Design System in STUD.IP

Building Consistency and Scalability using Tailwind CSS

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Agenda

⬤ Design System

    ⬤ What is a Design System?

    ⬤ Why do we need it?

    ⬤ How?

⬤ Tailwind CSS

⬤ A Quick Demo of Tailwind CSS

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What is a Design System?

A Design System is a shared collection of:

○ Design **guidelines** and **rules**

○ **Design tokens** (**colors**, **spacing**, **typography**)

○ Reusable patterns (**Layouts, Break points, radius, …)**

○ UI Components Library (UI-kit) (buttons, inputs, layouts, …)

○ Documentation for designers & developers

Current challenges

⬭ **Inconsistent** UI-Component styles and layouts

⬭ **Repeated** design and development work

⬭ **Slower** development process

⬭ **Harder collaboration** between teams

Spacing and sizing systems

- Linear scale

  - Point spacing system (4pt or 8pt)

- **Relative scale**

- Sizing units

  - `rem, em, px, pt ???`

- Other spacing systems are…

Other spacing systems

○ Semantic system

  ○ e.g: `xs, sm, md, lg, xl, 2xl`
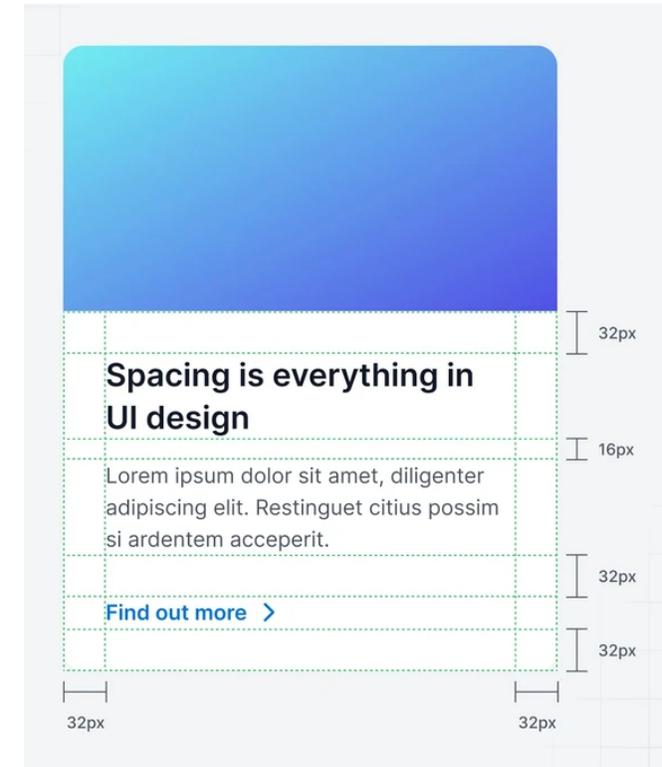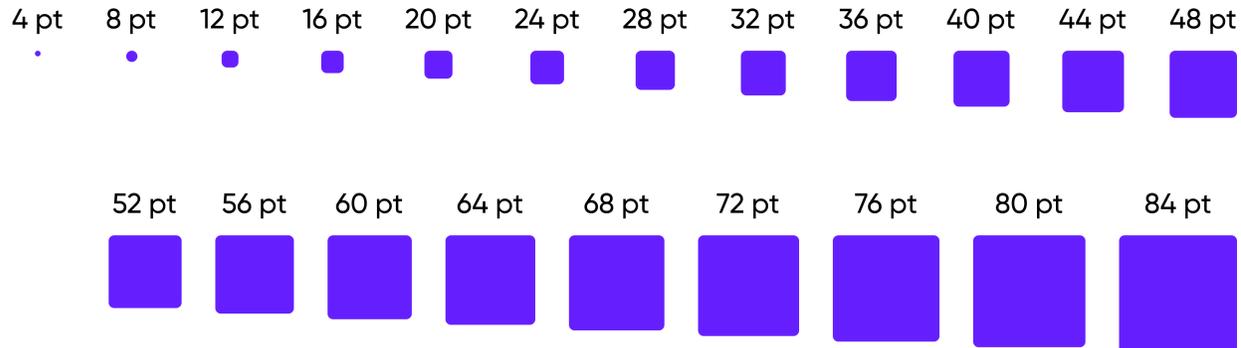
○ Percentage

  ○ e.g: `20%, 34%`

○ Fractional

  ○ e.g: `3/5, 6/9`

Point spacing system

○ Make sure everything is a multiple of $4n*pt$

○ $pt = 0.25rem \sim 4px$

A linear scale won't work perfectly

- **Relative difference** between adjacent values.
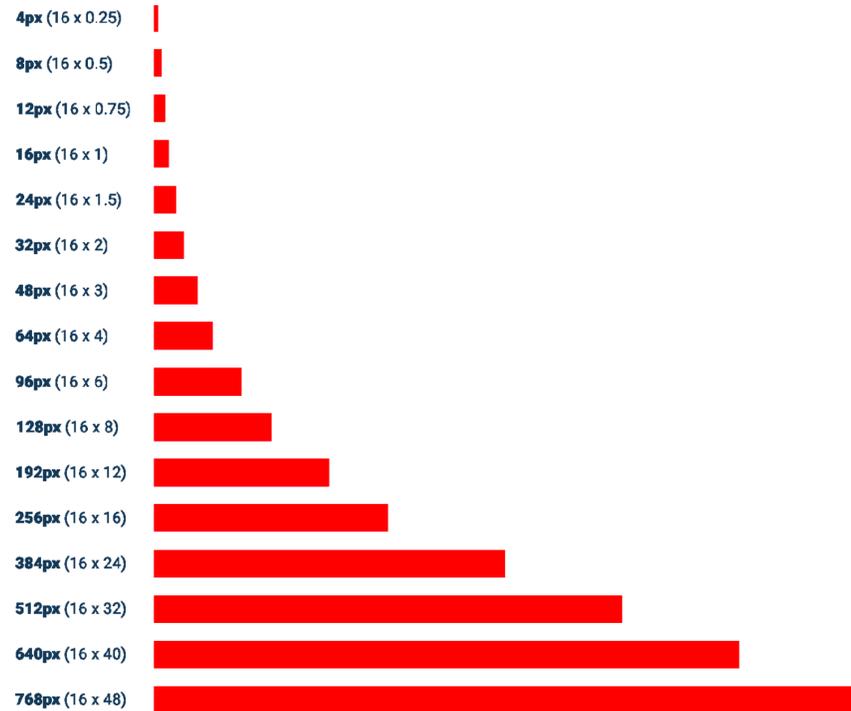
  - 12px → 16px ~= 30%

  - 500px → 520px ~= 4%

- Solutions?

- **Relative scale**

  - Make sure no **two values** in your scale are closer than 25%

Relative scale spacing system

4px (16 x 0.25)	
8px (16 x 0.5)	
12px (16 x 0.75)	
16px (16 x 1)	
24px (16 x 1.5)	
32px (16 x 2)	
48px (16 x 3)	
64px (16 x 4)	
96px (16 x 6)	
128px (16 x 8)	
192px (16 x 12)	
256px (16 x 16)	
384px (16 x 24)	
512px (16 x 32)	
640px (16 x 40)	
768px (16 x 48)	

Relative scale spacing system - [Refactoringui](#)

No arbitrary spacing and sizing scale

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Reusable patterns and Layouts

e.g: a common **radius patterns** for Different UI elements

Component Type	Radius Token
Tooltips	sm ~ 0.25rem (4px)
Buttons	md ~ 0.375rem (6px)
Inputs	md ~ 0.375rem (6px)
Cards	lg ~ 0.5rem (8px)
Modals	xl ~ 0.75rem (12px)
Badges (chips)	full ~ calc(infinity * 1px)

Reusable patterns and Layouts — Continue...

e.g: a common **break points** for different screen sizes

Device Example	Min width
Small devices, phones	sm ~ 40rem (640px)
Tablets (portrait)	md ~ 48rem (768px)
Laptops / desktops	Lg ~ 64rem (1024px)
Large desktops	Xl ~ 80rem (1280px)
Extra-large screens / wide monitors	2xl ~ 94rem (1536px)

Color palettes

○ Color Tokens

    ○ Primitive Tokens

        ○ `Blue`, `green`, `gray, and …`

    ○ Semantic Tokens (Purpose-driven)

        ○ e.g. `Primary, Secondary, Success, Warning, Error and …`

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Color palettes — Color Scales

○ Color Scales

○ e.g. 50 100, 200, … ,900, 950

○ Reason:

○ Hover states

○ Active states

○ Disabled states

○ Dark mode support

Color palettes - Color Spaces

○ Color Spaces

   ○ sRGB (Standard RGB)

      ○ CSS: `rgb(), rgba(), hsl(), lab(), hexadecimal, and …`

   ○ P3

      ○ Introduced by Apple

      ○ 25% more colors than sRBG

      ○ CSS: `oklch(), color(display-p3 0.9 0.2 0.1)`

What is Tailwind CSS?

An API for our design system.

○ Help us to build and **work within the constraints of a system** instead of littering your stylesheets with **arbitrary values**. Utility classes make it easy **to be consistent** with **color choices, spacing,** typography, shadows, **and everything else that makes up a well-engineered design system.**

What is Tailwind CSS?

Weekly Downloads

37,119,741

Version
4.2.0 ✅

License
MIT

Unpacked Size
775 kB

Total Files
34

Last publish
21 hours ago

[NPM](#)

A utility-first CSS framework for rapid UI development.

🔗 **tailwindcss.com/**

css   postcss   responsive

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⭐ **93.6k** stars

👁 **624** watching

ᛦ **5.1k** forks

[Github](#)

Brands that are using Tailwind CSS

Almost all modern UI libraries, such as **Flowbite**, **daisyUI**, **Preline UI**,

Tailwind CSS UI-kit, **Shadcn**, **ALL Laravel UI libraries**, and many more…

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How Does Tailwind CSS Work in Practice?

References

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