

Introduction to Typography for Digital Interfaces



"Typography for digital products arranges type on screens, distinct from fixed, high-resolution print."



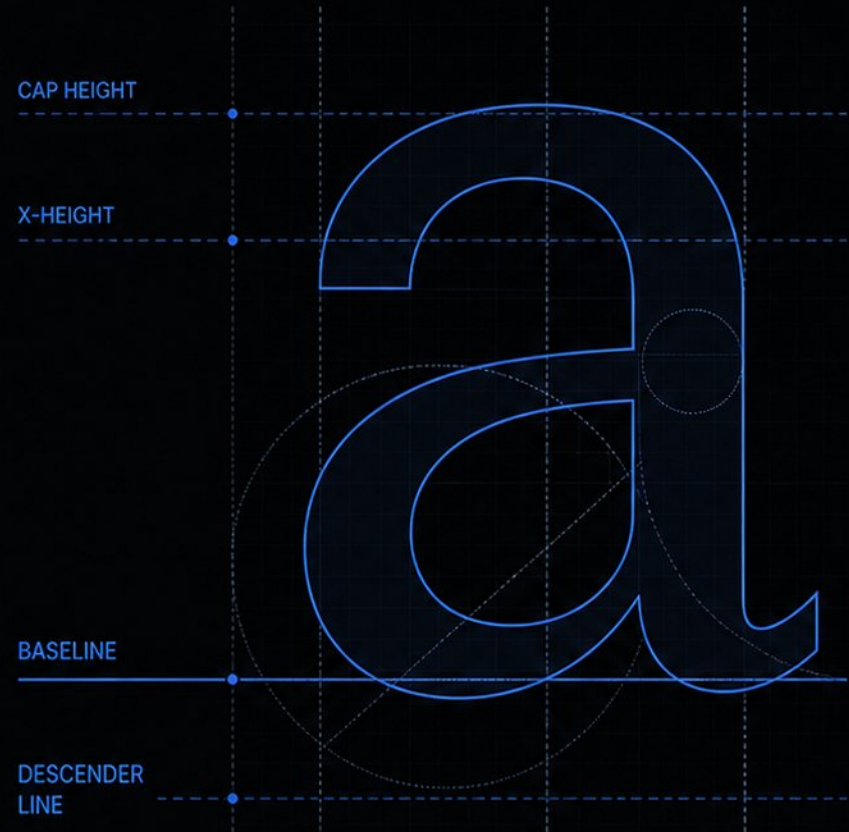
"It is a foundational UI skill, directly shaping usability, readability, and user experience."



"Screen reading differs: lower resolution, emissive backlight, and dynamic environments affect legibility."



"This training covers screen constraints, anatomy, fluid scales, accessibility, and design systems."



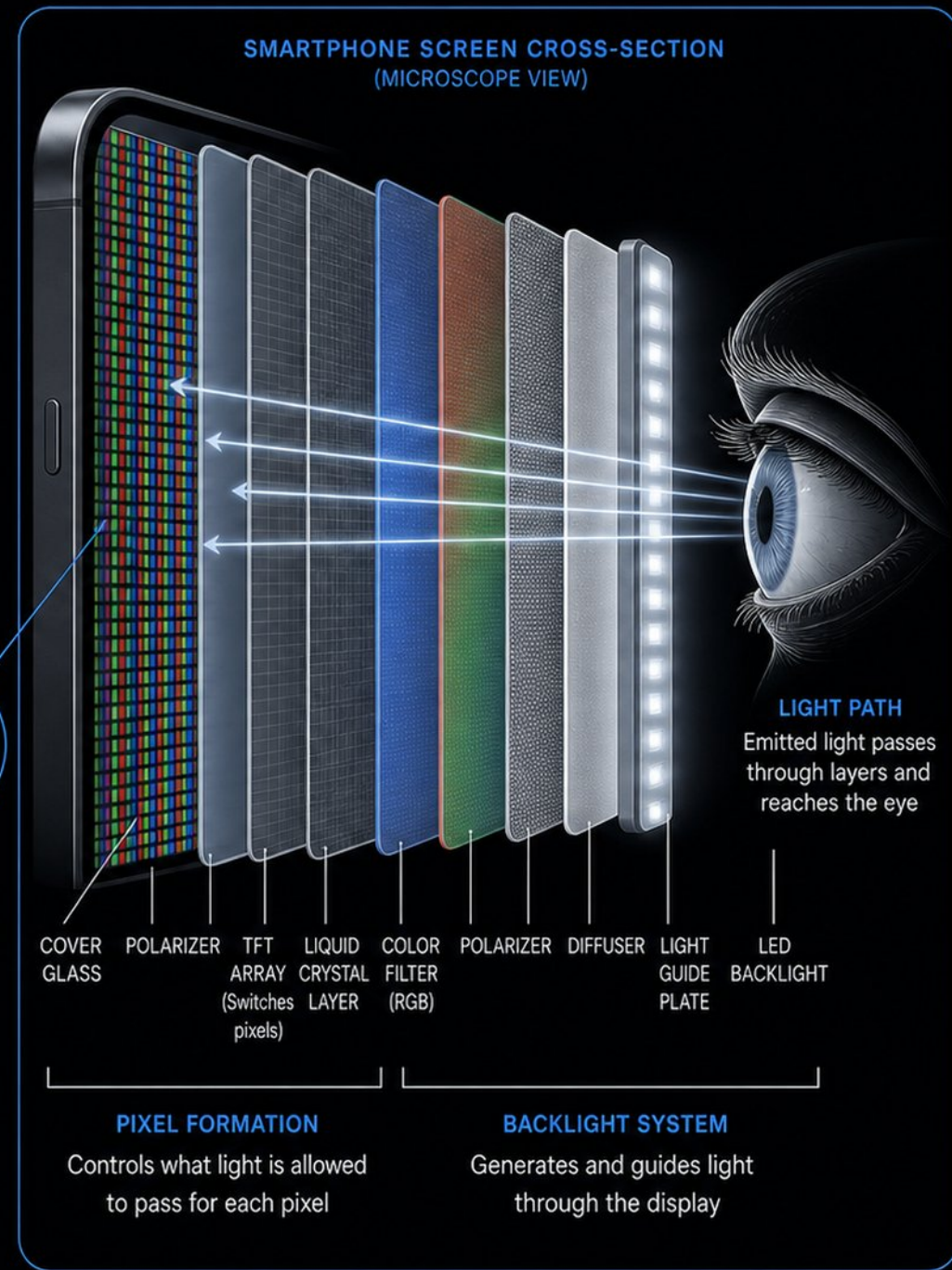
The Screen Medium and Its Constraints

- Physical pixels vs. logical resolution: density, sub-pixel rendering and crispness
- Backlit screens increase eye strain and alter reading patterns versus print
- Light mode boosts reading fluency; dark mode can lower perceived workload
- Ambient light and viewing distance dictate typeface, size, and spacing choices



SUB-PIXEL (RGB)

Red, Green, Blue elements compose each pixel



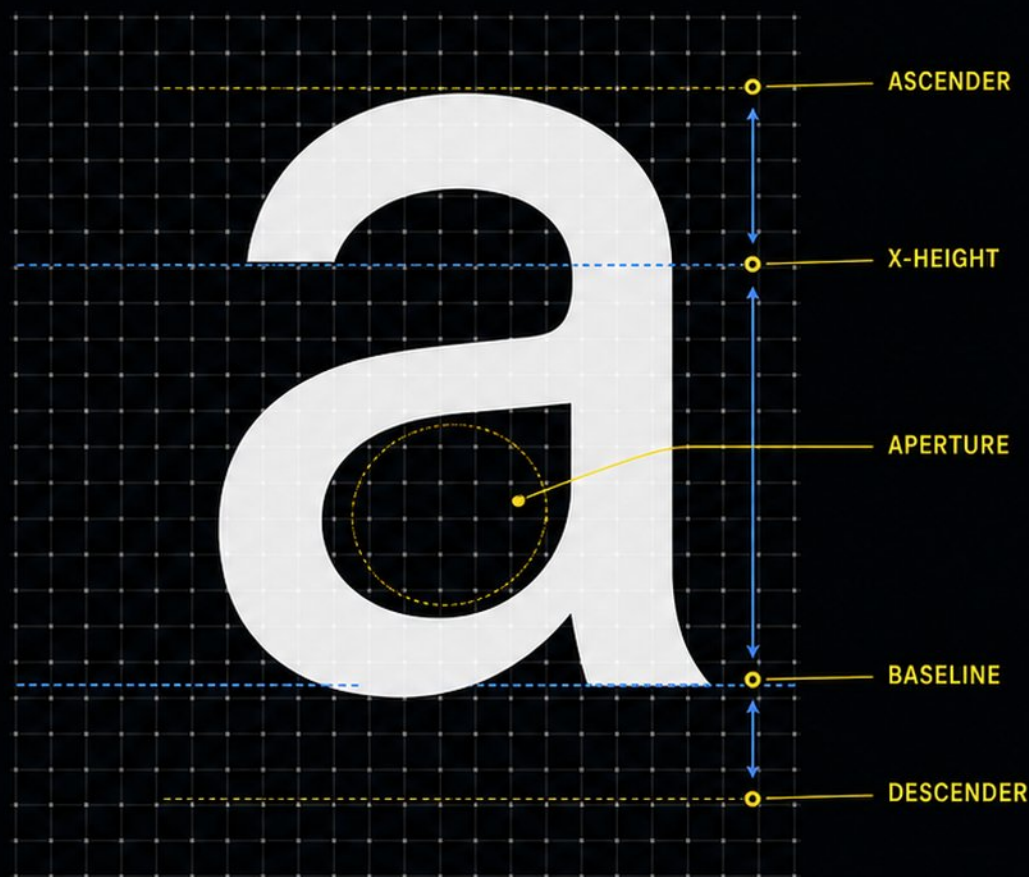
Core Anatomy and Typeface Classifications

- X-height, baseline, ascender/descender, and aperture drive legibility at small sizes
- Serif, sans-serif, slab-serif, and monospace each serve distinct screen roles
- Display typefaces prioritize personality; text/UI faces prioritize clarity and open apertures
- Modern screen-optimized examples: Inter, Source Sans Pro, IBM Plex, and Google Fonts

TYPE ANATOMY: LOWERCASE 'a'

FIELD GUIDE

A-01



TYPEFACE CLASSIFICATIONS

SERIF

Abc

Traditional, authoritative,
ideal for long-form reading

SANS-SERIF

Abc

Clean, neutral, highly readable
on screens and interfaces

SLAB-SERIF

Abc

Strong, bold, attention-grabbing,
great for headings and UI impact

MONOSPACE

Abc

Uniform width, technical,
ideal for code and data

Selecting and Pairing UI Typefaces



01 —

Choose UI fonts with open apertures, clear character shapes, and strong screen rendering



02 —

Leverage OpenType features: tabular figures, case-sensitive forms, and stylistic sets



03 —

Pair typefaces using contrast in weight and classification while keeping a shared skeleton



04 —

Evaluate web fonts by rendering quality, file size, and licensing; use Wakamai Fondue for discovery

SANS SERIF

Inter

age

Open aperture

Single-storey 'a'

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
0123456789

FEATURES

Tabular Figures 0123456789

Case-Sensitive Forms { ([|]) }

Stylistic Sets a → a g → g

Classification: Sans Serif • Humanist

Styles: Thin – Black (9 weights) • Upright / Italic

SERIF

Source Serif 4

age

Open aperture

Two-storey 'a'

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
0123456789

FEATURES

Tabular Figures 0123456789

Case-Sensitive Forms { ([|]) }

Stylistic Sets a → a g → g

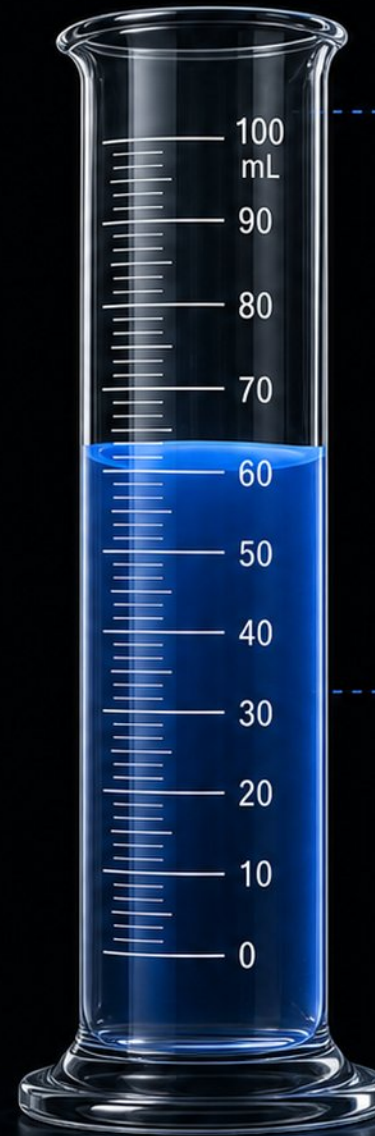
Classification: Serif • Transitional

Styles: ExtraLight – Black (7 weights) • Upright / Italic

VS

Fluid Typographic Scales with CSS Clamp

- Replace static, media-query-driven font sizes with responsive, fluid scales using `clamp()`.
- Understand the linear interpolation math: calculate slope and intercept for smooth scaling.
- Always use `rem` for min and max values to respect user font-size preferences and WCAG 1.4.4.
- Build a complete fluid type scale from body to hero; apply the same logic to spacing.



MAX
(max value)

```
clamp(  
  min,      /* minimum */  
  preferred, /* fluid value */  
  max       /* maximum */  
)
```

MIN
(min value)

Linear interpolation:

$$y = mx + b$$

$$m = \frac{y_{\max} - y_{\min}}{x_{\max} - x_{\min}}$$

$$b = y_{\min} - m \cdot x_{\min}$$

Vertical Rhythm and Spacing Mechanics

- Baseline grids establish vertical rhythm; CSS spacing differs from fixed Figma grids.
- Optimal body line-height is 1.4–1.6 for reading comfort, higher on mobile (1.5–1.8).
- Limit line length to 45–75 characters; use `max-width` in `ch` units to enforce it.
- Use relative units (`rem`, `em`, `ch`) so spacing scales with user font preferences.

BASELINE GRID

16px BASELINE

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Well-designed text respects human perception. By aligning to a clear vertical rhythm and constraining line length, we create a comfortable reading experience that reduces fatigue and improves comprehension across devices and contexts.

LINE-HEIGHT
1.4–1.6x
(DESKTOP)
1.5–1.8x
(MOBILE)

45–75 CHARACTERS

CHARACTER WIDTH (ch) RULER

0 10 20 30 40 50 60 70 80 90



1ch = width of "0" (zero) in the current font

Use max-width: 45ch–75ch

Coding Text for Performance and Accessibility

fonts.css

```
1  /* Register a variable font with optimal loading */
2
3  @font-face {
4    font-family: "InterVariable";
5    src: url("/fonts/InterVariable.woff2") format("woff2-variations");
6    font-weight: 100 900;
7    font-stretch: 75% 125%;
8    font-style: normal;
9    font-display: swap; /* control FOIT/FOUT */
10 }
11
12 :root {
13   /* Type scale and tokens */
14   --font-sans: "InterVariable", system-ui, -apple-system,
15     "Segoe UI", Roboto, "Helvetica Neue", Arial, sans-serif;
16   --fw-regular: 400;
17   --fw-medium: 500;
18   --fw-semibold: 600;
19   --fw-bold: 700;
20   --fs-base: 1rem; /* 16px */
21   --lh-base: 1.6;
22   --color-text: #E6E6E6;
23   --color-bg: #0F0F12;
24 }
```



Variable font advantage:

One file. Many weights. Faster, smaller, more flexible.

RENDERED PAGE (EXAMPLE)

Building fast, accessible experiences

High-quality typography improves readability, performance, and inclusivity for every user.

Why it matters

- Performance: Faster loads, less layout shift
- Accessibility: Clear hierarchy, sufficient contrast
- Scalability: One variable font, infinite possibilities

FOIT / FOUT TIMELINE



- Implement **@font-face** and **variable fonts**, optimizing loading with **font-display** to control FOIT/FOUT



- A single **variable font** file replaces 4–8 static weights, reducing total font payload by 30–50%



- Encode **WCAG 2.2** contrast ratios: 4.5:1 for normal text, 3:1 for large text (≥18pt or ≥14pt bold)



- Use **semantic HTML** and ensure heading hierarchy, lists, and the accessibility tree match the visual hierarchy

WCAG 2.2 Typography Compliance Deep Dive

1 1.4.3 Contrast: 4.5:1 normal text, 3:1 for large text (18pt+ or 14pt bold)

2 1.4.4 Resize Text: layout must survive 200% zoom without content loss

3 1.4.12 Text Spacing: line-height ≥ 1.5 , paragraph spacing $\geq 2\times$, letter-spacing $\geq 0.12\times$

4 1.4.10 Reflow: no horizontal scrolling at 320px width (400% zoom)

5 Audit with WAVE, axe DevTools, and spacing bookmarklets before shipping

CONTRAST RATIO

4.62:1

(AA Normal Text)

Accessible typography

Good typography improves readability, understanding, and user experience for everyone.

LINE-HEIGHT

≥ 1.5

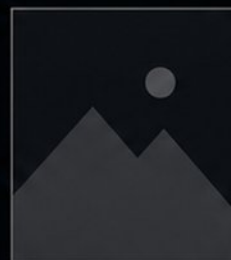
PARAGRAPH SPACING

$\geq 2\times$

LETTER-SPACING

$\geq 0.12\times$

REFLOW AT 320px WIDTH (400% ZOOM)



Accessible typography

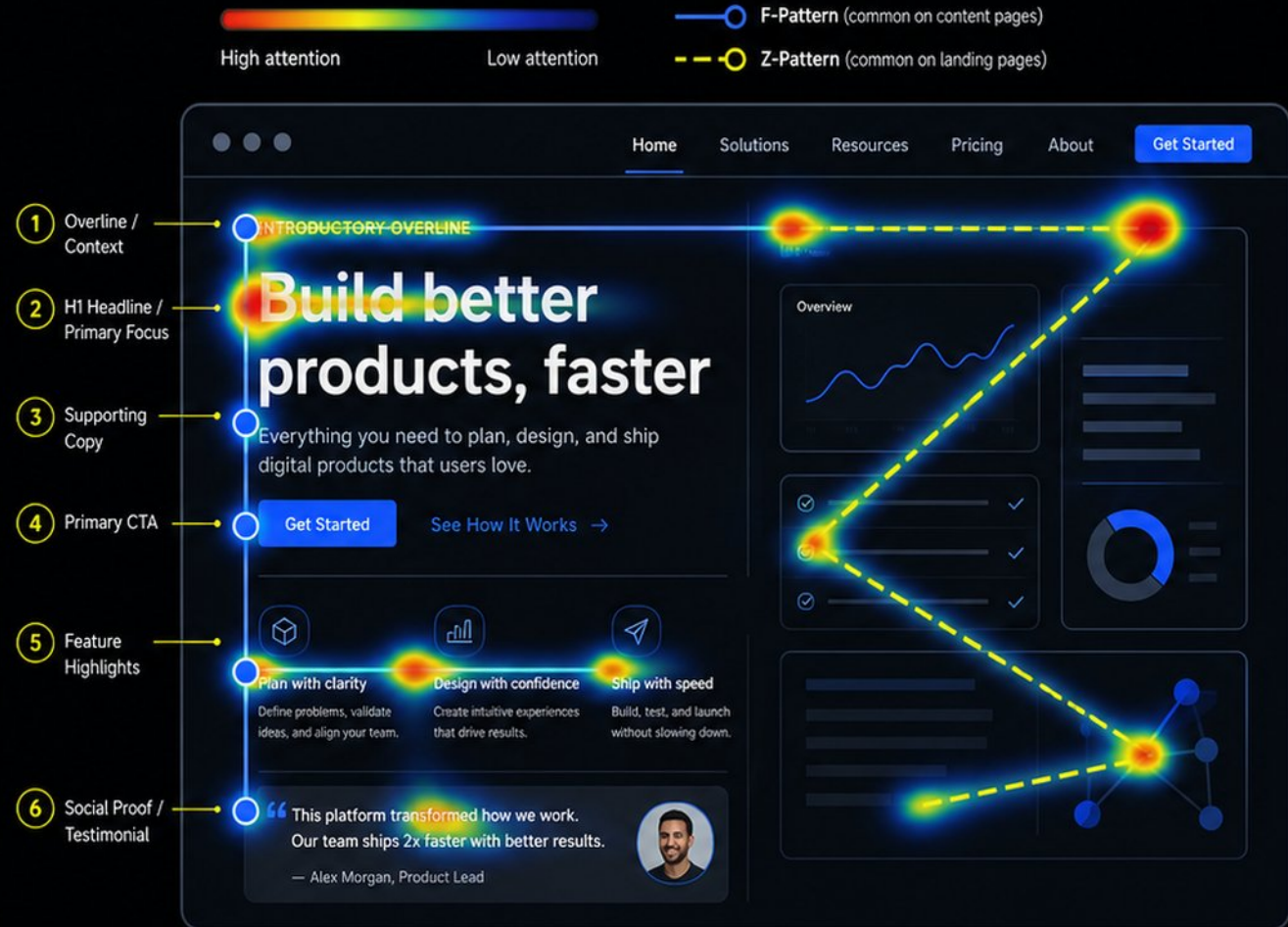
Good typography improves readability, understanding, and user experience for everyone.



Visual Hierarchy and Composition

- Use **scale, weight, color,** and **negative space** to guide the eye and establish clear content hierarchy
- Design scannable interfaces using **F-pattern** and **Z-pattern**, reading behaviors
- Apply the **60-30-10 rule** to typographic color and density, balancing visual weight across the page
- **Avoid common mistakes:** relying only on weight for structure, skipping heading levels, or centering body text

EYE-TRACKING HEATMAP: F-PATTERN & Z-PATTERN



TYPE SCALE EXAMPLE

OVERLINE	INTRODUCTORY OVERLINE	12px / 700 / +180
H1	Build better products, faster	48px / 700 / -1%
H2	Design with confidence	20px / 600 / -0.5%
BODY	Everything you need to plan, design, and ship digital products that users love.	16px / 400 / 0%
CAPTION	Alex Morgan, Product Lead	12px / 400 / +100

60-30-10 RULE

60%

DOMINANT

Primary text /
Background



30%

SECONDARY

Supporting text /
UI elements



10%

ACCENT

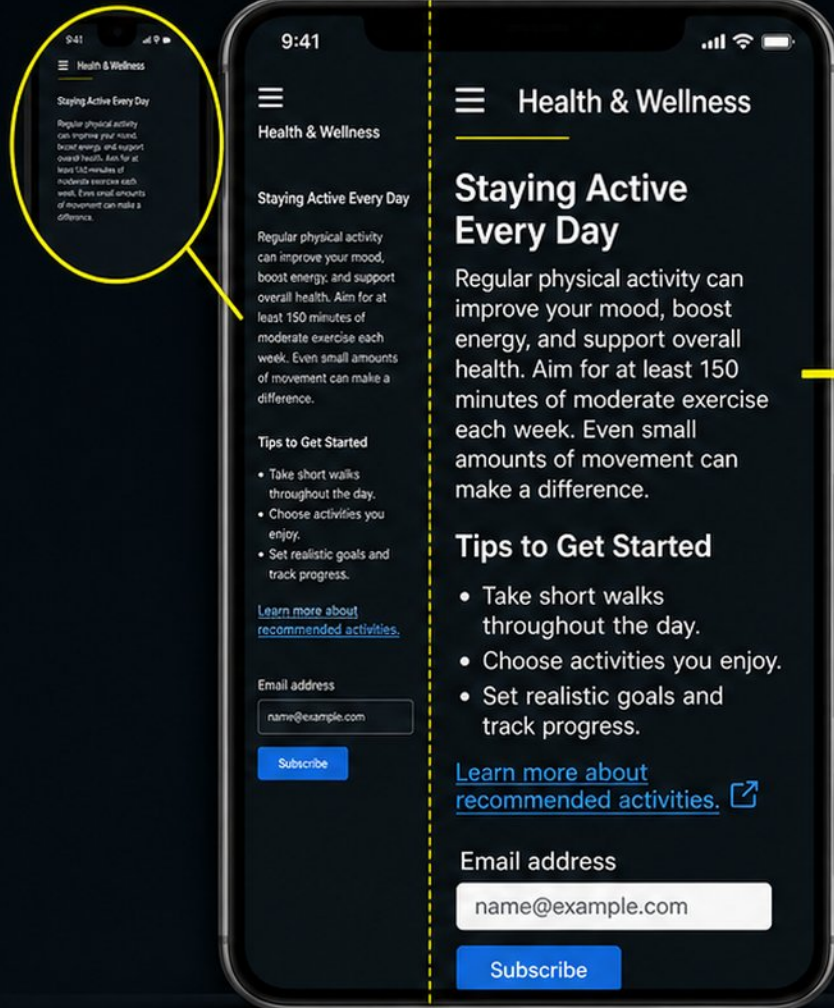
Highlights / CTAs /
Key elements



Accessible Typography: Beyond the Minimum

BEFORE

Too small. Hard to read.



AFTER

Accessible. Easy to read.

1

Set practical minimums: never below 12px for meaningful text, 16px for body, all in relative units.

2

Avoid justified text, provide generous spacing, and use clear, unambiguous typefaces for dyslexia.

3

Ensure links are distinguishable by more than color, and form inputs have a minimum font-size of 16px.

4

Test with screen readers, high-contrast modes, and user-defined spacing to ensure content is perceivable.



CRAMPED & HARD TO READ

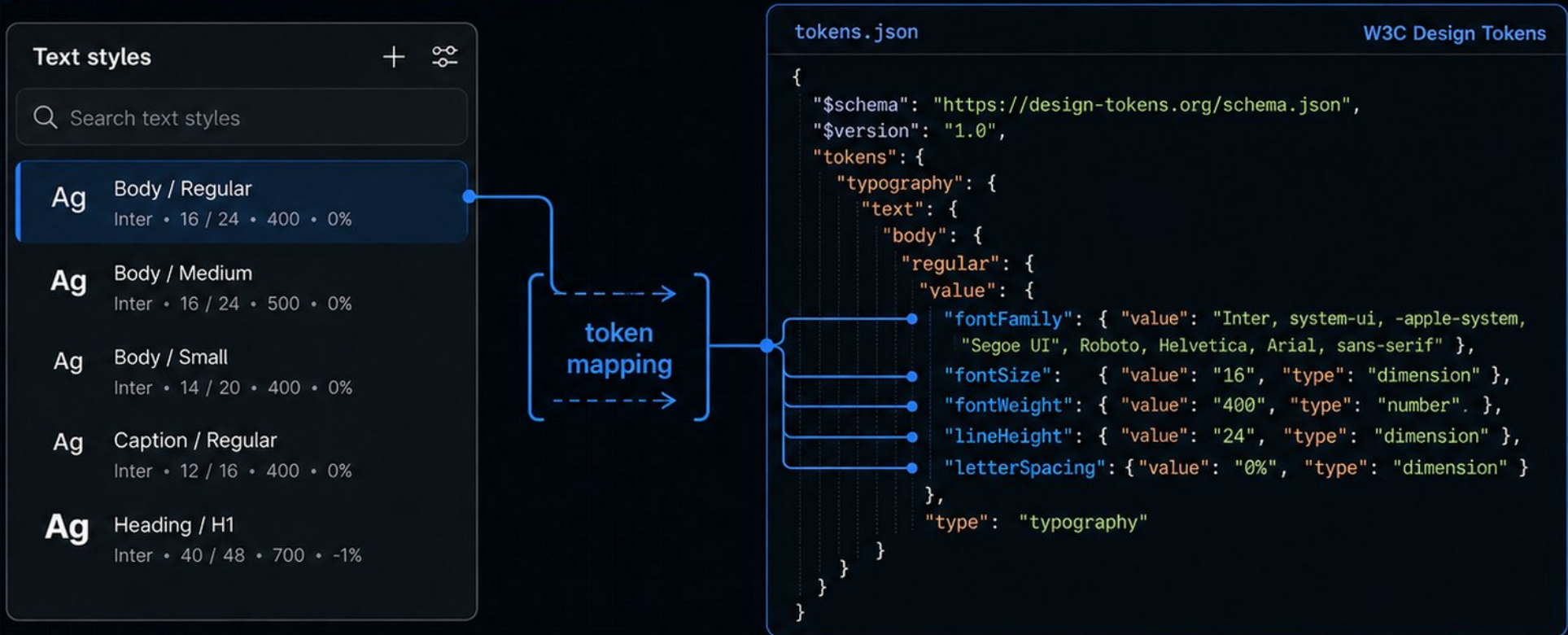
Too small, low contrast, limited spacing.



CLEAR & ACCESSIBLE

Larger type, better spacing, easy to scan.

Typography in Design Systems



- Define reusable **text styles** and **typography tokens** for scalable product consistency.



- Bridge design and engineering with naming conventions like ``text/body/regular``.



- Use W3C Design Tokens: ``fontFamily``, ``fontSize``, ``fontWeight``, ``lineHeight``, ``letterSpacing``.



- Manage typography across multiple brand themes with **automated visual regression testing**.

Variable Fonts: Adoption and Implementation



Enterprise adoption surged from 8% (2022) to 54% (2026)



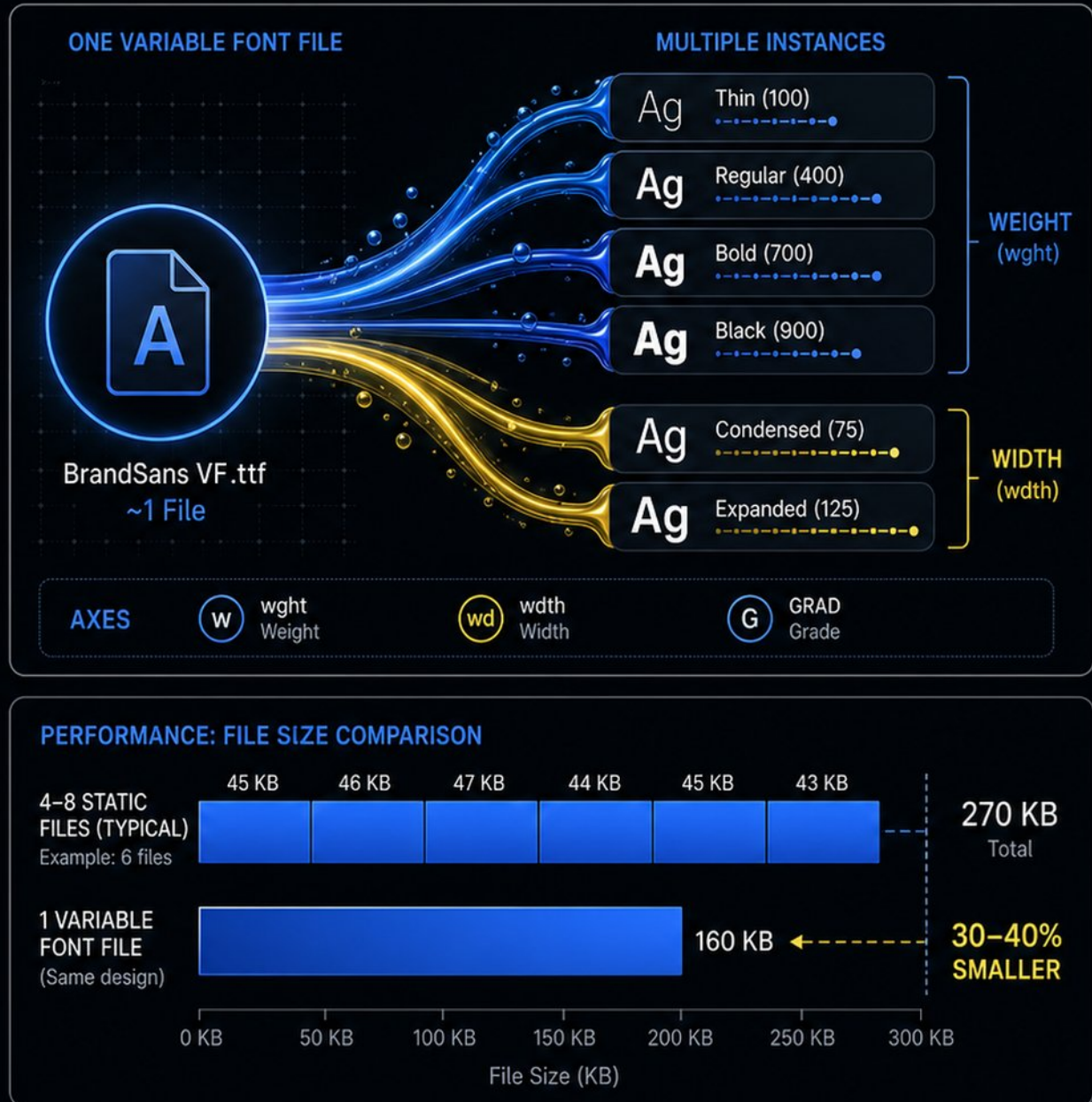
A single variable file replaces 4–8 static files, reducing payload by 30–40%



Use `font-variation-settings` for precise control over `wght`, `wdth`, and `GRAD` axes



Bridge tooling gaps: map static design styles to variable font instances



Fluid Layouts Beyond Typography

MAKE COMPONENTS LIQUID, NOT JUST TYPE

 **NARROW**
320px

 **MEDIUM**
768px

 **WIDE**
1280px

clamp()

cqi

cqw

45–75 ch

Fluid spacing

 **Flow Insights**

Understand how fluid systems adapt to any container. Build layouts that breathe, balance, and scale with ease.

Explore insights →

```
padding: clamp(12px, 4cqi, 20px)
gap:    clamp(8px, 3cqi, 16px)
radius: clamp(8px, 2cqi, 16px)
font-size: clamp(0.875rem, 2.4cqi, 1rem)
```

 **Flow Insights**

Understand how fluid systems adapt to any container. Build layouts that breathe, balance, and scale with ease.

Explore insights →

```
padding: clamp(20px, 6cqi, 32px)
gap:    clamp(12px, 4cqi, 24px)
radius: clamp(12px, 2.5cqi, 20px)
font-size: clamp(1rem, 2.8cqi, 1.25rem)
```

 **Flow Insights**

Understand how fluid systems adapt to any container. Build layouts that breathe, balance, and scale with ease.

Explore insights →

```
padding: clamp(32px, 8cqi, 48px)
gap:    clamp(16px, 5cqi, 32px)
radius: clamp(16px, 3cqi, 24px)
font-size: clamp(1.125rem, 3.2cqi, 1.5rem)
```

- Extend clamp() to padding, margin, gap, and border-radius for a fully fluid layout
- Use container query units (cqi, cqw) inside clamp() for component-level responsive sizing
- Cap body line-length with max-width in ch (45–75 characters) to maintain readability
- Avoid traps: forgetting units, mixing px with rem, and choosing viewport ranges that are too wide

clamp()
cqi
cqw
45–75 ch
Fluid spacing

Typographic Testing and QA

- Test at 320px, 1440px, and 4K; zoom to 200% and 400%
- Audit font rendering with Lighthouse, PageSpeed Insights, and RUM
- Verify contrast in light, dark, and high-contrast modes independently
- Document OpenType features, fallback strategies, and typographic decisions



Future Trends and Emerging Interfaces



01 **54%** of enterprise sites now use variable fonts, with **96%+** browser support.



02 Variable fonts reduce font payloads by **30-50%** vs. static files.



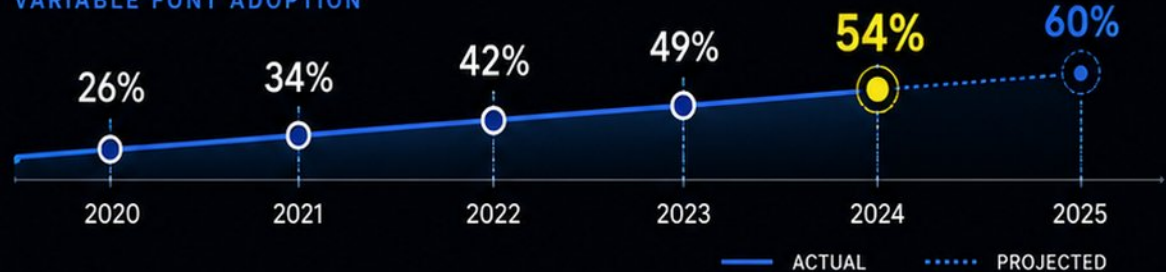
03 AI-assisted and spatial typography (AR/VR) are redefining design workflows.



04 The W3C Design Tokens spec stabilizes typography tokens for cross-tool exchange.



VARIABLE FONT ADOPTION



EMERGING INTERFACES DRIVING THE FUTURE



VARIABLE FONTS
Fluid, responsive typography across contexts.



AI-ASSISTED DESIGN
AI accelerates type pairing, hierarchy and iteration.



SPATIAL TYPOGRAPHY
Type lives in 3D space for immersive experiences.



DESIGN TOKENS
Standardized tokens ensure consistency across tools.

Actionable Checklist and Next Steps



ACTIONABLE CHECKLIST

1



16px body minimum, 1.4–1.6 line-height, 45–75 chars per line, 4.5:1 contrast

2



Audit: zoom to 200%, test text-spacing overrides, check reflow at 320px

3



Tools: WAVE, axe DevTools, Wakamai Fondue, clamp() generators

4



Immediate action: convert a static type scale to fluid, or enable one OpenType feature



BEFORE / AFTER EXAMPLE

Before

```
h1 {  
  font-size: 32px;  
  line-height: 1.2;  
  letter-spacing: 0px;  
}  
  
p {  
  font-size: 16px;  
  line-height: 1.4;  
  letter-spacing: 0px;  
}
```



After

```
h1 {  
  font-size: clamp(1.75rem,  
    1.25rem + 2vw,  
    3rem);  
  line-height: 1.2;  
  letter-spacing: -0.01em;  
}  
  
p {  
  font-size: clamp(1rem,  
    0.875rem + 0.5vw,  
    1.125rem);  
  line-height: 1.6;  
  letter-spacing: 0.01em;  
}
```

Design systems make products better

Good typography improves readability and helps users focus on what matters most.

Design systems make products better

Good typography improves readability and helps users focus on what matters most.



Scales fluidly



Better spacing



Reflows at 320px

PersonWise.

PersonWise • AI digital-human course platform



Scan the code or click anywhere to watch this course live, with voice Q&A

personwise.ai/t/24e970a5/public