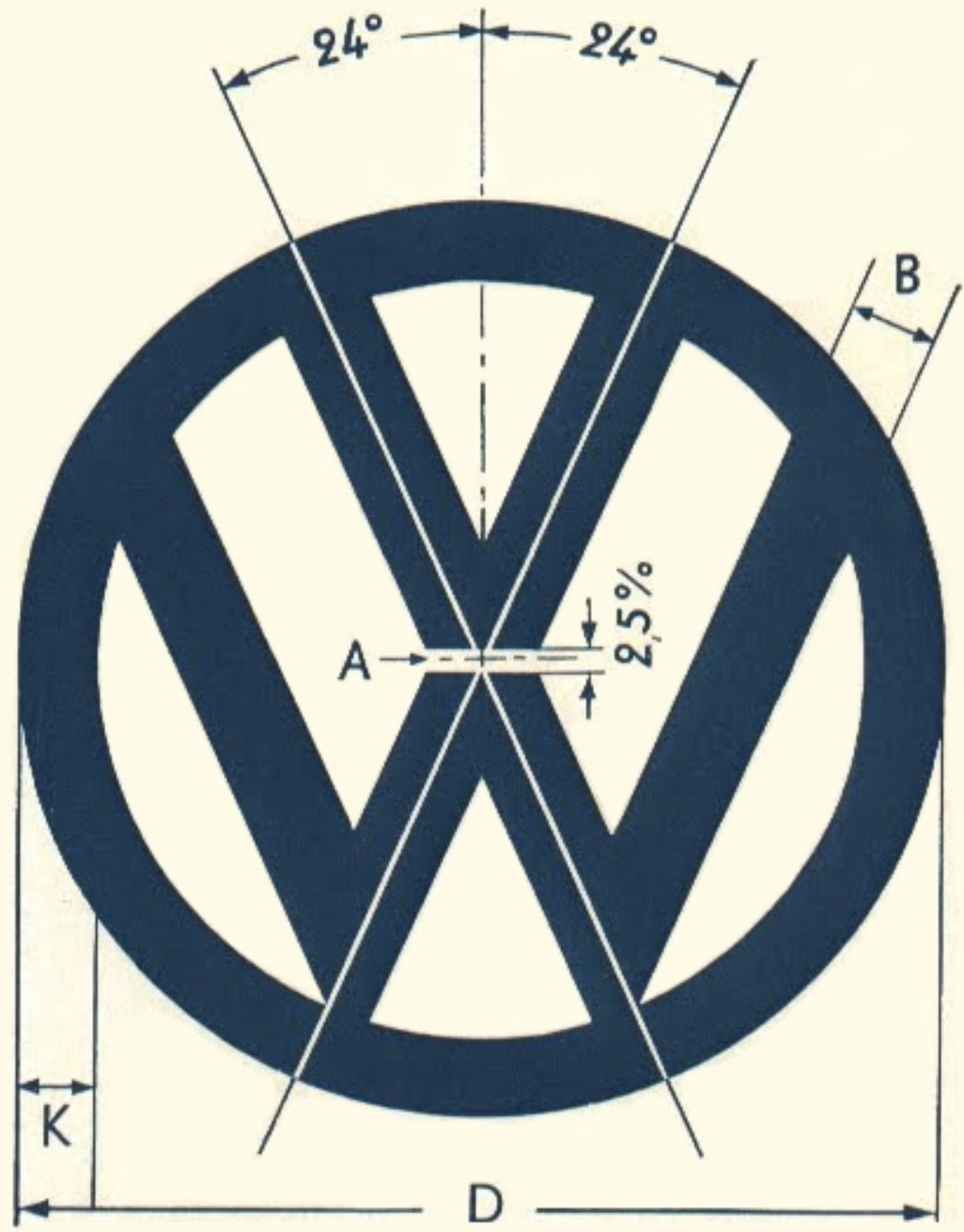


ITI0209: User Interfaces

# 08. Design Systems - Layout, Sizing, Fonts and Colors

Martin Verrev

Spring 2026

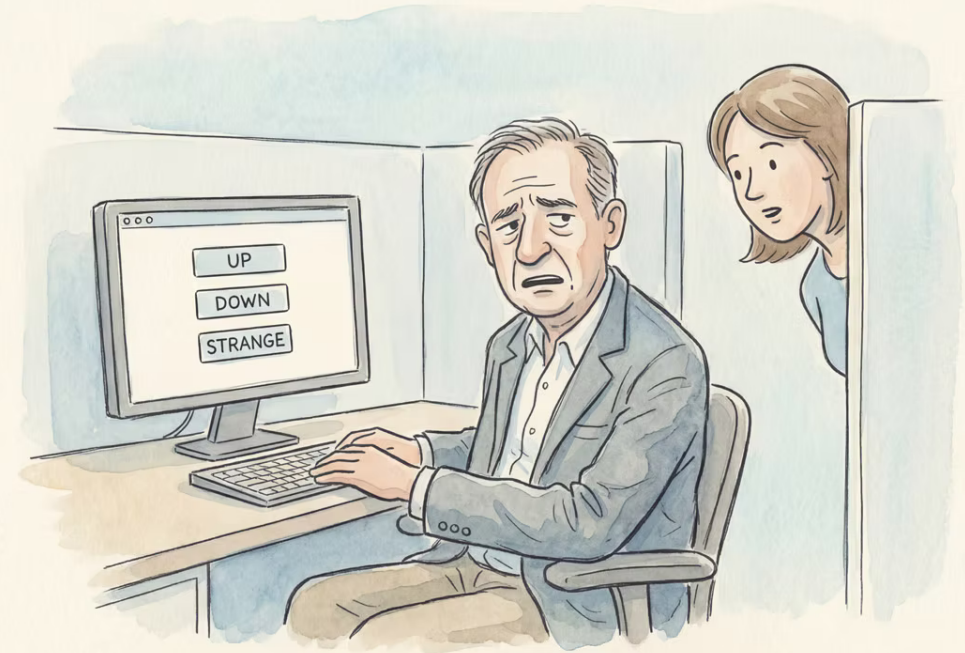


# Jakobs's Law

Users spend most of their time on other sites, and they prefer your site to work the same way as all the other sites they already know.

*Jakob Nielsen. 2000*

<https://lawsofux.com/jakobs-law/>

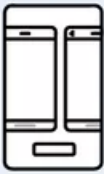
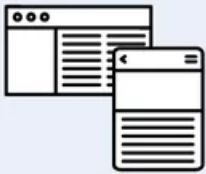




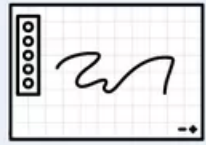



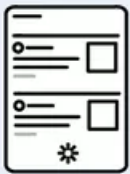
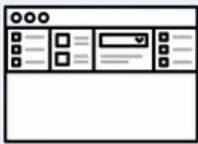
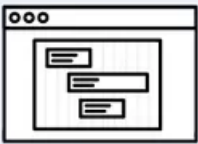
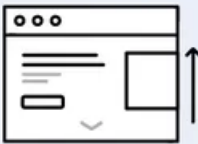



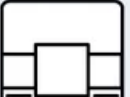
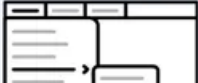



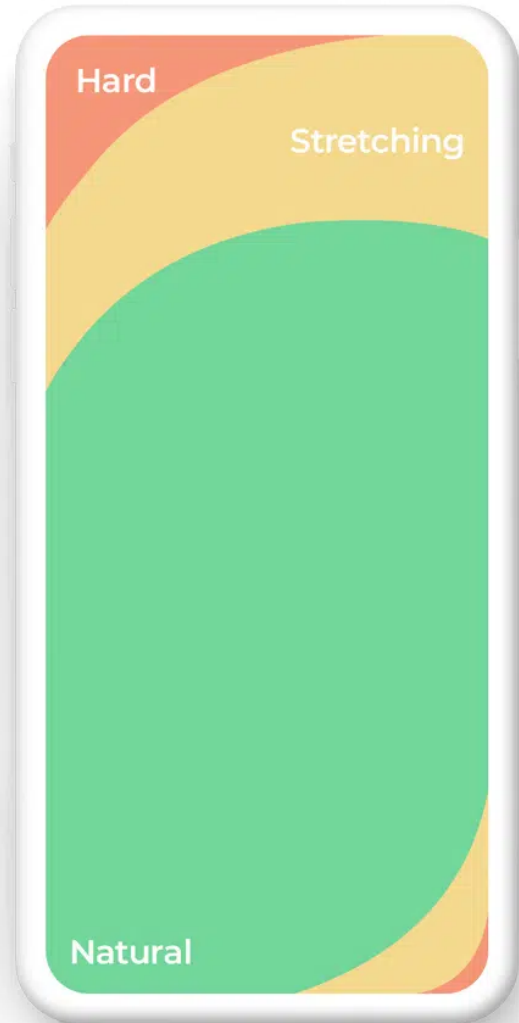
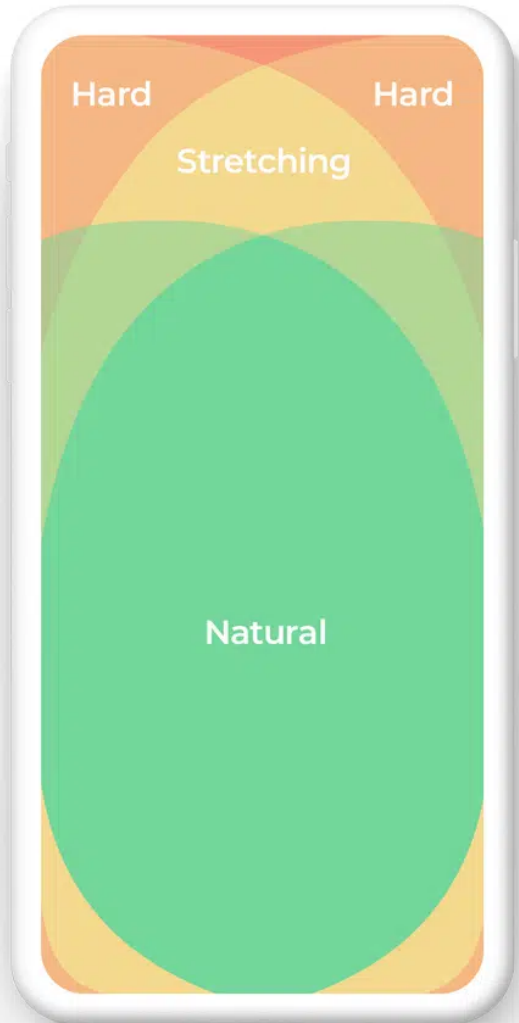
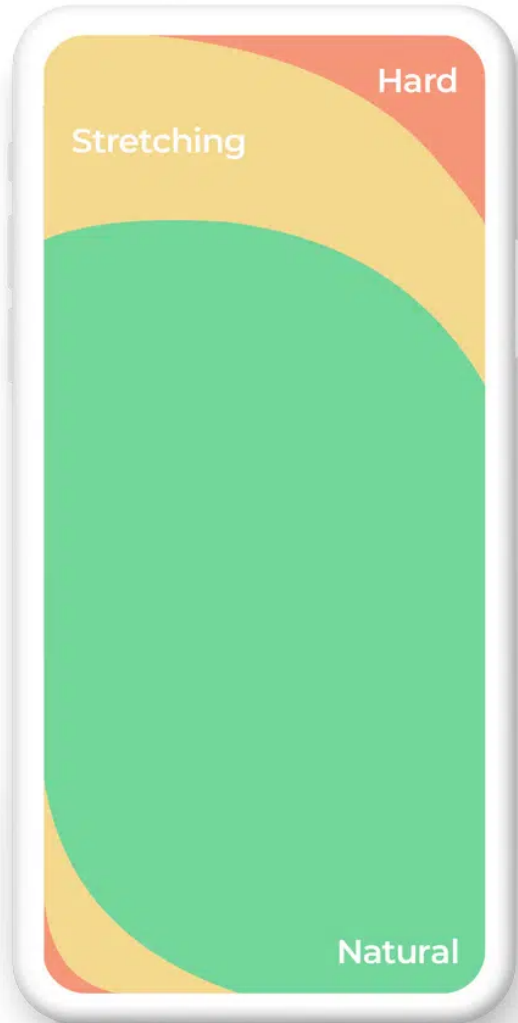
*“I’m sure your ‘Experimental Vertical-Scroll, Non-Euclidean’ interface is a masterwork, Brenda, but since I spend 90 percent of my life on Gmail and Amazon, my brain just can’t make the leap.”*

Thus your app should match those the user is already familiar with. Do not worry about it too much at this stage. Follow your intuition and what others have done.

See:

- <https://devsquad.com/blog/user-interface-layouts>
- <https://www.uxpin.com/studio/blog/web-layout-best-practices-12-timeless-ui-patterns-explained/>
- <https://ixdf.org/literature/topics/page-structure>

Grid	Stacked	Tabbed	Card-based	Floating action button
 <p>6</p>	 <p>7</p>	 <p>8</p>	 <p>9</p>	 <p>10</p>
Split screen	Liquid or responsive	Full-screen	Masonry	Overlay
 <p>11</p>	 <p>12</p>	 <p>13</p>	 <p>14</p>	 <p>15</p>
Circular	Canvas	Multi-panel	Hierarchical	Scattered or freeform
 <p>16</p>	 <p>17</p>	 <p>18</p>	 <p>19</p>	 <p>20</p>
Infinite scroll	Ribbon	Timeline	Parallax	Fixed sidebar
 <p>21</p>	 <p>22</p>	 <p>23</p>	 <p>24</p>	 <p>25</p>



# Considerations for Mobile

Touchscreens have changed how we interact with digital content. Designing for touch requires larger, finger-friendly targets, avoiding hover states, and focusing on thumb-friendly zones. Here's what you need to know:

1. **Finger Size Matters:** Average fingertips are 1.8 cm wide, so touch targets should be at least 48 pixels with 8 pixels of spacing.
2. **Thumb Zones:** Place key actions in the bottom third of screens for one-handed ease. Keep away from screen edges.
3. **No Hover States:** Ensure all functionality is accessible via taps, not mouse hovers.
4. **Testing Is Key:** Test designs on real devices to catch issues like small buttons or awkward layouts.

# Touch Target Size & Spacing Guidelines

Minimum requirements for touch-friendly interface design

## Visual Context








**Average Fingertip Size:**  
0.6–0.8 inches (1.6–2 cm)



8dp Spacing



**Average Thumb Size:**  
~1 inch (2.5 cm)

Organization/Platform	Minimum Target Size	Spacing Requirement	Applicability
 Apple (iOS)	44 × 44 pt	1 px minimum	iOS Apps / Safari
 Google (Android)	48 × 48 dp	8 dp minimum	Android / Material Design
 Nielsen Norman Group	1 × 1 cm (0.4 × 0.4 in)	2 mm minimum	General Touch Interfaces
 WCAG 2.1 (AAA)	44 × 44 CSS px	N/A (included in size)	Web Accessibility
 WCAG 2.2 (AA)	24 × 24 CSS px	Sufficient spacing required	Web Accessibility

Recommended: Use 48px minimum with 8px spacing for optimal touch accuracy

# General Guidelines

# Layout and Space

- White space should be removed, not added
- When designing for the web, white space is almost always added to a design - if something looks little too cramped, you add a bit of margin or padding until things look better.
- A better approach is to start by giving something way too much space, then remove it until it you're happy with the result.

# Start layout with too much white space





## Set up Two-Factor Authentication STEP 1 OF 3

Every time you sign in to your account, you will need your password and verification code

### Setup your phone

Enter the phone number you would like to use.

Country Phone Number

 Canada ▼   [Next Step](#)

# Start layout with too much white space



## Set up Two-Factor Authentication

STEP 1 OF 3

Every time you sign in to your account, you will need your password and verification code

### Setup your phone

Enter the phone number you would like to use.

Country



Canada



Phone Number

+1 (555) 555-5555

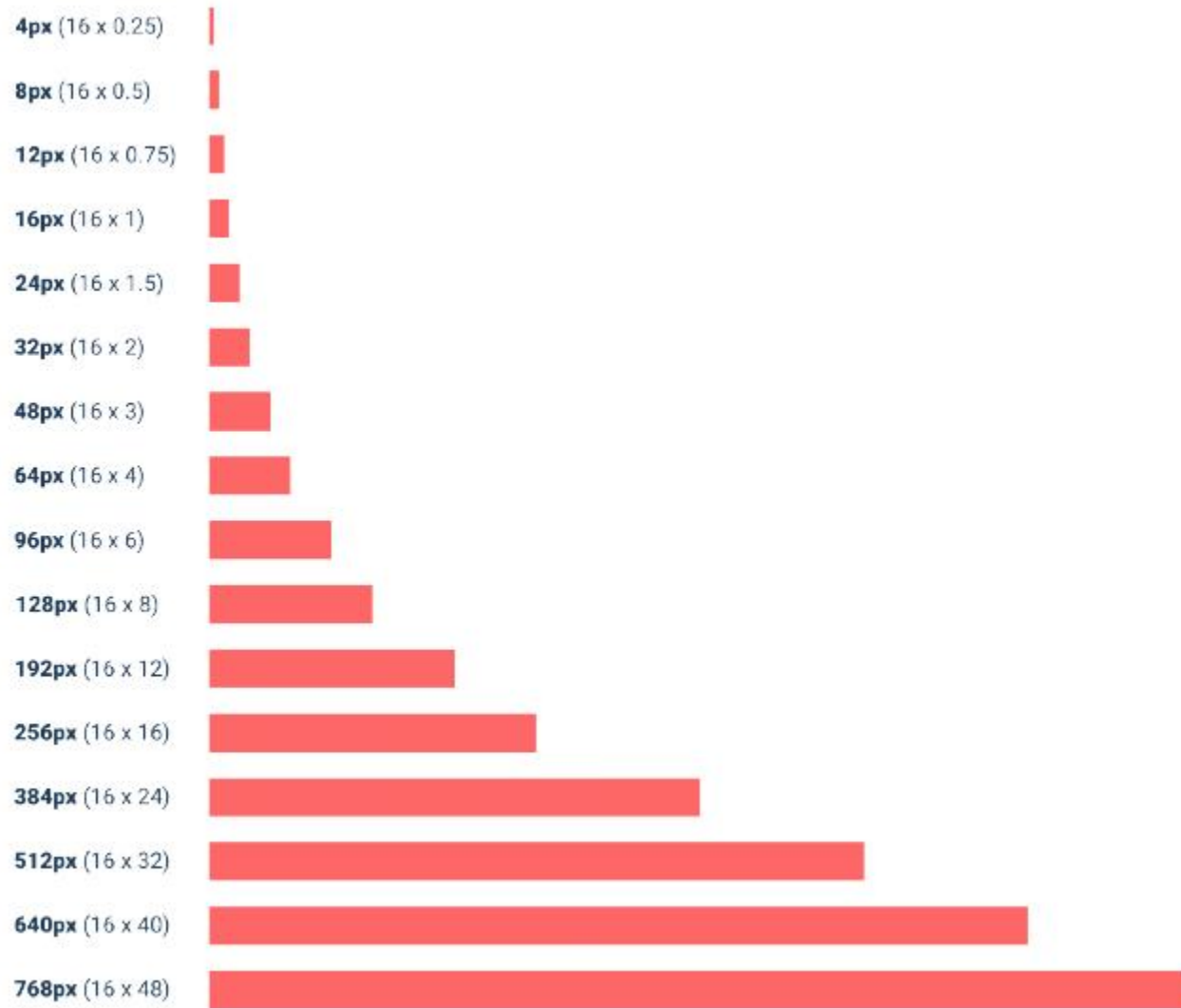


Next Step

# Establish a spacing and sizing system

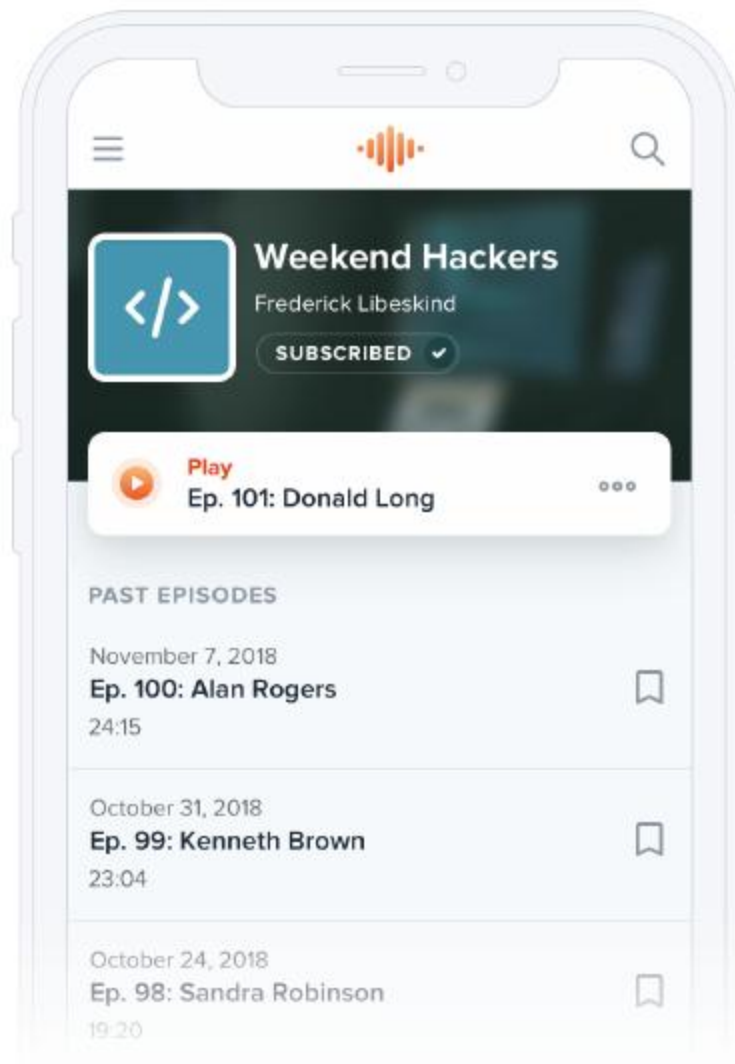
- Limit yourself to a constrained set of values, defined in advance.
- If you want your system to make sizing decisions easy, make sure no two values in your scale are ever closer than about 25%.
- A simple approach is to start with a sensible base value, then build a scale using factors and multiples of that value.

**16px** is a great number to start with because it divides nicely, and also happens to be the default font size in every major web browser.



## You don't have to fill the whole screen

- If you only need 600px, use 600px. Spreading things out or making things unnecessarily wide just makes an interface harder to interpret, while a little extra space around the edges never hurt anyone.
- This is just as applicable to individual sections of an interface, too. You don't need to make everything full-width just because something else (like your navigation) is full-width.



Browser navigation bar with back, forward, and refresh icons. The address bar is empty.

Spotify logo (orange waveform icon) | Browse | Library | Search icon

### Weekend Hackers

Frederick Libeskind

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October 31, 2018	<b>Ep. 99: Kenneth Brown</b>	23:04	Bookmark icon
October 24, 2018	<b>Ep. 98: Sandra Robinson</b>	19:20	Bookmark icon
October 17, 2018	<b>Ep. 97: Hannah Elizabeth</b>	23:09	Bookmark icon
October 10, 2018	<b>Ep. 96: Anthony Jordan</b>	22:16	Bookmark icon
October 3, 2018	<b>Ep. 95: Whitney Barns</b>	23:16	Bookmark icon

# Thinking in columns

If you're designing something that works best at a narrower width but feels unbalanced in the context of an otherwise wide UI, see if you can split it into columns instead of just making it wider.

A screenshot of a web browser displaying the 'Account Settings' page for a service named 'Playback'. The browser's address bar is empty, and the navigation bar includes the 'Playback' logo and links for 'Discover', 'Connect', 'Community', and 'Jobs'. On the right side of the navigation bar, there are icons for a message, a refresh, and a user profile. The main content area is titled 'Account Settings' and is divided into two columns. The left column is titled 'Basics' and contains a paragraph of text: 'Having an up-to-date email address attached to your account is a great step toward improved account security.' The right column contains three form fields: 'Email address' with a text input field, 'Password' with a 'Change your password' button, and 'Language' with a dropdown menu currently showing 'Choose...'. The 'Country' field is partially visible at the bottom of the page.

# Avoid ambiguous spacing

- Relative sizing doesn't scale.
- When groups of elements are explicitly separated — usually by a border or background color — it's obvious which elements belong to which group.
- At best the user has to work harder to interpret the UI, and at worst it means accidentally putting the wrong data in the wrong field. The fix is to increase the space between each form group so it's clear which label belongs to which input.



## JOIN OUR GROWING COMMUNITY

- ✔ Connect with accomplished founders in your local area and have online conversations with others in the community. 24px
- ✔ Partake in exclusive questioning sessions with investors, executives and high-profile leaders. 24px
- ✔ Pitch your concepts and get insights from other founders.



## JOIN OUR GROWING COMMUNITY

- ✔ Connect with accomplished founders in your local area and have online conversations with others in the community. 24px
- ✔ Partake in exclusive questioning sessions with investors, executives and high-profile leaders. 36px
- ✔ Pitch your concepts and get insights from other founders.

# Keep your line length in check

- Too long lines make text hard to read. 75 characters per line is optimal width
- Line length isn't the only factor in choosing the right line-height — font size has a big impact as well.
- When text is small, extra line spacing is important because it makes it a lot easier for your eyes to find the next line when the text wraps.
- Line-height and font size are inversely proportional — use a taller line-height for small text and a shorter line-height for large text.

## Line Length

### Minimum 40 characters

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Narrower columns are read more quickly.

### Maximum 75 characters

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Wider columns are read more slowly.

# Alignment

- In general, text should be aligned to match the direction of the language it's written in, In general, text should be aligned to match the direction of the language it is written in.
- Center-alignment can look great for headlines or short, independent blocks of text.
- If you're designing a table that includes numbers, right-align them.



### **The one-size-fits-all solution**

Build a beautiful website without touching code. We'll provide you with all of the tools and insights to grow your online business. Our templates are all you need to stand out from the rest of the competition.

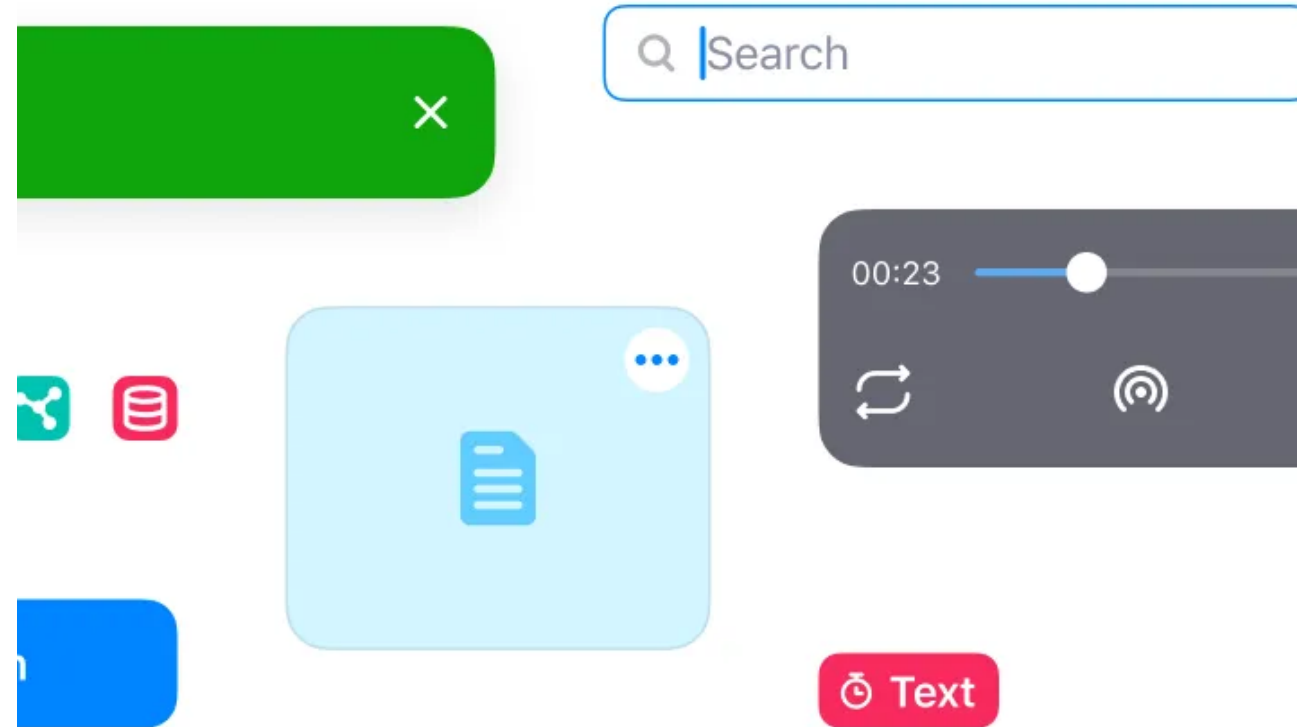


### **The one-size-fits-all solution**

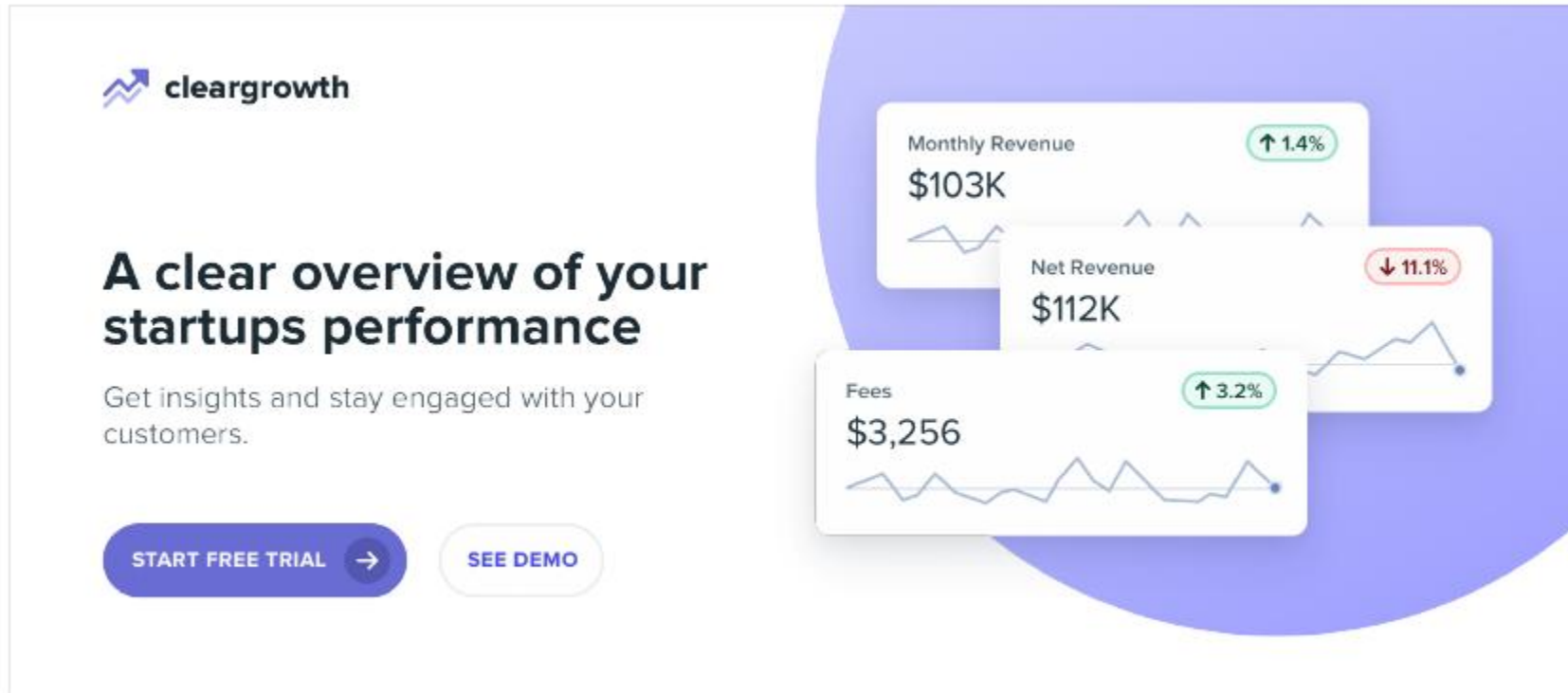
Build a beautiful website without touching code. We'll provide you with all of the tools and insights to grow your online business. Our templates are all you need to stand out from the rest of the competition.

# Border Radius

- As small of a detail as it sounds, if and how much you round the corners in your design can have a big impact on the overall feel.
- A small border radius is pretty neutral, and doesn't really communicate much of a personality on its own



## Large border radius starts to feel more playful:



The image shows a dashboard for 'cleargrowth' with a clean, modern design. The main heading is 'A clear overview of your startups performance', followed by the subtext 'Get insights and stay engaged with your customers.' Below this are two buttons: 'START FREE TRIAL' with a right-pointing arrow, and 'SEE DEMO'. On the right side, there are three overlapping white cards with rounded corners, each displaying a different metric with a line chart below it. The top card shows 'Monthly Revenue' at '\$103K' with a green upward arrow and '1.4%'. The middle card shows 'Net Revenue' at '\$112K' with a red downward arrow and '11.1%'. The bottom card shows 'Fees' at '\$3,256' with a green upward arrow and '3.2%'. The background features a large, light blue circular graphic.

**cleargrowth**

### A clear overview of your startups performance

Get insights and stay engaged with your customers.

[START FREE TRIAL](#) [SEE DEMO](#)

Metric	Value	Change
Monthly Revenue	\$103K	↑ 1.4%
Net Revenue	\$112K	↓ 11.1%
Fees	\$3,256	↑ 3.2%

**No border radius at all feels a lot more serious or formal:**



FUSION VENTURES

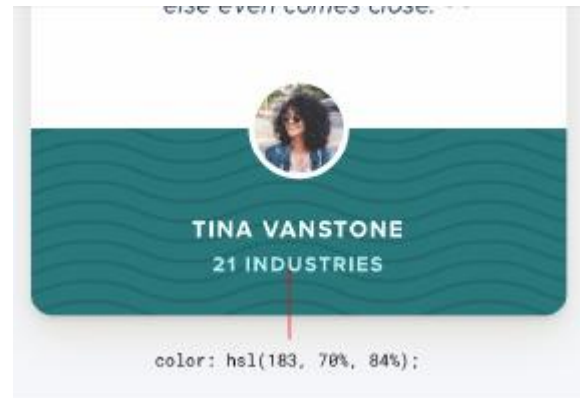
We invest in companies  
that make a difference

A group of investors helping companies  
establish, develop, and change the world.

Learn more →

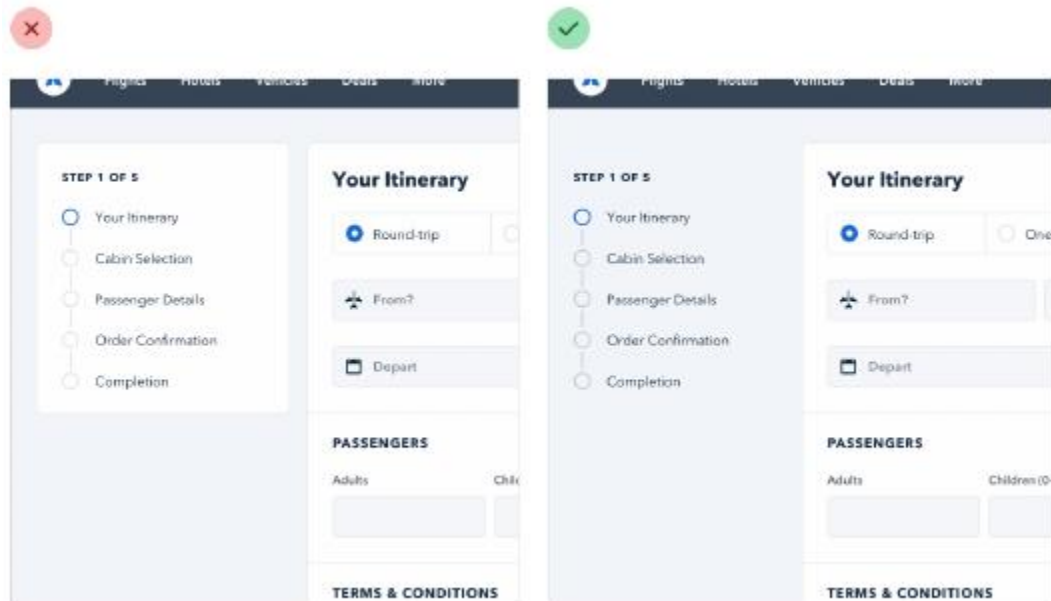
# Don't use grey text on colored backgrounds

Making the text closer to the background color is what actually helps create hierarchy, not making it light grey. Choose a color with the same hue, and adjust the saturation and lightness until it looks right to you



# Emphasize by de-emphasizing

Sometimes you'll run into a situation where the main element of an interface isn't standing out enough, but there's nothing you can add to it to give it the emphasis it needs.



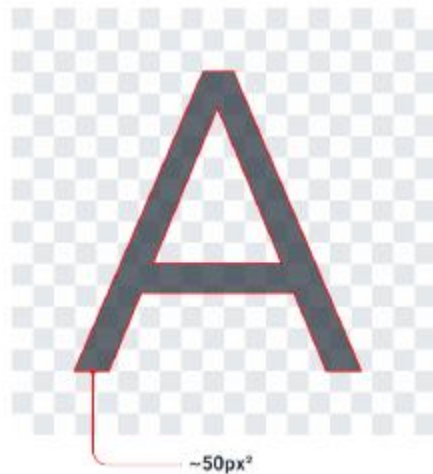
# Combine labels and values

If you're building a real estate app, something like "Bedrooms: 3" could simply become "3 bedrooms".



# Balance weight and contrast

The reason bold text feels emphasized is that in the same amount of space, more pixels are used for text than for the background. A simple and effective way to balance this is to lower the contrast of the icon by giving it a softer color.



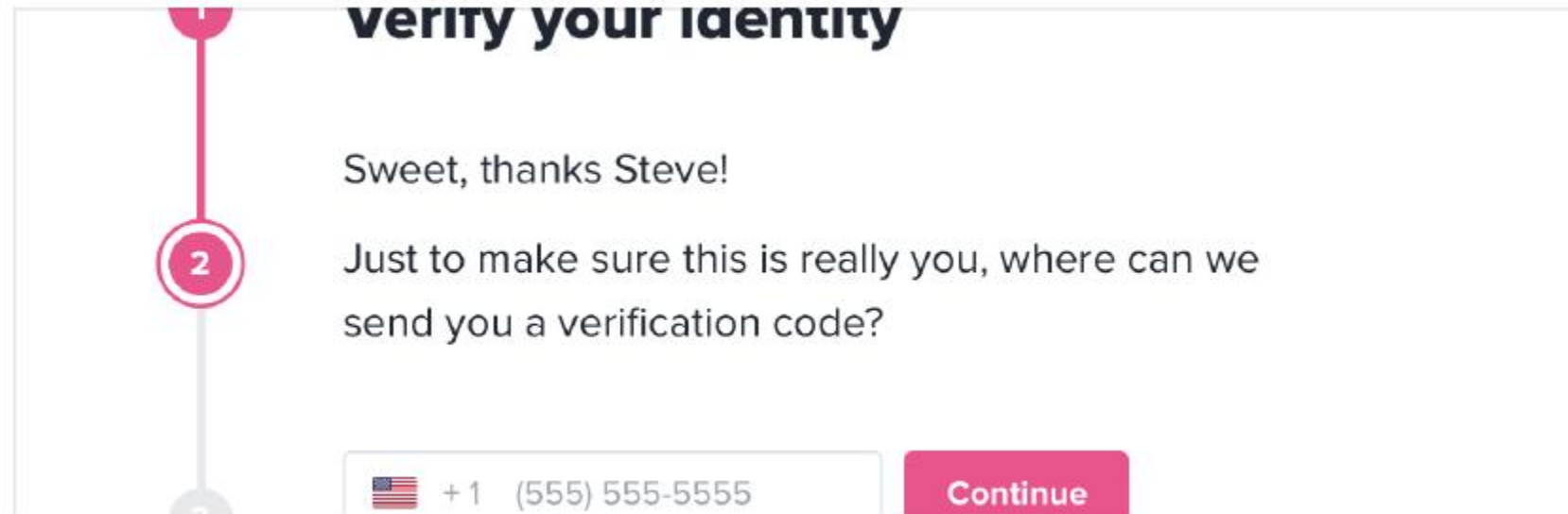
# Language

- While not a visual design technique in itself, the words you use in an interface have a massive influence on the overall personality.
- Using a less personal tone might feel more official or professional
- Using friendlier, more casual language makes a site feel, well, friendlier.

See also: <https://rockcontent.com/blog/google-tool-inclusive-language/>

# Language

Words are everywhere in a user interface, and choosing the right ones is just as (if not more) important than choosing the right color or typeface.



**verify your identity**

Sweet, thanks Steve!

Just to make sure this is really you, where can we send you a verification code?

+1 (555) 555-5555

Continue

Ascender  
Bowl  
Ligature  
Baseline  
Stem  
Crossbar  
Terminal

Counter  
Finial  
Leading  
X-Height  
Serif  
Spine  
Descender

Sans Serif

Aa

Montserrat

Serif

Aa

Playfair Display

# Typography

- If you want an elegant or classic look, you might want to incorporate a serif typeface in your design
- For a playful look, you could use a rounded sans serif:
- If you're going for a plainer look, or want to rely on other elements to provide the personality, your safest bet is a fairly neutral sans-serif — think something like Helvetica.
- If you really don't trust your own taste, one great option is to rely on the system font stack: `-apple-system, Segoe UI, Roboto, Noto Sans, Ubuntu, Cantarell, Helvetica Neue;`

# Text Scales

Choosing font sizes without a system is a bad idea for two reasons:

1. It leads to annoying inconsistencies in your designs.
2. It slows down your workflow.

## Hand-crafted scales

For interface design, a good approach is to simply pick values by hand. You do not have to worry about subpixel rounding errors this way, and you have total control over which sizes exist instead of outsourcing that job to some mathematical formula.

# Choosing a Font

- **Ignore typefaces with less than five weights.** While not always true, typefaces that come in a lot of different weights tend to be crafted with more care and attention to detail than typefaces with fewer weights.
- **Optimize for legibility.** When someone designs a font family, they are usually designing it for a specific purpose. Fonts meant for headlines usually have tighter letter-spacing and shorter lowercase letters, while fonts meant for smaller sizes have wider letter-spacing and taller lowercase letters.
- **Choose Popular fonts.** If a font is popular, it's probably a good font. Most font directories will let you sort by popularity, so this can be a great way to limit your choices. Inspect some of your favorite sites and see what typefaces they are using.



## Do This

### TYPOGRAPHY

Web typography is one of the essential aspects of designing good websites. This affects, to a greater extent, readability, user engagement, brand identity and ultimately customer experience.

## Don't Do This

### TYPOGRAPHY

Web typography is one of the essential aspects of designing good websites. This affects, to a greater extent, readability, user engagement, brand identity and ultimately customer experience.

Fonts in use

<https://fontsinuse.com/>



type

etype



Work Sans

Space Grotesk

Source Serif



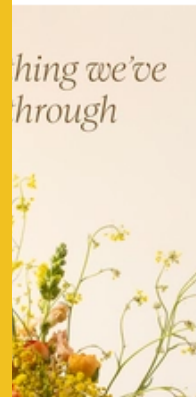
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汉仪皇室战争体



IBragga

CASLON R



People notice first:

a shape  $\Delta$

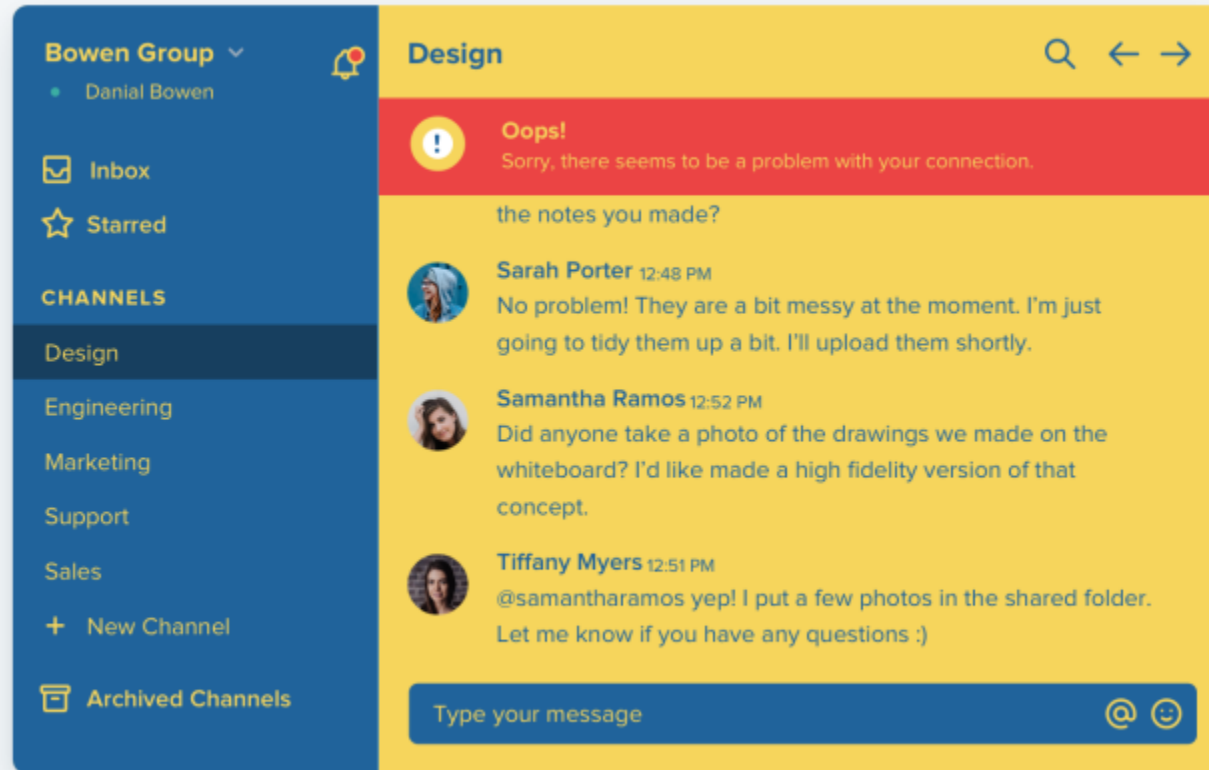
then **color**

and lastly **content**

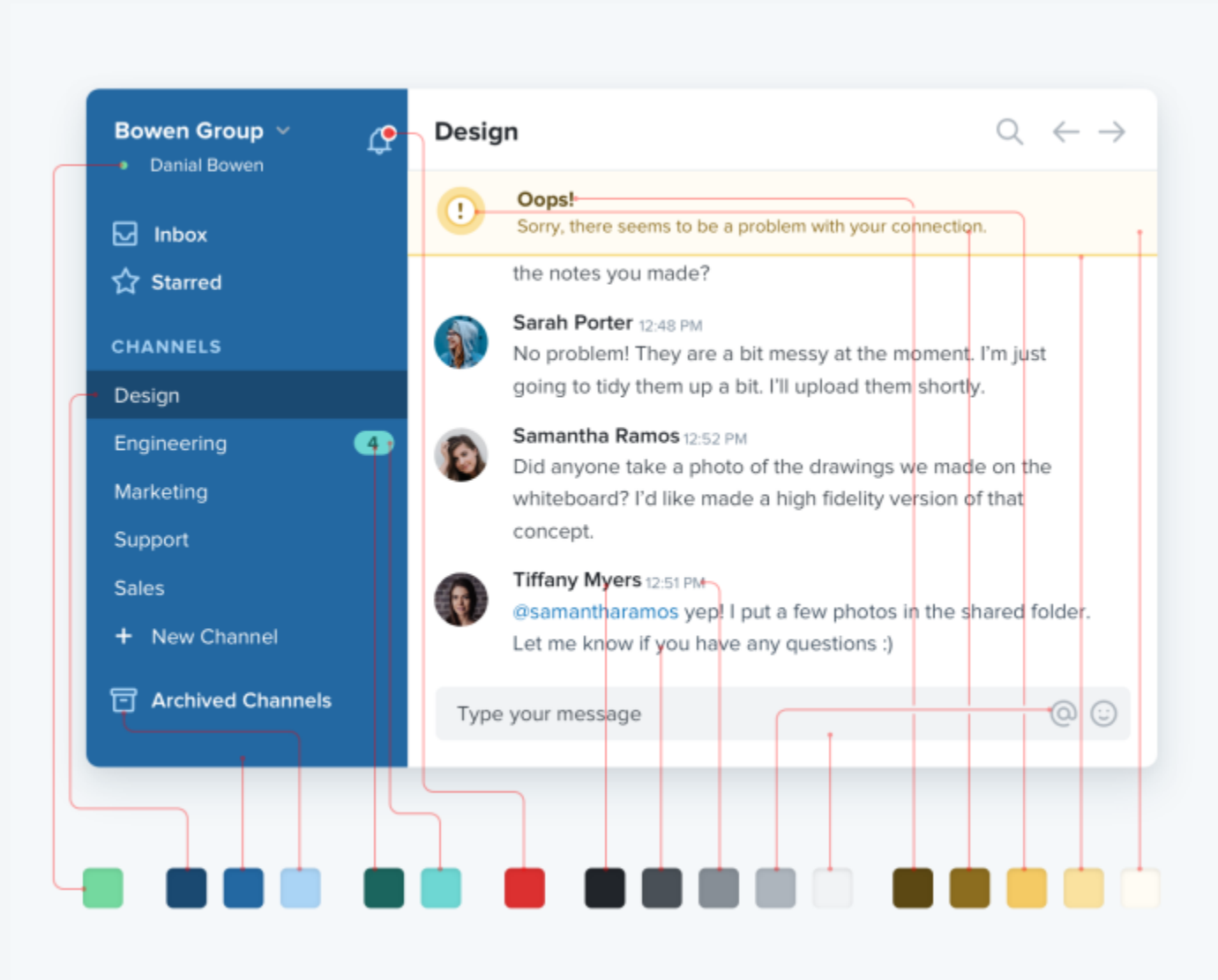
# Color

There's a lot of science out there on the psychology of color, but in practice, you really just need to pay attention to how different colors feel to you.

# Choosing primary colors is not enough



# You need more colors than you think



# Choosing the colors

## **Preparation: make your layout design grayscale**

Before choosing colors for your design, you should make the UI design grayscale so colors won't distract you. This decision will also shift your focus to the content and visual hierarchy of UI elements so you can tweak it before choosing the colors.

1. Select the base color
2. Create a color palette
3. Apply the palette to design



# Principles of Color

1. **Keep it simple** – too many colours makes using them hard. One or two core colours are required for a logo. These colours should become the visual identifiers across different media.
2. The colours need to **complement each other**, yet have good contrast.
3. **Be distinctive** – check the colours your competition is using.
4. **Test, test and test** – how do the colours look on screen and in print, are there any cultural issues, do they stand out on different backgrounds?
5. Most importantly - your colours need to **express and enhance the meaning of your brand**, have relevance to your audience and last for a long time.

# Choosing Primary Color

- **Red:** Coca-Cola or Nintendo – Implies excitement or happiness
- **Orange:** Nickelodeon or Fanta – Implies a friendly, fun time is ahead
- **Yellow:** Nikon or McDonalds – Implies optimism and happiness
- **Green:** Whole Foods or Animal Planet – Implies freshness and nature
- **Blue:** Walmart or American Express – Implies dependability and reassurance
- **Purple** Roku, Twitch – Purple is associated with royalty, fantasy, and flowers
- **Brown:** Nespresso or UPS – Implies a reliable product that can be used by anyone
- **Black:** Chanel or Prada – Implies luxury or elegance
- **White:** Apple or Nike – Implies sleek, user-friendly products

# Tools

- **Colors:** <https://colors.co>
- **Colorsafe:** <http://colorsafe.co/>
- **Adobe Color:** <https://color.adobe.com/>

...

- **Essential Color Tools for UX Designers:** <https://uxplanet.org/essential-color-tools-for-ux-designers-530036eaf9ae>

# Refactoring UI

*Adam Wathan, Steve Schoger*

2018

<https://www.refactoringui.com/>



# Links

- The Thumb Zone: A Practical Guide to Mobile UX & UI Design. <https://parachutedesign.ca/blog/thumb-zone-ux/>
- Typography for Developers. <https://css-tricks.com/typography-for-developers/>
- How to Use web fonts. <https://blog.logrocket.com/how-to-use-web-fonts-in-css-a0326f4d6a4d>
- Building a consistent corner radius system in UI. <https://medium.com/design-bootcamp/building-a-consistent-corner-radius-system-in-ui-1f86eed56dd3>
- How to Use Colors in UX Design. <https://uxdesign.cc/how-to-use-color-in-ux-design-9ba6db4807d5>
- The semantic interface palette is simple. <https://uxdesign.cc/the-semantic-interface-palette-is-simple-09ef5349c0ca>

**Thank you!**