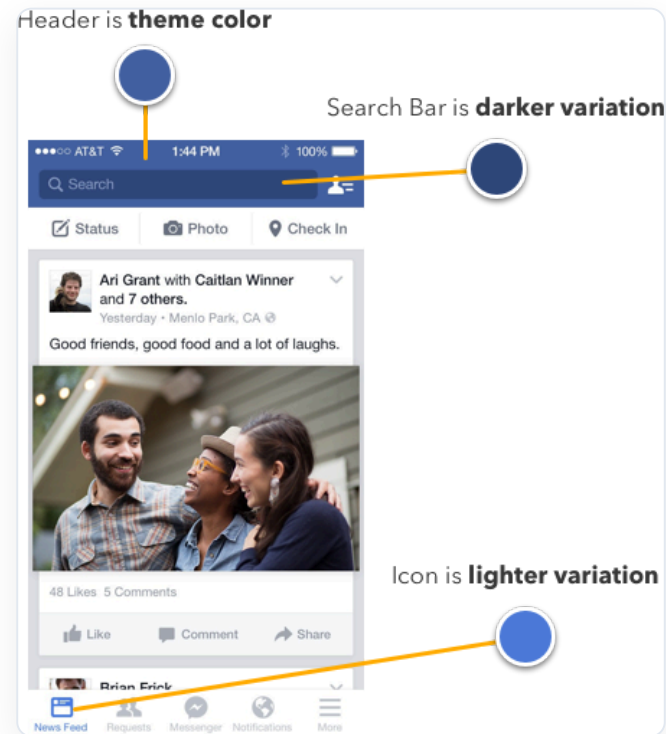


UNIT 5: UI DESIGN CONSIDERATIONS · §5.1 COLOR SCHEME

Color in UI Design

Darker & Lighter Variations in Real UIs

Look at Facebook's blue header:



You didn't think that search bar was just a translucent black overlay, did you? Spoiler alert: it's not.

Facebook's Exact Color Shift



The hue moves 1° out of 360° (rounding error). Saturation went UP (+5%), Brightness went DOWN (-7%).

Why not black overlay? In HSB, adding black only reduces brightness. It adds **zero saturation**.

Swell Grid: Count the Variations!



Sha-BAM. Practically everything on this page is a variation of the initial blue.

Element States are Color Variations

Interact with the live Harvest header and button below to see color variations in action:

 HARVEST

Time

Expenses

Projects

Team

Reports

Manage

+ New Entry

Preview State:

Normal (500)

Hover (600)

Active (700)

Header Base: H: 27° · S: 100% · B: 95% (#f36c00)

The Takeaway: Hover state is lighter (↑B, ↓S). Selected tab is darker (↓B, ↑S). This isn't a palette of 3 oranges—it's **1 base color with state variations**.

How to Modify Color: 2 Trusty Principles

1. Real-World Reference Cues

Even though interfaces are digital, our eyes evolved in the real world. We expect light, color, and shadows to behave naturally.

2. The HSB Color System

The most intuitive color system in Figma & CSS: **Hue** (0°–360°), **Saturation** (0%–100%), and **Brightness** (0%–100%).

Why HSB Beats RGB for UI Designers

Computers think in **RGB** (bits & hardware channels). Humans think in **HSB** (color, richness, light):

Hue (H)

0° to 360° (Angle on Wheel)

"Color of the rainbow." Which pure color it most resembles on the 360° color circle.

Saturation (S)

0% to 100% (Richness)

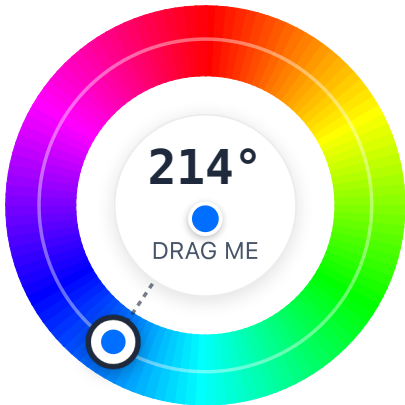
"Amount of color injected into gray."
0% is lifeless gray, 100% is vibrant maximum pigment.

Brightness (B)

0% to 100% (Lightbulb)

"The lightbulb in the room." 0% is pitch black (light off), 100% is light on full strength.

Hue (H): Interactive 360° Color Wheel



DEGREE (HUE)
214°

HEX CODE
#006FFF

COLOR FAMILY
Teal / Sky Blue

NEAREST ANCHOR
240° Blue

NATURAL LIGHTNESS
19% (Deepest Dark)

Adjust Angle: 214°

Anchors:

0° Red

60° Yellow

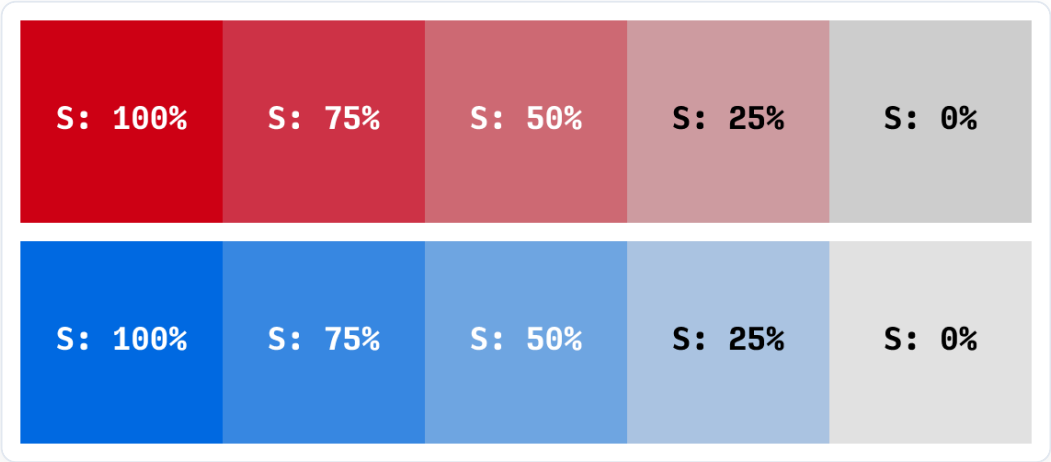
120° Green

180° Cyan

240° Blue

300° Magenta

Saturation (S): Richness & Visual Weight



0% Saturation = Pure Gray · 100% Saturation = Maximum Color Richness

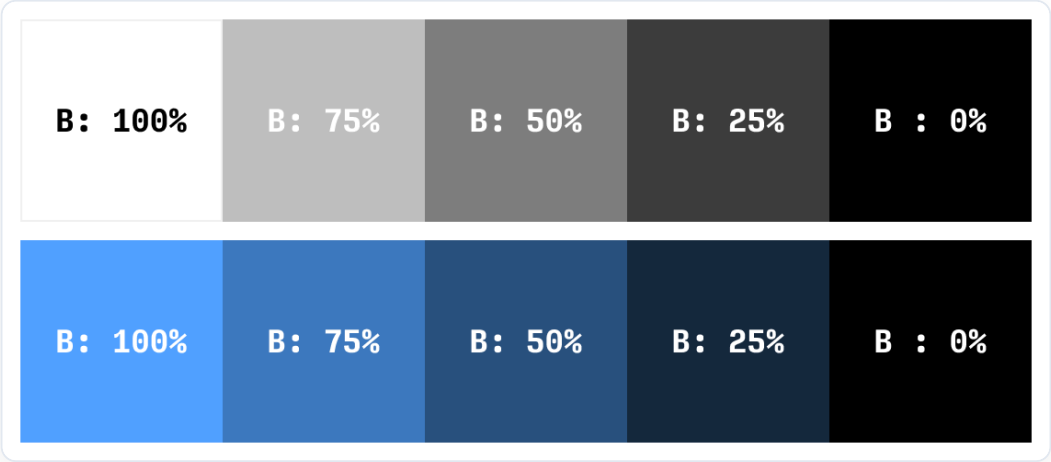


100% Saturation on Blue: Sticks out aggressively and clashes



Balanced Saturation: Harmonious, balanced visibility across hues

Brightness (B): The Lightbulb in the Room



0% Brightness = Lightbulb OFF (Pitch Black) · 100% Brightness = Lightbulb ON full blast

0% Brightness = Black
Regardless of Hue or Saturation, when B = 0%, the color is always pure black.

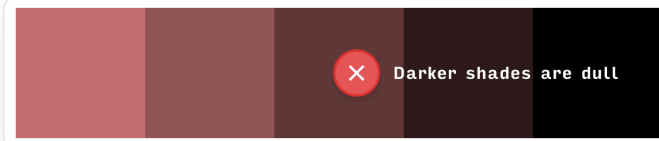
100% Brightness ≠ Pure White
100% Brightness is only pure white if **Saturation is also 0%**. Otherwise, it is a bright vivid color!

Black is NOT the Opposite of White in HSB



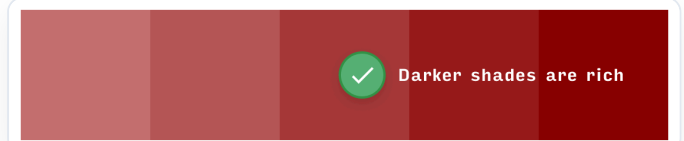
Adding White

Move to top-left corner: ↓ **Saturation**, ↑ **Brightness**.



Adding Black (Muddy)

Move straight down: ↓ **Brightness only**.
Saturation stays flat.



Removing White (Rich)

Move to bottom-right: ↑ **Saturation**, ↓ **Brightness**.

The Practitioner's Rule: To generate darker UI variations, **do not add black—remove white** (boost Saturation while dropping Brightness)!

Real-World Color Variations: Shadows

What happens when a shadow falls on a coral wall?

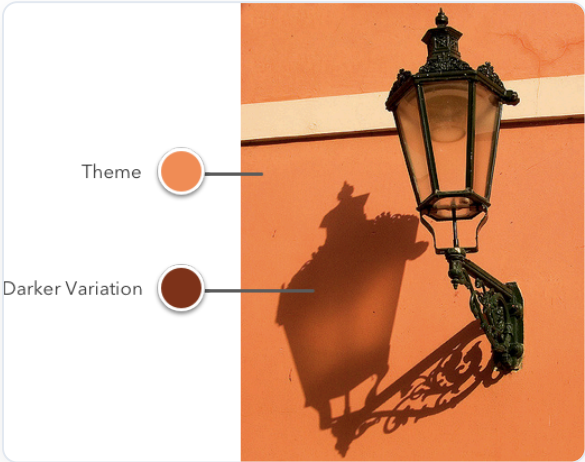
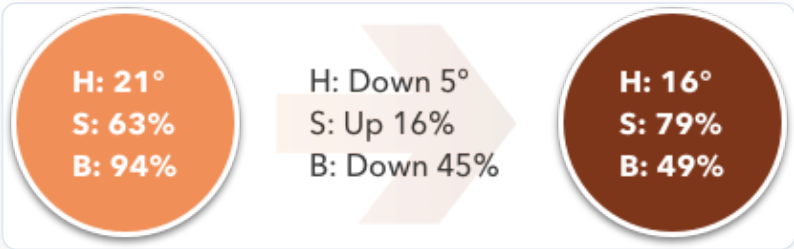


Photo by David Blaikie



Figma HSB color readings

Sunlight (**H:21, S:67, B:98**) → Shadow (**H:15, S:88, B:62**). Brightness dropped, **Saturation went UP (+21%)!**

Do shadows work the same way in Cuba?

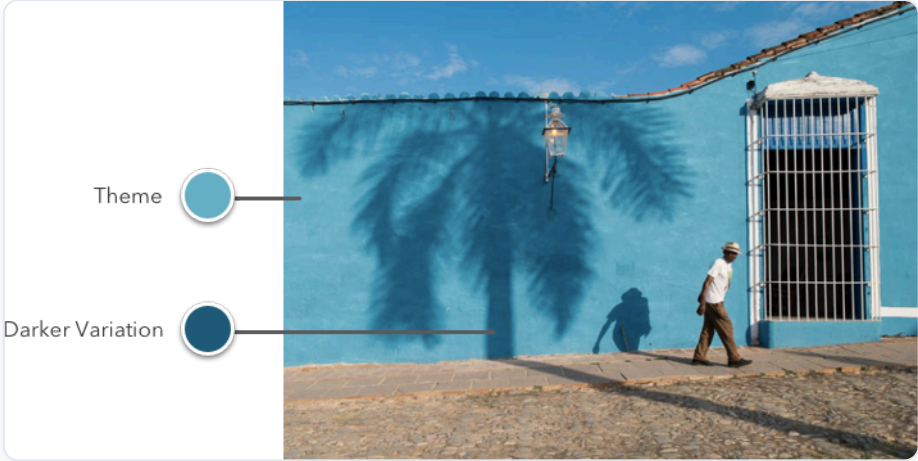


Photo by Matthias Uhlig



Figma HSB color readings

Sunlight (H:194, S:68, B:90) → Shadow (H:202, S:89, B:54). Brightness dropped, **Saturation went UP (+21%)** again!

The Rules: Darker Color Variations

Darker variation = Higher Saturation + Lower Brightness

Why it works

As light intensity (brightness) overtakes color intensity, colors wash out. In shadows, pure pigment emerges richer.

Why black overlays fail

Black only reduces brightness. It adds **zero saturation**, making buttons look dull, washed-out, and muddy.

Lighter Color Variations

Lighter variation = Lower Saturation + Higher Brightness



If you keep lowering saturation and raising brightness, you end up at pure White (S=0, B=100).

You can think of making lighter variations as **adding white** (e.g. reduced opacity on a white canvas).

THE GOLDEN RULE OF UI COLOR

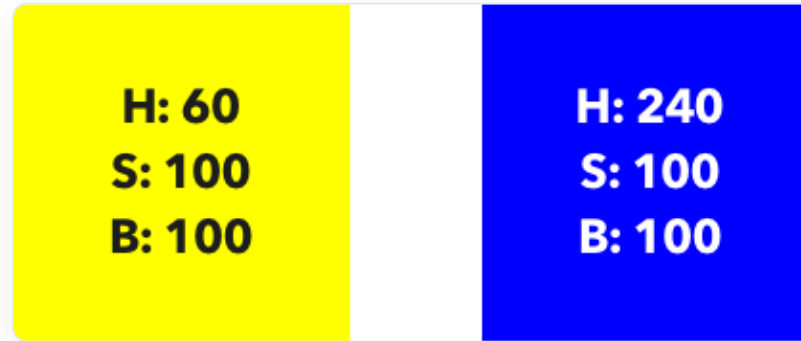
The Most Important Thing

Darker color variations are made by **lowering brightness** and **increasing saturation**.

Brighter color variations are made by **increasing brightness** and **lowering saturation**.

What About Hue? (Perceived Lightness)

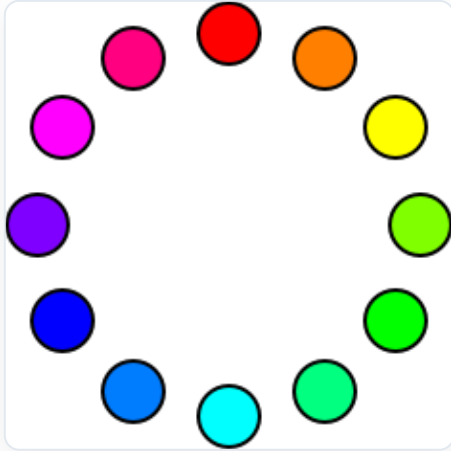
Each color has an inherent **perceived lightness**:



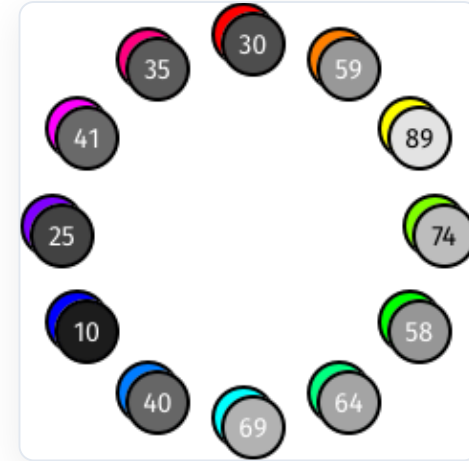
Both swatches are at 100% Brightness & 100% Saturation. Which appears brighter? Yellow!

Even with B=100% and S=100%, different hues have radically different natural perceived lightness.

The 12 Hues in Natural Lightness



12 Hues at 30° intervals (100% S, 100% B)



Same wheel in Grayscale Lightness Mode

In Grayscale mode: a bright gray = high perceived lightness; a dark gray = low perceived lightness.

Look, Sherlock, a pattern! 🧐

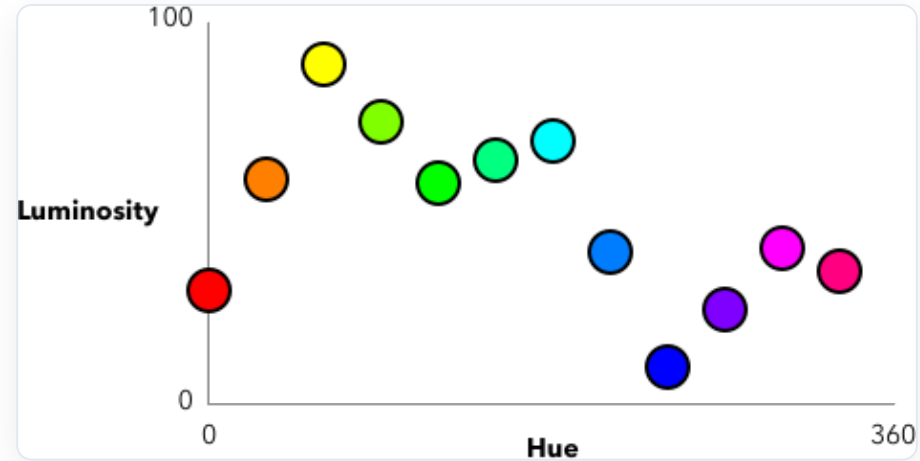
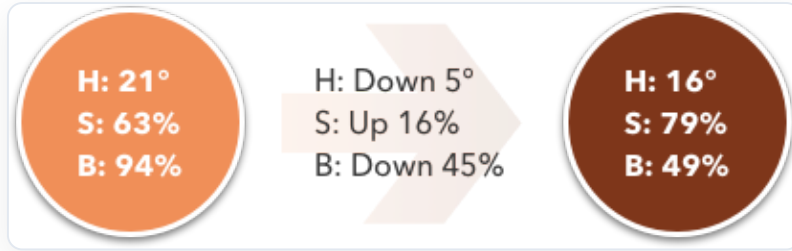


Chart of natural perceived lightness across the 360° hue circle.

3 Peaks (Lightest): Yellow (60°), Cyan (180°), Magenta (300°).

3 Troughs (Darkest): Red (0°), Green (120°), Blue (240°).

Why Shadows Shift Hue Up or Down



*Coral (21°) shifted **DOWN** towards Red (0°)*



*Teal (194°) shifted **UP** towards Blue (240°)*

The Rule for Hue: When creating a darker variation, shift Hue toward the nearest **lightness minimum (trough)** (Red 0°, Green 120°, Blue 240°).

The Way of Color (Summary Rules)

Darker Variations:

- Brightness **decreases** (↓)
- Saturation **increases** (↑)
- Hue shifts toward nearest **trough** (Red, Green, Blue)

Lighter Variations:

- Brightness **increases** (↑)
- Saturation **decreases** (↓)
- Hue shifts toward nearest **peak** (Yellow, Cyan, Magenta)

One Color, Many Modifications



An entire software interface generated purely from one shade of teal!

Interactive HSB Variation Sandbox

Drag the sliders to test the framework on any base color live:

LIVE HSB COLOR MODIFIER

INTERACTIVE

Hue (H):

214°

Sat (S):

85%

Bright (B):

92%

Wash (50)

#e1edfa

Wash (50)

Lighter (300)

H:210° S:59 B:96

Lighter (300)

Base (500)

#237aeb

Base (500)

Darker (700)

H:220° S:90 B:72

Darker (700)

Deep (900)

#072169

Deep (900)

UNIT 5 · §5.1 COLOR SCHEME IN UI DESIGN

Summary & Key Takeaways

- ✓ **Forget traditional color wheels:** UI design is built on *color variations*.
- ✓ **Switch to HSB mode** in your design tool.
- ✓ **Darker** = ↓ Brightness + ↑ Saturation + Hue to Trough.
- ✓ **Lighter** = ↑ Brightness + ↓ Saturation + Hue to Peak.

[← Back to Unit 5 Hub](#)