Tailwind CSS

Utility classes for layout, spacing and type.

01 Install & set up (v4)

```
npm install tailwindcss @tailwindcss/vite
```

```
// vite.config.ts
import tailwindcss from "@tailwindcss/vite"
export default { plugins: [tailwindcss()] }
```

```
@import "tailwindcss"; /* app.css */
```

v4 is CSS-first: no tailwind.config.js, no @tailwind directives and no content paths. Source files are found automatically.

02 Spacing

p-4	padding: 1rem
px-4 / py-2	Horizontal / vertical
mt-8 / -mt-4	Margin top / negative
mx-auto	Center a block
gap-4	Gap in flex or grid

One step is 0.25rem, so p-8 is 2rem. In v4 any whole number works: p-13, w-18.

03 Width & height

w-full / w-1/2	100% / 50%
w-64	16rem (256px)
max-w-md	max-width: 28rem
h-screen / h-dvh	100vh / 100dvh
size-12	Width and height 3rem

h-dvh is mobile-safe. max-w-* runs from 3xs (16rem) to 7xl (80rem). aspect-video sets 16 / 9.

04 Display & position

flex / grid	display: flex / grid
hidden	display: none
invisible	Hidden, keeps its space
relative / absolute	Anchor / placed inside
sticky top-0	Sticks on scroll
fixed inset-0	Covers the viewport

z-10 and -z-10 set stacking order.

05 Flexbox

flex / flex-col	Row / column
flex-wrap	Wrap onto new lines
justify-between	Main axis: space between
items-center	Cross axis: center
flex-1 / shrink-0	Grow to fill / never shrink

flex items-center justify-center centers both ways. Also: justify-start, -end, -around, -evenly.

06 Grid

```
<div class="grid gap-6 md:grid-cols-3">
  <main class="md:col-span-2">Main</main>
  <aside>Sidebar</aside>
</div>
```

grid-cols-3	3 equal columns
col-span-full	Span every column

Custom tracks: grid-cols-[200px_1fr]. place-items-center centers items both ways.

07 Font size & weight

text-sm / text-lg	0.875rem / 1.125rem
text-base	1rem (16px)
text-2xl / text-4xl	1.5rem / 2.25rem
font-semibold	font-weight: 600
font-bold	font-weight: 700
leading-tight	line-height: 1.25

tracking-wide spaces out small labels.

08 Text style & wrapping

text-center	text-align: center
uppercase	text-transform: uppercase
truncate	One line with an ellipsis
line-clamp-2	Clamp to 2 lines
text-balance	Even lines for headings
wrap-break-word	Break long words, URLs

truncate is overflow-hidden + text-ellipsis + whitespace-nowrap.

09 Colors, opacity & gradients

```
<p class="text-blue-500">Blue</p>
<div class="bg-black/50">50% black</div>
<div class="bg-[#1a2b3c]">Any hex</div>
<div class="bg-(--brand)">CSS variable</div>
<div class="bg-linear-to-r from-blue-500
            to-purple-500">Gradient</div>
```

Shades run 50 to 950 on any color utility; /N sets opacity. v4 renamed bg-gradient-to-* to bg-linear-to-*.

Tailwind CSS

Variants, effects and CSS-first theming.

10 Responsive breakpoints

```
<div class="flex flex-col md:flex-row">
<nav class="hidden lg:block">Wide</nav>
<p class="text-sm md:text-base">Text</p>
```

sm: md: lg:	640, 768, 1024px and up
xl: 2xl:	1280, 1536px and up
max-md:	Below 768px only

Mobile-first: no prefix means every size. @container on a parent enables @sm:, @lg: on children.

11 Hover, focus & other states

```
<button class="hover:bg-blue-600
  focus-visible:ring-2 active:scale-95
  disabled:opacity-50">Save</button>
<li class="odd:bg-gray-50 last:pb-0">
<input class="invalid:border-red-500
  placeholder:text-gray-400">
```

Variants stack: dark:hover:bg-blue-300. focus-visible: rings show for keyboard focus only. before: and after: style pseudo-elements.

12 Group & peer

```
<div class="group">
  <p class="group-hover:underline">Hi</p>
</div>
<input class="peer" type="email" required>
<p class="hidden peer-invalid:block">
  Enter a valid email</p>
```

peer only styles later siblings, so it must come first. Nested groups: group/card with group-hover/card:underline.

13 Dark mode

```
<div class="bg-white dark:bg-gray-900">
  <p class="text-gray-900 dark:text-white">
    Follows the OS setting</p>
</div>
```

```
/* Or toggle a .dark class on <html> */
@custom-variant dark
  (&:where(.dark, .dark *));
```

dark: uses prefers-color-scheme by default. Pair light and dark values on the same element.

14 Borders, rings & radius

border / border-2	1px / 2px, all sides
border-b	Bottom only
border-gray-300	Border color
rounded-lg	border-radius: 0.5rem
ring-2	2px ring, no layout shift

v4: v3 rounded is now rounded-sm and v3 rounded-sm is rounded-xs. Bare ring is now 1px; ring-3 matches v3.

15 Shadows & filters

shadow-sm	Small shadow
shadow-xl/20	Large, 20% opacity
shadow-blue-500/25	Colored shadow
inset-shadow-sm	Inner shadow
backdrop-blur-md	Frosted glass

v4: v3 shadow is now shadow-sm and v3 shadow-sm is shadow-xs; blur shifts the same way.

16 Transitions & animation

```
<a class="transition-colors duration-200
   hover:text-blue-600">Link</a>
<div class="transition duration-300
  hover:-translate-y-1 hover:shadow-lg">
<svg class="size-5 animate-spin"></svg>
<div class="h-4 animate-pulse bg-gray-200">
```

Also: animate-ping, animate-bounce, scale-105, rotate-45. Prefer transition-colors to transition-all. Custom: --animate-* in @theme.

17 @theme & one-off values

```
@theme {
  --color-brand: #3b82f6;
  --font-display: "Inter", sans-serif;
  --breakpoint-3xl: 1920px;
}
```

```
<div class="w-[347px] text-red-500!">
```

Each variable makes utilities: bg-brand, font-display, 3xl:flex. Brackets take any value; a trailing ! adds !important.

18 Directives

```
@source "../packages/ui/src";
@plugin "@tailwindcss/typography";
@utility content-auto {
  content-visibility: auto;
}
.btn { @apply rounded-lg px-4 py-2; }
```

@source not skips paths; @source inline() replaces safelist. Vue and Svelte style blocks need @reference "../app.css" for @apply.