

Building Component Libraries with a Monorepo

Lee Robinson

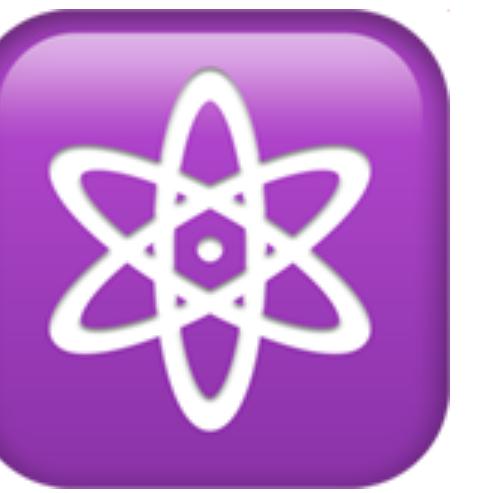
Developer, writer, and UI/UX enthusiast



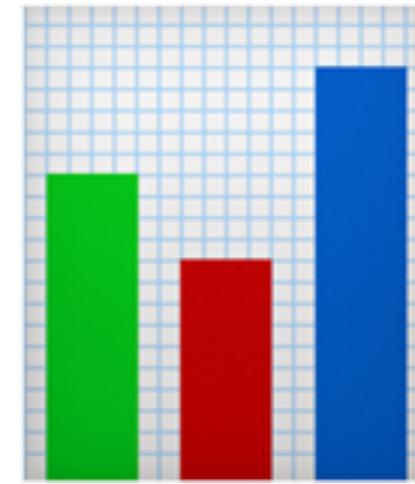
Overview



The Problem



The Solution

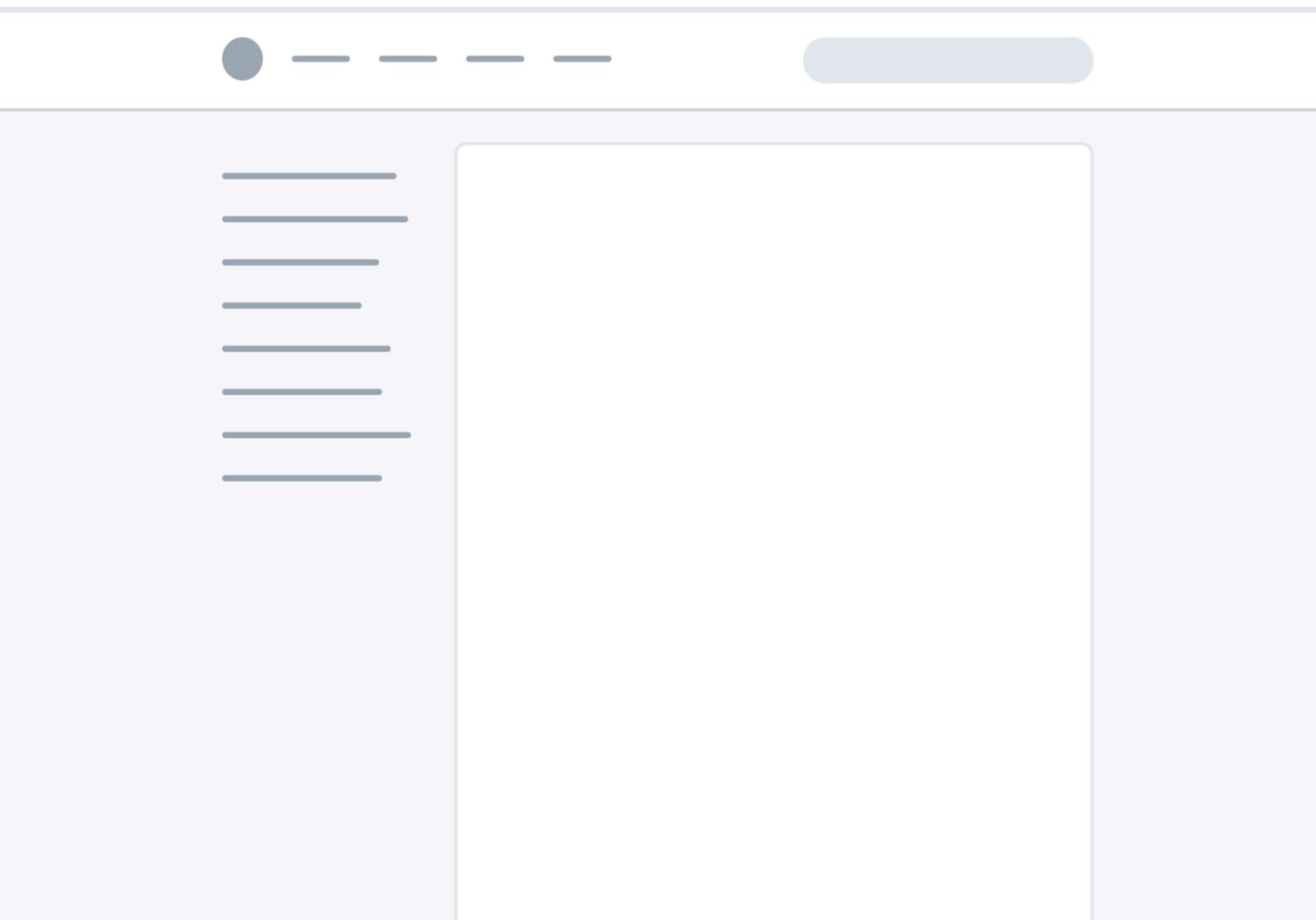
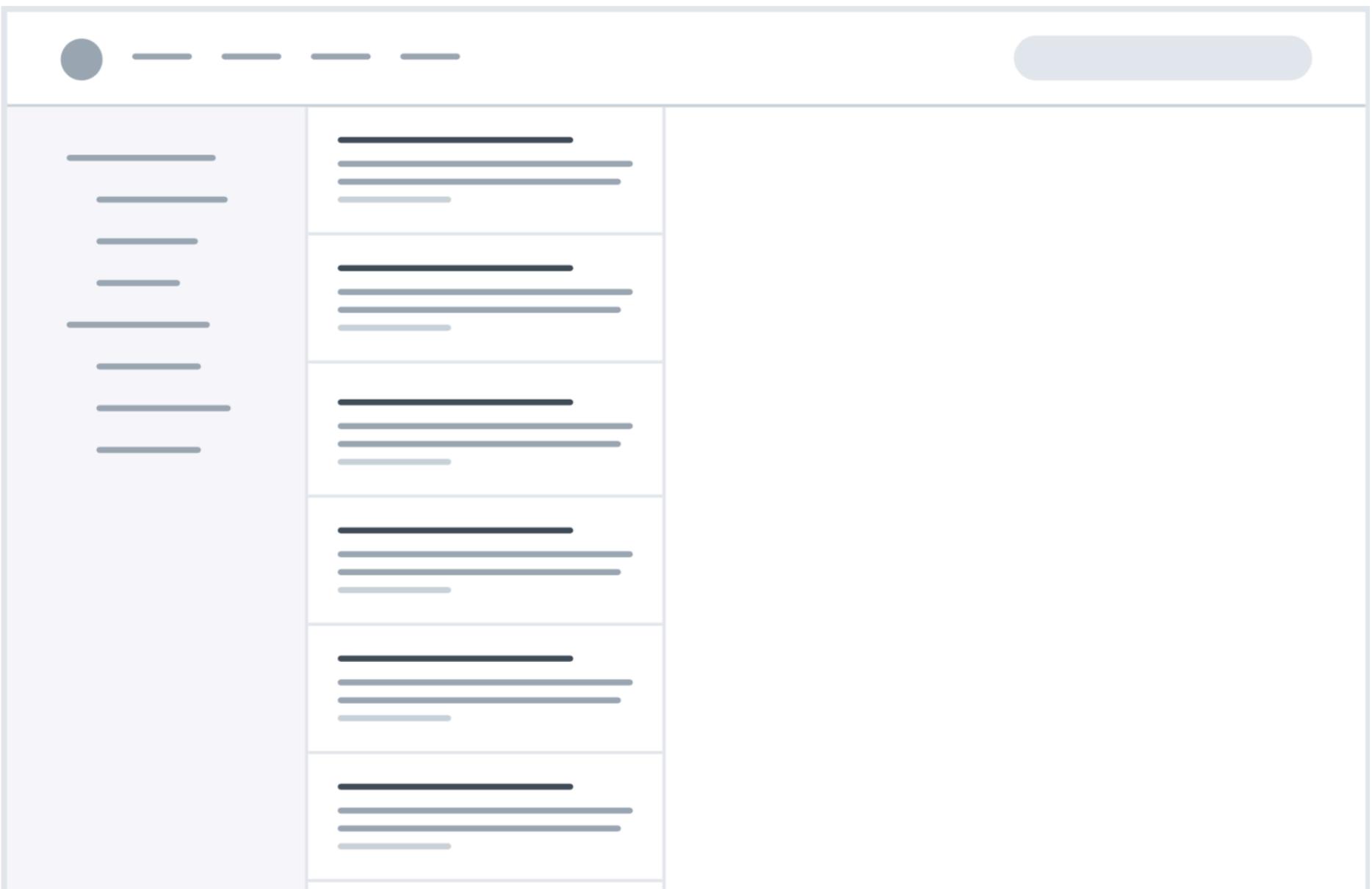
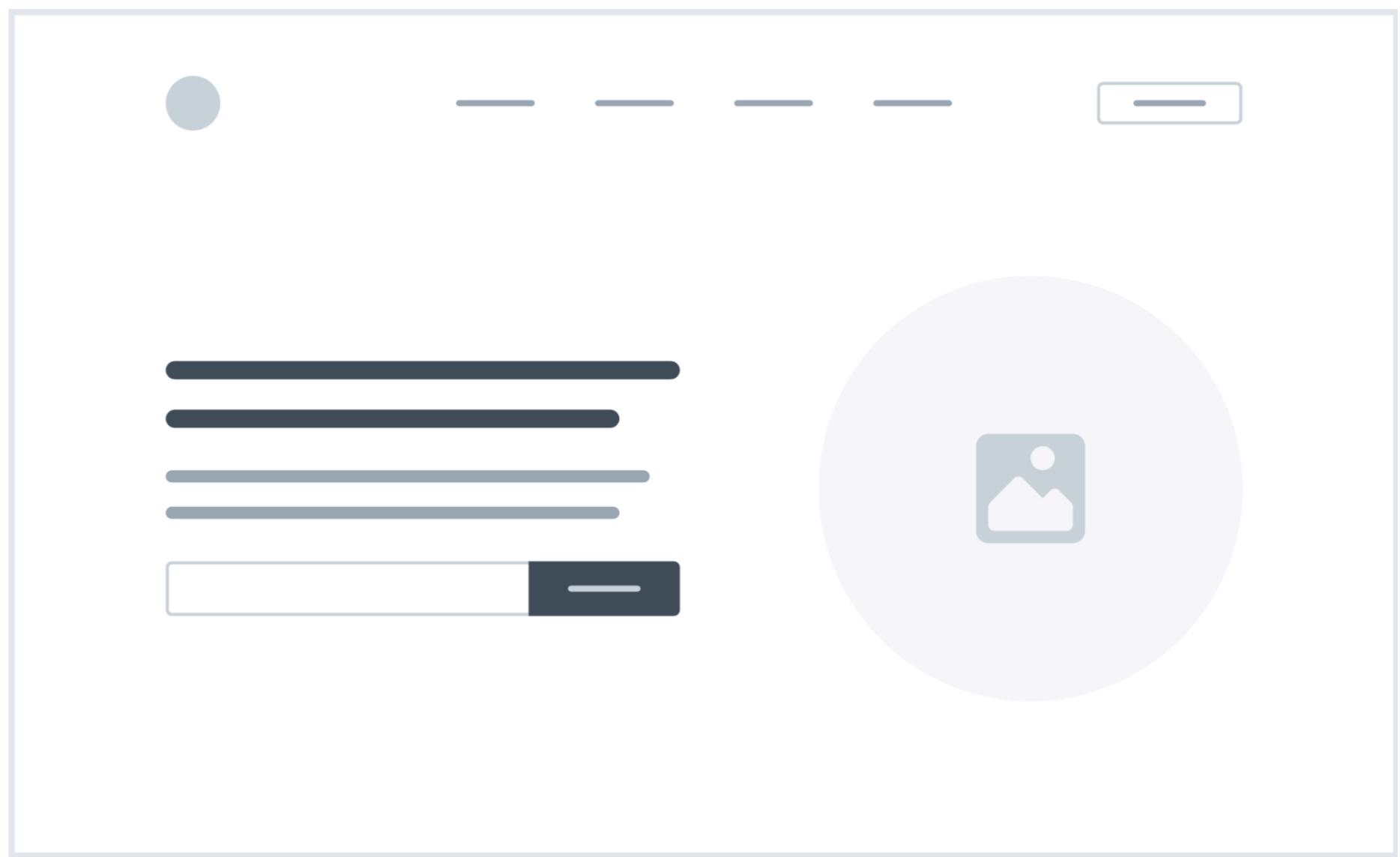


The Results

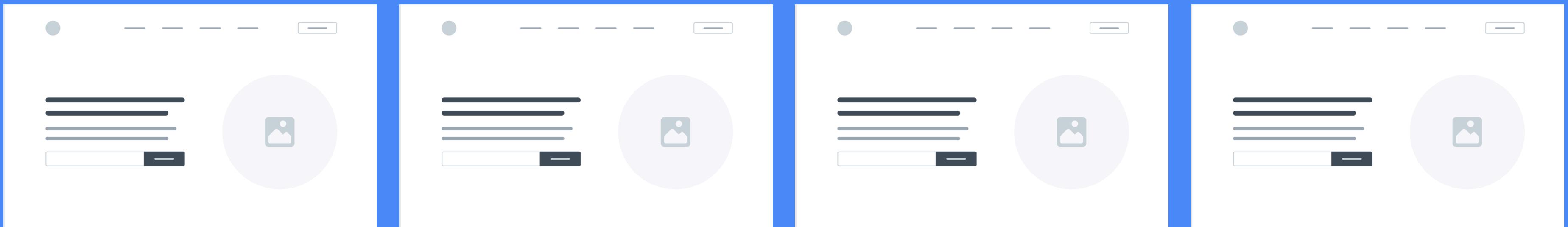


— — — —

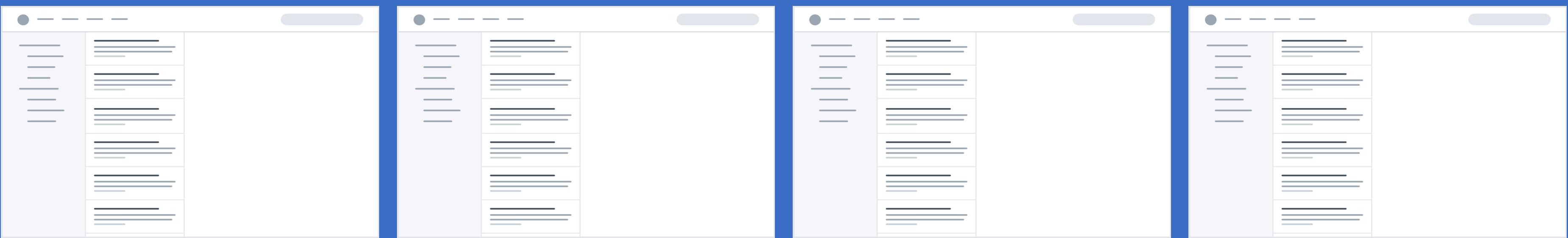




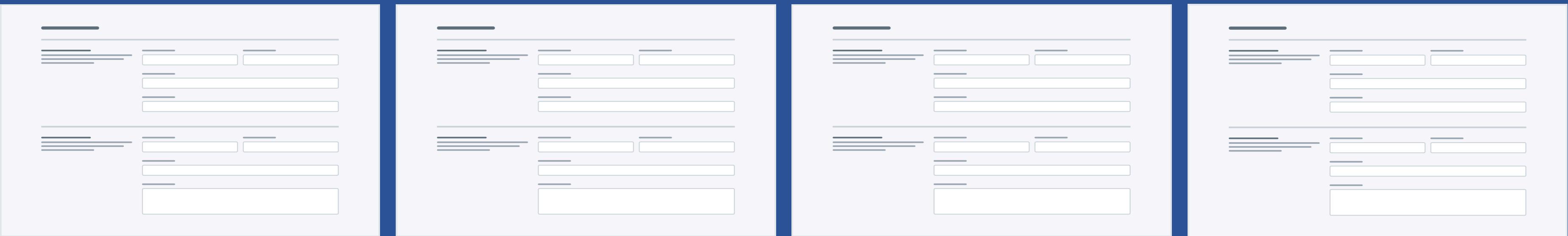
Team A



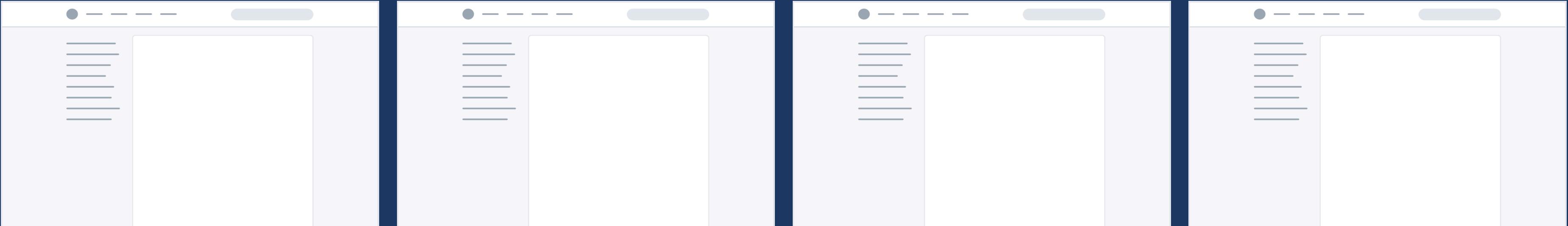
Team B



Team C

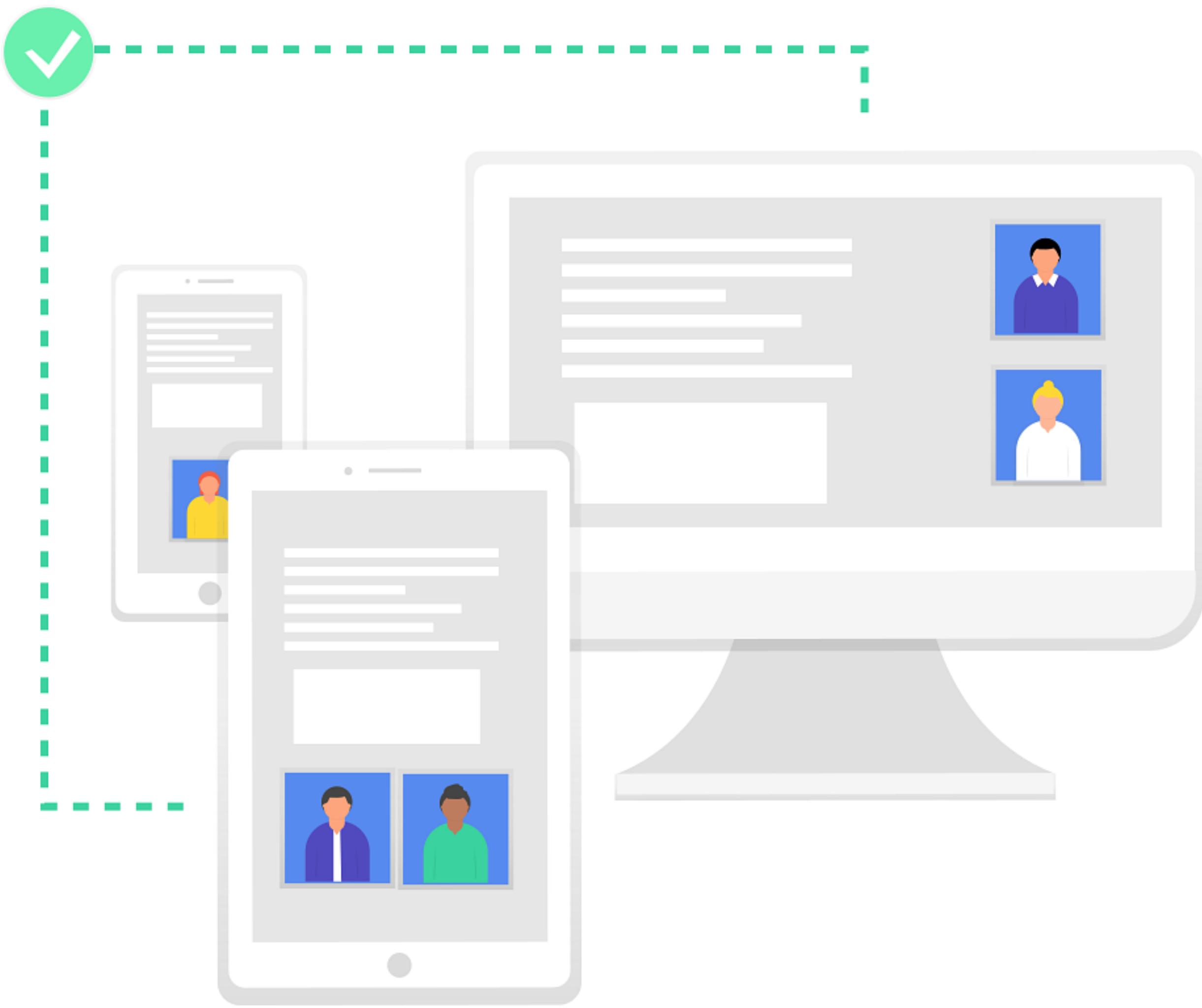


Team D

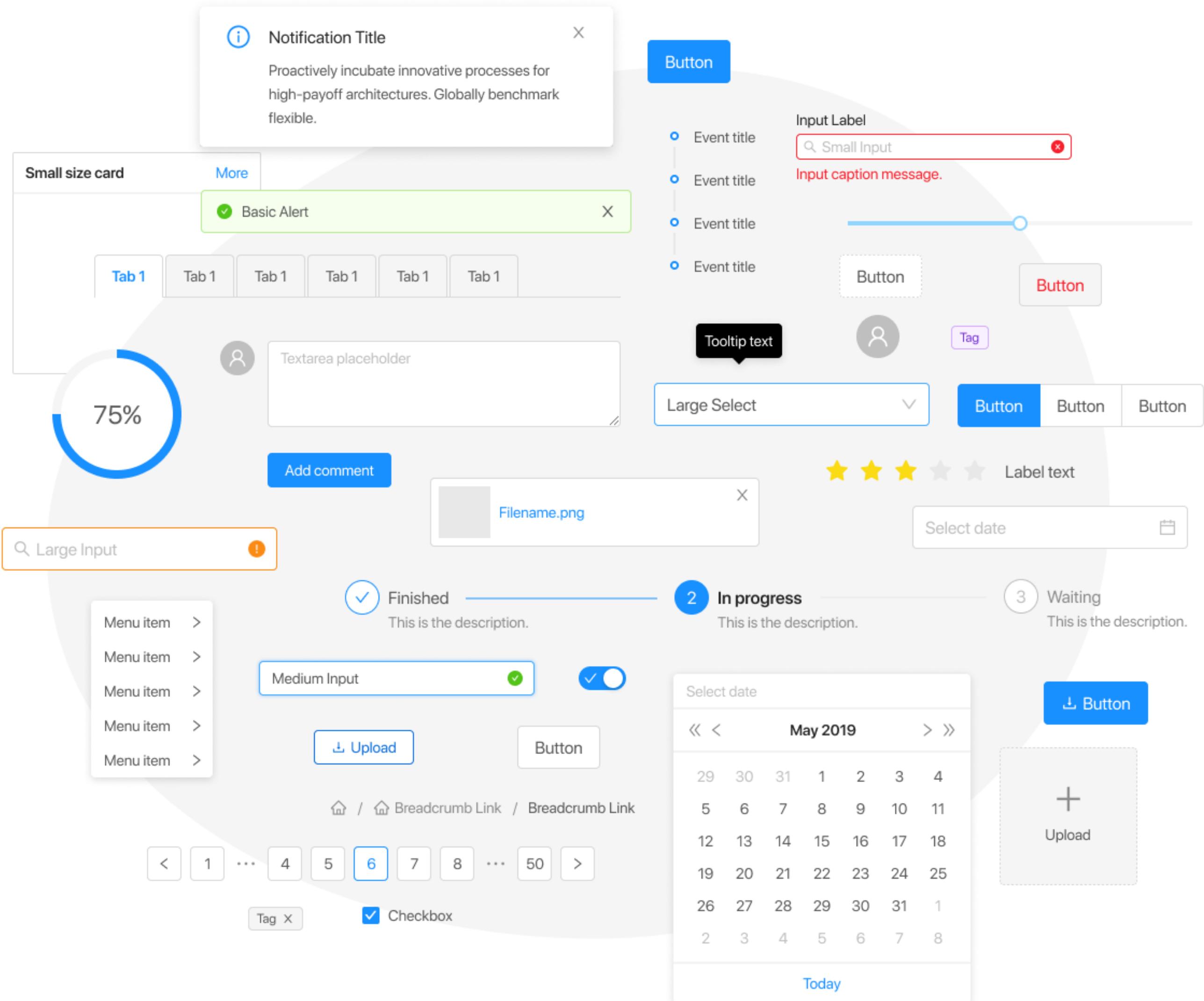


“Because the legacy website had no universal button component and many different variations even within re-used button code, this involved manually updating and visually verifying 442 different instances of buttons.”

- Twitter Engineering Blog



Component Library



Component-Driven Development 2019

DESIGN



Sketch

webflow



COMPOSITOR

LR

DEVELOP

S Storybook



React Styleguidist



B Bootstrap



Electrode

TEST



chromatic

USE



Gatsby



stencil

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

DOCUMENT



by @domyen + @mshilman

@leerob

Component Library Goals



Create
consistency
across the
organization



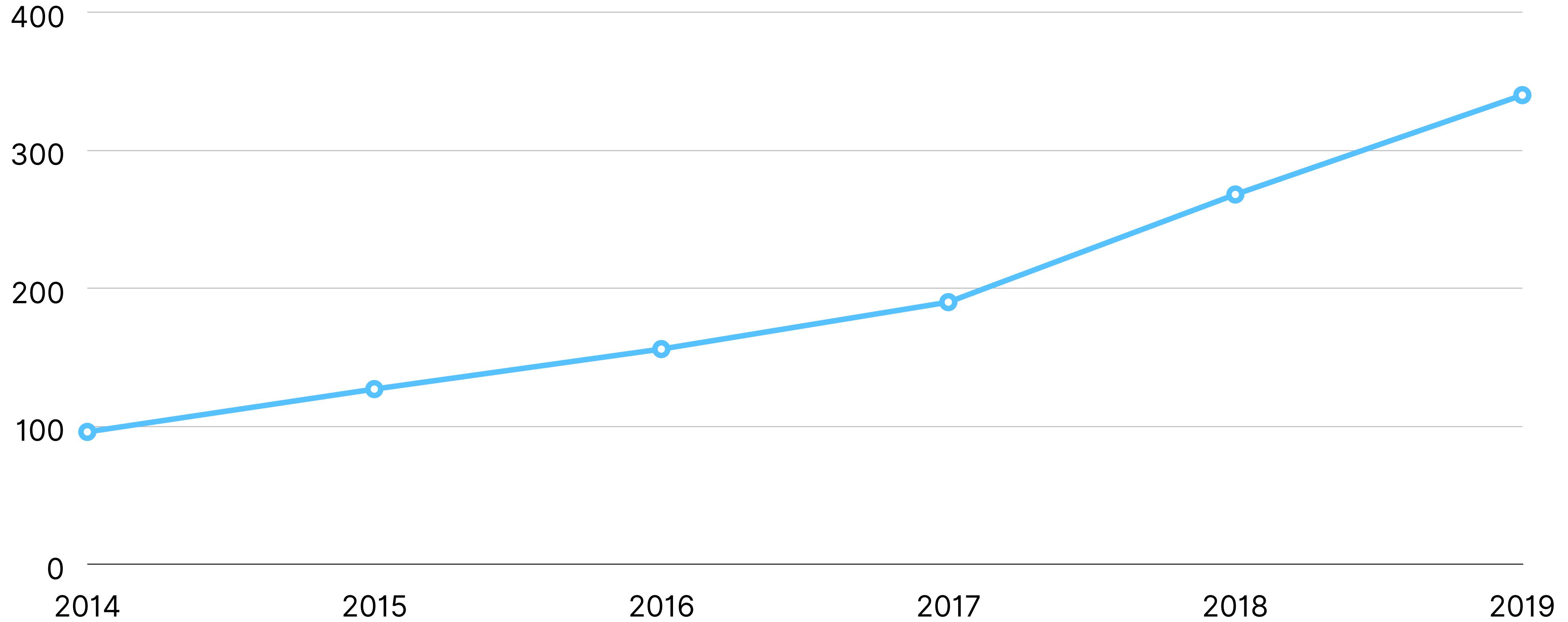
Improve the
overall quality of
our codebase

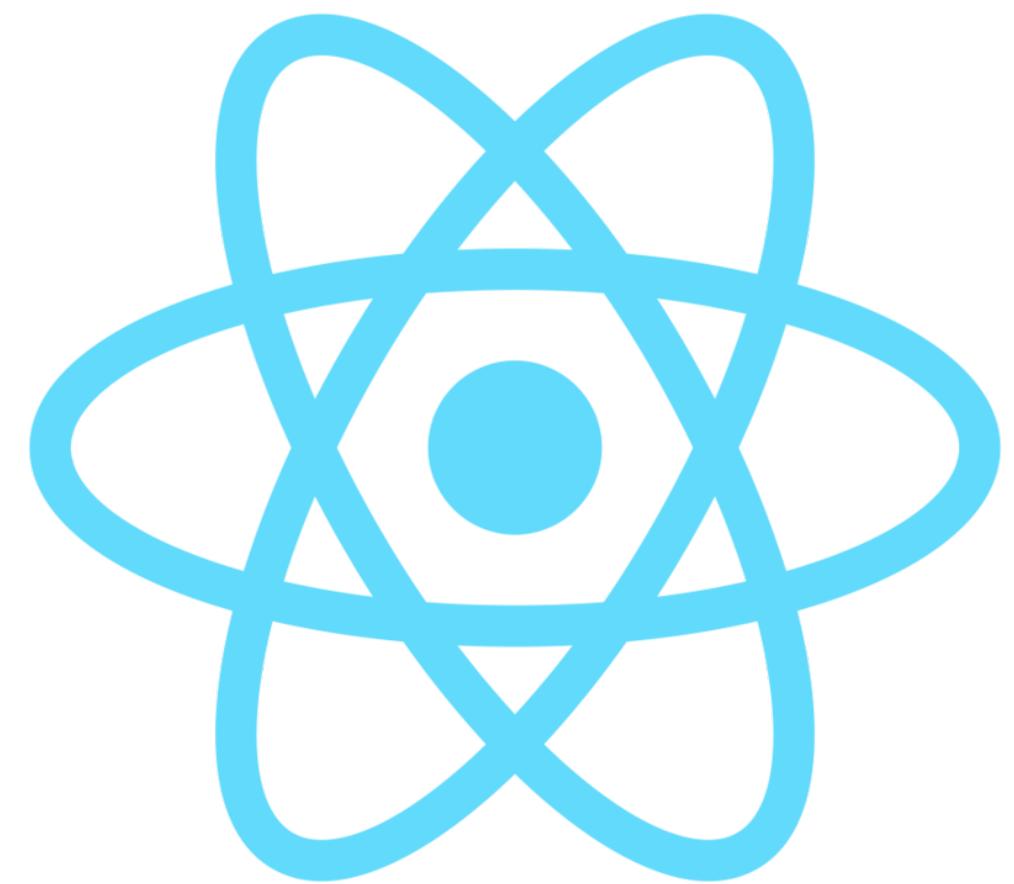


Increase
developer
efficiency

Build vs Open Source? 🤔

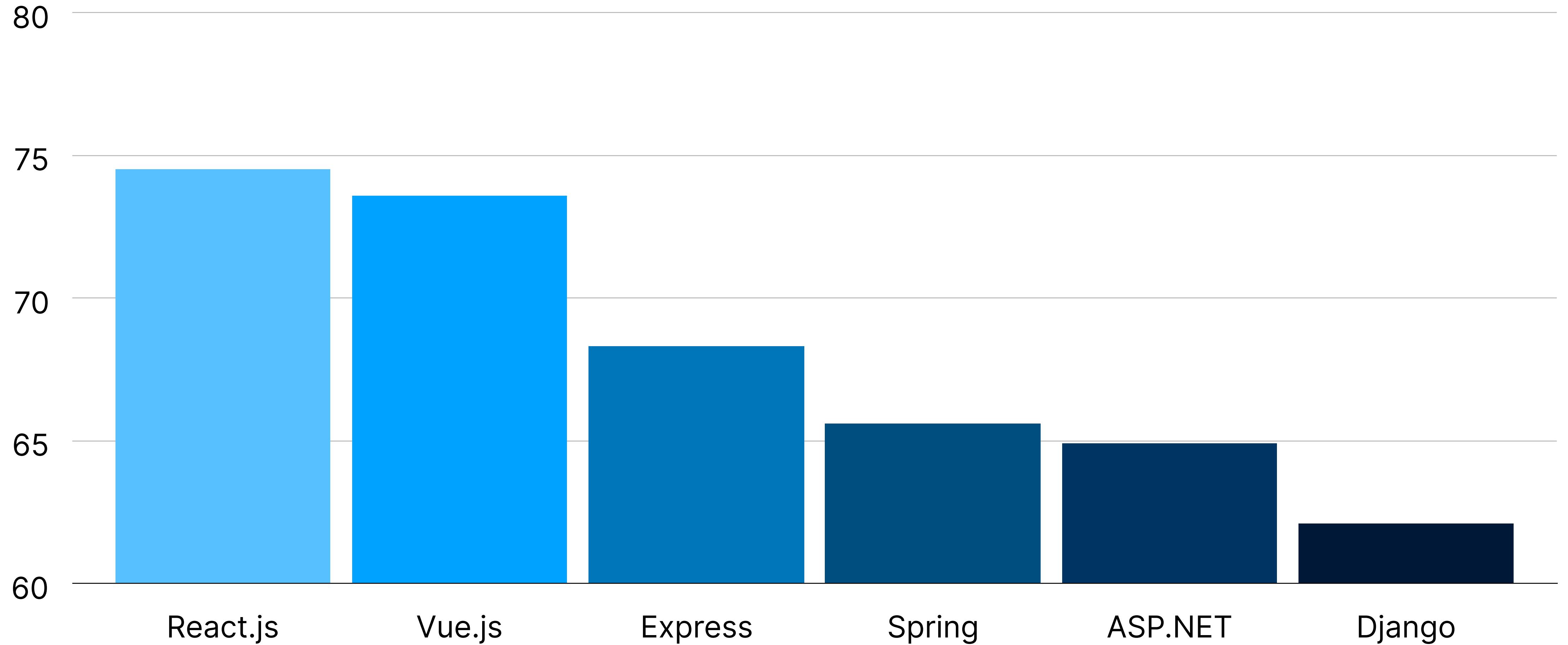
Hy-Vee Tech Employee Count





We chose **React**.

Most Loved Web Frameworks



“Thinking in React”

<input type="text" value="Search..."/>
<input type="checkbox"/> Only show products in stock
Name Price
Sporting Goods
Football \$49.99
Baseball \$9.99
Basketball \$29.99
Electronics
iPod Touch \$99.99
iPhone 5 \$399.99
Nexus 7 \$199.99

React is **component based**.

“Thinking in React”

Search...	
<input type="checkbox"/> Only show products in stock	
Name	Price
Sporting Goods	
Football	\$49.99
Baseball	\$9.99
Basketball	\$29.99
Electronics	
iPod Touch	\$99.99
iPhone 5	\$399.99
Nexus 7	\$199.99

- FilterableProductTable
 - SearchBar
 - ProductTable
 - ProductCategoryRow
 - ProductRow

Creating Our First Component



vs. *Sass*



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;  
  }  
`;
```



Button

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

import { Histogram } from '@storybook/dataviz'

Share + 10

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

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.

Latency distribution

Time Range (ms)	Number of Requests
20ms	~5k
30ms	~15k
40ms	~22k
50ms	~18k
60ms	~12k
70ms	~15k
80ms	~5k
90ms	~8k
100ms	~12k
110ms	~18k
120ms	~15k
130ms	~8k
140ms	~10k
150ms	~5k
160ms	~2k

Hide code

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

Name	Description	Default	Knobs
------	-------------	---------	-------

```
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>
```

 Press "/" to search...

DESIGN SYSTEM

▼ Button

Primary

Secondary

▼ Input

Placeholder

Disabled

Button

[Show code](#)

Name	Description	Default
disabled*		false
variant		"primary"

Stories

Secondary

```
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

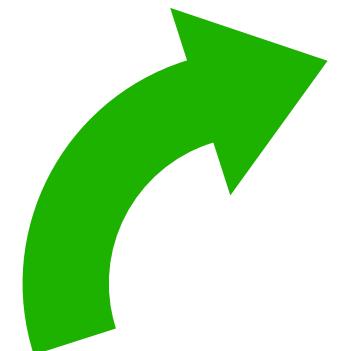
[Button.js](#)

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
};
```

 Press "/" to search...

DESIGN SYSTEM

- ▼ Button
 - Primary
 - Secondary
- ▼ Input
 - Placeholder
 - Disabled

Input

EMAIL

me@leerob.io

[Show code](#)

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

Review Process

Stable

Beta

Alpha

✓ Development

✓ API

✓ Design

✓ Development

⚠ API

⚠ Design

⚠ Development

⚠ API

⚠ Design

FIRST NAME

Lee

LAST NAME

Robinson

EMAIL

me@leerob.io

Cancel

Submit

<>

```
<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>
</>
```

[Continue >](#)[See More](#)[Cancel](#)[View Details](#)[Continue >](#)[See More](#)[Cancel](#)[View Details](#)[Continue >](#)[See More](#)[Cancel](#)[View Details](#)

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]
};
```

Ship it!

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



BABEL

required *

First Name *

Last Name *

Company Name

Street Address *

Apt / Suite #

City *

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

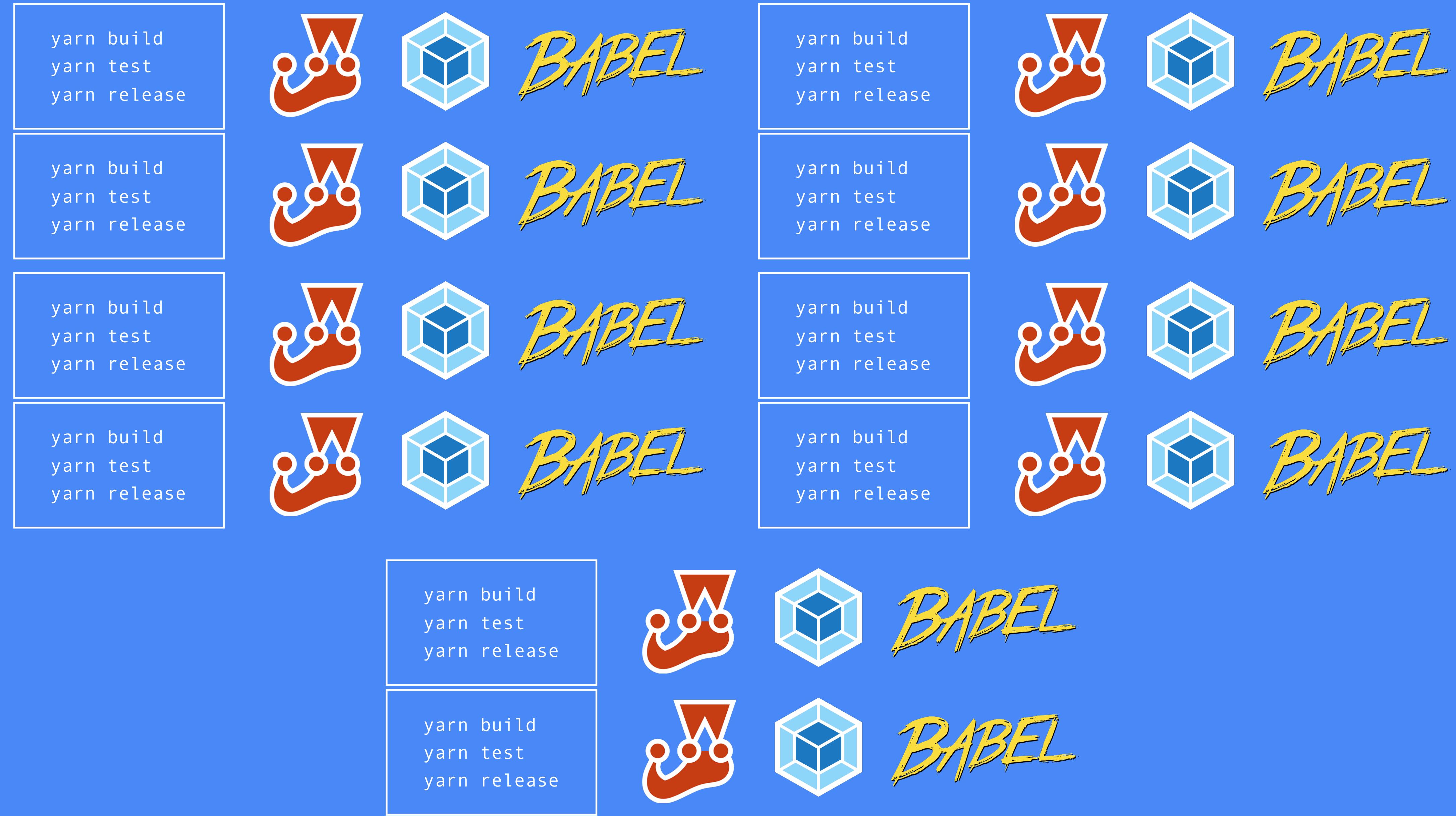
Go Back

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-commerce	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



Over 100 packages

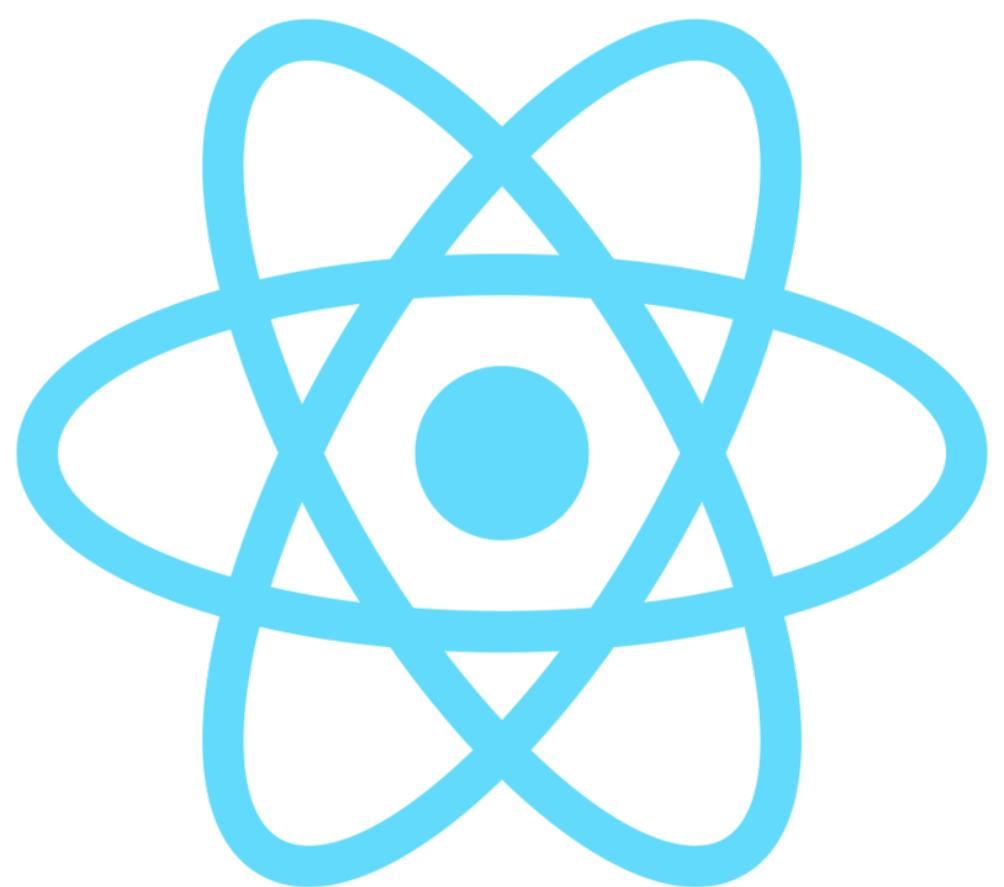


Branch: master ▾	babel / packages /	Create new file	Upload files	Find file	History
	FND and nicolo-ribaudo Fix typo in changelog (#10409) [skip ci] ...			✓ Latest commit daf25af 18 hours ago	
	..				
	babel-cli v7.6.0				3 days ago
	babel-code-frame v7.5.5				2 months ago
	babel-core Remove circular 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.

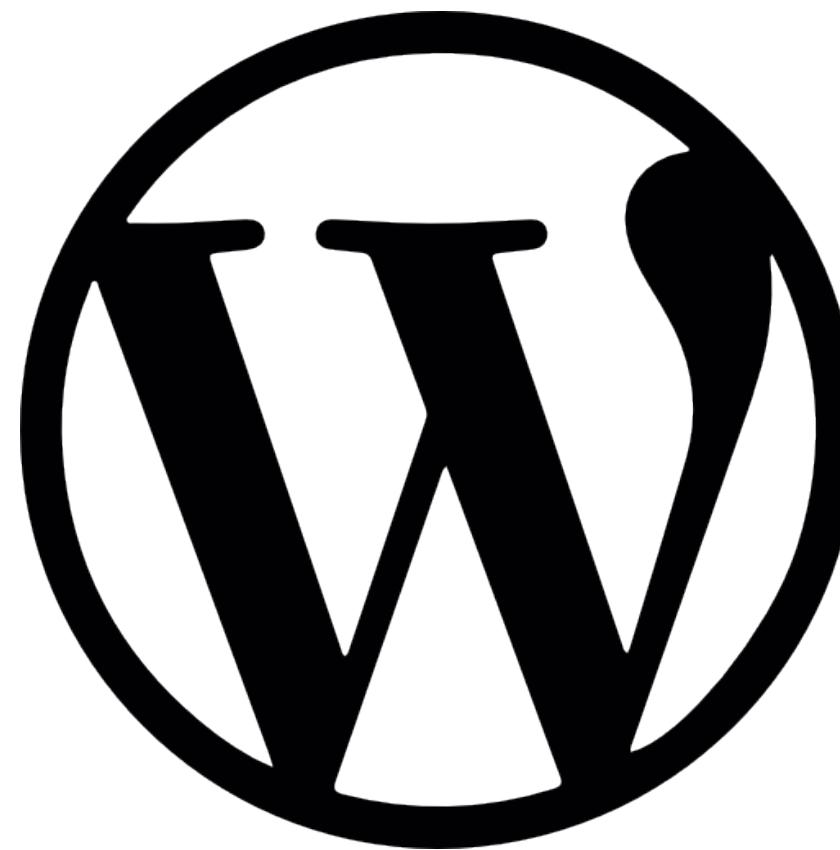


BABEL

uber



ZEIT



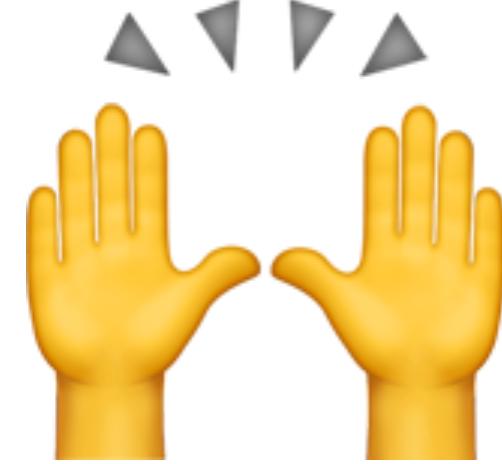
Why Monorepo?



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-commerce: 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

[Shop](#) ▾ [Deals](#) ▾ [Recipes & Ideas](#) ▾ [Health & Pharmacy](#) ▾

How can we help?

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 >](#)

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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,
24 pack
12 fl oz cans

On Sale

 2 in cart

Sponsored



\$0.30

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

Hy-Vee Choice Reserve
Beef Ribeye Steak, 1
each
8oz

 2 in cart

1 lbs



Internal Link External Link

Hey! 

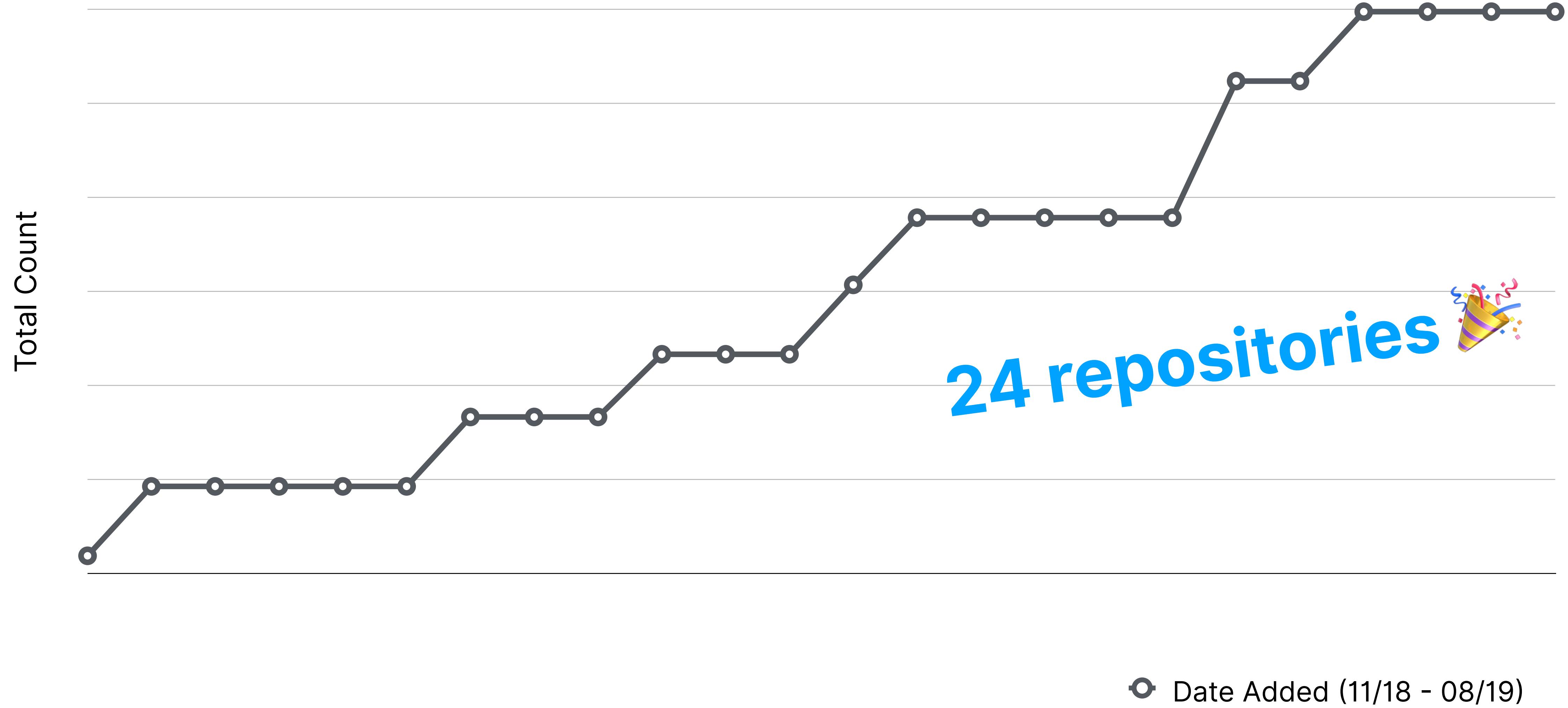
You can view all available components [here](#)

Huddle Business Applications Support

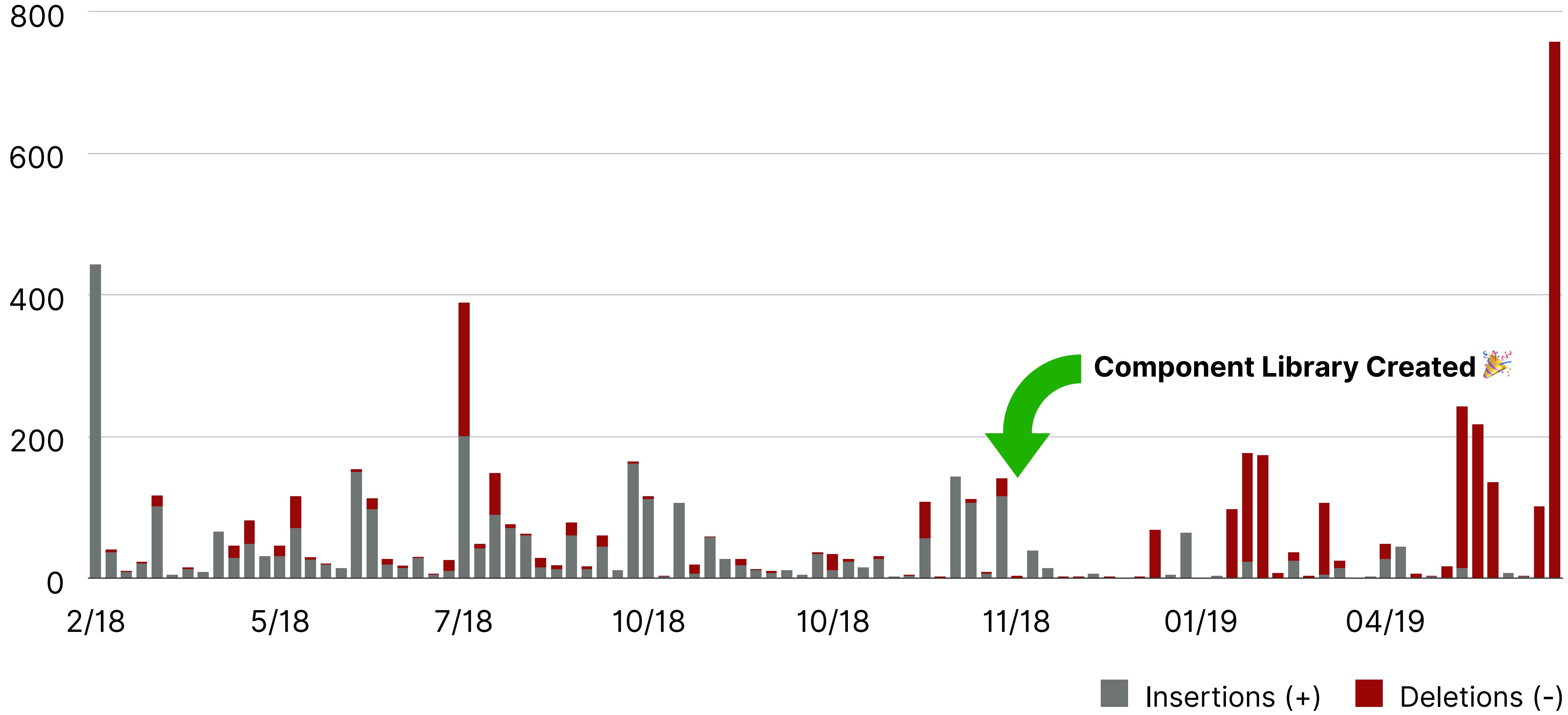


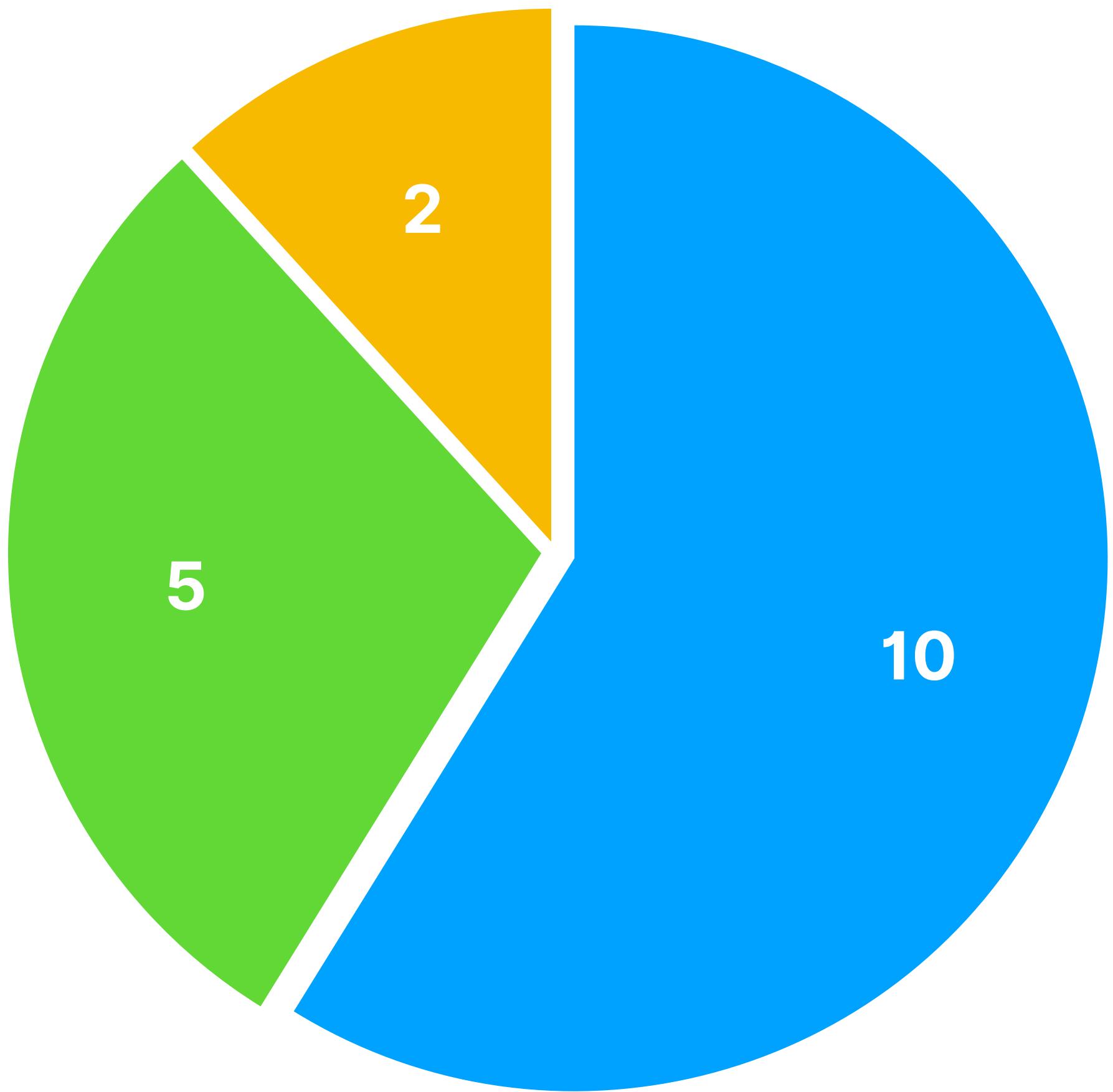
Measuring Success

Component Library Adoption (# of Repositories Created)



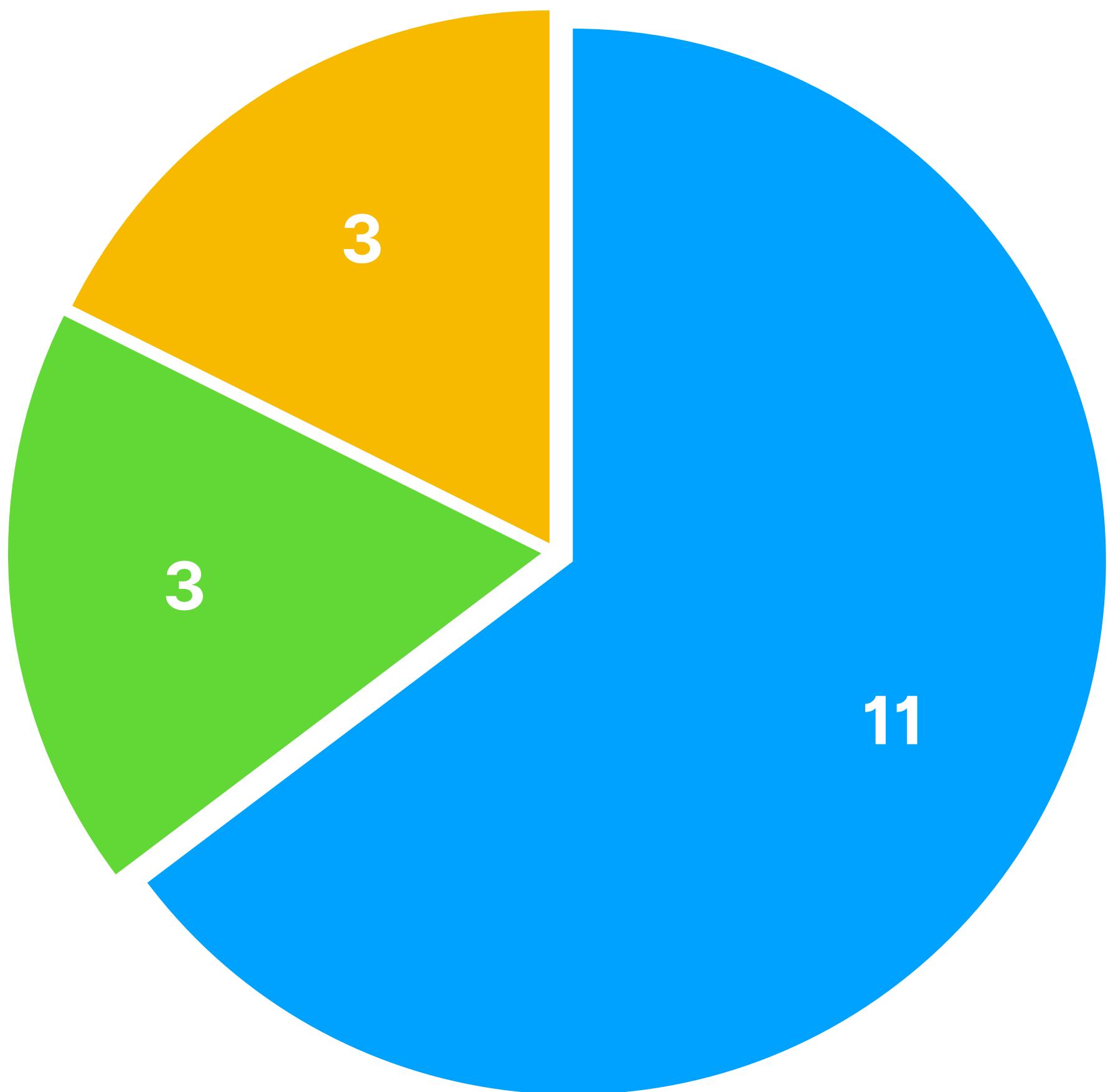
Sass File Modifications in Aisles Online (Past Year)





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

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree



“... helps me implement or design
features **more quickly**.”

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Conclusion



Create
consistency
across the
organization

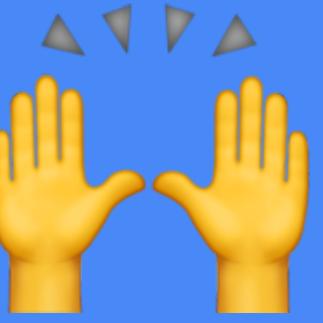


Improve the
overall quality of
our codebase



Increase
developer
efficiency

30+ Contributors



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

Thank you! 🙌

 @leerob

