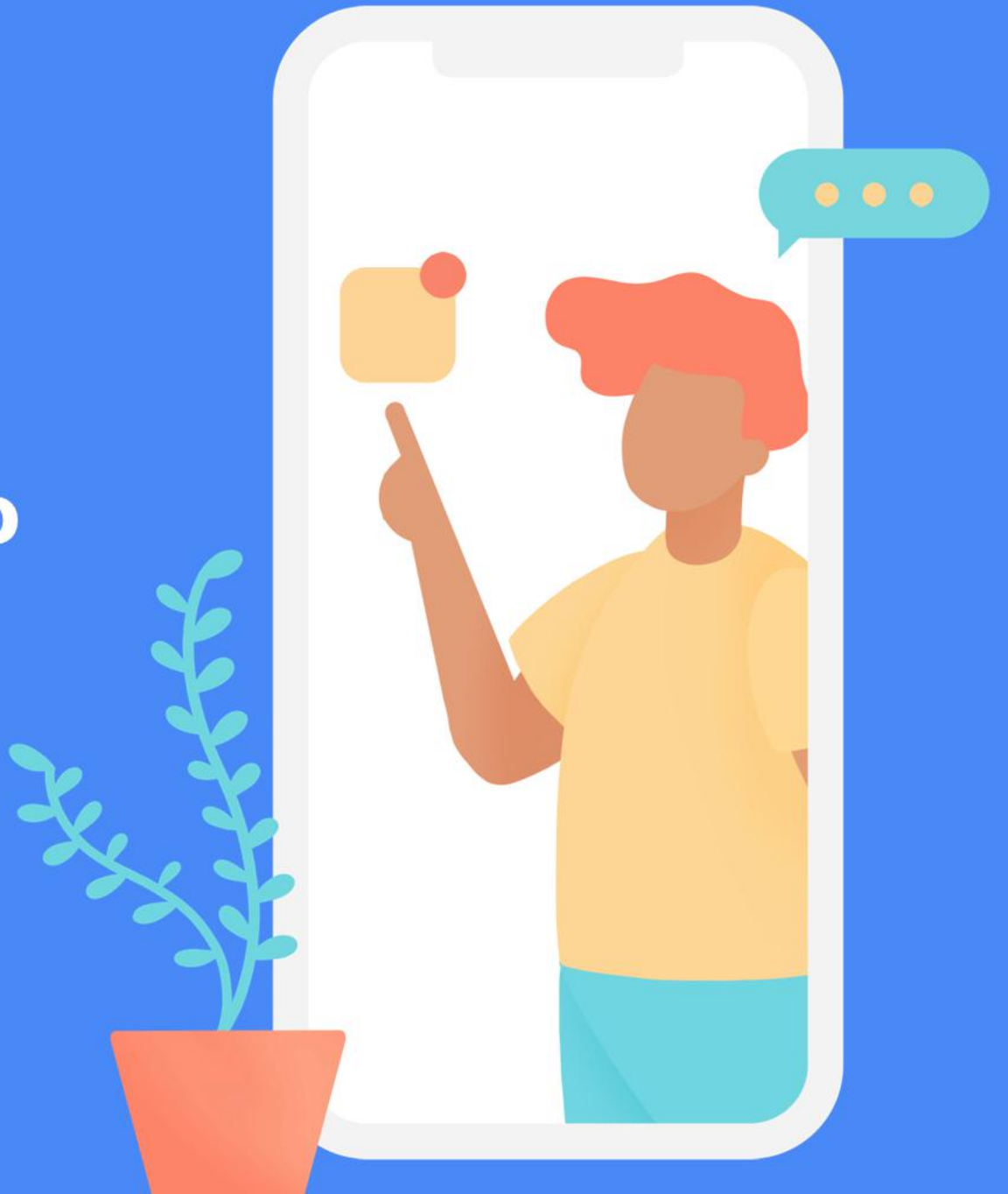
Building Component Libraries with a Monorepo

Lee Robinson

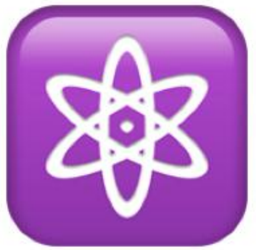
Developer, writer, and UI/UX enthusiast



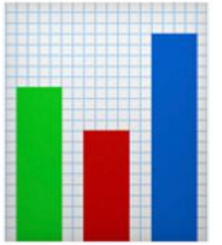
LR

Overview

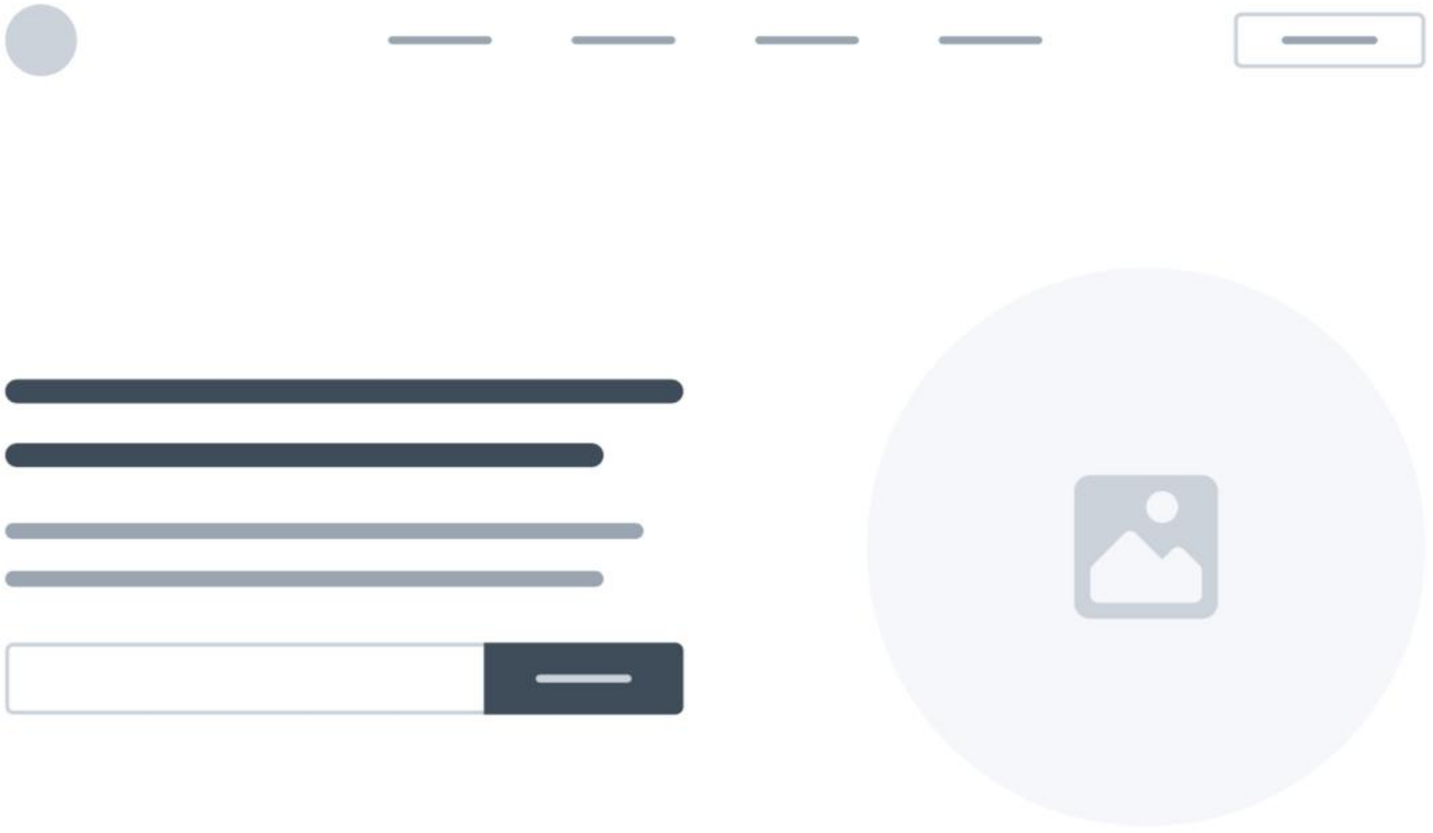
The Problem

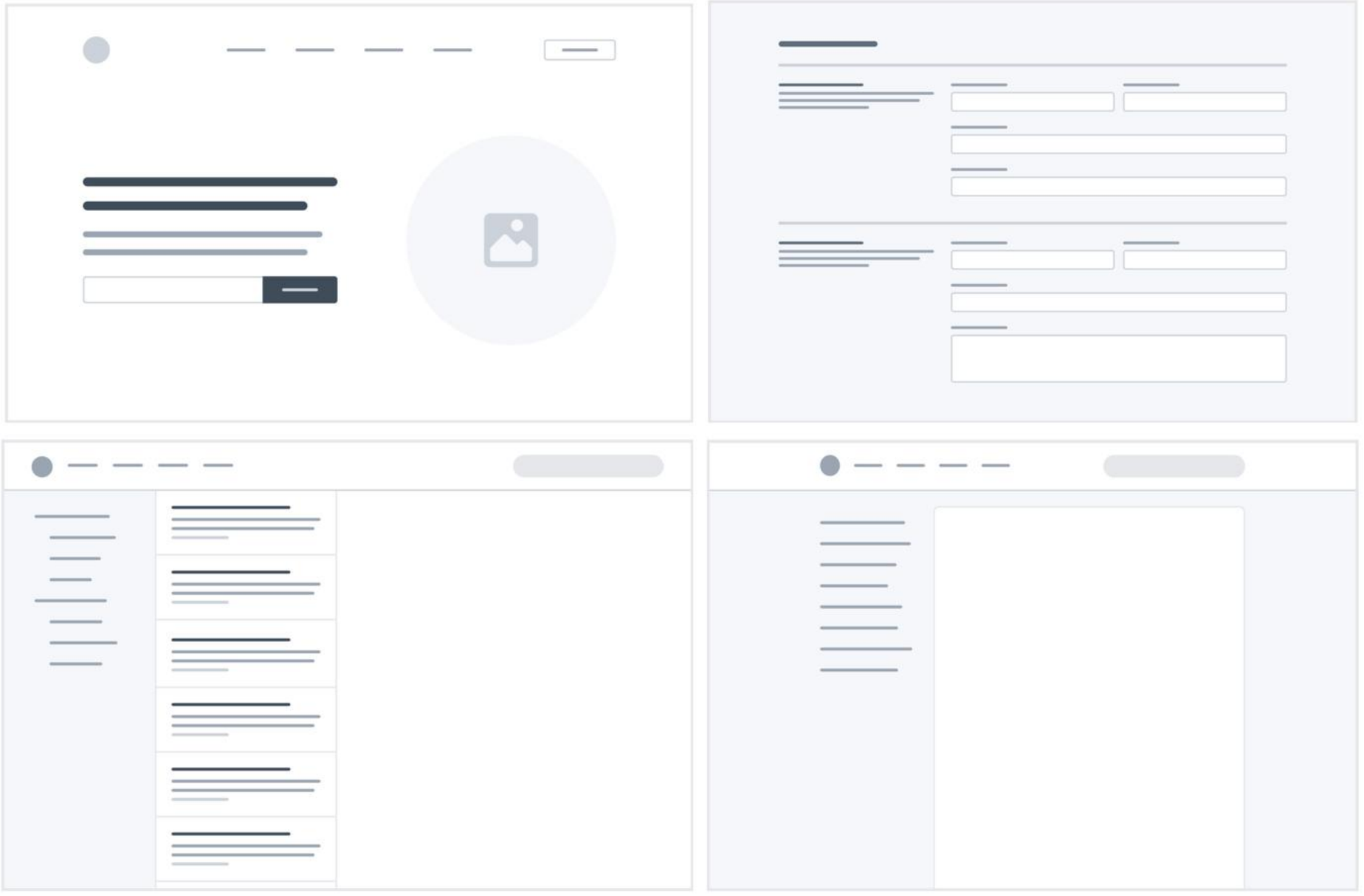


The Solution

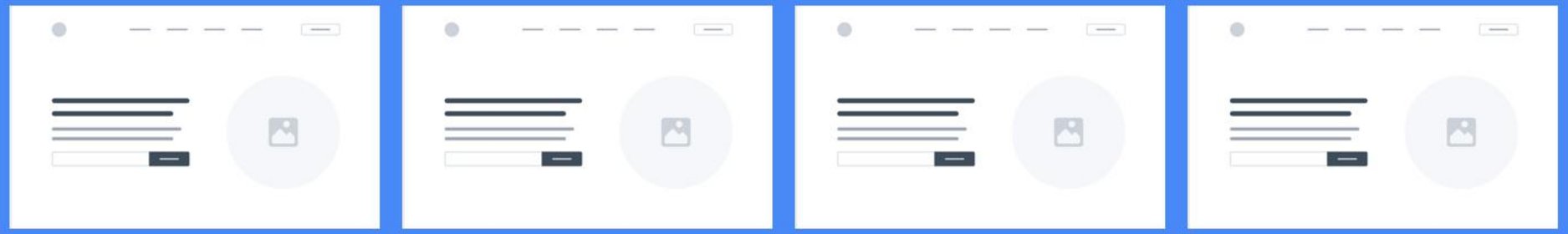


The Results

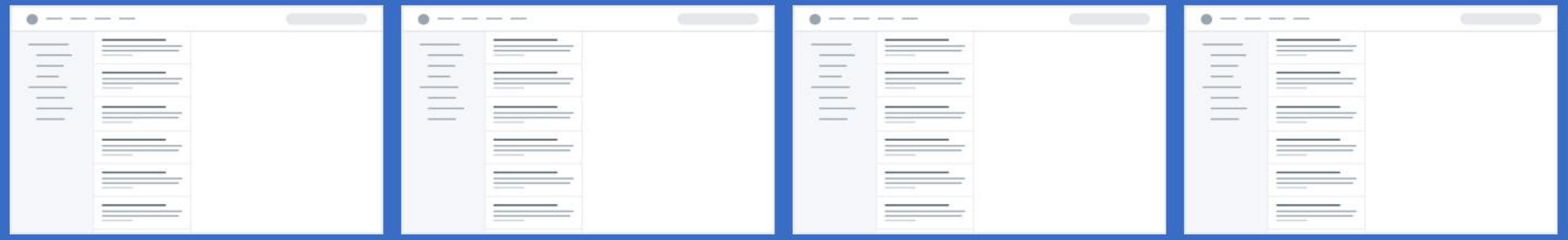




Team A

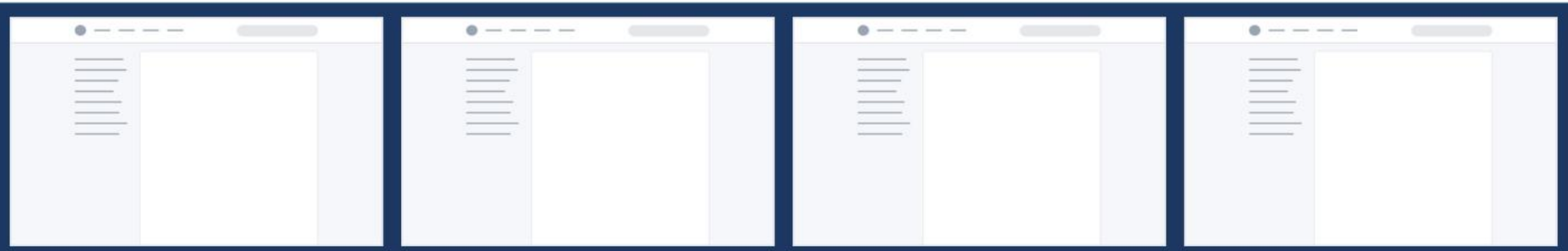


Team B



Team C

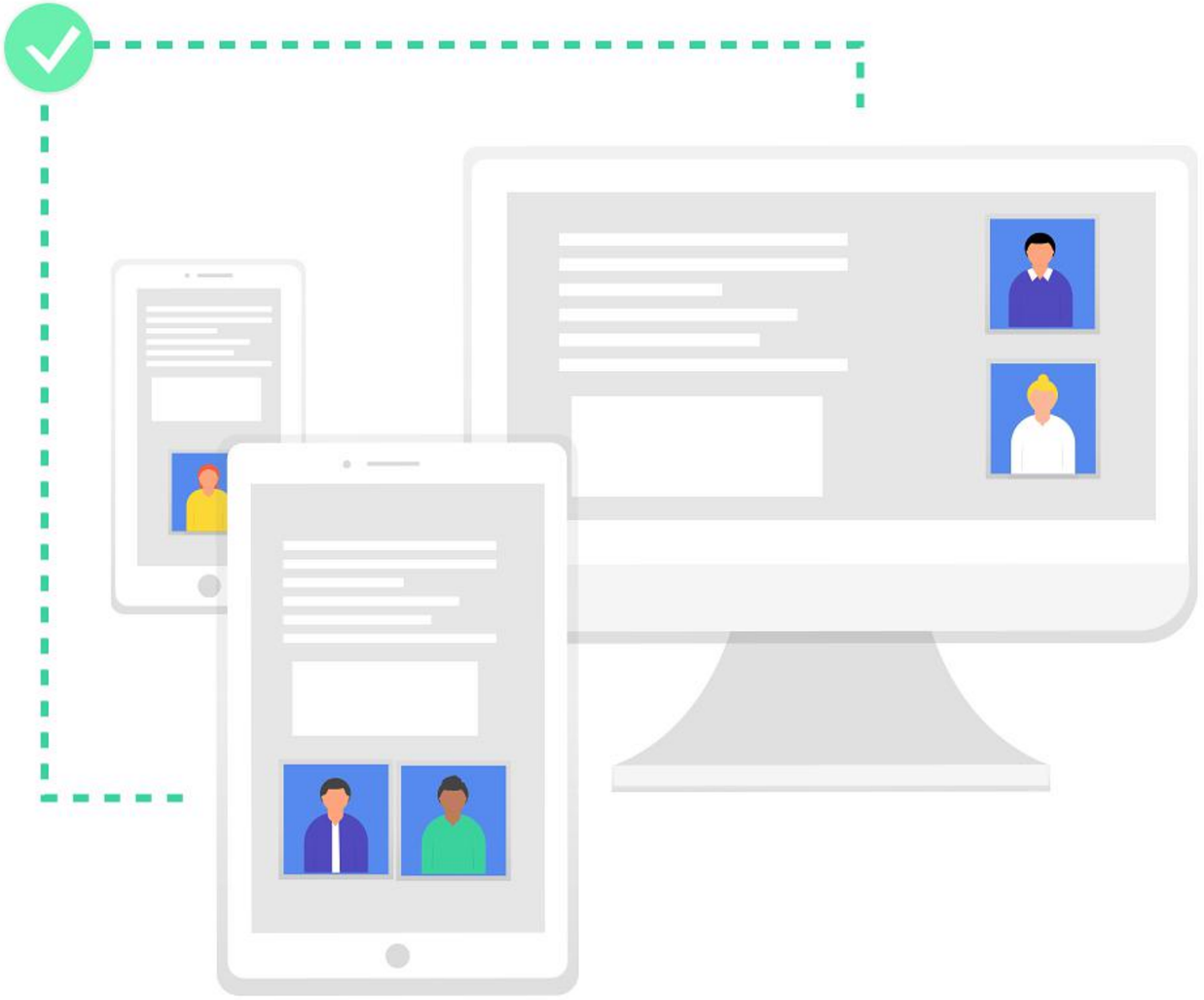
Team D



“Because the legacy website had no universal button component and many different variations even within re-used button code, this involved manually updating and visually verifying *442 different* instances of buttons.”

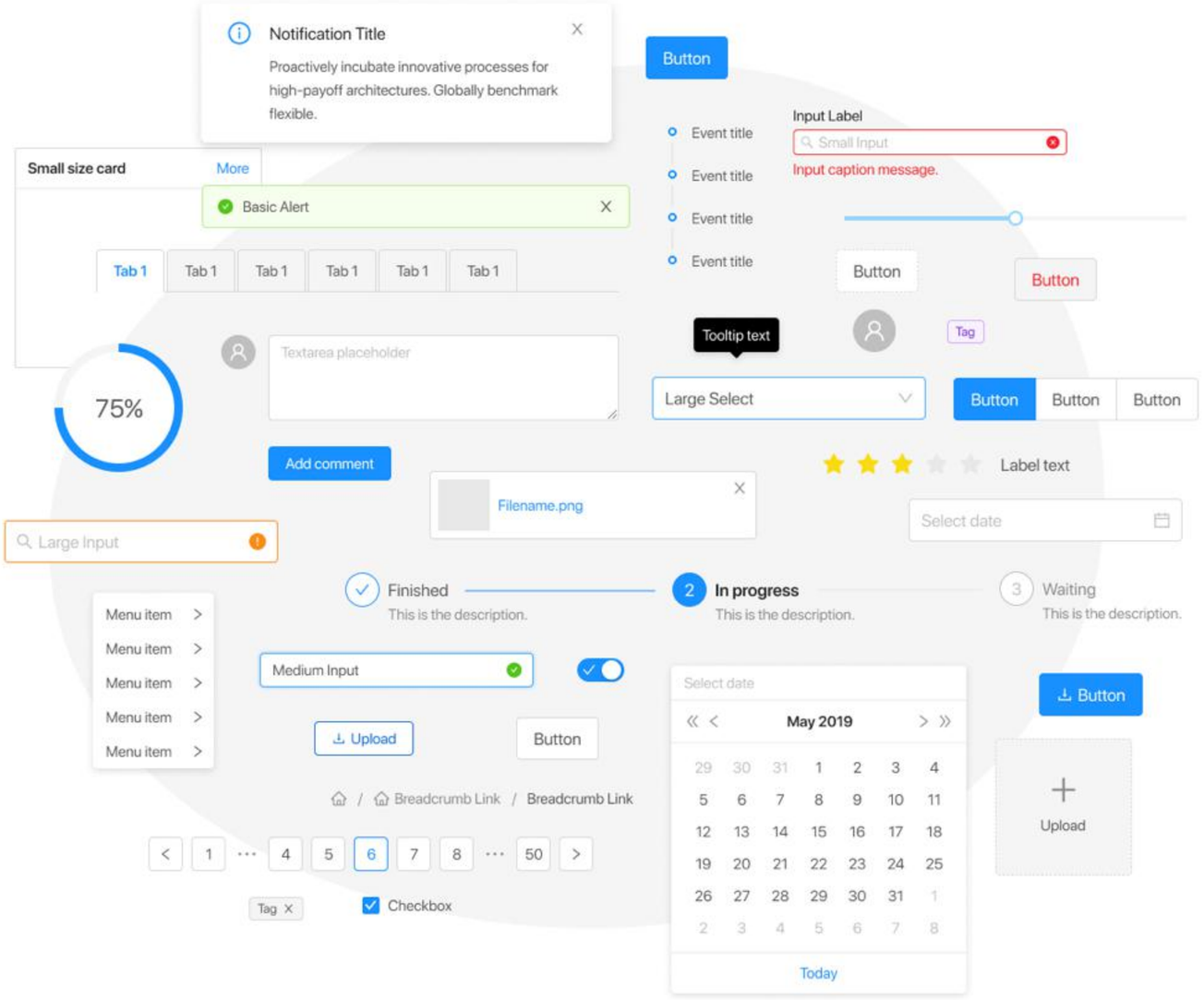
- Twitter Engineering Blog

https://blog.twitter.com/engineering/en_us/topics/infrastructure/2019/buildingfasterwithcomponents.html



✨Component Library✨

@leeerob


Notification Title
Proactively incubate innovative processes for high-payoff architectures. Globally benchmark flexible.
Button
Small size card
More
Basic Alert
Event title
Event title
Event title
Event title
Input Label
Small Input
Input caption message.
Tab 1
Tab 1
Tab 1
Tab 1
Tab 1
Tab 1
Button
Button
Tooltip text
Tag
75%
Textarea placeholder
Large Select
Button
Button
Button
Add comment
Label text
Filename.png
Select date
Large Input
Finished
This is the description.
2
In progress
This is the description.
3
Waiting
This is the description.
Menu item
Menu item
Menu item
Menu item
Menu item
Medium Input
Upload
Button
Select date
May 2019
29 30 31 1 2 3 4
5 6 7 8 9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30 31 1
2 3 4 5 6 7 8
Today
Button
Upload
Breadcrumb Link / Breadcrumb Link
1 4 5 6 7 8 50
Tag
Checkbox

Component-Driven Development 2019

DESIGN

Figma

UXPin

Sketch

webflow

Xd

Abstract

COMPOSITOR

DEVELOP

Storybook

docz

React Styleguidist

Bootstrap

Electrode

TEST

chromatic

USE

NEXT.JS

NUXTJS

Gatsby

stencil

and everything built atop React, Vue, Angular, etc.

DOCUMENT

invision

chroma

ZEPLIN

bit

by @domyen + @mshilman

Component Library Goals

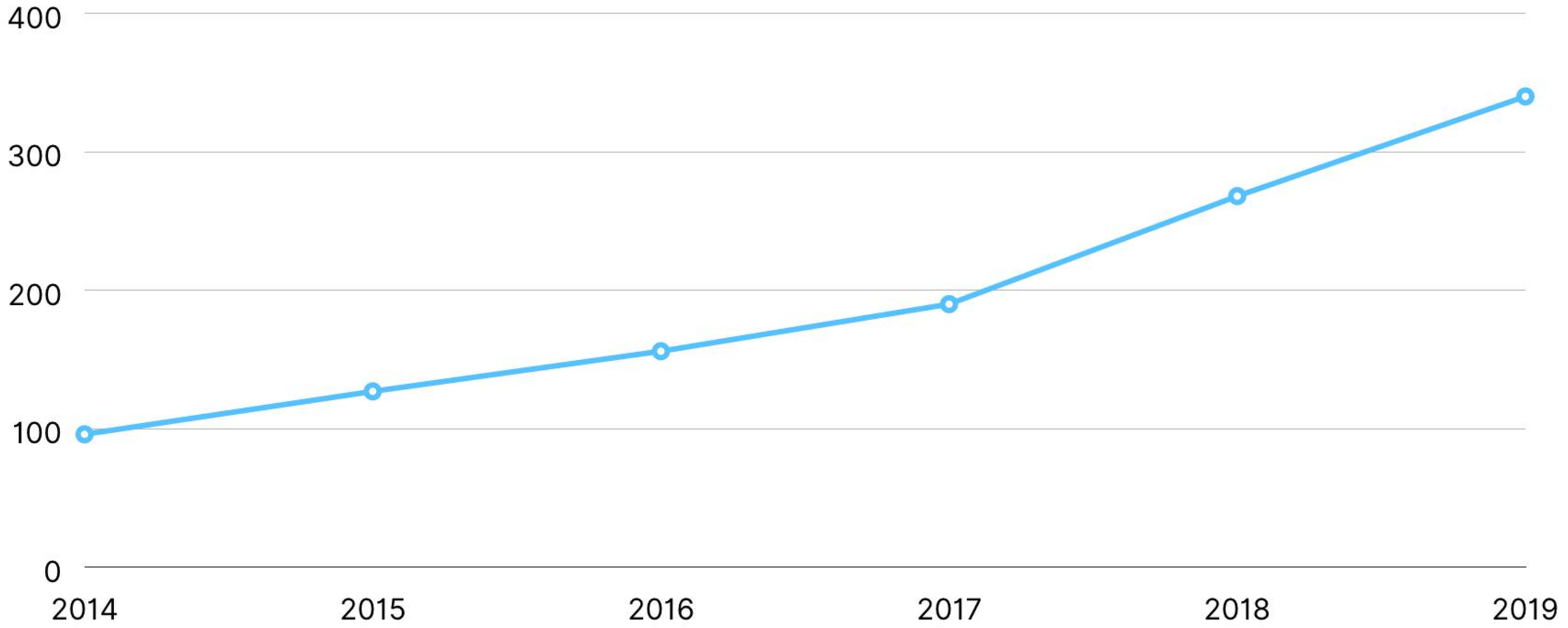
Create consistency across the organization

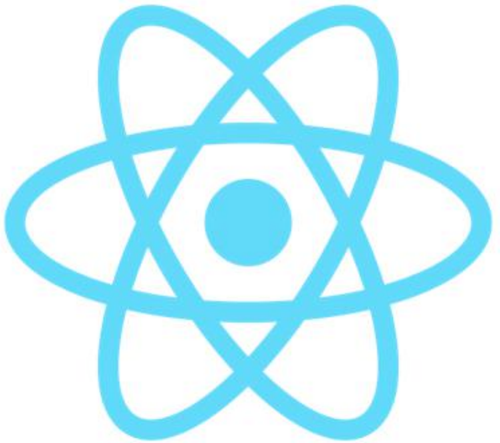
Improve the overall quality of our codebase

Increase developer efficiency

Build vs Open Source? 🤔

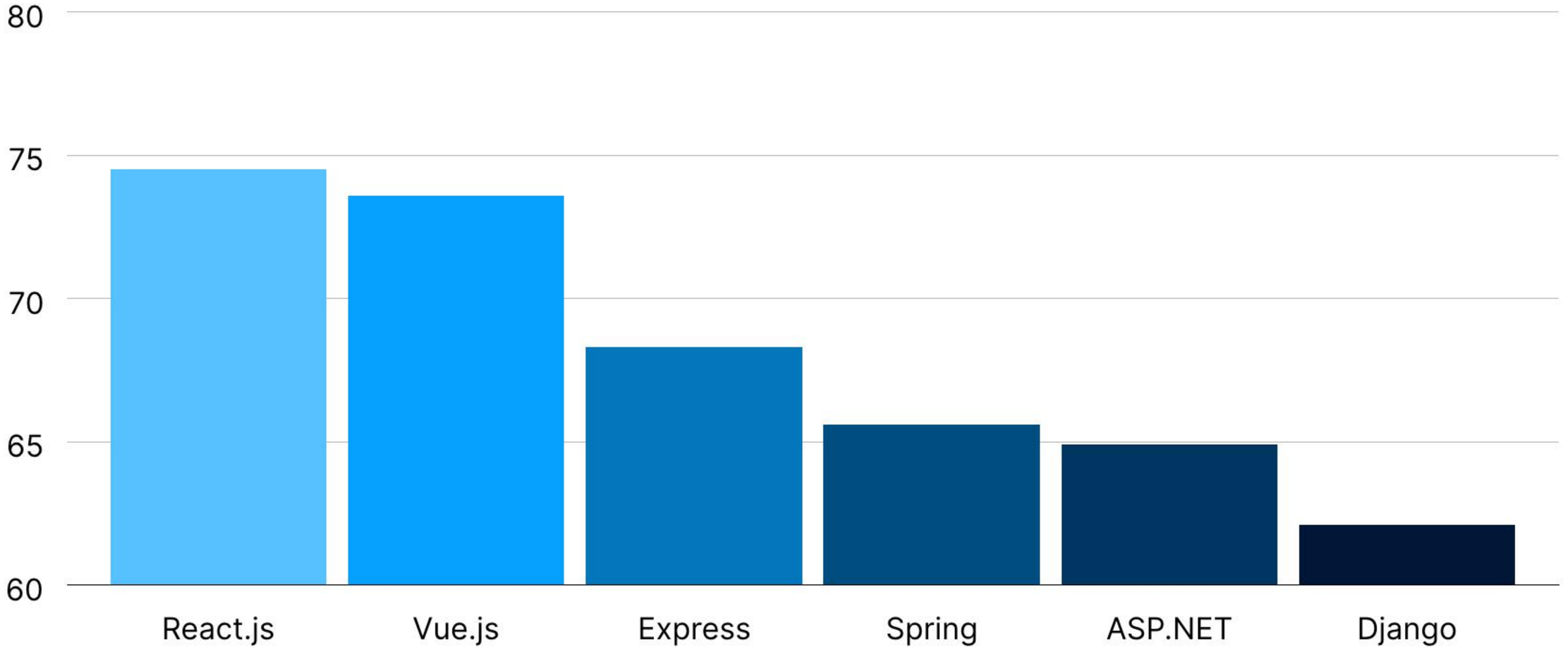
Hy-Vee Tech Employee Count





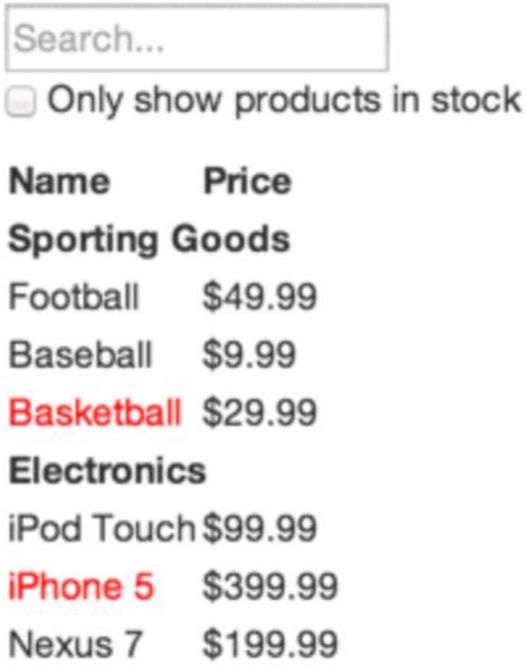
We chose **React.**

Most Loved Web Frameworks



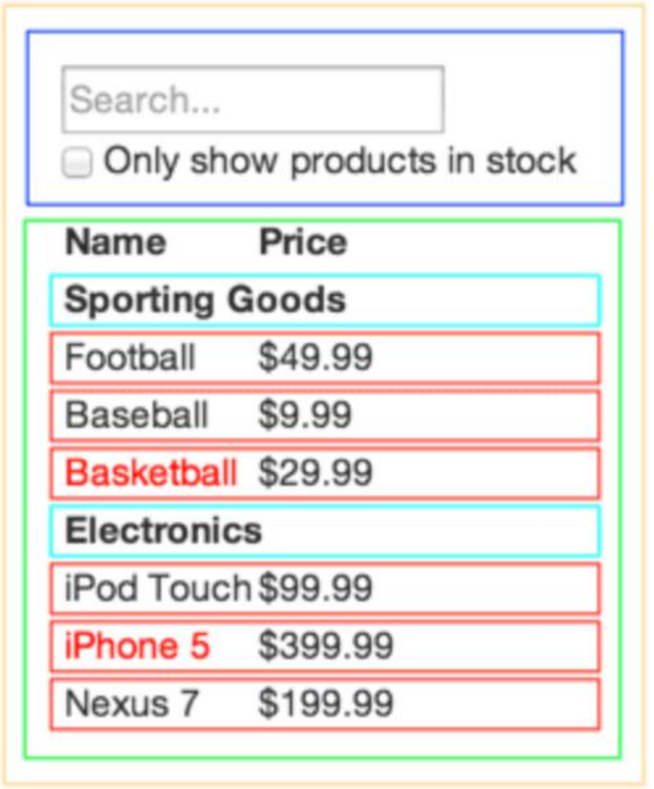
insights.stackoverflow.com/survey/2019

“Thinking in React”



React is **component based.**

“Thinking in React”



- `FilterableProductTable`
  - `SearchBar`
  - `ProductTable`
    - `ProductCategoryRow`
    - `ProductRow`

Creating Our First Component

vs.

vs.

Styled Components 💅

- ☑ ES6 Template Literals
- ☑ Feels like writing traditional CSS vs. JavaScript objects
- ☑ Scoped styles eliminate conflicts
- ☑ Auto-prefixing vendor styles
- ☑ Theming

```
const Button = styled.button`
    background-color: #000;
    border-radius: 4px;
    color: #fff;
    height: 40px;
    line-height: 38px;
    min-width: 200px;
    outline: none;
    overflow: hidden;
    text-align: center;
    text-decoration: none;
    text-transform: capitalize;

    :hover {
        color: #000;
        border: 1px solid #000;
        background-color: #fff;
    }
`;
```

LR

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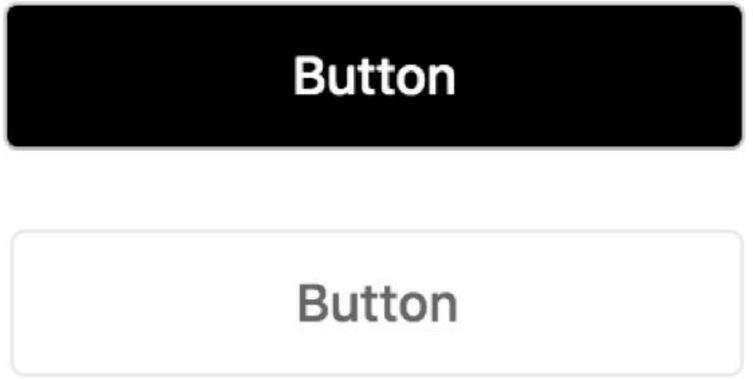
State	Fill	Outline	Ghost
Default	BUTTON	BUTTON	Default
Hover	BUTTON	BUTTON	Hover
Active	BUTTON	BUTTON	Active
Focus	BUTTON	BUTTON	Button
Disabled	BUTTON	BUTTON	Button

```
${(props) =>
    props.variant === APPEARANCES.SECONDARY &&
    css`
        color: #666;
        background-color: white;
        border: 1px solid #eaeaea;

        :hover {
            color: #fff;
            border: 1px solid #000;
            background-color: #000;
        }
    `}
```


Button
Button

```
const APPEARANCES = {
    PRIMARY: 'primary',
    SECONDARY: 'secondary'
};

Button.propTypes = {
    disabled: PropTypes.bool.isRequired,
    variant: PropTypes.oneOf(Object.values(APPEARANCES))
};

Button.defaultProps = {
    disabled: false,
    variant: APPEARANCES.PRIMARY
};
```

Design system 10.4.90

Search docs

VISUALIZATIONS

- Charts
  - LineGraph
  - PieChart
  - SparkLine
  - BarChart
    - Histogram
    - Vertical bar
    - Horizontal bar
- Interstitial
  - Spinners
  - Progress indicators
    - ProgressBar
    - ProgressCircle
  - Modal
- SVGImage
- Tooltips
- Badges
- Buttons

PRIMITIVES

- Axis
- Label
- Ticks
- Animation
- Color
- Type
- Draggers

import { Histogram } from '@storybook/dataviz'

+ 10 Share

Histogram

`Histogram` is a component that renders a set of bars on polar axes. `Histogram` manages chart layout, positioning, title, given a data object. Use when you need to group data into ranges so that users can understand and make decisions on complex information.

Hide code

```
<Histogram data={sampleData} normalize appearance="minimal" />
```

Name	Description	Default	Knobs

LR

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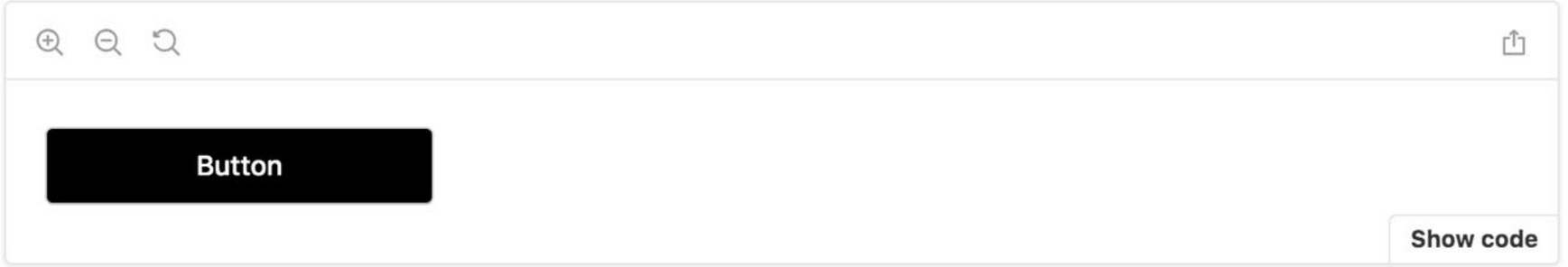
```jsx
import React from 'react';

import Button from '.';

export default {
    component: Button,
    title: 'Design System|Button'
};

export const primary = () => <Button>{'Button'}</Button>;

export const secondary = () => <Button variant="secondary">{'Button'}</Button>;
```

Button



Name	Description	Default
disabled*		false
variant		"primary"

Stories

Secondary

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```
describe('Button', () => {
    test('primary', () => {
        const tree = renderer.create(
            <Button>{'Test'}</Button>
        ).toJSON();

        expect(tree).toMatchSnapshot();
    });

    test('secondary', () => {
        const tree = renderer.create(
            <Button variant="secondary">{'Test'}</Button>
        ).toJSON();

        expect(tree).toMatchSnapshot();
    });
});
```

Component

Button.js

Test

Button.spec.js

Snapshots

__snapshots__/Button.spec.js.snap

```
    background-color: #000;
    border-radius: 4px;
-   color: #fff;
+   color: #eee;
    cursor: pointer;
    -webkit-flex-shrink: 0;
    -ms-flex-negative: 0;
    flex-shrink: 0;
    font-size: 0.88rem;
```

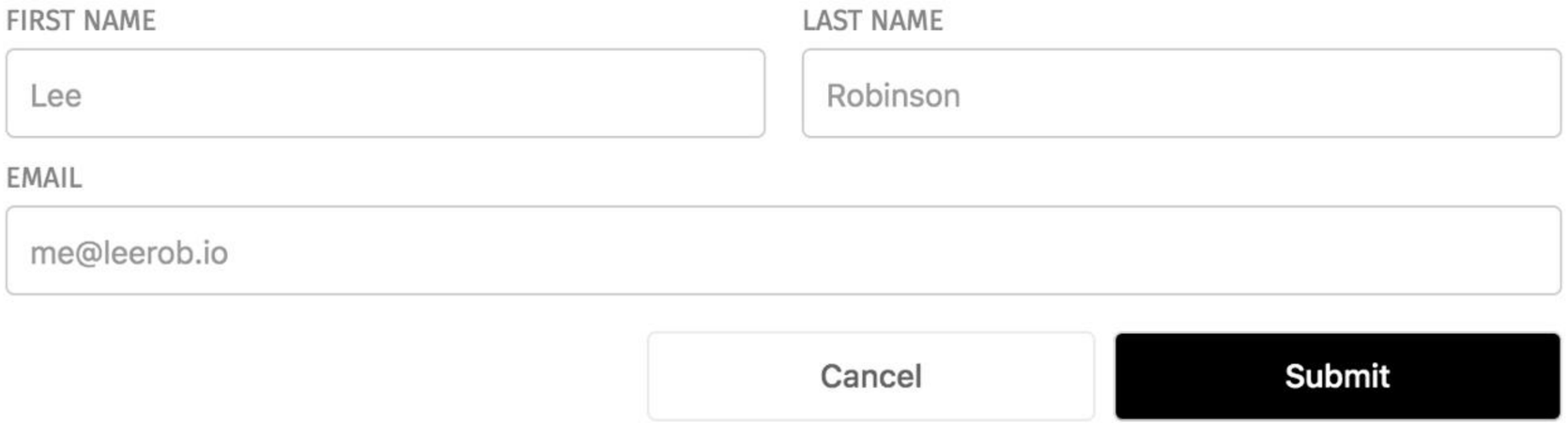
```
const Input = ({disabled, id, label, placeholder}) => (
    <StyledContainer>
        <StyledLabel htmlFor={id}>{label}</StyledLabel>
        <StyledInput disabled={disabled} id={id} placeholder={placeholder} type="text" />
    </StyledContainer>
);

Input.propTypes = {
    disabled: PropTypes.bool,
    id: PropTypes.string.isRequired,
    label: PropTypes.string.isRequired,
    placeholder: PropTypes.string
};

Input.defaultProps = {
    disabled: false
};
```

Input

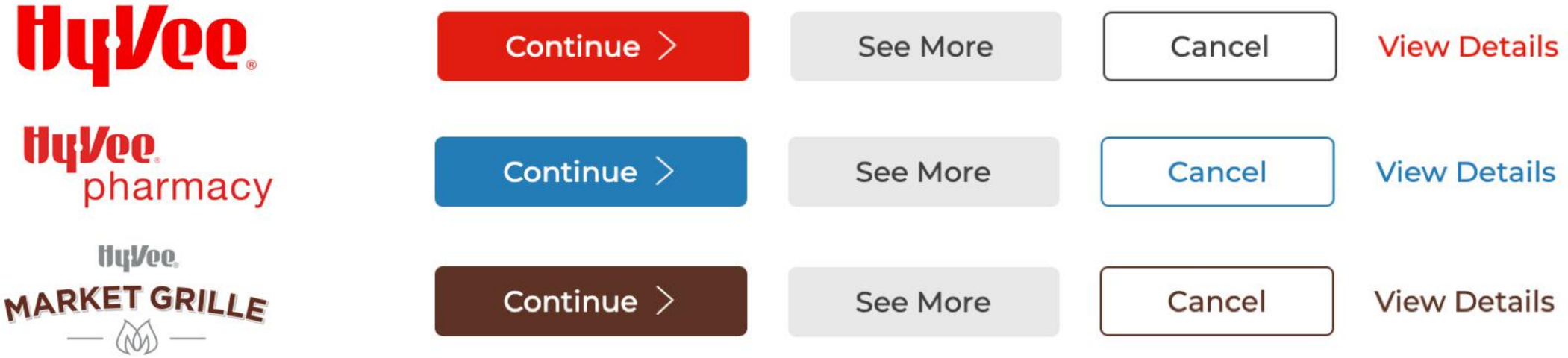
Name	Description	Default
disabled	`bool`	"false"
id*	`string`	-
label*	`string`	-
placeholder	`string`	-

Review Process

Stable	Beta	Alpha
✅ Development	✅ Development	⚠️ Development
✅ API	⚠️ API	⚠️ API
✅ Design	⚠️ Design	⚠️ Design




```
<>
    <InputContainer>
        <Input id="first-name" label="First Name" placeholder="Lee" />
        <Input id="last-name" label="Last Name" placeholder="Robinson" />
    </InputContainer>
    <Input id="email" label="Email" placeholder="me@leerob.io" />
    <ButtonContainer>
        <Button variant="secondary">{'Cancel'}</Button>
        <Button>{'Submit'}</Button>
    </ButtonContainer>
</>
```



Consumer

```
import {ThemeProvider} from 'styled-components';
import {Button} from '@hy-vee/web-core';
import {pharmacy} from '@hy-vee/themes';

<ThemeProvider theme={pharmacy}>
    <Button>{'Hello!'}</Button>
</ThemeProvider>;
```

Theme

```
export const pharmacy = {
    outline: '#237CB5',
    outlineHover: '#FFF',
    primary: '#237CB5',
    primaryHover: '#004982',
    primaryLight: blue.lightBlue,
    secondary: grey[200],
    secondaryHover: grey[300]
};
```

LR

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Ship it! 🚀

```
yarn build
yarn test
yarn release
```

required *

First Name *

Last Name *

Company Name

Street Address *

Apt / Suite #

City *

State *

Select State

Zip Code *

Phone *

Cancel

Save Address

Verify Address

We found multiple results matching your address. Please select the correct address.

Verified Addresses:

Gertrude Moran
1159 Aruen Mill
Jazizo, NM 20963

Gertrude Moran
646 Bahmet Plaza
Nemorvo, SD 32880

You Entered:

Gertrude Moran
587 Makmi Boulevard
Ocuminu, WV 56686

Go Back

Use Selected Address

Branch: master ▾ **ui-components** / **packages** /

Create new file | Upload files | Find file | History

LRobinson chore(release): Publish. ··· Latest commit `4fcd33a` 5 hours ago

..

icons	chore(release): Publish.	a month ago
internal-navigation	chore(release): Publish.	5 hours ago
navigation	chore(release): Publish.	5 hours ago
themes	chore(release): Publish.	5 hours ago
web-address-form	chore(release): Publish.	5 hours ago
web-core	chore(release): Publish.	5 hours ago
web-ecommerce	chore(release): Publish.	5 hours ago
web-form	chore(release): Publish.	5 hours ago
web-store-select	chore(release): Publish.	5 hours ago
web-tabs	feat: Create `@hy-vee/icons` package. (#277)	5 months ago

yarn build
yarn test
yarn release
BABEL
yarn build
yarn test
yarn release
BABEL
yarn build
yarn test
yarn release
BABEL
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yarn test
yarn release
BABEL

Over 100 packages 😳

Branch: **master** ▾ **babel** / **packages** /

Create new file | Upload files | Find file | History

FND and **nicolo-ribaudo** Fix typo in changelog (#10409) [skip ci] ··· ✓ Latest commit `daf25af` 18 hours ago

..

babel-cli	v7.6.0	3 days ago
babel-code-frame	v7.5.5	2 months ago
babel-core	Remove circular dependency (#10405)	yesterday
babel-generator	v7.6.0	3 days ago
babel-helper-annotate-as-pure	add access public to all packages [skip ci] (#8573)	last year
babel-helper-bindify-decorators	v7.1.0	last year
babel-helper-builder-binary-assig...	v7.1.0	last year
babel-helper-builder-react-jsx	v7.3.0	8 months ago
babel-helper-call-delegate	v7.4.4	5 months ago
babel-helper-create-class-feature...	v7.6.0	3 days ago
babel-helper-define-map	v7.5.5	2 months ago
babel-helper-explode-assignable-...	v7.1.0	last year

Lerna

A tool for managing JavaScript projects with multiple packages.

@leeerob

Uber
ZEIT
BABEL

Why Monorepo?

Single lint, build, test, and release process

Easier to coordinate changes across modules.

Better developer experience.

```
{
    "packages": ["packages/*"],
    "npmClient": "yarn",
    "useWorkspaces": true,
    "version": "independent"
}
```

lerna.json

```
packages/
├── theme
├── input
└── button
    └── package.json
```

Conventional Commits

fix: The Button was broke, but it is no longer.

feat: Added new variant prop to Button.

BREAKING CHANGE: Removed type prop for Button.

```
➜  ui-components git:(master) release
  ✔ Not publishing from fork
  ✔ On `master` branch
  ✔ No uncommitted changes
  ✔ Have latest remote changes
  ✔ Removing `node_modules`
  ✔ Installing dependencies
  ✔ Bootstraping packages together with lerna
  ✔ Running tests
  ✔ Building
lerna notice cli vundefined
lerna info versioning independent
lerna notice cli vundefined
lerna info versioning independent
lerna info Looking for changed packages since @hy-vee/web-address-form@4.0.6
lerna info ignoring diff in paths matching [ '*.md', '*.json', 'test/**', 'package.json' ]
lerna info getChangelogConfig Successfully resolved preset "conventional-changelog-angular"

Changes:
 - @hy-vee/internal-navigation: 3.0.1 => 3.1.0
 - @hy-vee/nav: 0.2.2 => 0.3.0
 - @hy-vee/themes: 4.0.0 => 4.1.0
 - @hy-vee/web-address-form: 4.0.6 => 4.1.0
 - @hy-vee/web-core: 9.1.4 => 9.2.0
 - @hy-vee/web-ecommerce: 6.0.6 => 6.1.0
 - @hy-vee/web-form: 8.3.5 => 8.4.0
 - @hy-vee/web-store-select: 8.0.5 => 8.1.0

? Are you sure you want to create these versions? Yes
```

Change Log

All notable changes to this project will be documented in this file. See Conventional Commits for commit guidelines.

9.2.0 (2019-09-03)

Features

- Add `onStatusUpdate` prop for store select and debounce input. (#339) (fe6b906)
- Use rem instead of px for typography. (#411) (40fdb6a)

9.1.4 (2019-08-19)

Bug Fixes

- Alerts with no children should not render. (#410) (6cc90f3)

9.1.3 (2019-08-06)

Creating Templates

Hey! 👋

You can view all available components here.

Choose your news! Check out our free newsletters for nutrition tips, fun recipes & the latest deals. Subscribe Today ›

LR

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$2.93

Hy-Vee French Toast Sticks, 18-22 Count

16 oz box

Buy Again

2 in cart

Sponsored

$5.99

Wild Cherry Pepsi, 24pack

12 fl oz cans

On Sale

2 in cart

Sponsored

$0.30 $1.29/lb

Fresh Dole Bananas, 1 each

0.80 lbs

Fuel Saver Earn $1 /gal.

2 in cart
1.60 lbs

$4.99

Asparagus, 1 bunch

≈ 20 pieces

Coupon See Details

2 in cart
2.40 lbs

$8.99 $17.98/lb

Hy-Vee Choice Reserve Beef Ribeye Steak, 1 each

8oz

2 in cart
1 lbs

LR

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Hey! 👋

You can view all available components here

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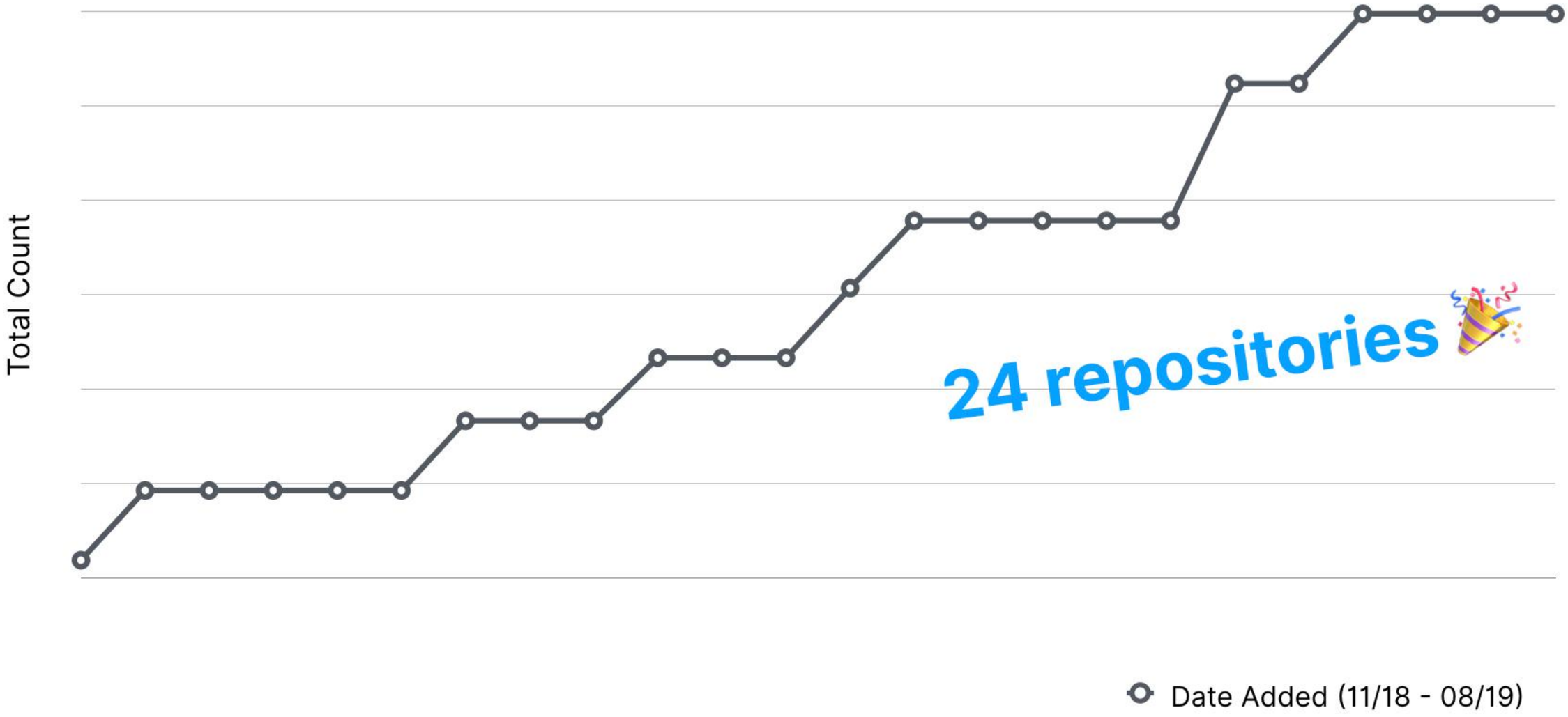
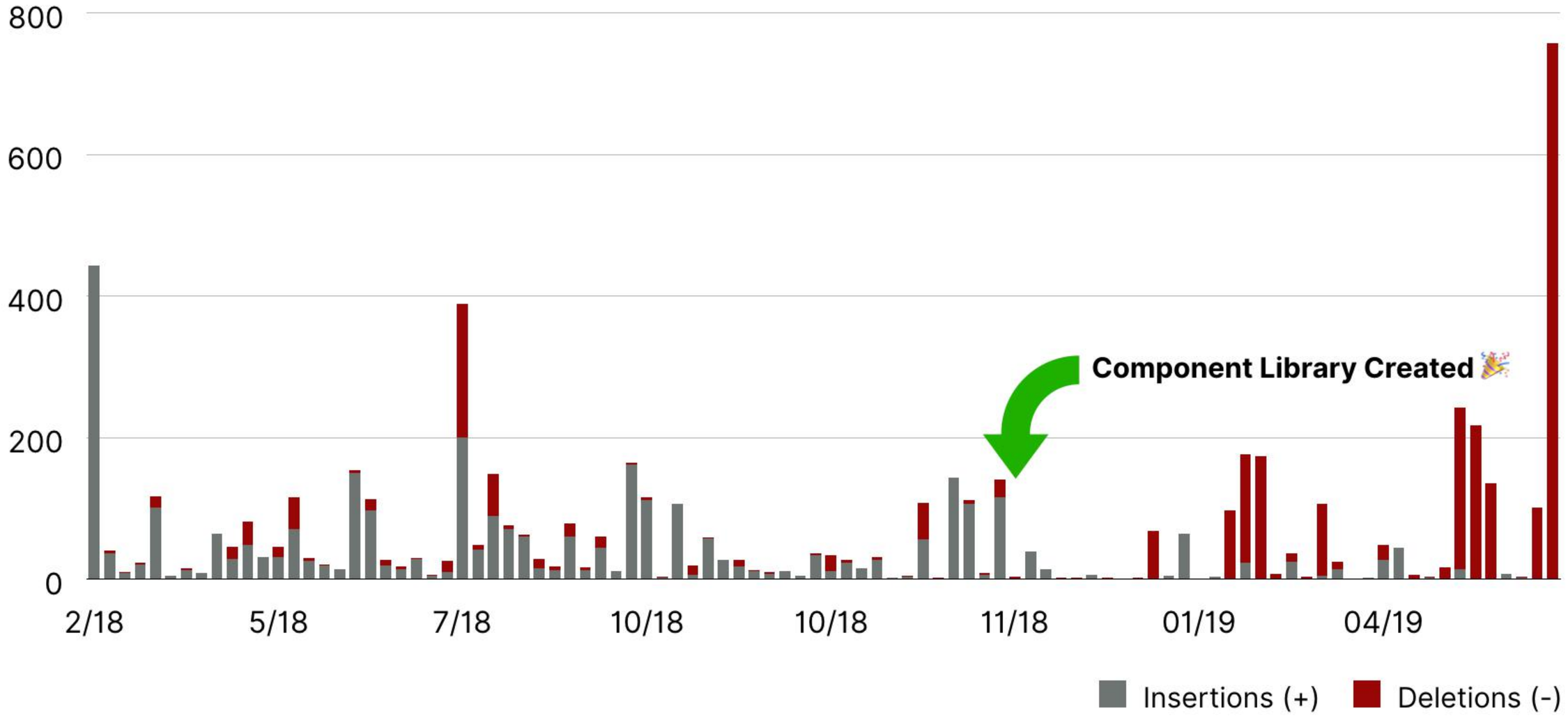
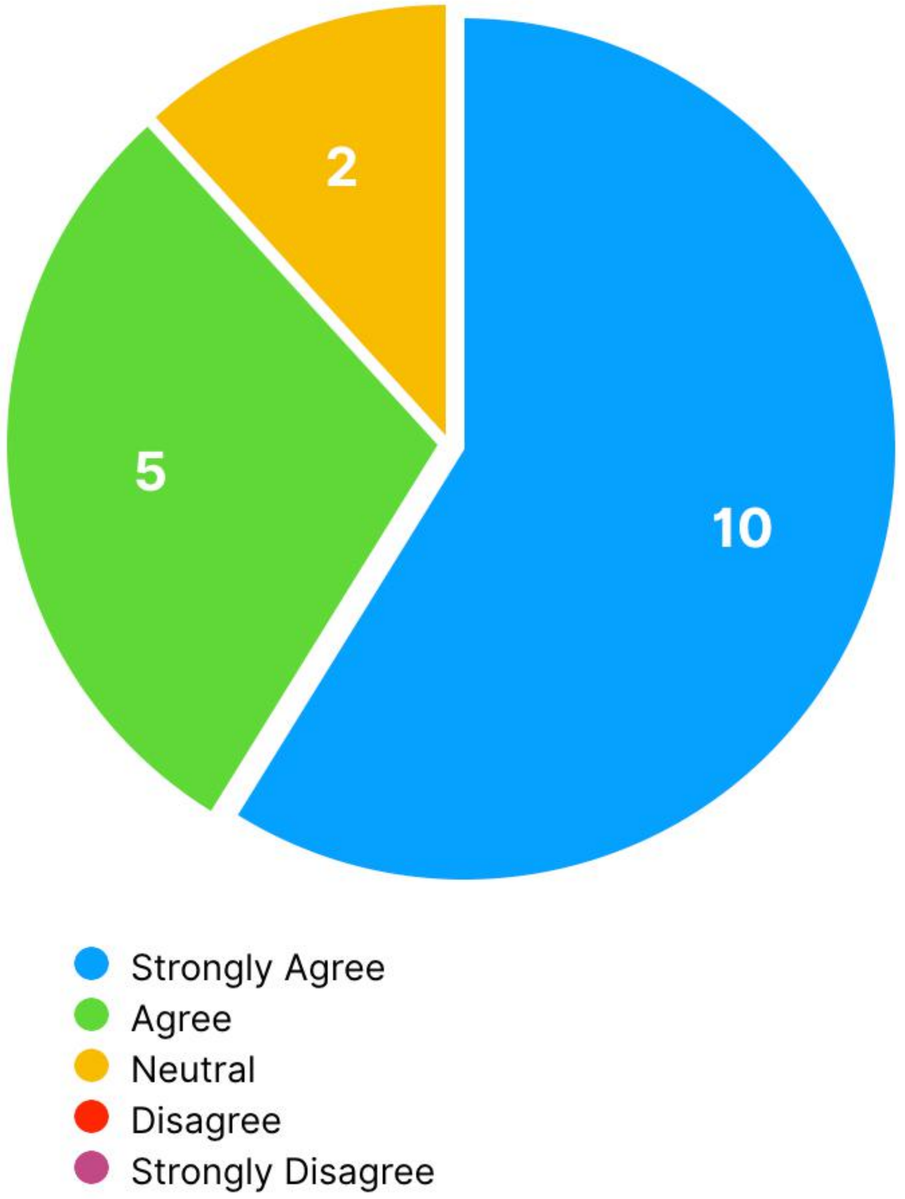
Measuring Success

Component Library Adoption (# of Repositories Created)

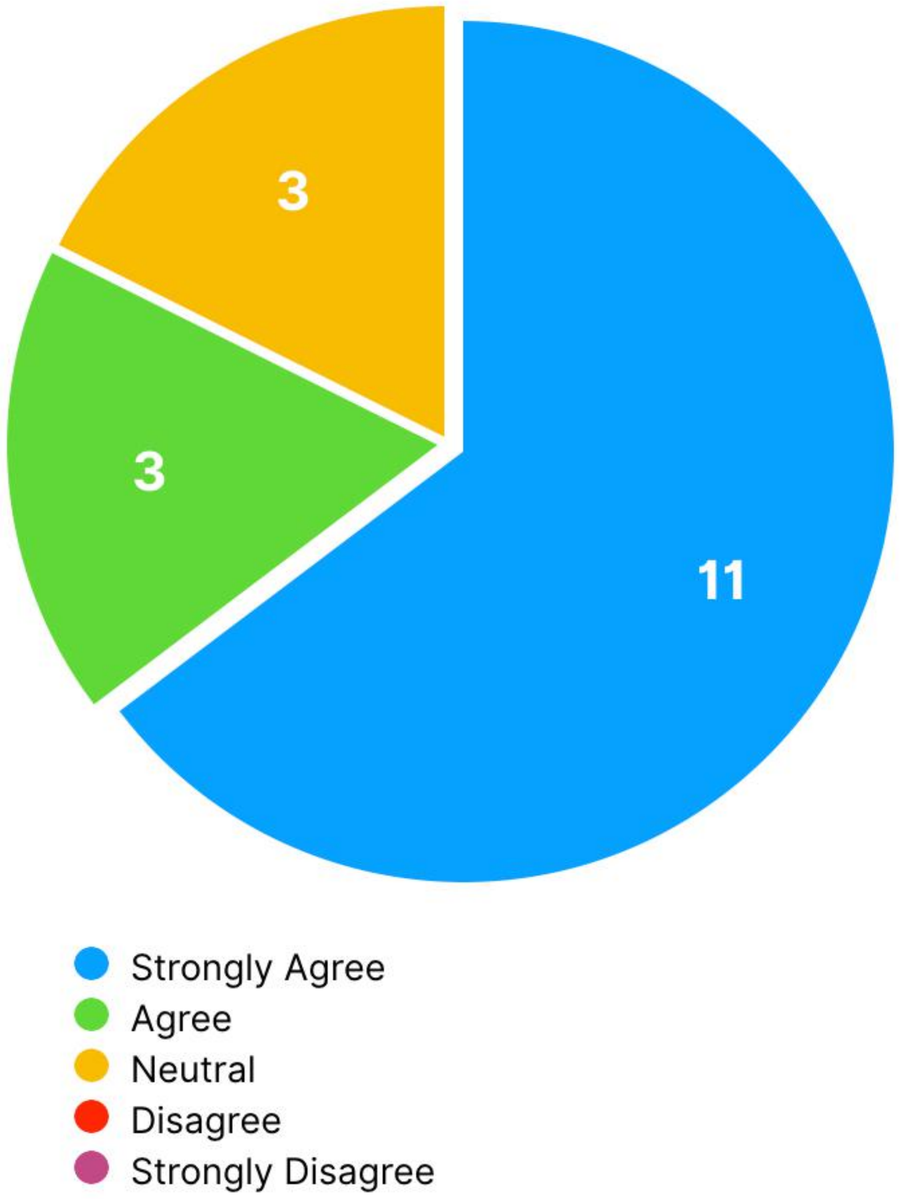


Sass File Modifications in Aisles Online (Past Year)





"... **makes it easier** for me to implement or design a **high-quality** user interface."



"... helps me implement or design features **more quickly**."

Conclusion

Create consistency across the organization

Improve the overall quality of our codebase

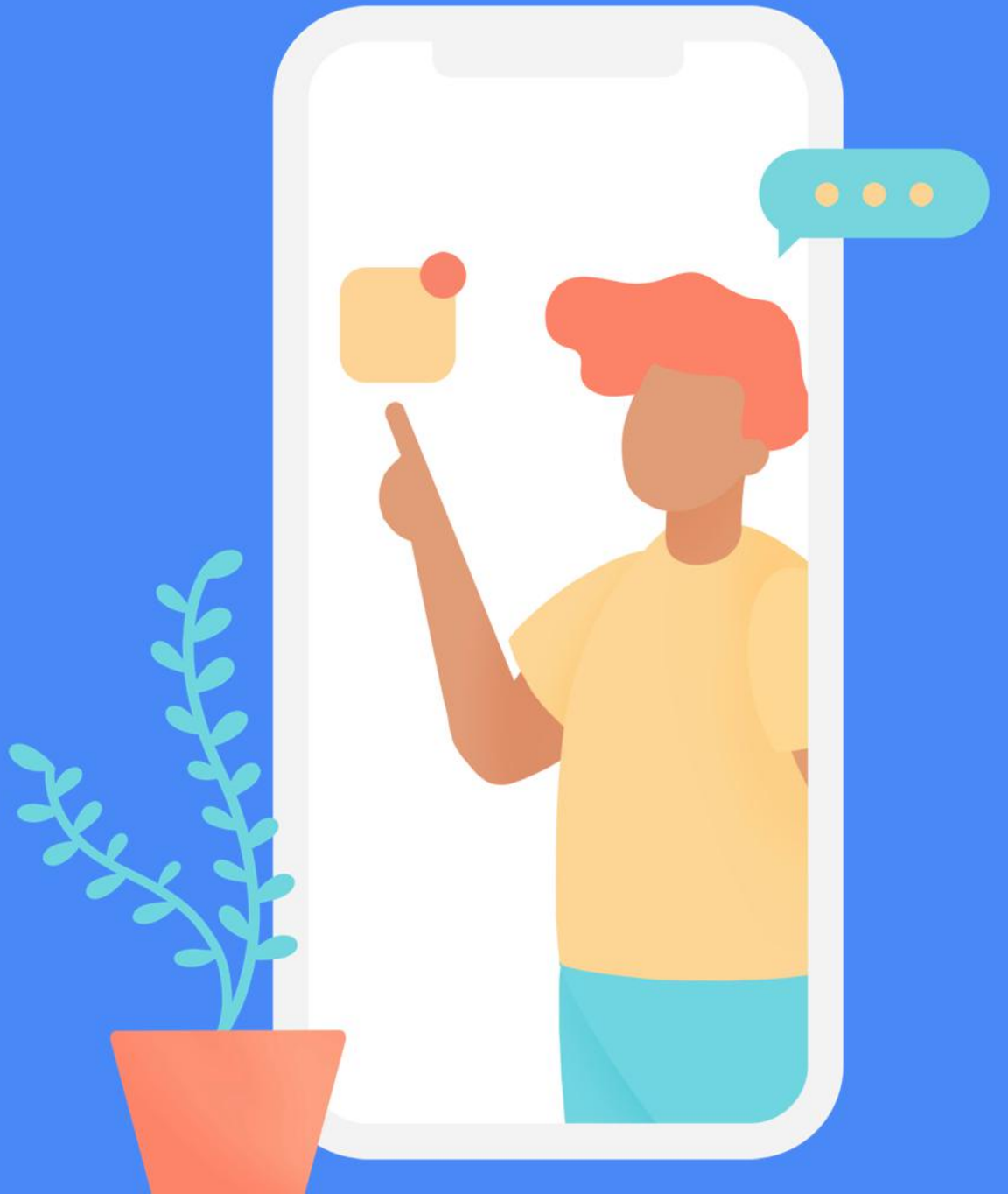
Increase developer efficiency

30+ Contributors 🙌

https://github.com/Hy-Vee/lerna-yarn-workspaces-monorepo

Thank you! 👋

@leeerob



LR