACT SO DANG FAST?
READY TO GO FAST?
SHORT
ANSWER
ONLY RENDER
WHEN YOU
REALLY NEED TO
LONG

ANSWER
FIRST, WE NEED TO MEASURE PERFORMANCE
Click the record button 🎬 or hit ⌘ E to start a new recording.

Click the reload button ⏪ or hit Ctrl + ⌘ E to record the page load.

After recording, select an area of interest in the overview by dragging. Then, zoom and pan the timeline with the mousewheel or WASD keys.

Learn more

The Performance panel provides the combined functionality of Timeline and JavaScript CPU profiler. Learn more

The JavaScript CPU profiler will be removed shortly. Meanwhile, it’s available under ⇧ → More Tools → JavaScript Profiler.
USE KEY CORRECTLY
USED TO UNIQUELY IDENTIFY AN ELEMENT
NEVER USE MATH.RANDOM() OR INDEX DURING A MAP(ELEMENT, INDEX)
[ITEM_A,
ITEM_B,
ITEM_C,
ITEM_D]
[NEW ITEM, ITEM_A, ITEM_B, ITEM_C, ITEM_D]
High Performance React

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MANAGE
shouldComponentUpdate

@JoeKarlsson1
SPECIFY EXACTLY WHEN A COMPONENT SHOULD RENDER
class Item extends Component {

    render() {
        return <h3>{this.props.title}</h3>
    }
}

class Item extends Component {

    shouldComponentUpdate(nextProps, nextState) {
        if (this.props.title !== nextProps.title) {
            return true;
        }
        return false;
    }

    render() {
        return <h3>{ this.props.title }</h3>
    }
};
High Performance React

5a75ea54-9fa6-4bd2-b929-6362f42de4be
aba59c94-7e6c-4c1c-b534-8e482a0050ed
dde7963d-48e4-494c-bdb2-de45662f5443
d224b12e-7d9b-422c-acce-15629dc1fe6c
e86060fa-6ea3-4a6f-8a94-b89f9febee62
f30511dc-10da-4448-a32f-59d5dba3a859
442994ee-3479-4c22-8560-4c3a6c832bac
093de736-269c-4c53-a39e-a5914107a150
4cdbca83-bd15-4eab-b167-243cf65b9d4c
92ce3f2e-65c1-41e4-86e5-250da271387b
24b6761d-1ae5-401a-bc5b-1062f8e7f70b
b11eed18-880e-42a8-a1da-cc850f47164
efb73c1a-d5da-4716-b95e-7240a80ccf2e

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EXTEND

✨ PURECOMPONENT ✨

INSTEAD OF

🐢 COMPONENT 🐢

@JoeKarlsson1
DOES A SHALLOW COMPARISON OF ALL PROPS/STATE


```javascript
{
  title: 'Thing name',
  author: 'Joe Karlsson',
  favPizzaToppings: [
    'anchovies',
    'cheese'
  ],
  twitter: 'joekarlsson1'
}
```
class Item extends Component {

    shouldComponentUpdate(nextProps, nextState) {
        if (this.props.title !== nextProps.title) {
            return true;
        }
        return false;
    }

    render() {
        return <h3>{ this.props.title }</h3>
    }
};
class Item extends PureComponent {
    render() {
        return <h3>{ this.props.title }</h3>
    }
};

@JoeKarlsson1
High Performance React

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FANCY
WORD FOR
MAKING A
NEW COPY
OF AN OBJECT
MAKES TRACKING CHANGES CHEAP

Cheap Sonic
## MEMORY REGISTERS

### OBJECT 1
- Foo
- Bar
- Baz
- Thud
- Grunt

### OBJECT 2
- Lorem
- Ipsum
USE ISOMORPHIC REACT
THE FIRST PAGE REQUEST IS FAST

THERE IS LESS CODE
DEBUGGING IS TRICKIER
MANAGING CONFIGS
NO DOM
BUILD FOR PRODUCTION
USING

```
NODE_ENV = 'production'
```

RENDERS ~2–8X FASTER THAN THE DEV BUILD
USE STATELESS COMPONENTS
Great question though! Here's the tweet from @dan_abramov answering the question in greater detail:

Dan Abramov @dan_abramov
I'm not sure if we explained this elsewhere but they are not faster because they *are* classes internally

Dan Abramov
@dan_abramov

Replies to @JoeKarlsson1 @loige

They are a bit faster since React 16 though

10:06 AM - 5 Jun 2018
MORE THOUGHTS ON PERFORMANCE
GZIP ALL THE PLAINTEXT
WHAT ABOUT IMAGES?
PNG & LOSSLESS
EVERYONE USES IT
ANALYZE YOUR WEBPACK BUNDLE 🕵️‍♂️
THE MOST IMPORTANT SLIDE

@JoeKarlsson1
MAKE IT WORK,
THEN MAKE IT FAST
USE KEY CORRECTLY

MANAGE SHOULD COMPONENT UPDATE

EXTEND PURE COMPONENT

USE IMMUTABLE DATA

STATELESS COMPONENTS

RECAP

@JoeKarlsson1
BUILD FOR⚡PRODUCTION

ANALYZE WEBPACK BUNDLE🔬

RENDER WHEN REALLY NEEDED

MAKE IT WORK, THEN MAKE IT FAST🏃💨
QUESTIONS?
THANK YOU!
LET'S STAY IN TOUCH

@JOEKLASSON

@JOEKLASSON1
RESOURCES

- BUILDING HIGH PERFORMANCE REACT APPLICATIONS DEMO PROJECT [GITHUB]
- WEBPACK BUNDLE ANALYZER [NPM]
- OPTIMIZING PERFORMANCE [OFFICAL REACT DOCS]