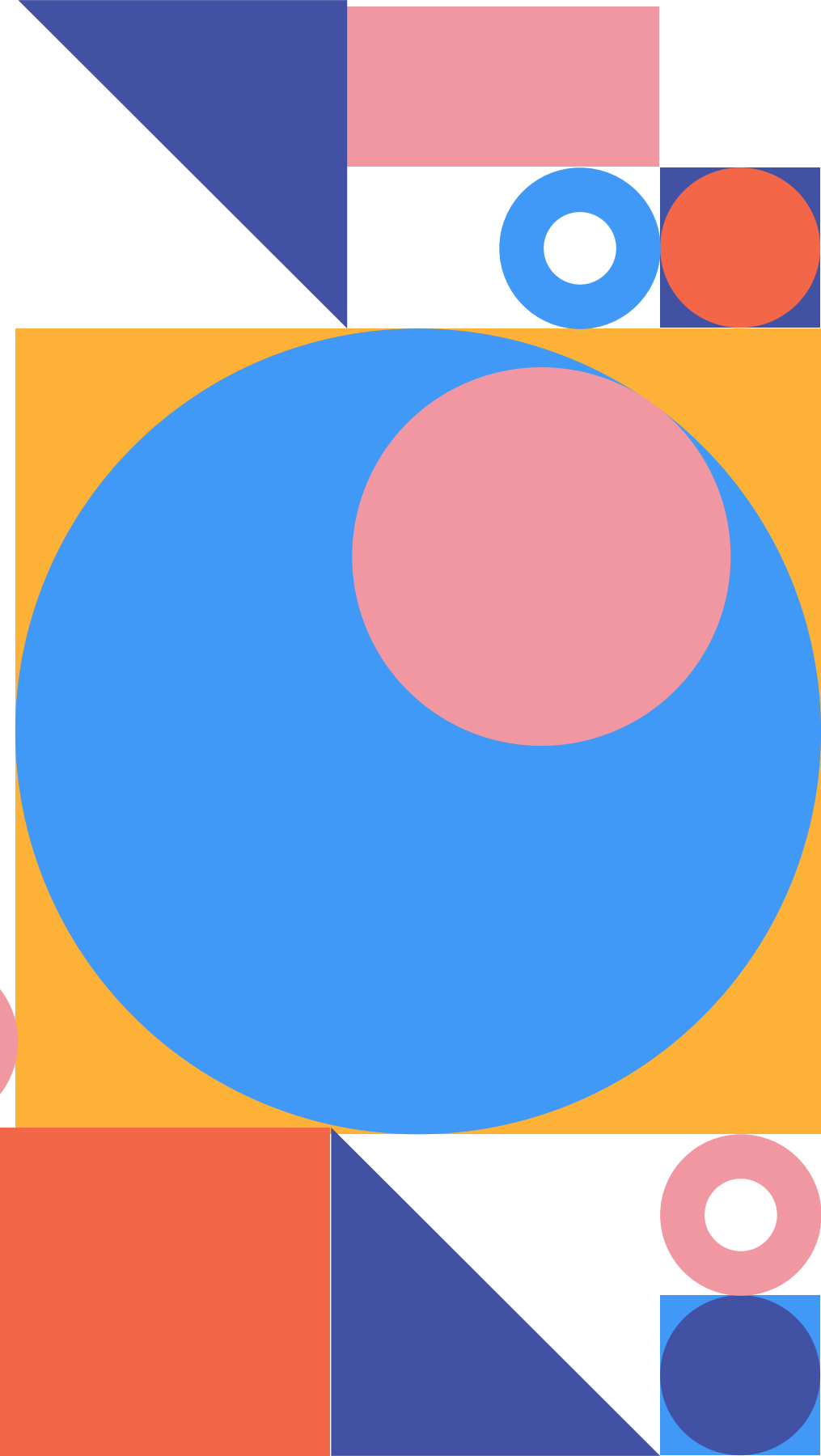

Design Systems

Emma Bostian



About me

Emma Bostian

Software Engineer @ LogMeIn

American in Germany

Ladybug Podcast & JS Party

Stack Overflow, Ultimate Courses, & Dev.to

LinkedIn Learning



What we'll cover

Design Systems

Design

Figma

Styled Components

Animations

Storybook

Tools & Resources



What this course is

This course is a high-level introduction to design systems. It will teach you the foundational skills your team needs to build a set of reusable components and standards.



What this course is not

This course is not a comprehensive overview to design systems. There is no industry-standard for what a design system truly is, and as a result it can be interpreted differently at different companies.

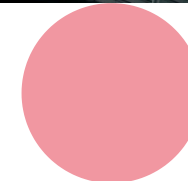
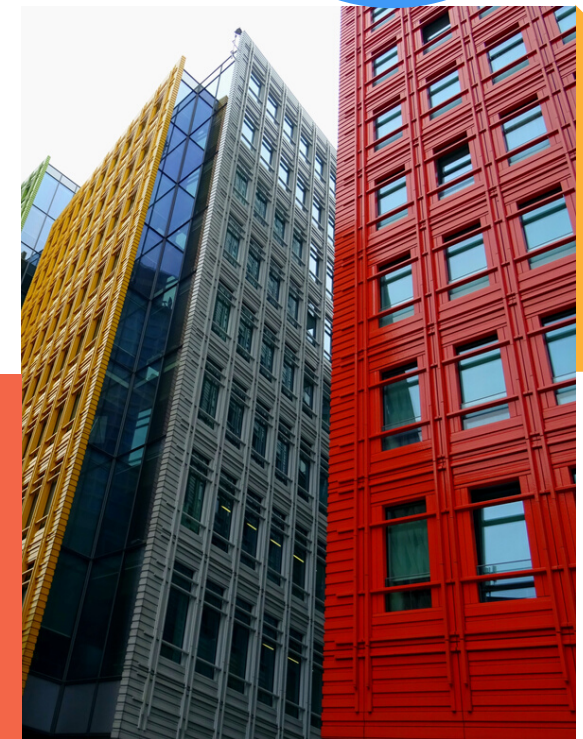
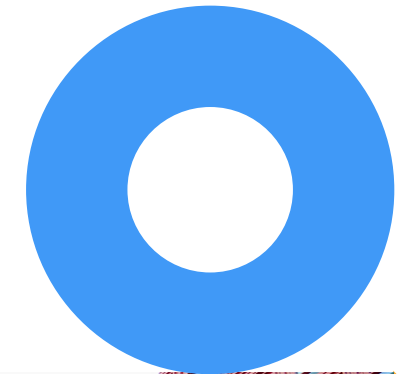
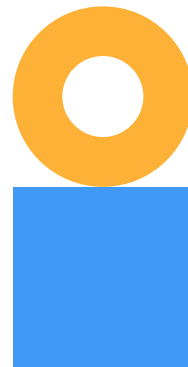


Course Information

Repo:

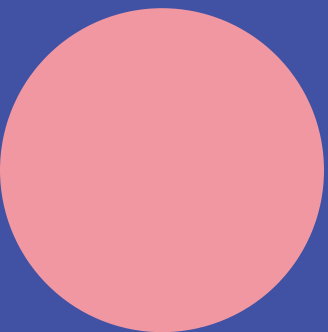
<https://github.com/emmabostian/fem-design-systems>

Docs: <https://fem-design-systems.netlify.com/>



Design Systems

The internet was not originally intended to host large-scale social and enterprise applications.



Components

Allow us to maintain consistent user interfaces which are accessible by nature



What is a design system?



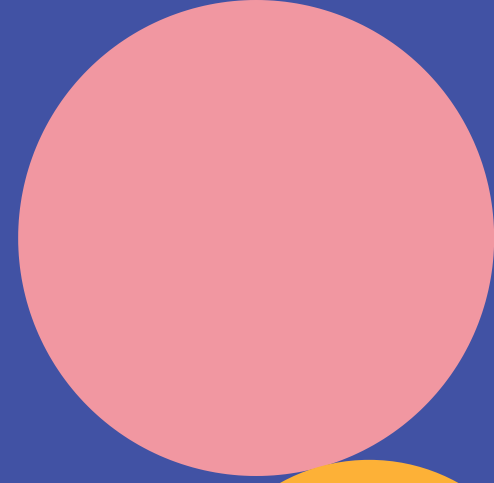
UI Kit
Color
Typography
Grid
Iconography

What is a design system?

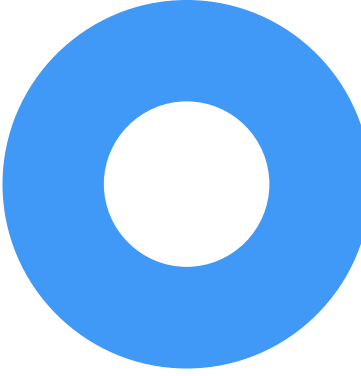
Component library
Style Guide



A design system
is all
of these things.

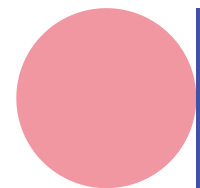


Why do design systems matter?

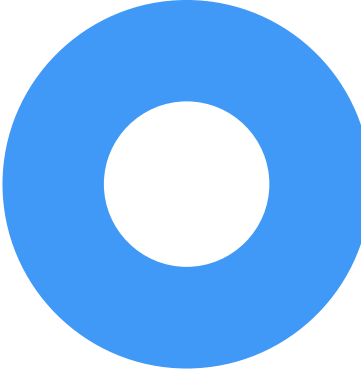


Accessibility

Everyone, regardless of circumstance, should be able to achieve the same results from your application.

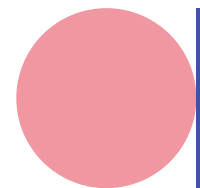


Why do design systems matter?

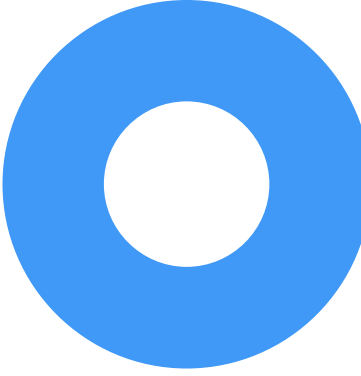


Consistency

Your products should look and feel like they're part of the same brand identity.

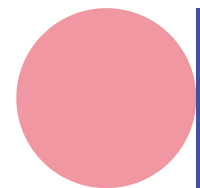


Why do design systems matter?

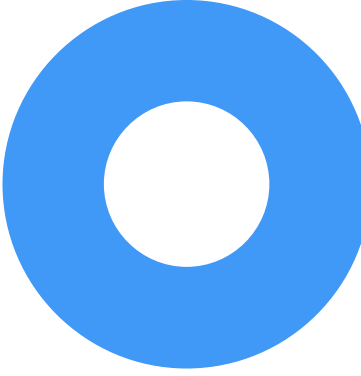


Trickle-down updates

The style can be updated in one component within the system, and will propagate to each product .

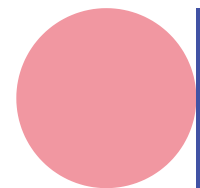


Why do design systems matter?

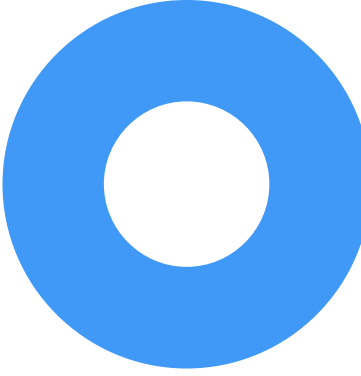


Responsiveness

Our web applications must account for different screen resolutions and devices.

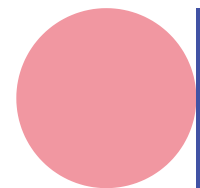


Why do design systems matter?



Onboarding

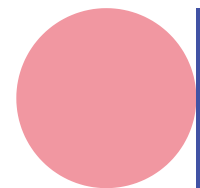
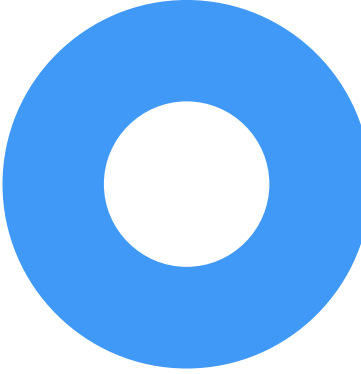
There is one place for new team members to go to get all of the information they need to get started.



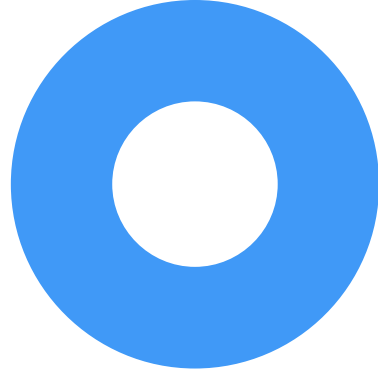
Why do design systems matter?

Flexibility

A design system must serve a variety of use cases, while setting parameters on what exactly those use cases can be.

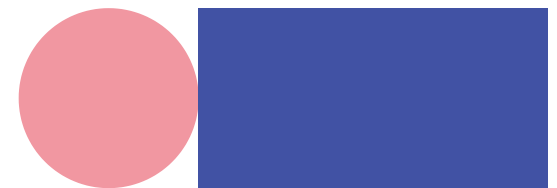


Why do design systems matter?



Speed

Once your design system has been established, time to production is greatly reduced.



Drawbacks of design systems

Time

Design systems take time to build.

Drawbacks of design systems

Evolution

A design system is never complete. It's a product serving products.

Drawbacks of design systems

Maintenance

A design system is a living, breathing product which has lifecycles and requires maintenance.

Drawbacks of design systems

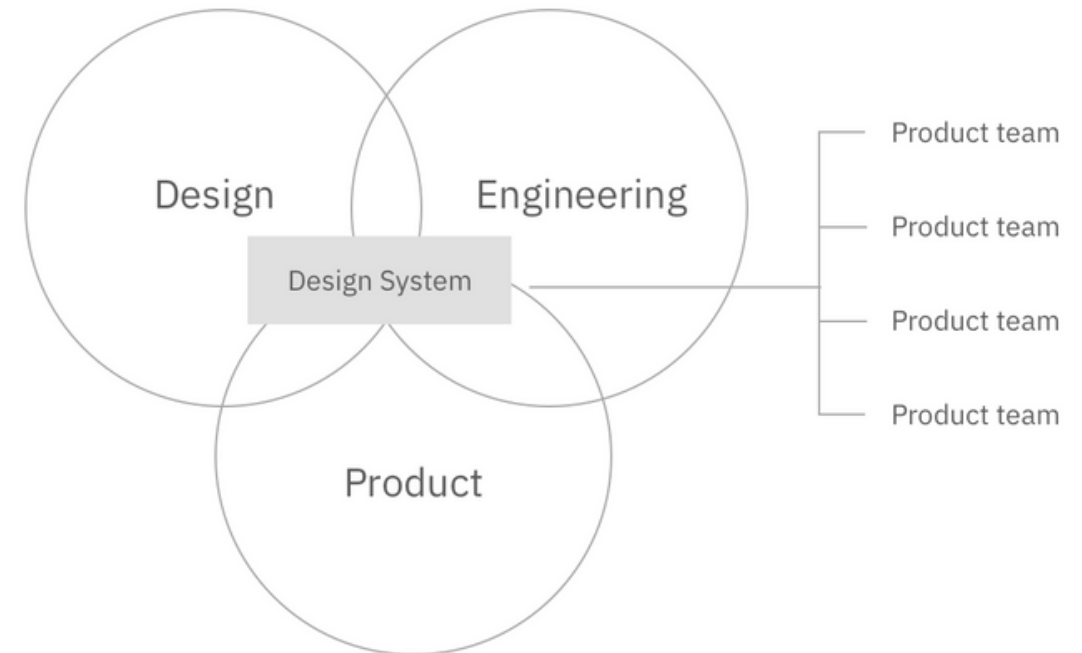
Investment

We need designers, engineers, and product managers to ensure the success of the system.

Team structure

Centralized Model

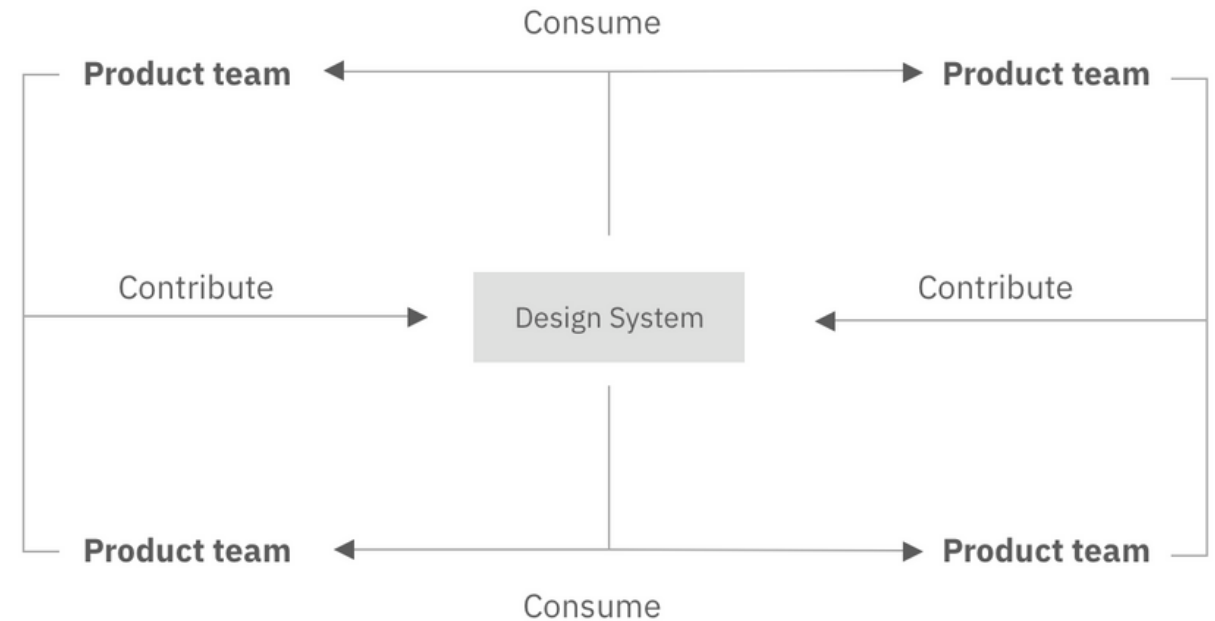
- Define the foundation & identity of the system
- Have veto power over the system
- Manage & create the UI Kit, component library, and style guide



Team structure

Distributed Model

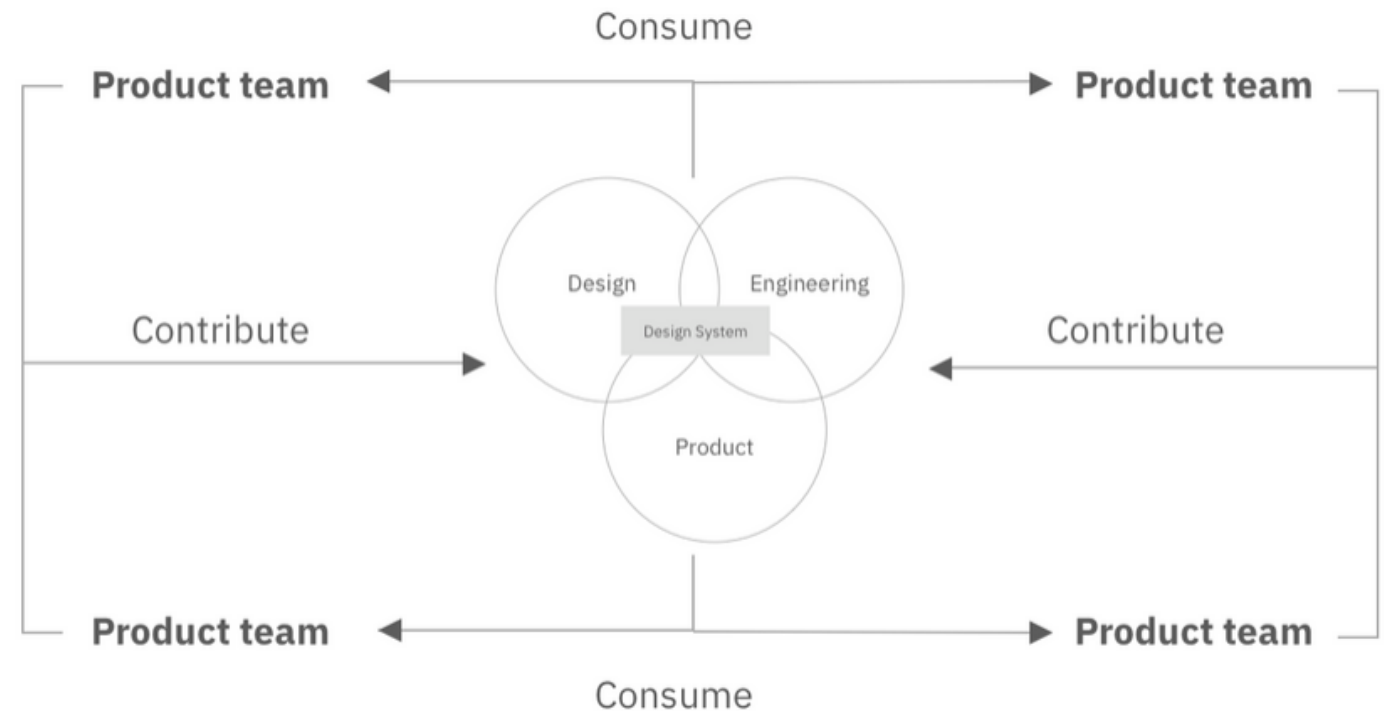
- No centralized core team
- Built & maintained by the consuming teams
- Instills a sense of ownership
- Influenced by many vantage points
- Less down time



Team structure

Hybrid Model

- Combines the centralized and distributed models
- Decisions are made quickly



Who are
design
systems for?



“If a design system is by a company, then it’s for the company. It might also be open source, but any ol’ random developer who wants to use it isn’t the target audience.”

- Chris Coyier





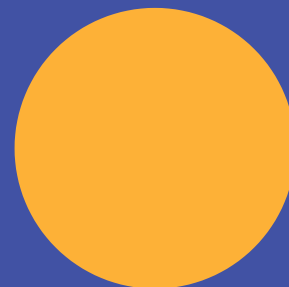
Nathan Curtis

Design Systems Coach



And You Thought
Buttons Were Easy...

→ [Read the blog post here!](#)



Primary button

Primary button

Primary button

Primary button

Primary button

Primary button

Primary button

Primary button

Primary button

Primary button

Primary button

Secondary button



Secondary button

Tertiary button



Tertiary button

Primary button

Primary button

Primary button

Primary button

Primary button

Secondary button



Secondary button

Tertiary button



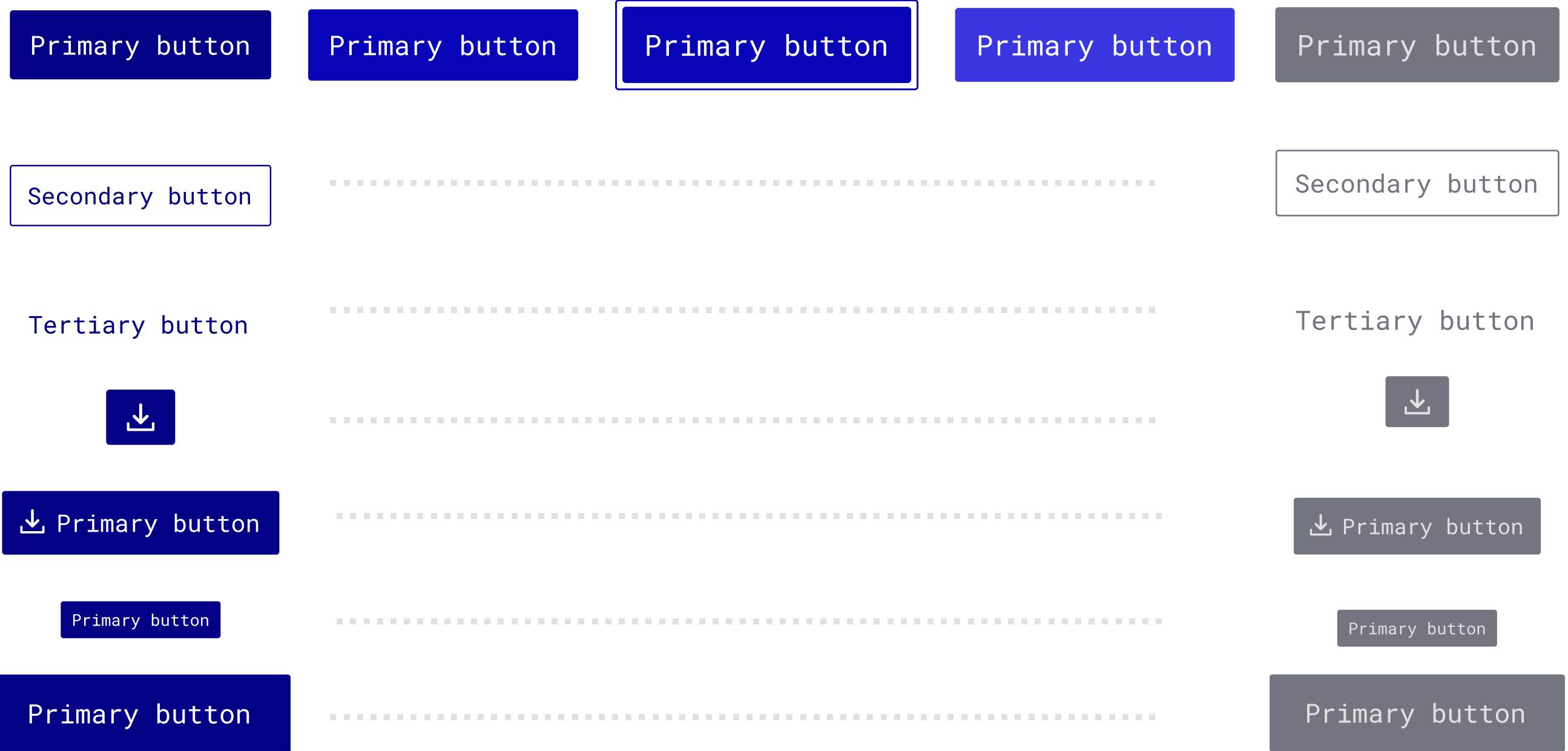
Tertiary button



↓ Primary button



↓ Primary button



Tertiary button



↓ Primary button

Primary button

Primary button

Primary button

Primary button

Primary button

Tertiary button



↓ Primary button

Primary button

Primary button

Primary button

Primary button

Primary button

How many buttons is that?

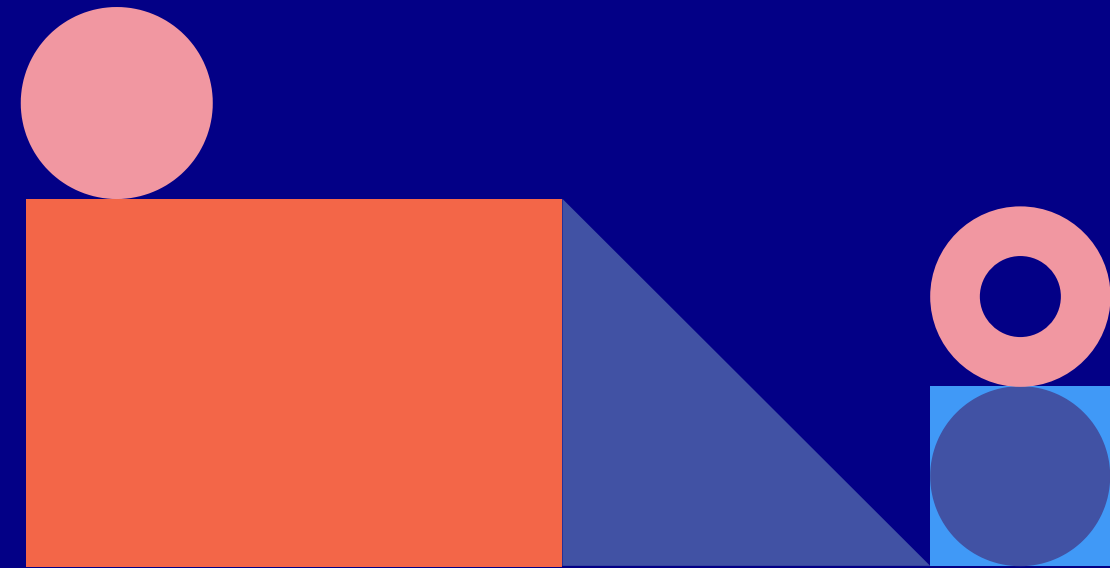
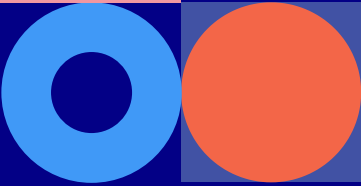
3 default buttons (primary, secondary, tertiary)

3 status buttons (error, warning, status)

4 status icon buttons

+ 4 default icon buttons

14 buttons



How many buttons is that?

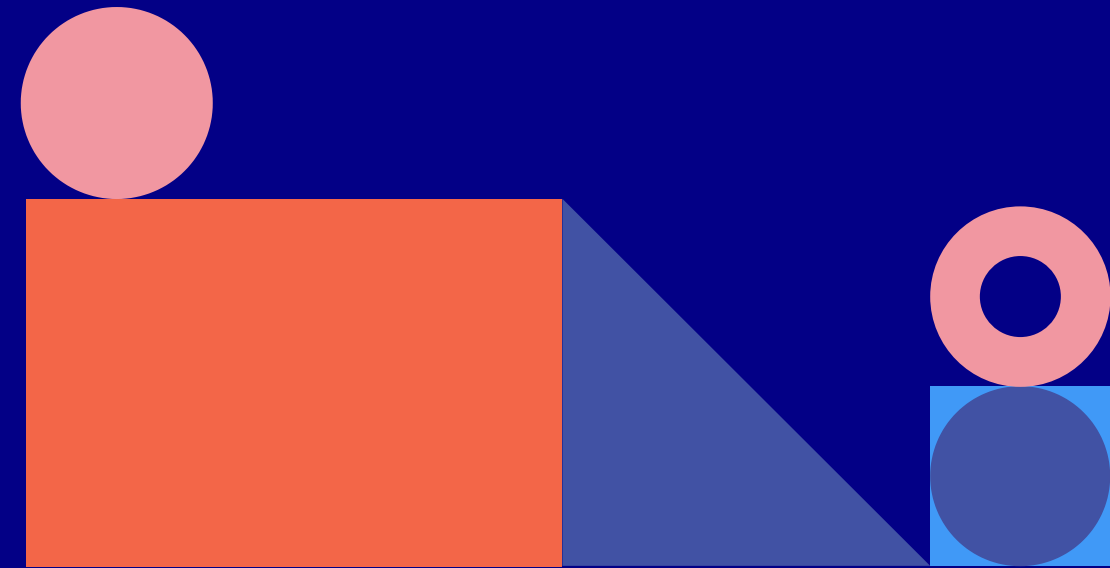
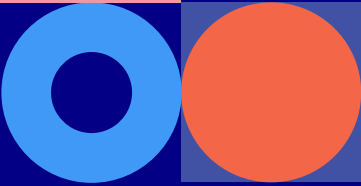
3 default buttons (primary, secondary, tertiary)

3 status buttons (error, warning, status)

4 status icon buttons

+ 4 default icon buttons

14 buttons X 5 states (i.e. hover) X 2 sizes



How many buttons is that?

3 default buttons (primary, secondary, tertiary)

3 status buttons (error, warning, status)

4 status icon buttons

+ 4 default icon buttons

14 buttons X 5 states (i.e. hover) X 2 sizes

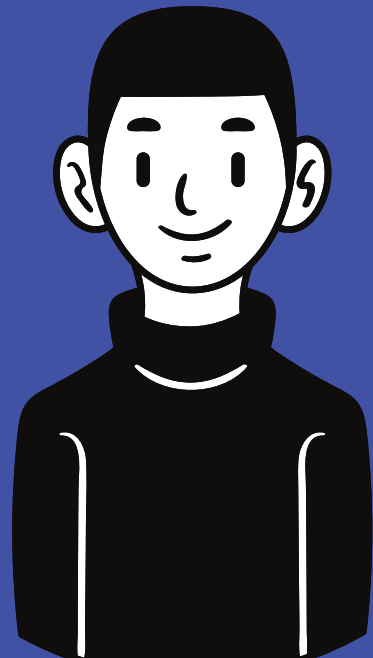
= 140 button combinations *per theme...*

How much does that cost...?

\$300 per hour X 200 hours

Designer

\$100 per hour



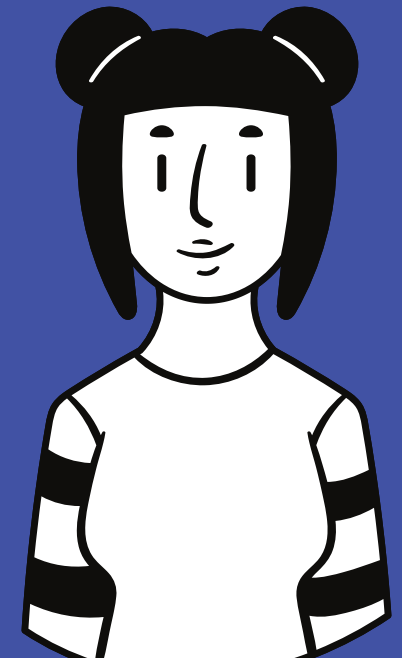
Engineer

\$100 per hour



Quality Assurance

\$100 per hour

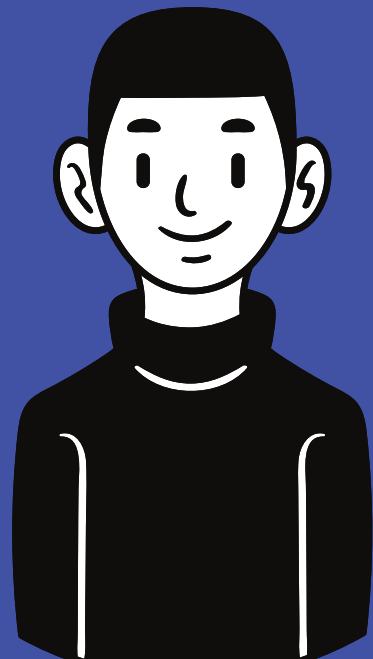


How much does that cost...?

\$300 per hour X 200 hours = \$20,000

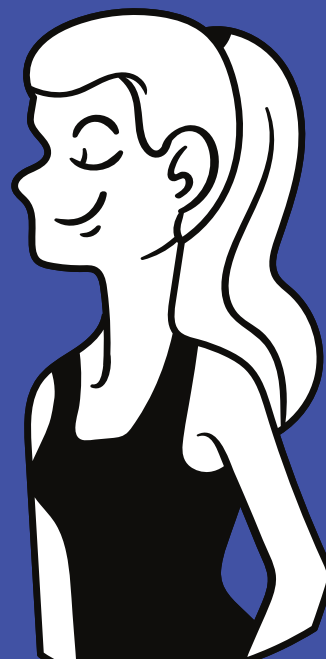
Designer

\$100 per hour



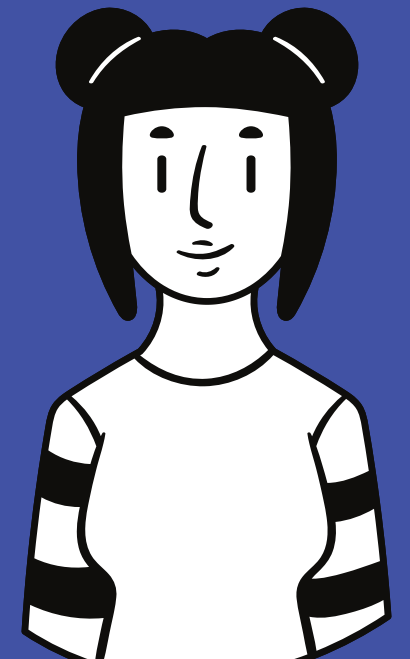
Engineer

\$100 per hour



Quality Assurance

\$100 per hour



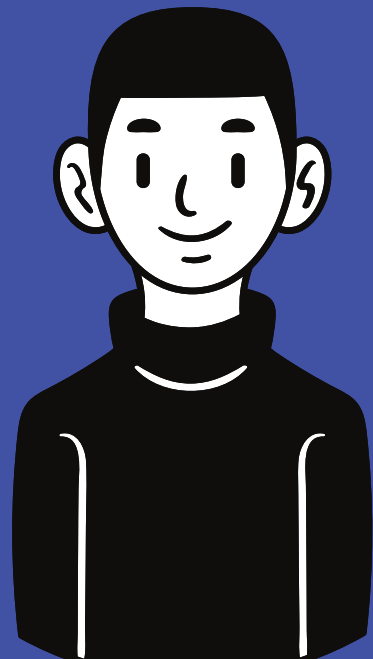
How much does that cost...?

\$300 per hour X 200 hours = \$20,000

50 teams X \$20,000 = \$1 million ... *on buttons*

Designer

\$100 per hour



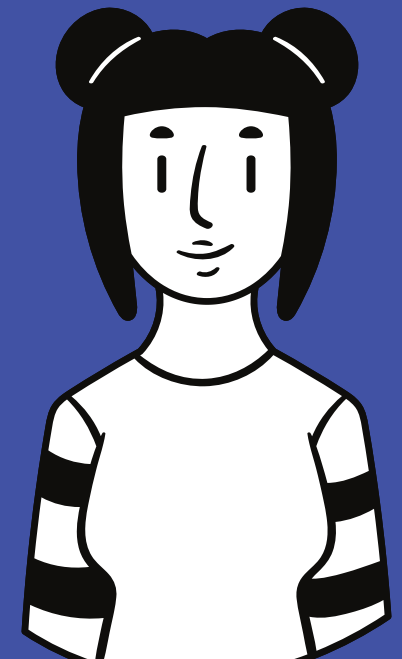
Engineer

\$100 per hour



Quality Assurance

\$100 per hour



Three pillars of design systems

Design Language

The set of standards and assets which guide the creation of a suite of products underneath a brand.

Component Library

Set of components which turn the design language and UI Kit into living, breathing code.

Style Guide

The documentation for the design language, UI Kit, and component library.

Design language

The personality of a brand and its corresponding design assets.

Foundation

Color

Typography

Grid

Spacing

Iconography

Illustrations

Motion

UI Kit

Buttons

Text Fields

Modals

Dropdowns

Navigation

Footer

Component Library

Can be built with many different frameworks and libraries

Frameworks

Vue

React

Angular

Ember

Technologies

CSS Pre-processors

CSS-in-JS

Animation libraries

Testing libraries

Style Guide

The documentation for the design language, UI Kit, and component library.

Technologies

Storybook

Invision

Gatsby

React Styleguidist

Building a design system

1. Define your design principles
2. Conduct a UI audit
3. Create your checklists
4. Define your workflows

Design principles

Design principles are the grounding values which drive the creation of your products.

What do you want your users to feel when using your product?

"Bold, optimistic, and practical."

Ui Audit

Compile all components, in every variation and state, in one place.

Group these components by functionality.

AirBnb UI Audit

INPUT

LINK

Become a host | Saved | Trips | Messages | Help
[Read more](#)

CARD



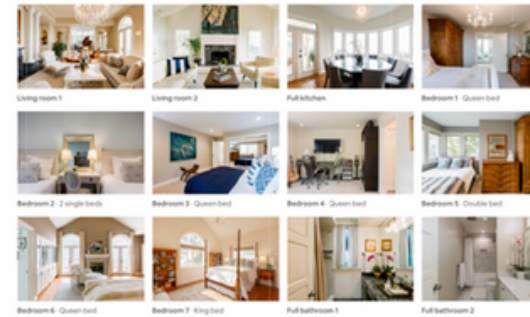
CAROUSEL



FILTER

Dates | Guests | Home type | Price | Instant Book | Trip type | More filters

PHOTO GALLERY



REVIEW

Sarah
14 days ago
Absolutely beautiful home, just as pictured and described. The grounds outside far outshine anything inside, which is rare. The views of the... [Read more](#)

BUTTON

[CONTACT](#) [Save](#) [Get started](#) [Get started](#)
[View Profile](#) [Learn how they host](#)

BADGE

English | Entire place

DROP DOWN BUTTON

English | Entire place

PAGINATION

1 | 2 | 3

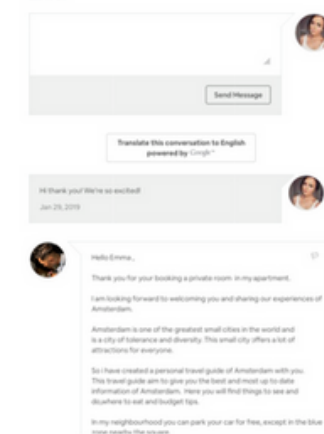
NOTIFICATION

Messages*

TABLE

All Messages (3)		
	Raga Jan 28 Hi thank you! We're so excited! Amsterdam, XX, Netherlands (Feb 16 - 17, 2019)	Accepted €163.07
	Paul Jan 14 Wonderful thanks so much!! See you soon! Amsterdam, Noord-Holland, Netherlands (Feb 12 - 15, 2019)	Accepted €247.47
	Marc 12/16/2018 Hello! My email is: Weidmond.arnold@gmail.com. No problem we'll have... Lappeln, Saxony, Germany (Jan 14 - 16, 2019)	Accepted €221.44

CHAT



COMBO BOX

Search

RECENT SEARCHES

- Amsterdam - Experiences Feb 16 - 17
- Amsterdam - Experiences Feb 12 - 15
- Amsterdam - Experiences Feb 16 - 17
- Danijelgrad 5, 1013 AP Amsterdam Amsterdam - Homes Feb 12 - 15
- Karlsruhe, Germany - Homes Anytime

Ui Audit

Prioritize the components which have the highest impact on unification of your products and are easily achievable.

AirBnb UI Audit

INPUT

LINK

Become a host | Saved | Trips | Messages | Help
[Read more](#)

CARD



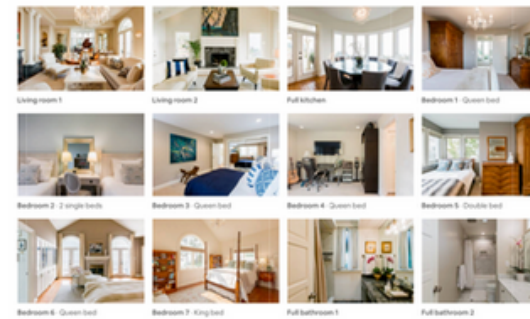
CAROUSEL



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Absolutely beautiful home, just as pictured and described. The grounds outside far outshine anything inside, which is rare. The views of the... [Read more](#)

BUTTON



BADGE



DROP DOWN BUTTON

PAGINATION



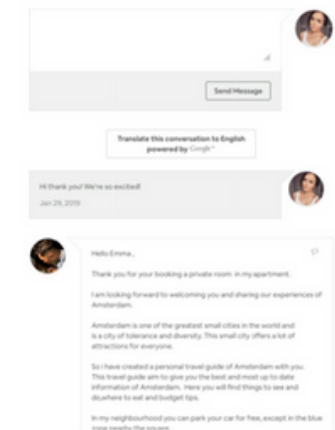
NOTIFICATION

Messages*

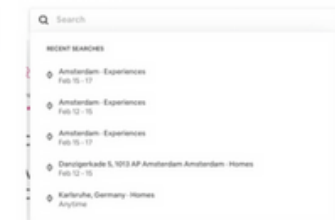
TABLE

All Messages (2)		
	Raga Jan 28 Hi thank you! We're so excited! Amsterdam, XX, Netherlands (Feb 16 - 17, 2019)	Accepted €163.07
	Paul Jan 14 Wonderful thanks so much!! See you soon! Amsterdam, Noord-Holland, Netherlands (Feb 12 - 15, 2019)	Accepted €247.47
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CHAT

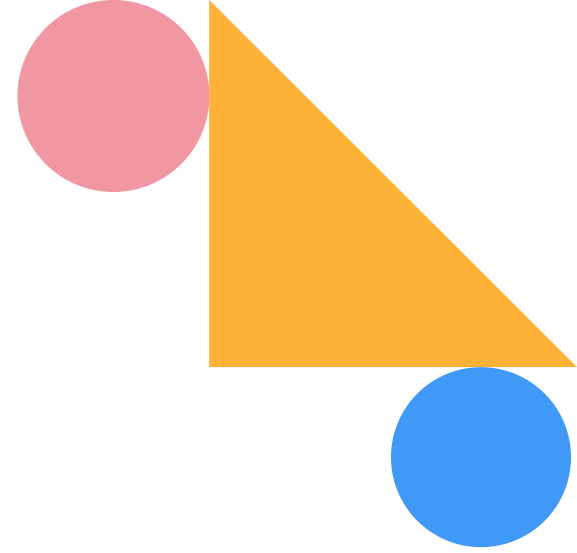


COMBO BOX



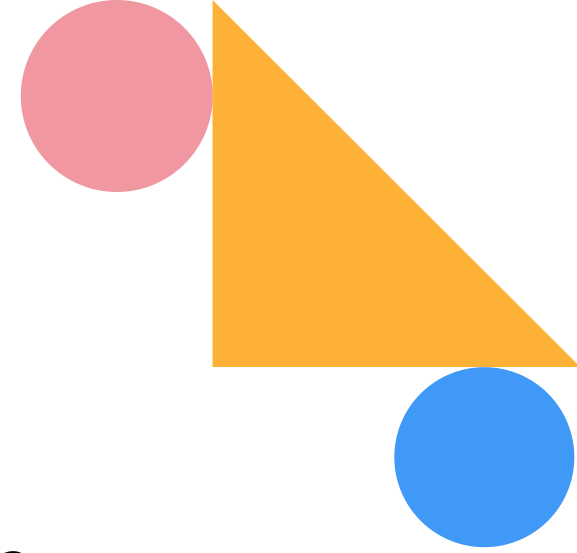
Prioritizing components

- Does this request embody our design principles?



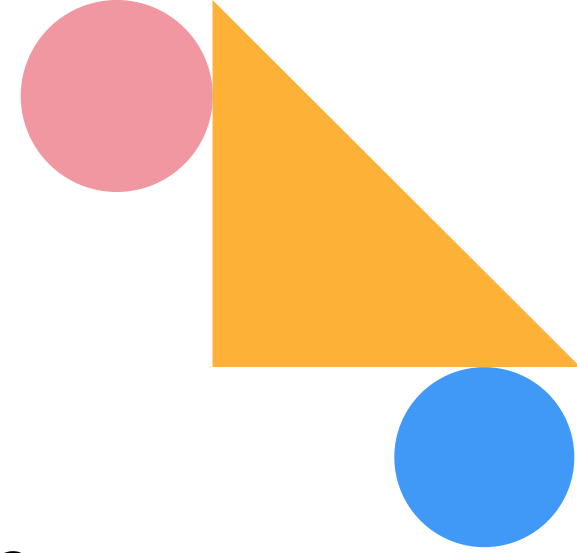
Prioritizing components

- Does this request embody our design principles?
- Does this request require a lot of design/development effort?



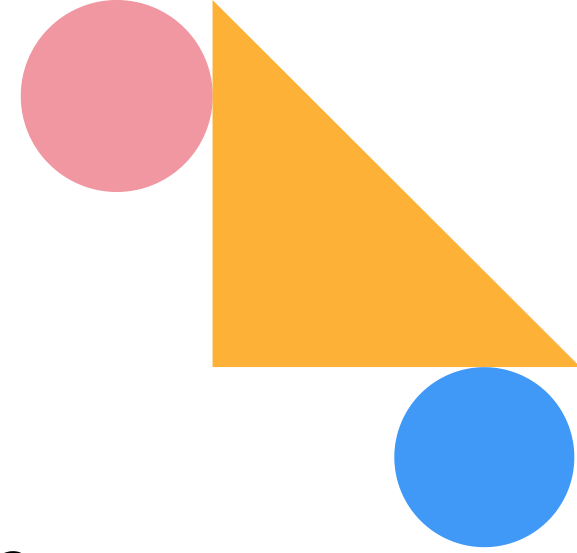
Prioritizing components

- Does this request embody our design principles?
- Does this request require a lot of design/development effort?
- Does this request come with a high risk to the success of our product?



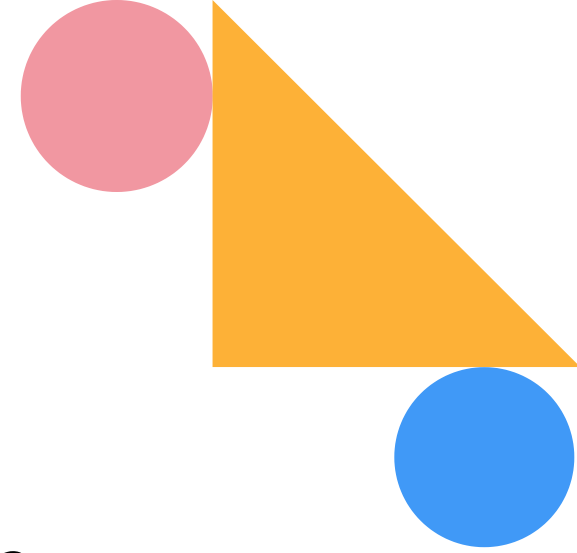
Prioritizing components

- Does this request embody our design principles?
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- Does this request come with a high risk to the success of our product?
- Does this request coincide with the product roadmap?



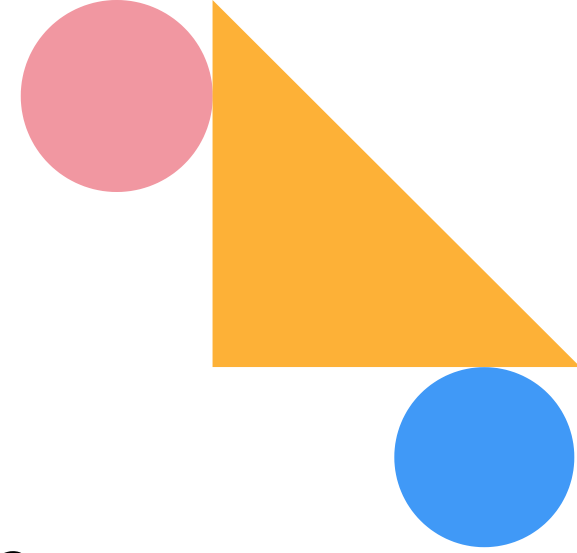
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- Does this request improve the user experience of our products?



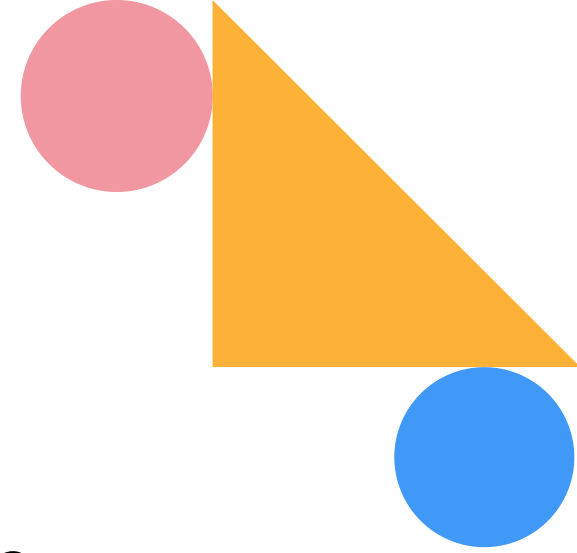
Prioritizing components

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- Does this request improve the user experience of our products?
- Are we confident in this request or will it need to be revisited in the near future?



Prioritizing components

- Does this request embody our design principles?
- Does this request require a lot of design/development effort?
- Does this request come with a high risk to the success of our product?
- Does this request coincide with the product roadmap?
- Does this request improve the user experience of our products?
- Are we confident in this request or will it need to be revisited in the near future?
- Is this request technically feasible?



Adoption metrics

Metrics which indicate that a component has high priority.

Impact
Identity
Confidence

Opposition metrics

Metrics which indicate that a component has lower priority.

Maintenance
Risk
Effort

Calculating priority

Sum the scores from your adopter questions and your opposer questions, then find the mean score by dividing by the number of total questions for each metric.

We take these individual scores and find the mean across all survey participants.

These will become your (X,Y) coordinates which help you determine the priority of your components.

Calculating individual scores

impact + identity + confidence = individual adopter total

individual adopter total / # adopter questions = individual adopter

maintenance + risk + effort = individual opposer total

individual opposer total / # opposer questions = individual opposer

Calculating mean scores

individual adopter totals / # survey participants = adopter score

individual opposer totals / # survey participants = opposer score

(X, Y)
(adopter, opposer)

Prioritizing components

By visualizing the priority of each component on this prioritization graph, we can easily determine what to spend time on.

Priority 3

Weak adopter / weak opposer

Finish priority one and two components before tackling.

Priority 1

Strong adopter / weak opposer

Immediate adoption.

Parking lot

Weak adopter / strong opposer

Priority 2

Strong adopter / strong opposer

Try to mitigate the opposition metrics prior to adopting.

Buttons

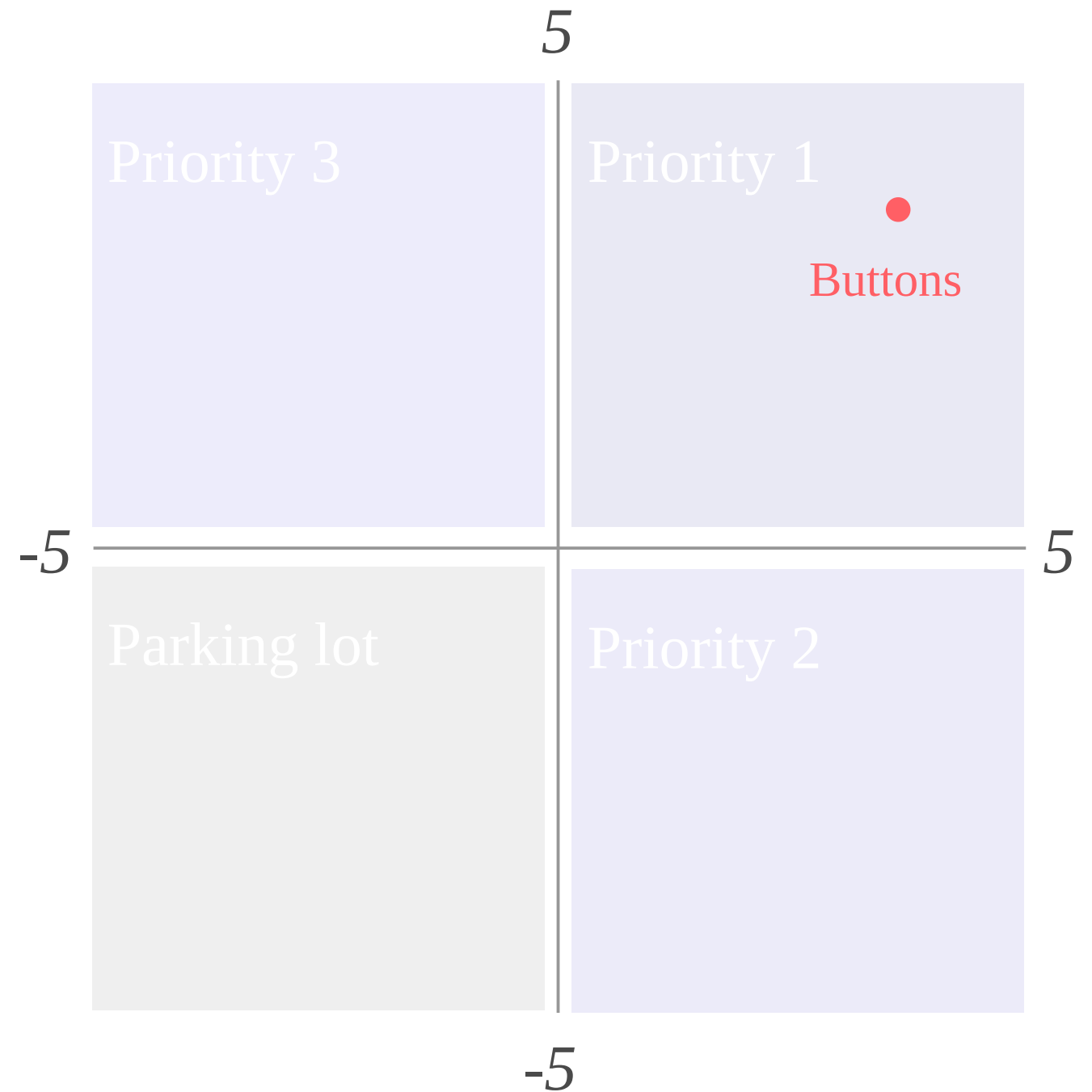
Buttons will have a high impact because they'll unify your products underneath your brand identity.

But buttons also require a lot of mainenance and effort and might have to be re-visited several times before a finalized design is found.

(adopter, opposer)

(4, 4)*

* On a 5-point axis



Accordions

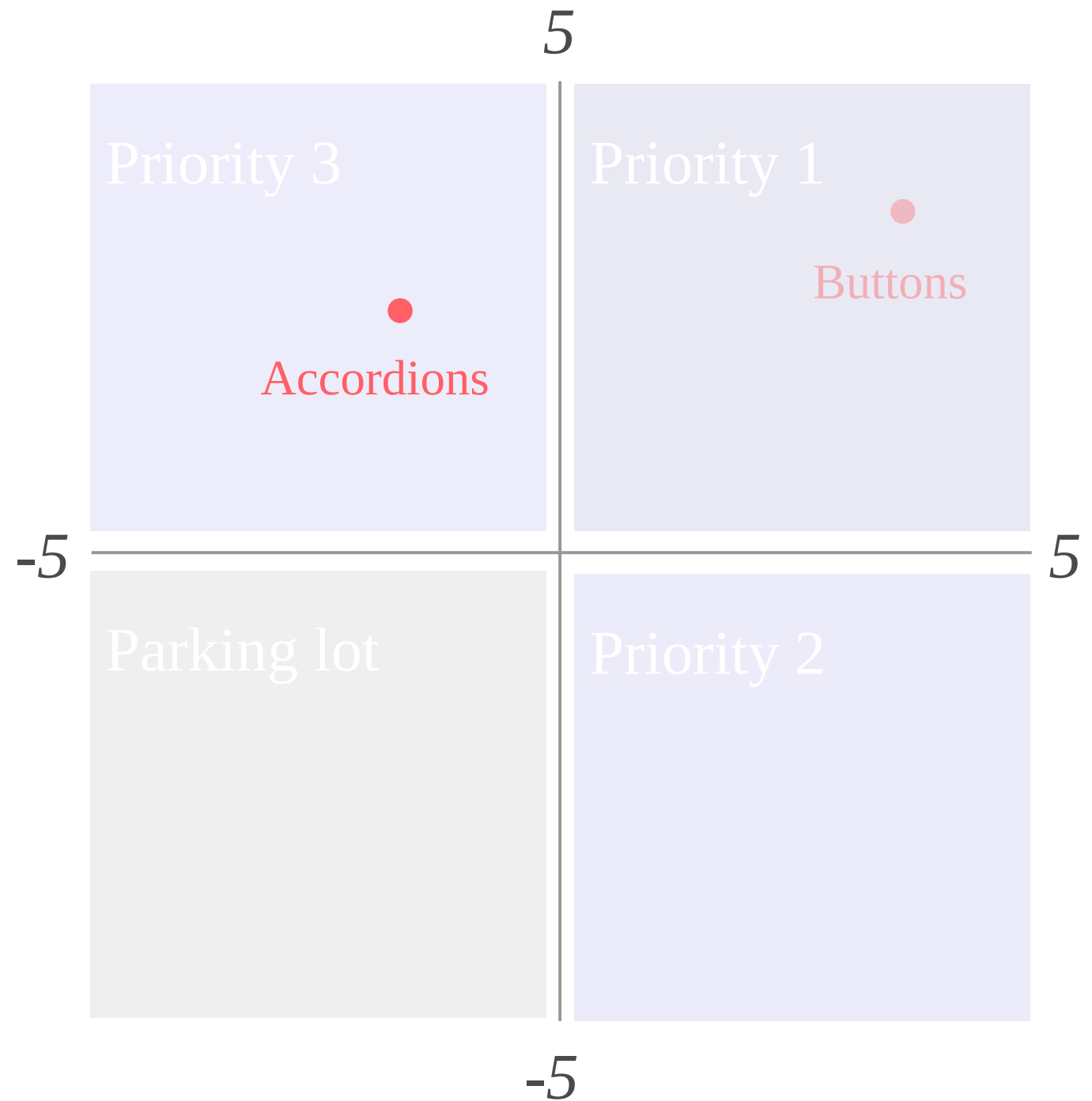
Accordions won't have a high impact because they're not used often throughout the UIs.

But accordions will take a lot of effort to build and could have some associated maintenance.

(adopter, opposer)

$(-2, 3)^*$

* On a 5-point axis



Design checklist

Accessibility

Can all users, regardless of circumstance, use this component?

Interaction

How should a component respond when a user interacts with it?

Context

How and where should this component be used?

Completion

Are all states, including neutral, hover, focus, and disabled, defined?

Content

What type of content does this component rely upon?

Customization

Are aspects of this component customizable? If so, how?

Screen Resolution

How does this component look on varying screen resolutions?

Development checklist

Accessibility

Can all users, regardless of circumstance, use this component?

Responsiveness

Our components must respond to browser window resizing and varying screen resolutions.

Completion

Does this component account for all aspects of the design?

Customization

Have we implemented all of the customizable aspects of this component?

Error Handling / Prop Validation

How do our components respond when something breaks?

Browser Compatibility

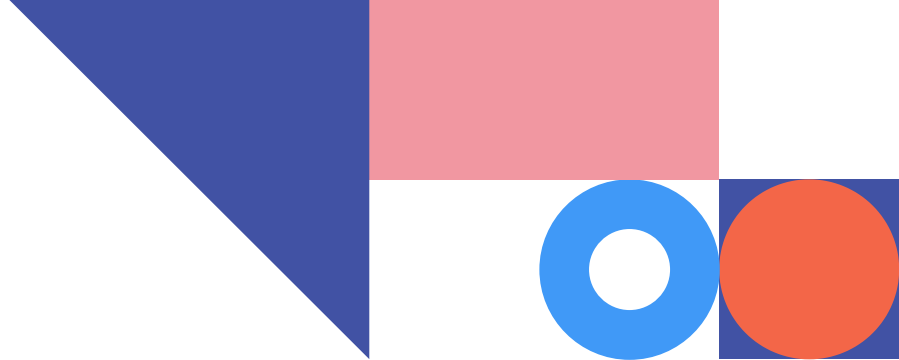
Do the technologies we use work across all supported browsers or must we include polyfills?

Common mistakes

Starting for scale

While the ability to scale is good, building your components for scale can be a detriment.

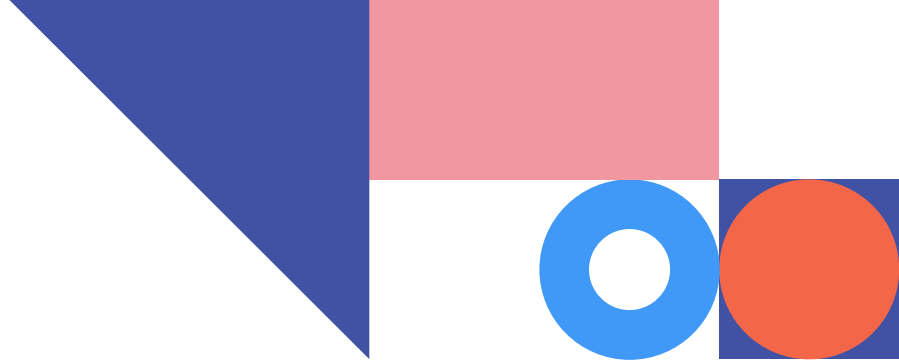
Only scale when needed.



Common mistakes

Educating before building

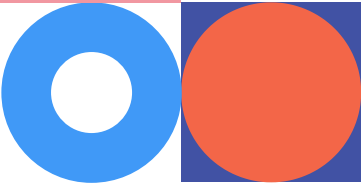
Educating your teams about your design system can negatively impact your rapport if there's nothing to use.



Common mistakes

Not discussing workflow

If you going to be collaborating on a design system, it's important to come to terms on a working model.



Common mistakes

Not documenting decisions

Design systems require a lot of investment and will often have lots of eyes on them.

Documenting decisions will save you and your team the headache of having to explain to each stakeholder why you're doing something a certain way.

