Optimizing React

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DevJam 2018

Intro

Nobody likes to wait

Doing it the right way

“Premature optimization is the root of all evil”

1. Runtime

(CPU)

“Performance is there to increase the metric that matters most to you.

In Facebook we care about scrolling. In an A/B test, we slowed down scrolling from 60fps down to 30fps. Engagement collapsed. We said okay, therefore scrolling matters”

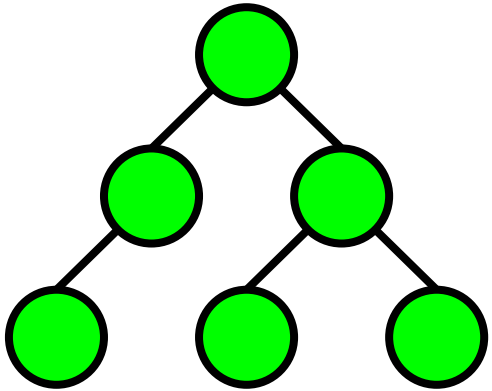
(Edge Conf Perf Panel ,2013)

Reconciliation

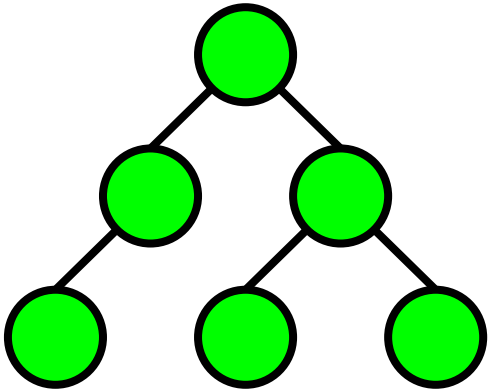
The process of updating your UI to match your application state

Reconciliation

Virtual DOM

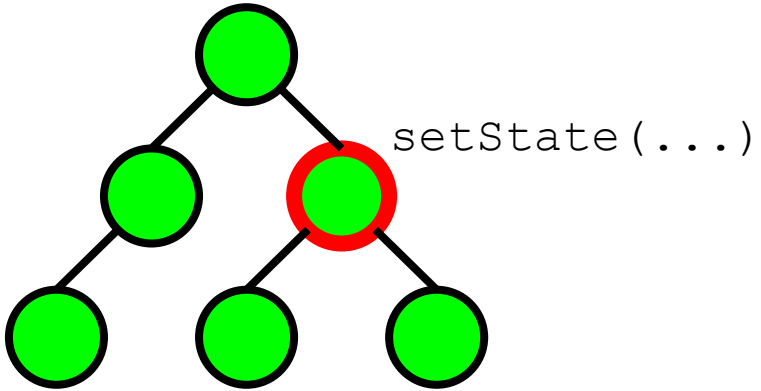


Browser DOM



Reconciliation

Virtual DOM



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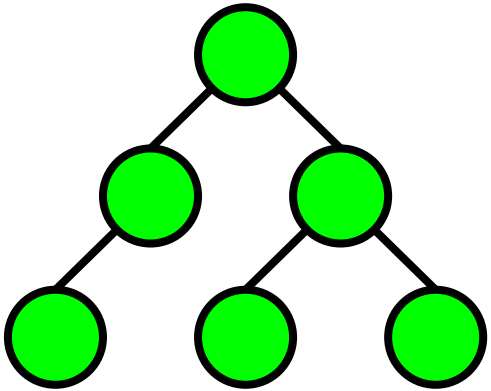

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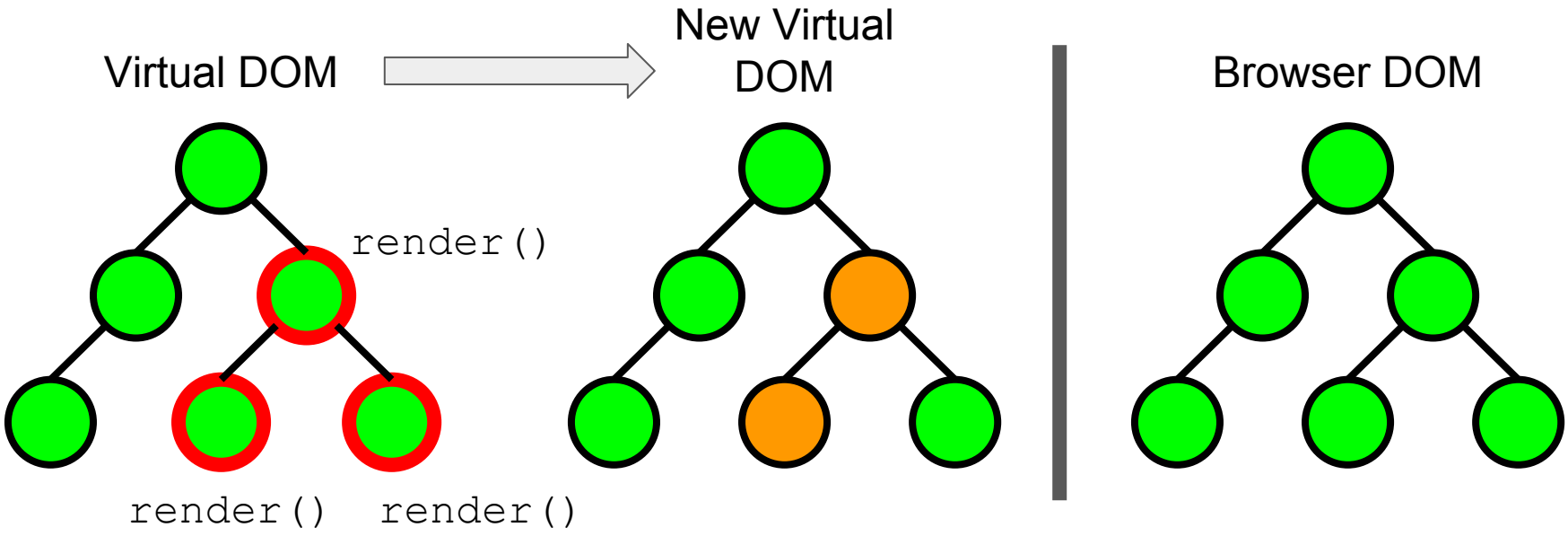
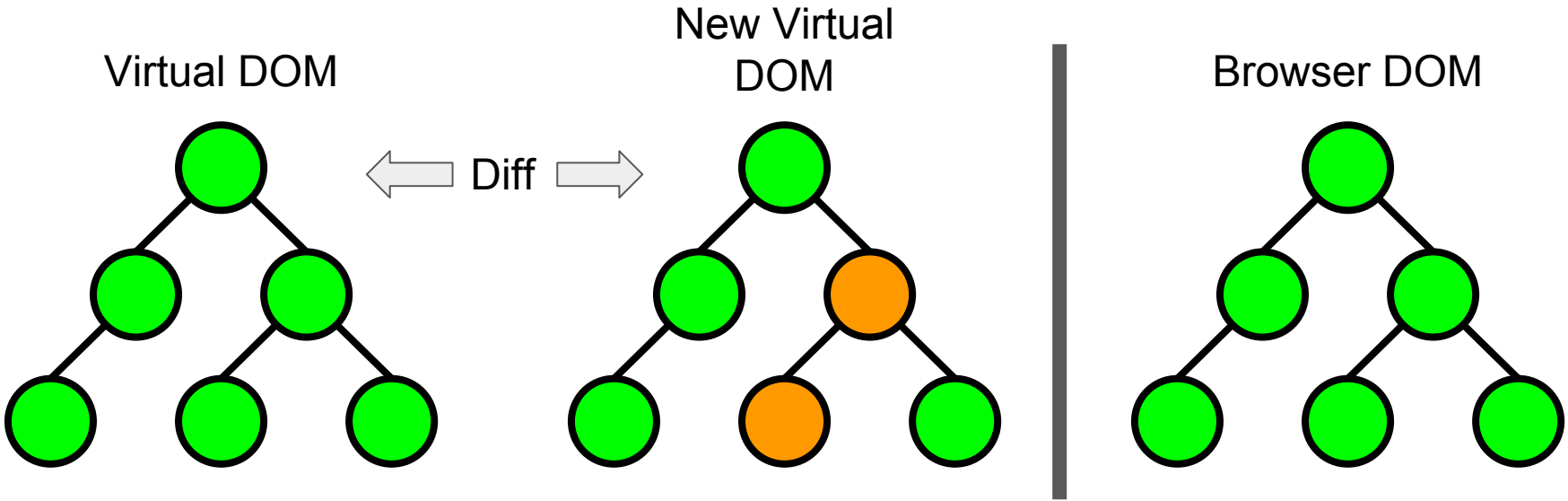


Reconciliation



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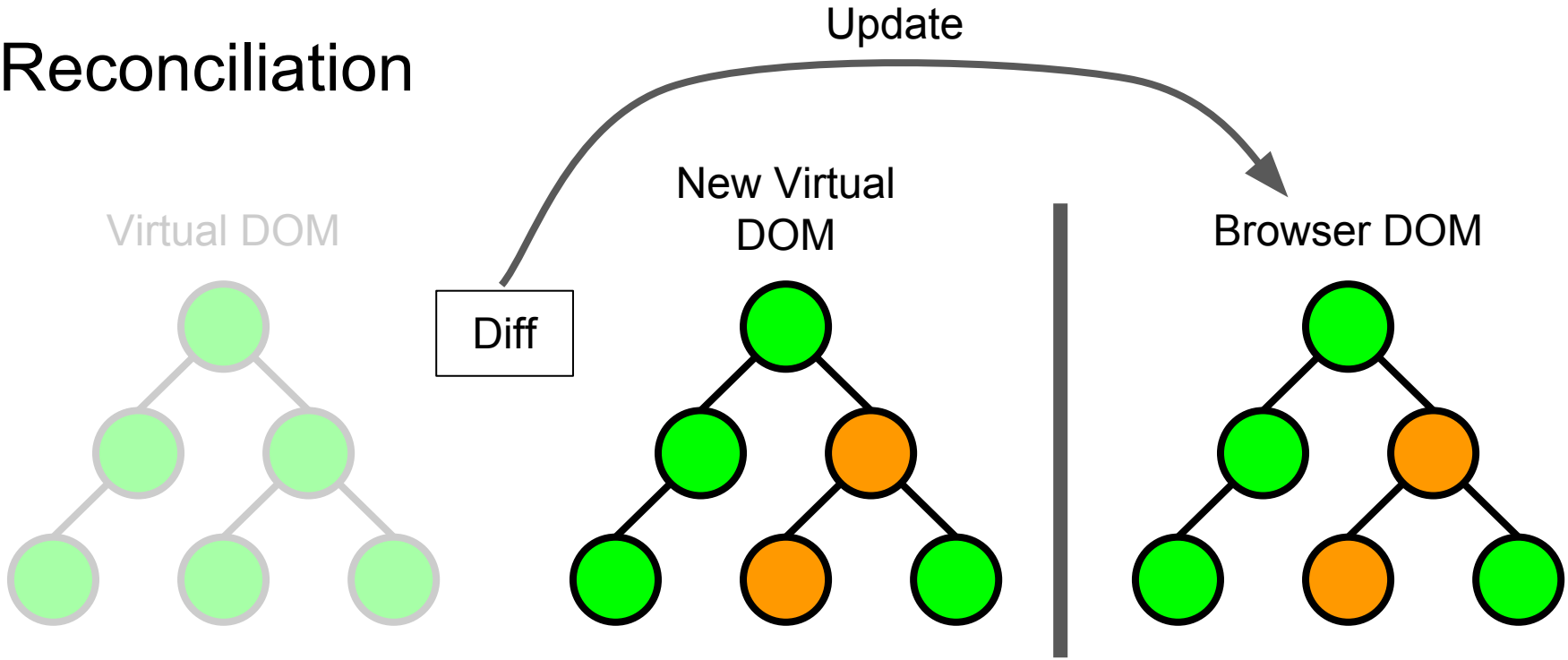
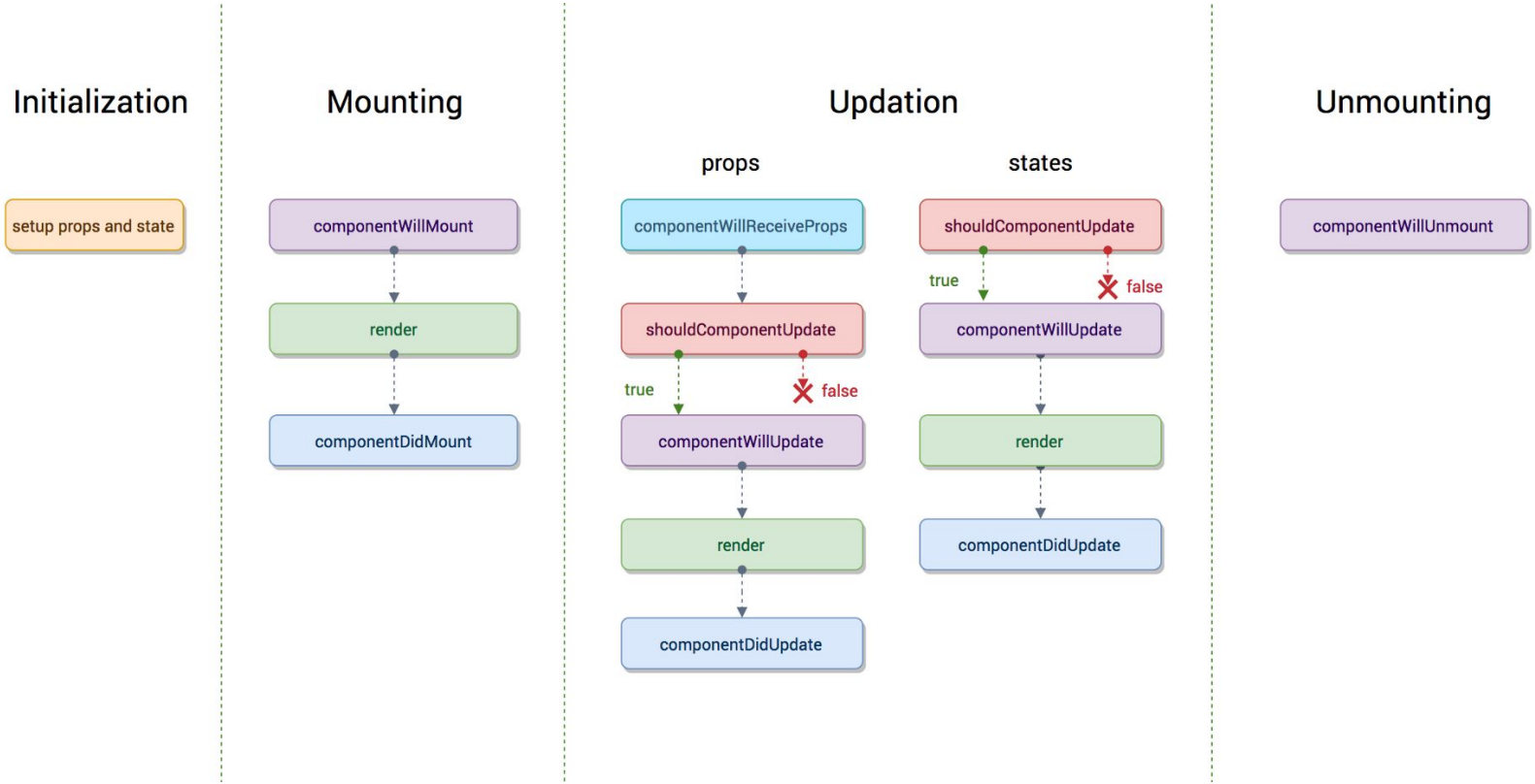


Lifecycle functions



Demo app

List container

List

ListItem

ListItem

…

ListItem

PureComponents

Caveats

- Unnecessary renders
- Miss updates if state is mutated (it shouldn’t be)

Is it worth it?

- Heavy renders
- Use ShouldComponentUpdate for more control
- why-did-you-update

Virtualization

When to use

- Lots of items mounting / updating

Caveats

- Less flexible layouts
- More complex usage

Sub Summary: Runtime

Reconciliation

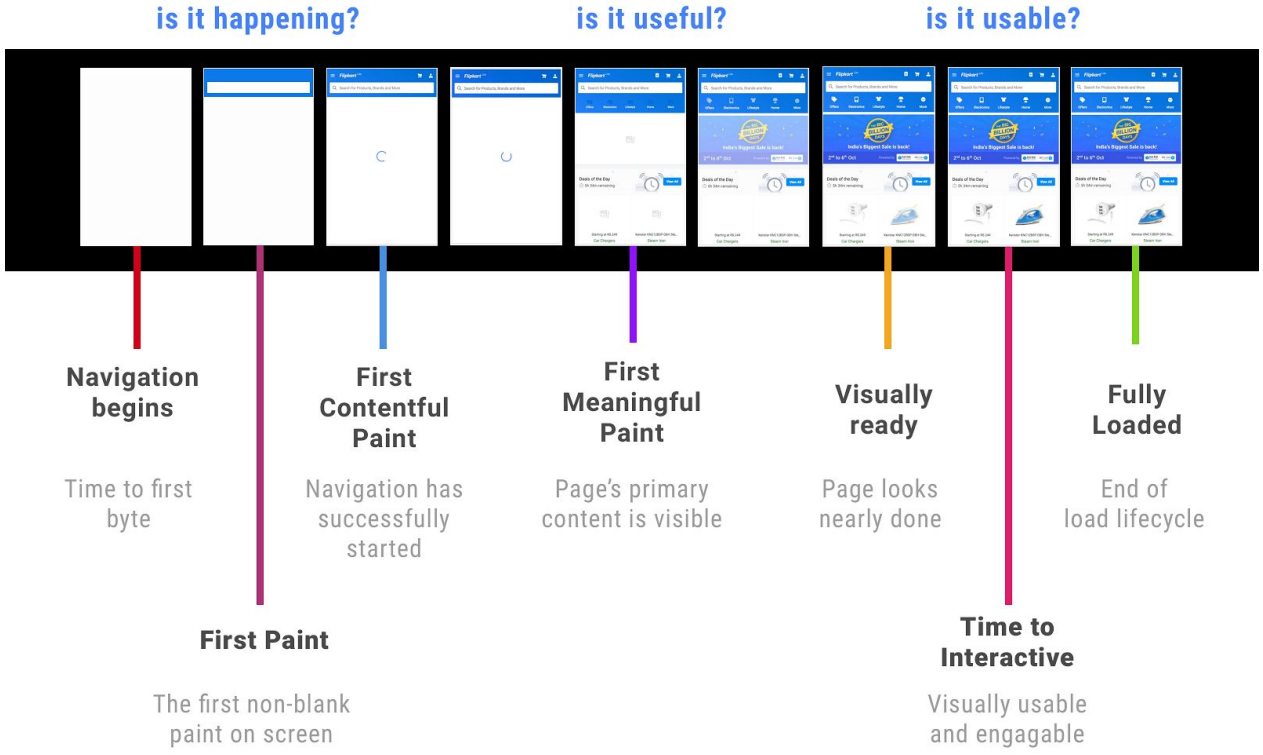
PureComponent / ShouldComponentUpdate

Virtualization

2. Delivery

(IO + CPU)

Interesting moments



Dead code

Life’s too short for loading dead code

Lazy loading

Bring it when you need it

- Route based code splitting
- Use react-loadable

SSR

Pros

- Faster first paint
- SEO

Cons

- Browser does more processing (HTML + JS)
- Complexity grows with routes, dynamic data, state management

Consider NextJS

Preact

Pros

- Smaller bundle
- Faster process

Cons

- Eco system compatibility
- React 16

Sub Summary: Delivery

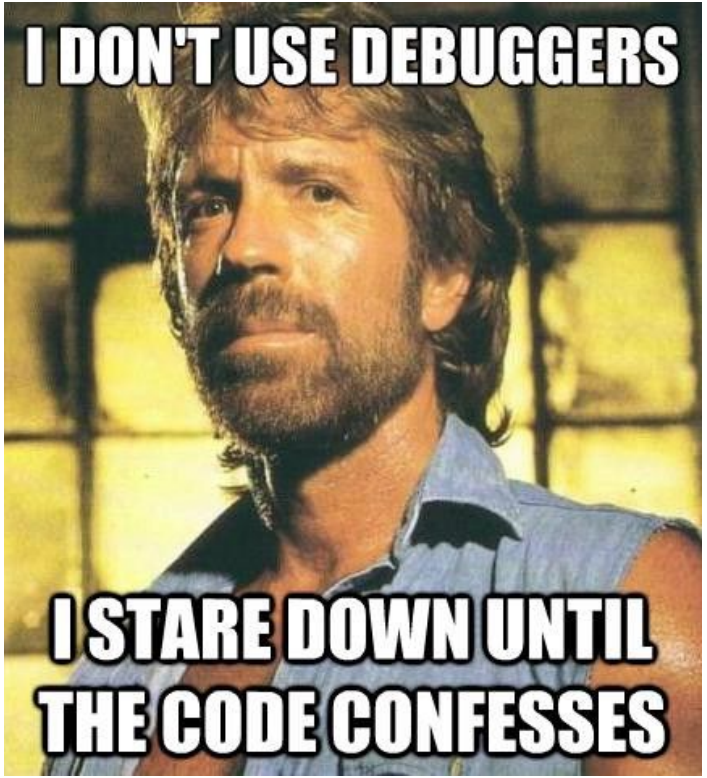
Dead Code

Lazy Loading

Using Preact

Server Side Rendering

3. Development



Faster Builds

Measure (speed-measure-webpack-plugin)

Fixes

- Remove unnecessary loaders / plugins
- Use latest webpack (4.8.3)
- Use plugins
- Use other bundlers (Parcel, Rollup)

And now...

Make it prettier

Code is meant to be read

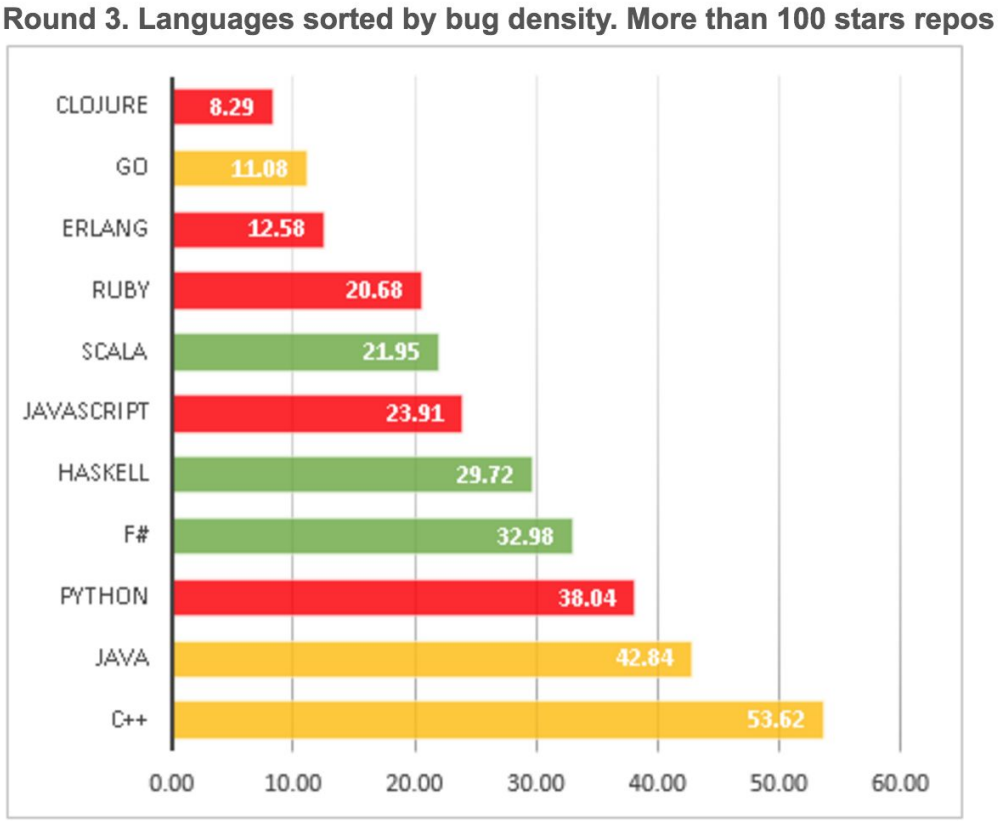
Typescript

It’s easy:

```
create-react-app my-app --scripts-version=react-scripts-ts
```

Should you?

Typescript



Source:
https://labs.ig.com/static-typing-promise

Typescript

Pros

- Gives the IDE super powers

Cons

- Doesn’t cover all cases
- Can get in the way

So..

- Keep it balanced
- Test

Sub Summary: Development

Faster builds

Prettier

Summary

Thank you!

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