What’s new in CSS in 2023

Steve Harrison

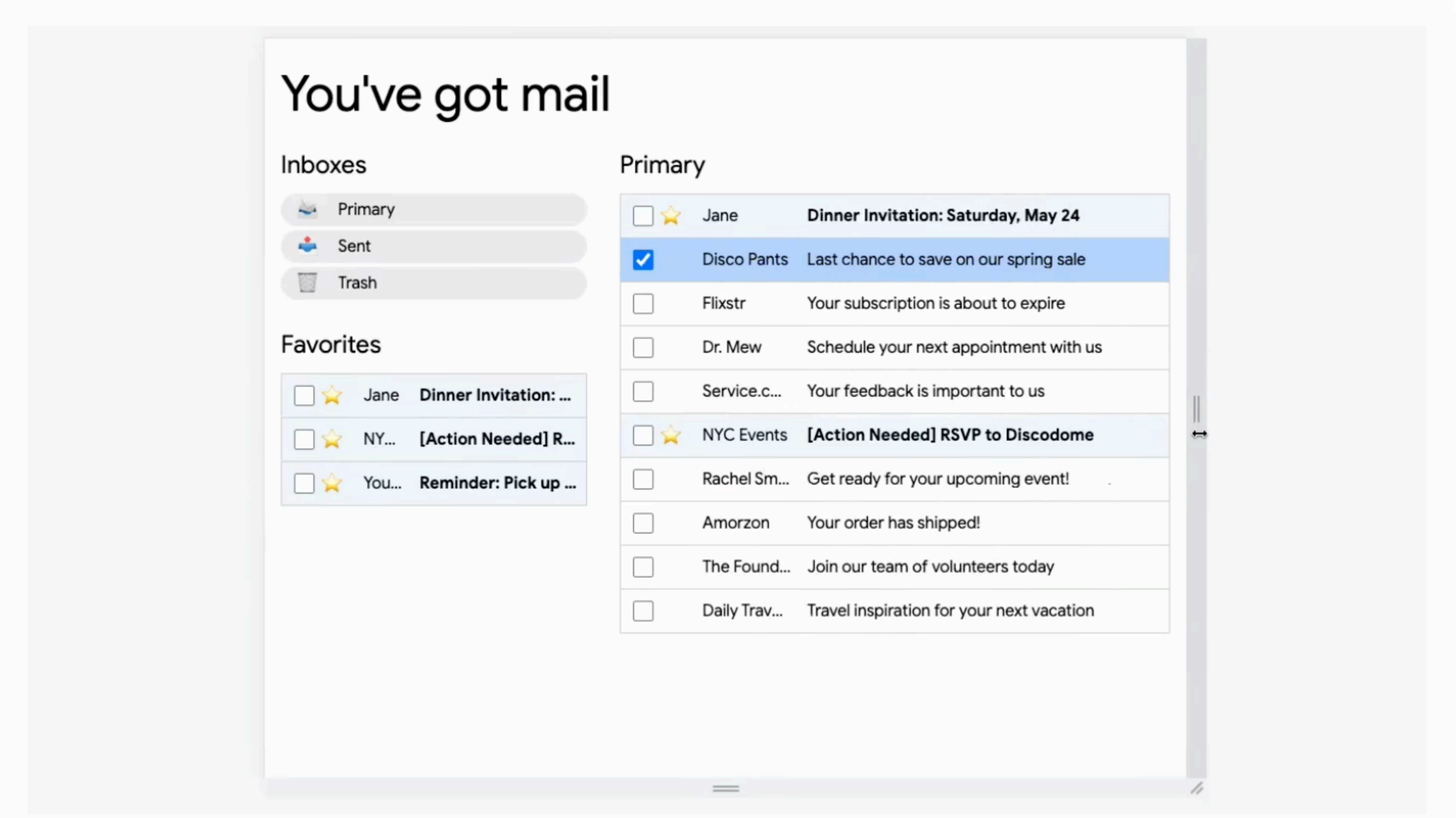
https://www.steveharrison.dev



Available today

Container queries!

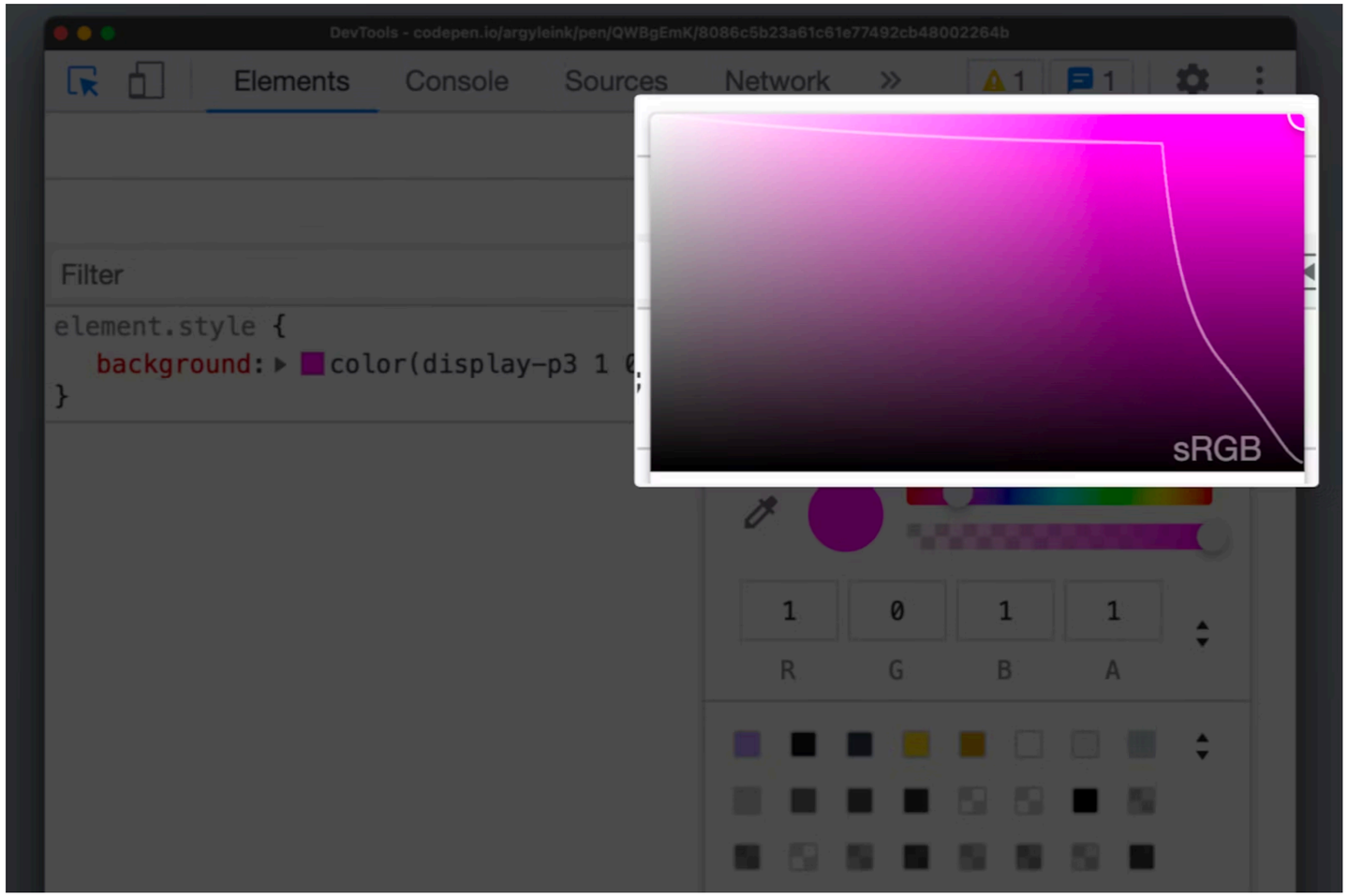
105 110 105 16



Wide-gamut colour spaces

111 113 111 15.4

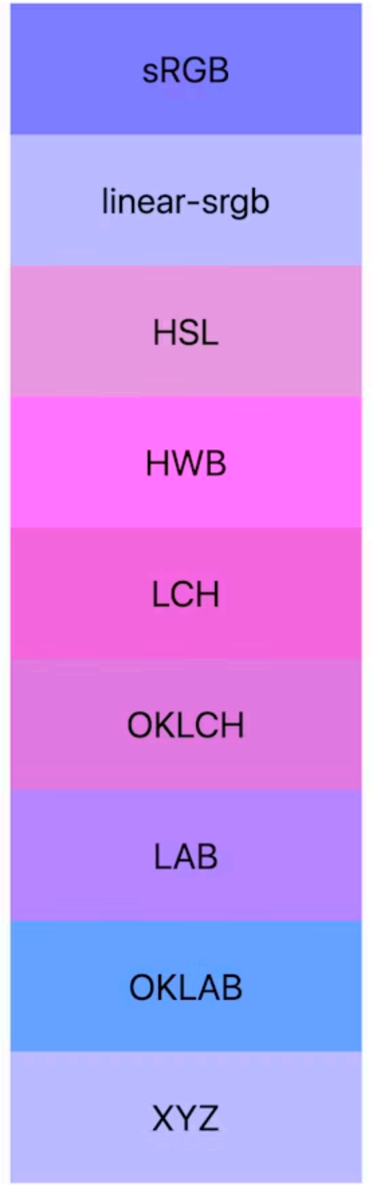
- sRGB
- RGB 98
- Display p3
- Rec2020
- ProPhoto
- CIE
- HVS (human visual gamut)



color-mix

111 113 111 16.2

```
color-mix(in srgb, blue, white);
color-mix(in srgb-linear, blue, white);
color-mix(in lch, blue, white);
color-mix(in oklch, blue, white);
color-mix(in lab, blue, white);
color-mix(in oklab, blue, white);
color-mix(in xyz, blue, white);
```



```
:root {
   --colorPrimary: hotpink;
   --colorPrimary-a10: color-mix(in srgb, var(--colorPrimary), transparent 90%);
   --colorPrimary-a20: color-mix(in srgb, var(--colorPrimary), transparent 80%);
   --colorPrimary-a30: color-mix(in srgb, var(--colorPrimary), transparent 70%);
   --colorPrimary-a40: color-mix(in srgb, var(--colorPrimary), transparent 60%);
   --colorPrimary-a50: color-mix(in srgb, var(--colorPrimary), transparent 50%);
   --colorPrimary-a60: color-mix(in srgb, var(--colorPrimary), transparent 40%);
   --colorPrimary-a70: color-mix(in srgb, var(--colorPrimary), transparent 30%);
   --colorPrimary-a80: color-mix(in srgb, var(--colorPrimary), transparent 20%);
   --colorPrimary-a90: color-mix(in srgb, var(--colorPrimary), transparent 10%);
```

Trig Functions

Browser support

111 108 111 15.4

`sin()`, `cos()`, and `tan()`

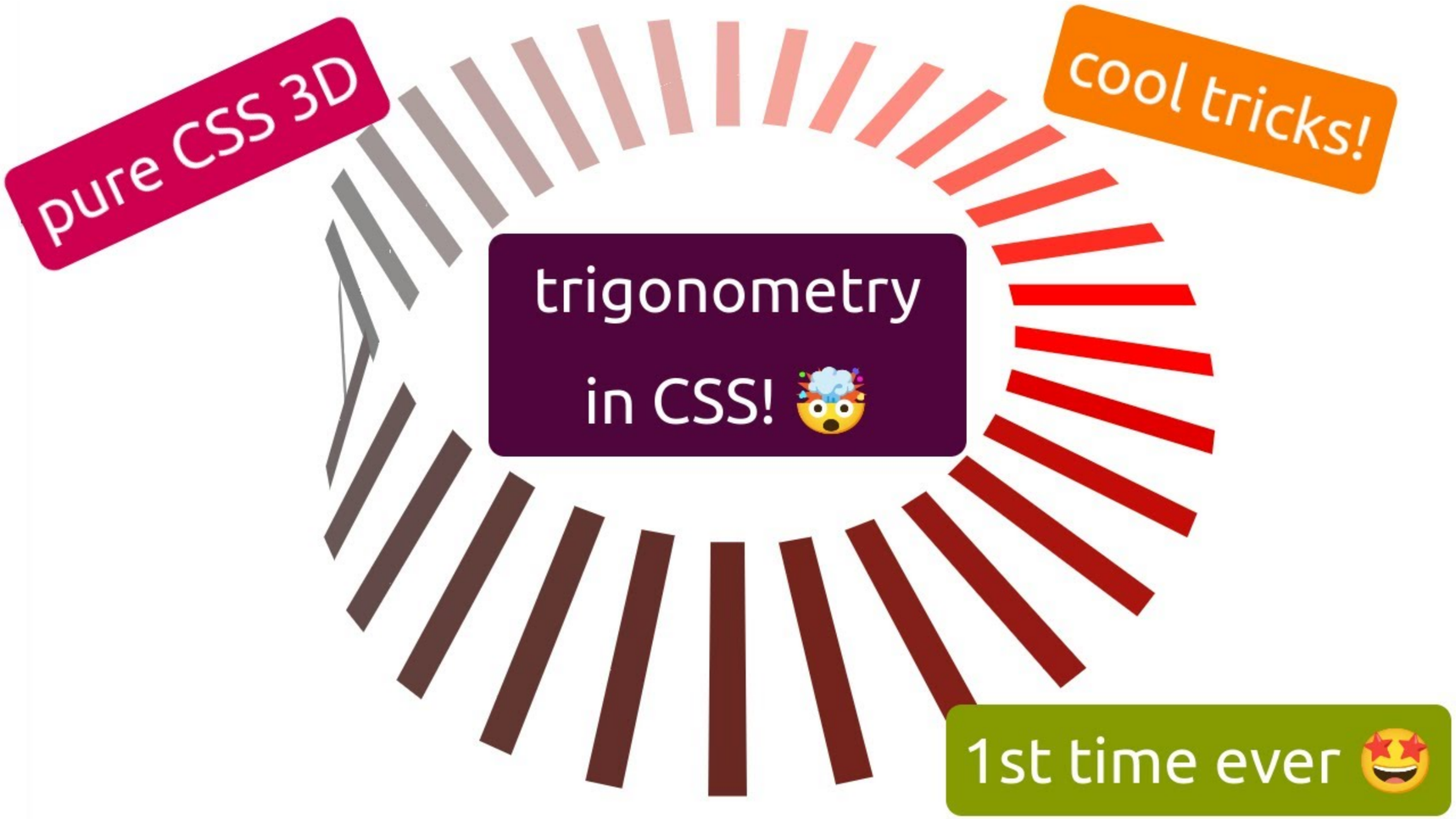
The core three "trig functions" are:

- `cos()`: Returns the cosine of an angle, which is a value between `-1` and `1`.
- `sin()`: Returns the sine of an angle, which is a value between `-1` and `1`.
- `tan()`: Returns the tangent of an angle, which is a value between `-∞` and `+∞`.

`asin()`, `acos()`, `atan()`, and `atan2()`

The "arc" or "inverse" counterparts to `sin()`, `cos()`, and `tan()` are `asin()`, `acos()`, and `atan()` respectively. These functions do the calculation in the opposite direction: they take a numeric value as their argument and return the corresponding angle for it.

Finally there's `atan2()` which accepts two arguments `A` and `B`. The function returns the angle between the positive X-axis and the point `(B,A)`.


pure CSS 3D
cool tricks!
trigonometry
in CSS! 🤯
1st time ever 🤩

Advanced :nth-child

111 113 111 9

New in CSS Selectors Level 4 is the ability to optionally pass a selector list into `:nth-child()` and `:nth-last-child()`.

```
:nth-child(An+B [of S]?)
:nth-last-child(An+B [of S]?)
```

When `of S` is specified, the `An+B` logic is only applied onto elements that match the given selector list `S`. This essentially means that you can prefilter children before `An+B` does its thing.

Record Wall (1)
web.dev PRO + Follow

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HTML

```
<main>
    <h2>Record Wall</h2>
    <div class="no-support" data-support="selector-nth-of-s"><p>Your browser does not support fine-grained <code>:nth-child()</code> selections. Please try Safari 9+ or Chrome 111+</p></div>
    <ul class="albums">
        <li class="sale"><img
```

CSS

```
@layer base, layout;

.highlight:nth-child(2) { /* = Select the element with the class .highlight that is also the 2nd child */
    outline: 0.3rem dashed lightgreen;
    outline-offset: 0.7rem;
}

:nth-child(2 of .highlight) { /* =
```

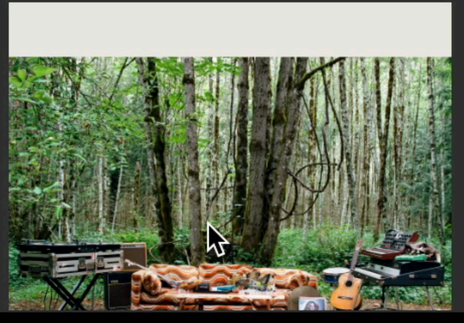
JS

Squarespace: Easily Grow Your Business with Squarespace

Record Wall



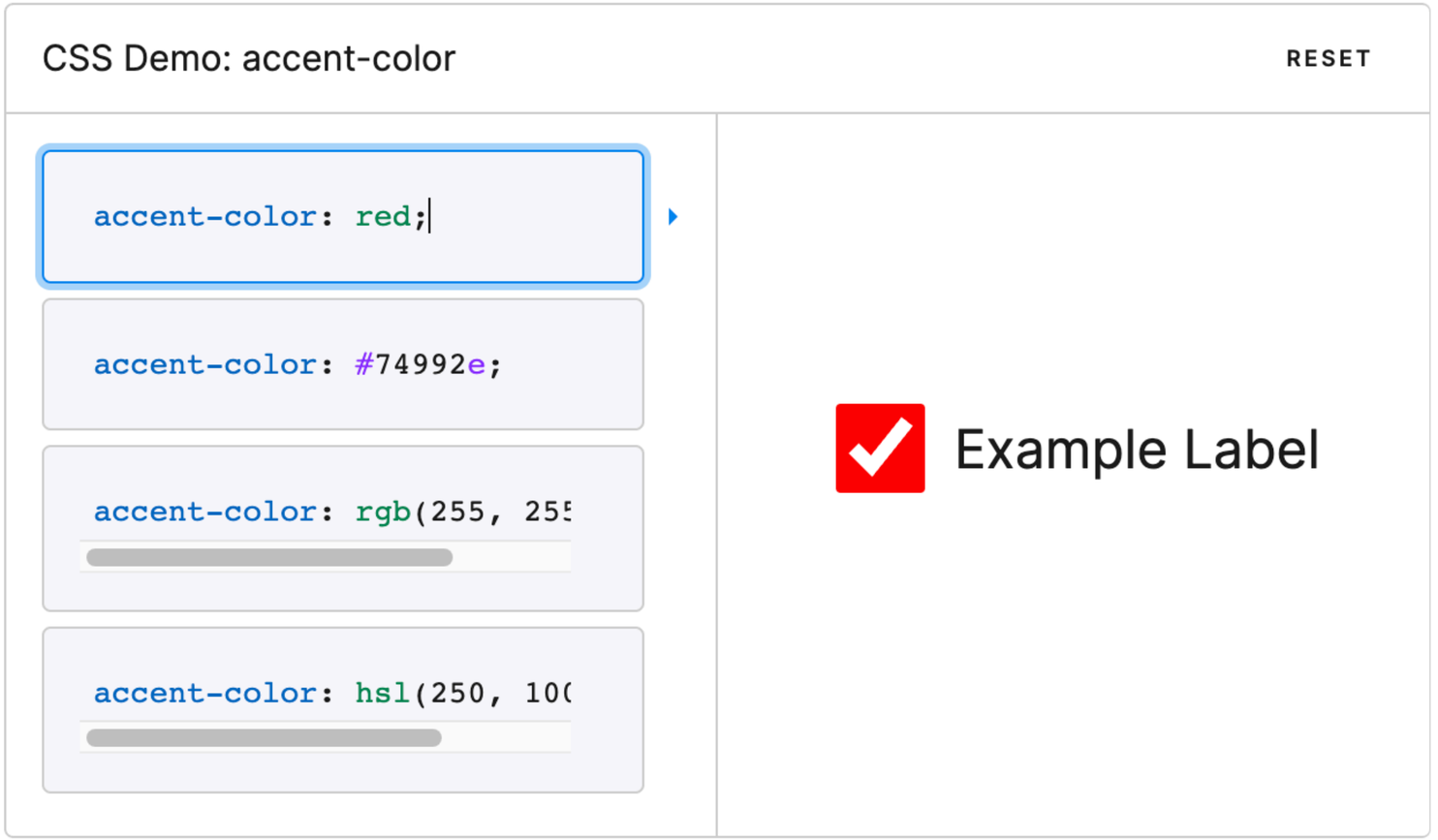




Console | Assets | Comments | ⌘ Keys | Fork | Embed | Export | Share

Accent colours

93 92 93 15.4



Accent Color

Tint built-in HTML elements

Checkbox

Radio Buttons

Range Slider

Progress element



Accent colour supported elements:

- checkbox
- radio
- range
- progress

Individual transform properties

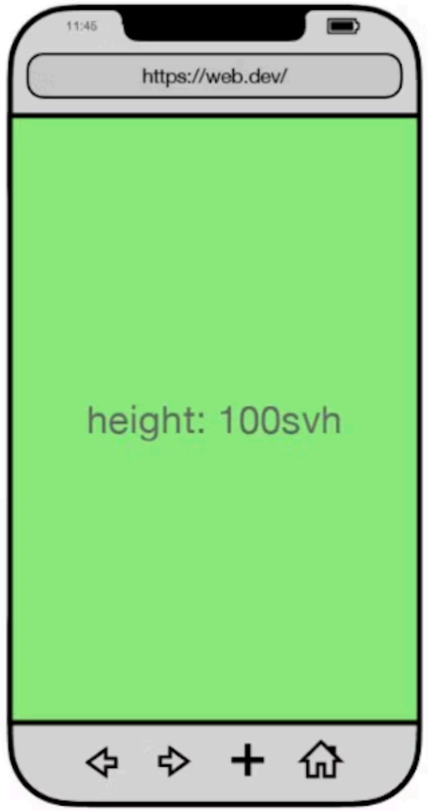
104 72 104 14.1

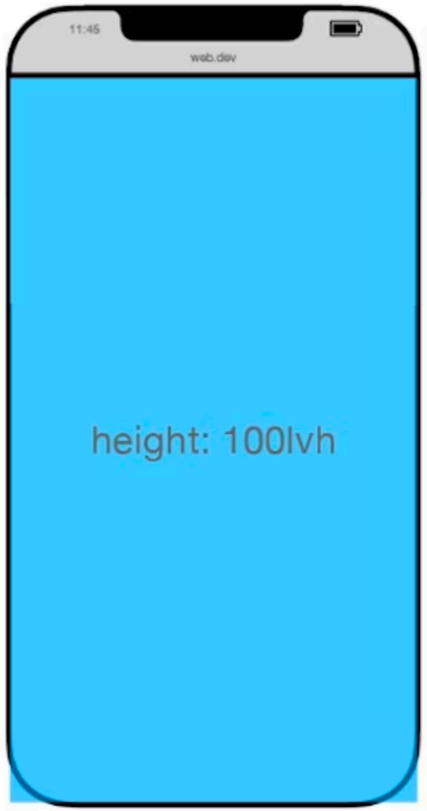
```
.target {
  translate: 50% 0;
  rotate: 30deg;
  scale: 1.2;
}

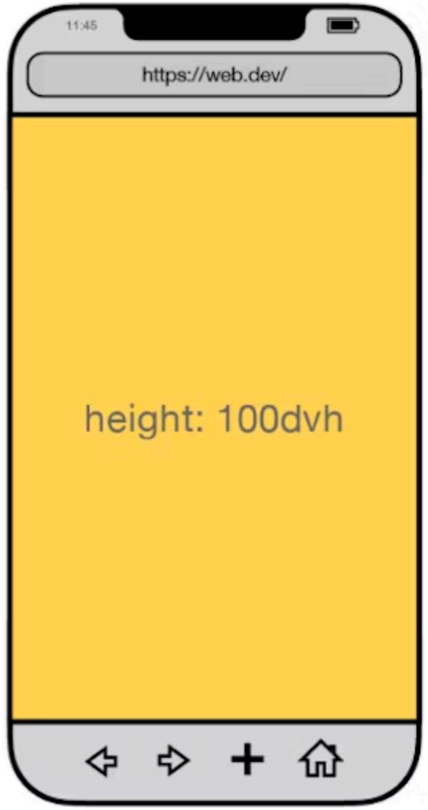
.target:hover {
  scale: 2;
}
```

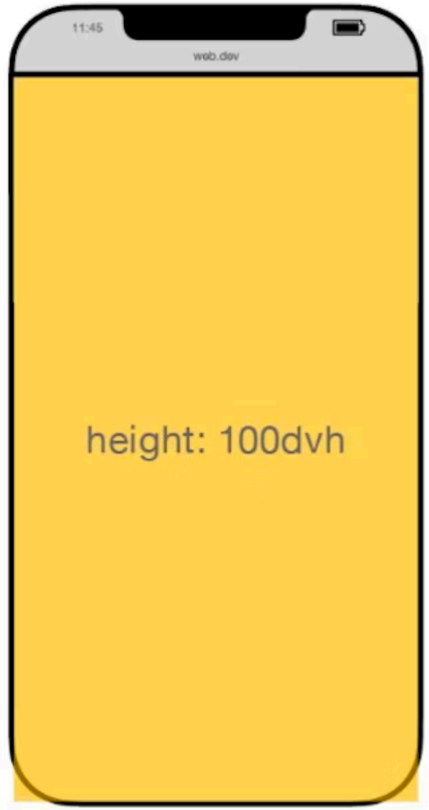
Dynamic viewport units

108 101 108 15.4

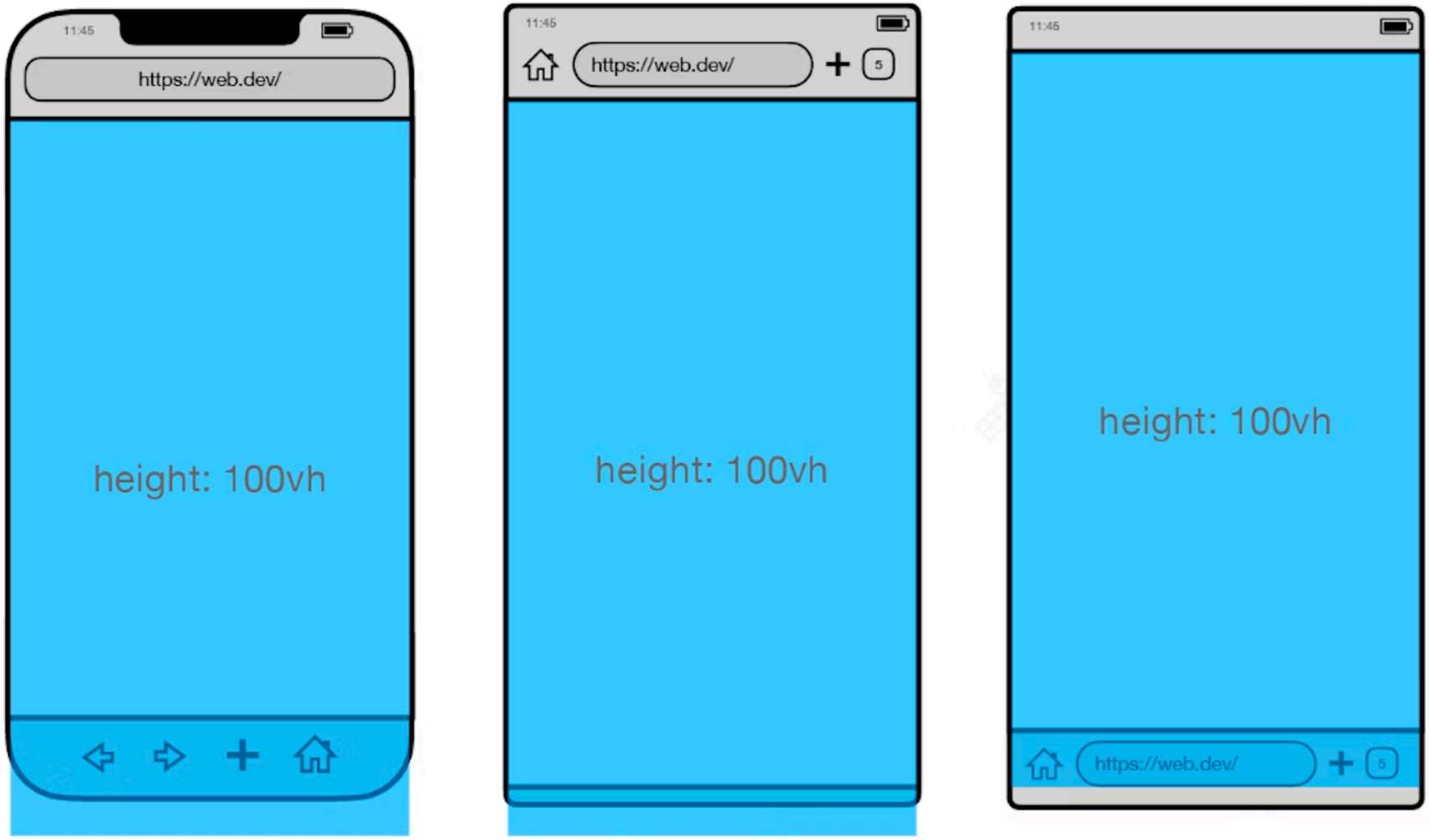








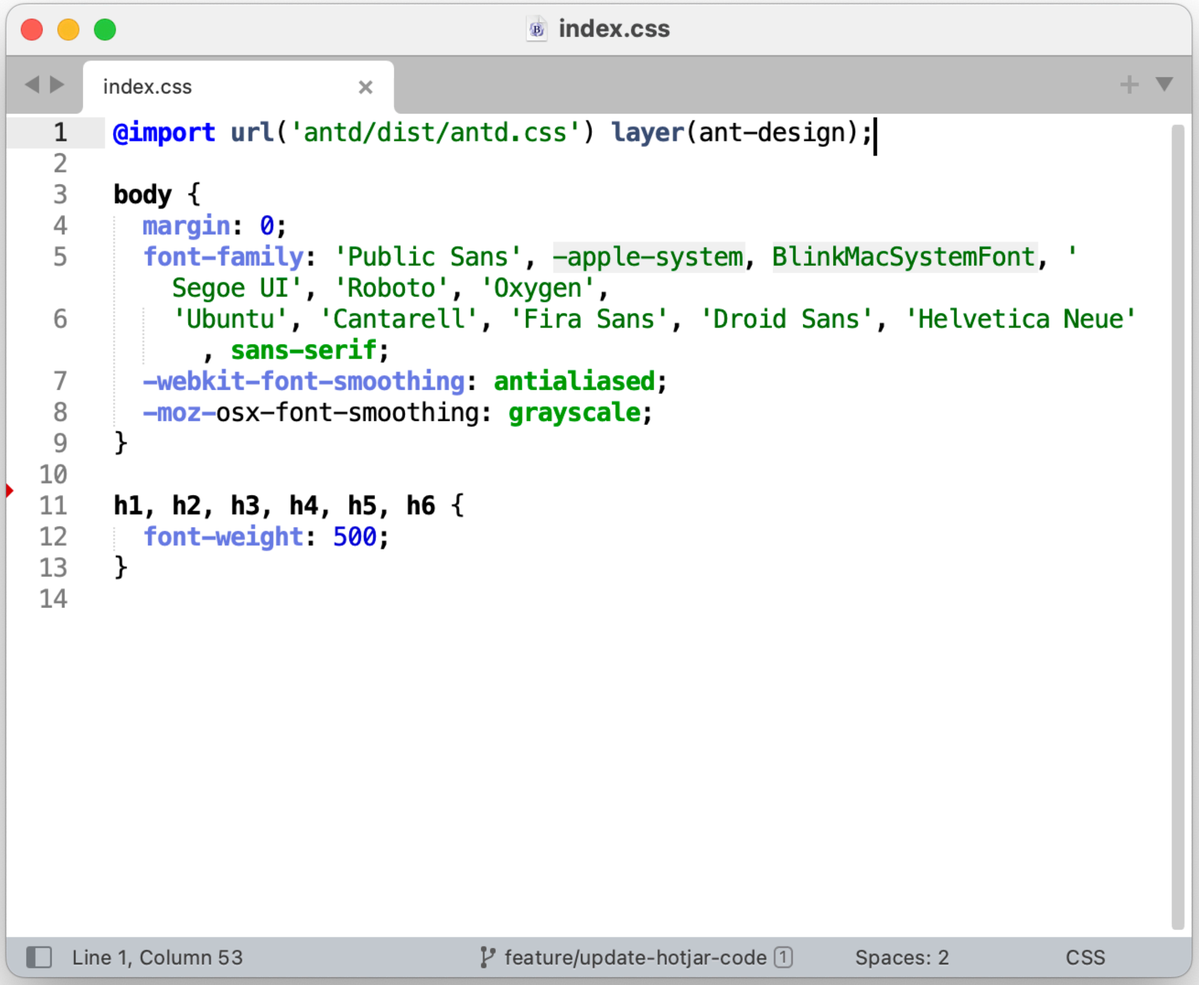
Without dynamic viewport units



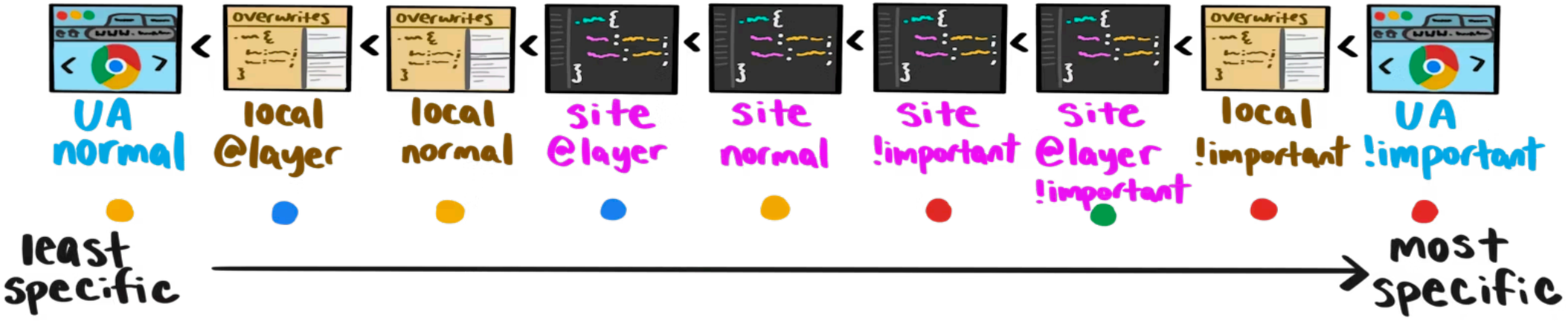
- Small viewport height and width (or `svh` and `svw`), which represent the smallest active viewport size.
- Large viewport height and width (`lvh` and `lvw`), which represent the largest size.
- Dynamic viewport height and width (`dvh` and `dvw`).

CSS Layers

99 97 99 15.4




overwrites
User agent (UA)
Site author (site)
local user (local)


overwrites
overwrites
overwrites
UA normal
local @layer
local normal
site @layer
site normal
site !important
site @layer !important
local !important
UA !important
least specific
most specific

Search Files

Files

- scripts
  - index.js
- styles
  - base
    - base.css
    - normalize.css
    - theme.css
    - typography.css
    - utilities.css
  - components
    - card.css
    - cards.css
    - footer.css
    - post.css
  - index.css
- index.html

Drag and drop or choose file in here to upload

+ New File + New Directory

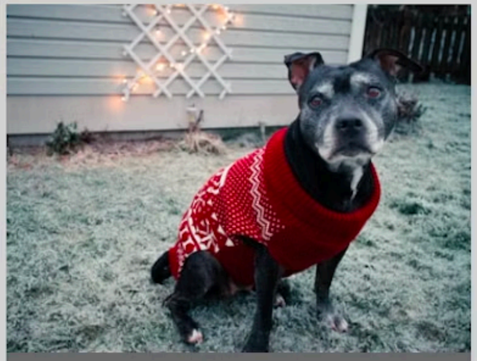
post.css | typography.css | base.css | index.css | cards.css | utilities.css | theme.css | index.html | normalize.css | footer.css

Save

```
10 @import '../styles/base/normalize.css' layer(base);
11 @import '../styles/base/base.css' layer(base);
12 @import '../styles/base/theme.css' layer(theme); /* theme variables */
13 @import '../styles/base/typography.css' layer(theme); /* theme typography */
14 @import '../styles/base/utilities.css' layer(utilities);
15
16 /* Layout Components */
17 @import '../styles/components/post.css' layer(layouts);
18
19 /* Components */
20 @import '../styles/components/cards.css' layer(components); /* imports card */
21 @import '../styles/components/footer.css' layer(components);
```

PREVIEW: index.html Logs

neque tempore mollitia doloremque nemo deserunt provident quod quis distinctio amet temporibus facilis, magni dolorem, non vero officia.



Classic Red Sweater (H2)

BUY ON PETSY.COM



Festive Sweater (H2)

BUY ON PESTAHUT.COM



Pom Pom Pink Hoodie (H2)

BUY ON AMPETZON.COM

Lorem ipsum dolor sit amet consectetur adipisicing elit. Quis reprehenderit mollitia a aliquam

Native CSS nesting

112 117 112 16.5

```
.card {}
.card:hover {}

/* can be done with nesting like */
.card {
  &:hover {

  }
}
```

```
.card {
  display: grid;
  gap: 1rem;

  @container (width >= 480px) {
    display: flex;
  }
}
```

Partially supported

Scoped Styles

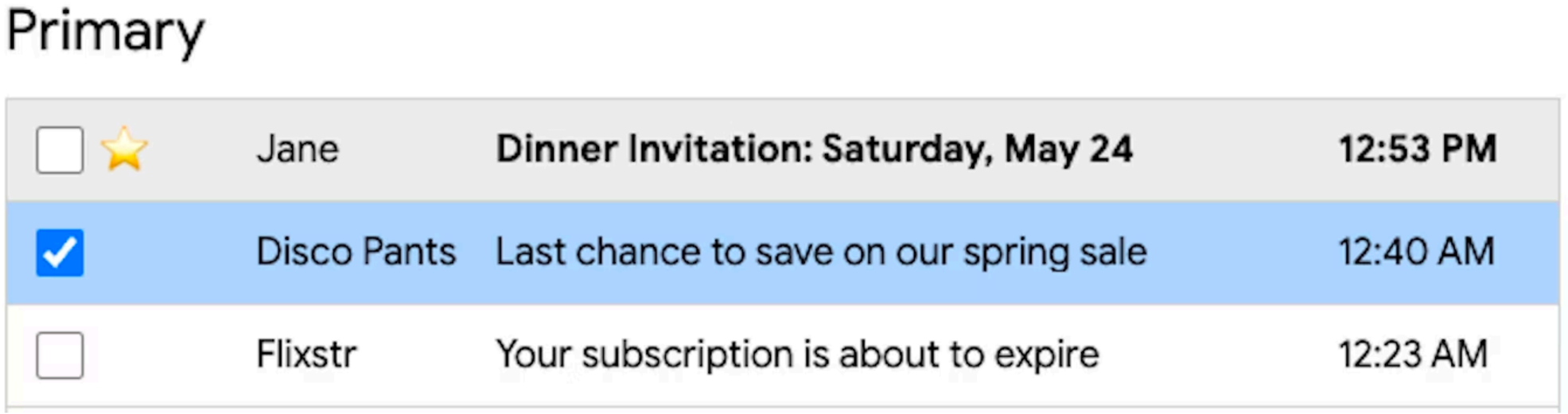



```
@scope (.card) {
   .title {
      font-weight: bold;
   }
}
```

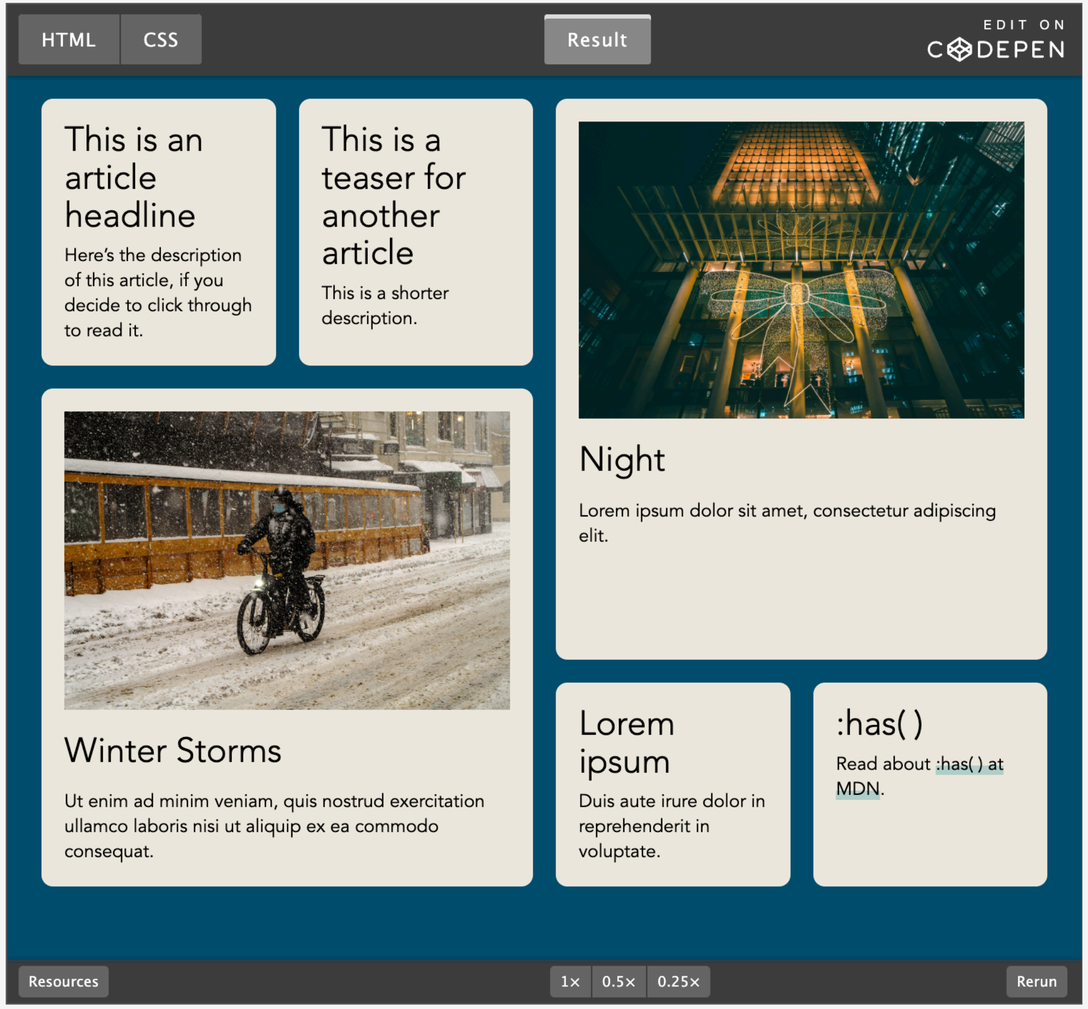
:has

105 105 15.4

```
.item:has(.star) .title
```



```
article:has(img) {
  grid-column: span 2;
  grid-row: span 2;
}
```



```HTML
<!-- Plain button -->
<button>Add</button>

<!-- Button with SVG icon -->
<button>
  <svg></svg>
  Add
</button>
```

Now, let's say, you want to apply styles only to the `<button>` that has an `<svg>` element inside of it.

`:has()` is perfectly suited for the job:

```CSS
button:has(svg) {
  /* Styles */
}
```

:has is an unforgiving selector

```css
/* This doesn't do anything because `::-scoobydoo`
   is an invalid selector */
a, a::-scoobydoo {
  color: green;
}
```

The same is true of `:has()`. Any invalid selector in its argument list will invalidate everything else in the list. So, that example we looked at earlier:

```css
/* Example: Do not use! */
article:has(h2, ul, ::-scoobydoo) { }
```

…but you can use :where to be more forgiving

```css
p:has(:where(a, a::scoobydoo)) {
  color: green;
}
```

:where and :is

When writing CSS, you can sometimes end up with long selector lists to target multiple elements with the same style rules. For example, if you want to color adjust any `<b>` tags found inside a heading element, you could write:

```
h1 > b, h2 > b, h3 > b, h4 > b, h5 > b, h6 > b {
  color: hotpink;
}
```

Instead, you could use `:is()` and improve legibility while avoiding a long selector:

```
:is(h1,h2,h3,h4,h5,h6) > b {
  color: hotpink;
}
```

Scroll-based animations in CSS



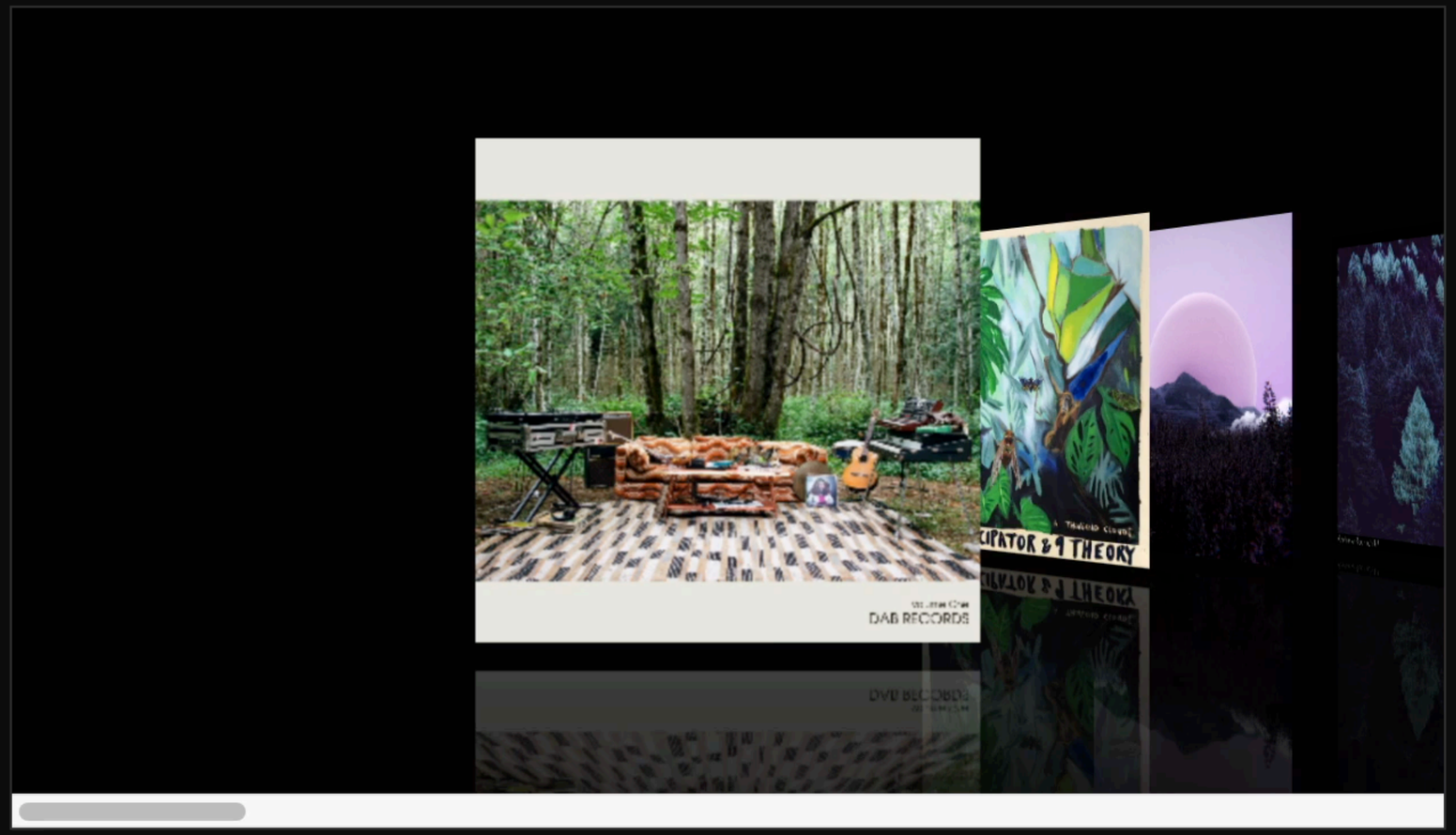

```html
<body>
  <div id="progress"></div>
  …
</body>
```

```css
@keyframes grow-progress {
  from { transform: scaleX(0); }
  to { transform: scaleX(1); }
}

#progress {
  position: fixed;
  left: 0; top: 0;
  width: 100%; height: 1em;
  background: red;

  transform-origin: 0 50%;
  animation: grow-progress auto linear;
  animation-timeline: scroll();
}
```

https://developer.chrome.com/blog/whats-new-css-ui-2023/#scroll-driven-animations



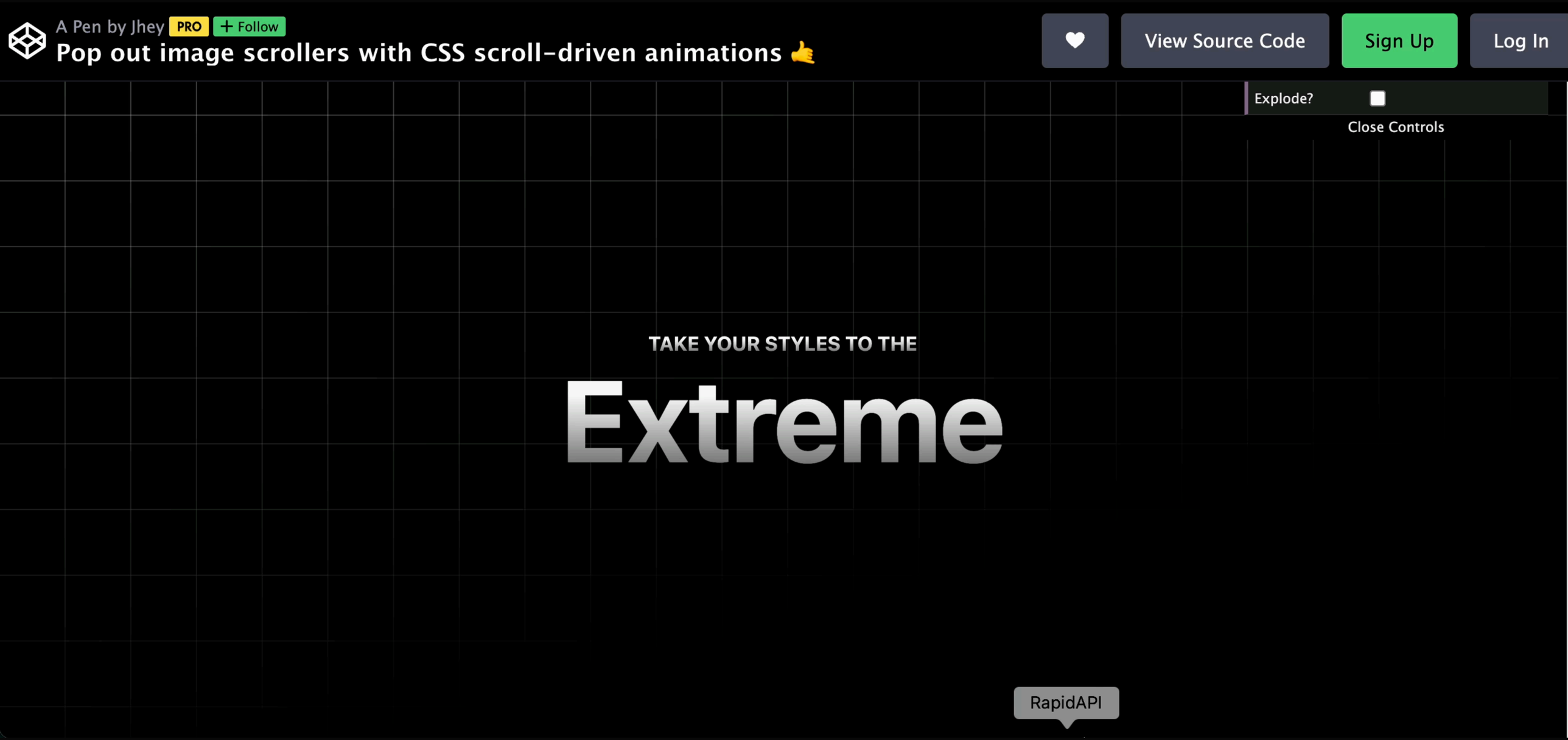
The Polar Bear

From Wikipedia, the free encyclopedia

The **polar bear *(Ursus maritimus)*** is a hypercarnivorous species of bear. Its native range lies largely within the Arctic Circle, encompassing the Arctic Ocean and its surrounding seas and landmasses, which includes the northernmost regions of North America and Eurasia. It is the largest extant bear species, as well as the largest extant land carnivore. A boar (adult male) weighs around 350–700 kg (770–1,540 lb), while a sow (adult female) is about half that size. Although it is the sister species of the brown bear, it has evolved to occupy a narrower ecological niche, with many body characteristics adapted for cold temperatures, for moving across snow, ice and open water, and for hunting seals, which make up most of its diet. Although most polar bears are born on land, they spend most of their time on the sea ice. Their scientific name means "maritime bear" and derives from this fact. Postico 2 rs hunt their preferred food of seals from the edge of sea ice, often living off fat reserves when no sea ice is

Source: https://scroll-driven-animations.style/

A Pen by Jhey PRO + Follow
Pop out image scrollers with CSS scroll-driven animations 👍
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Ghostie Will 2012

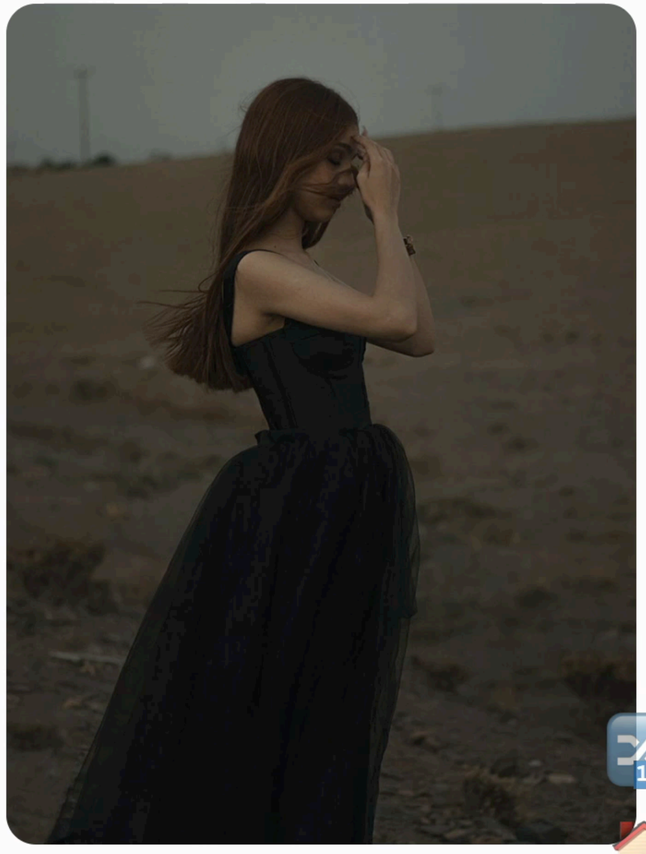
Loyal Royal 2015



Cyber Blue 2011



Lucky Wood 2019

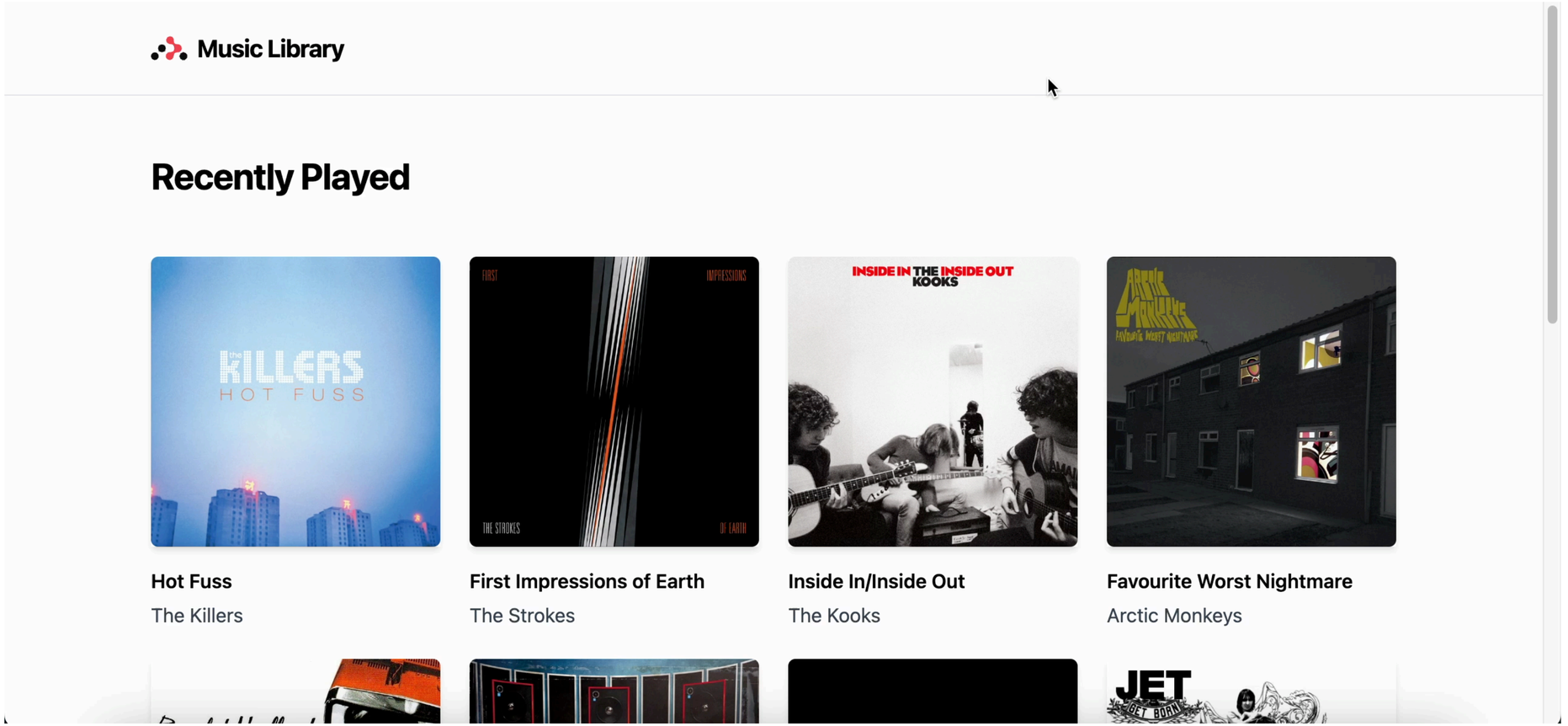


Bold Human 2014

Source: https://scroll-driven-animations.style/

View transitions

111 ✕ 111 ✕



initial-letter

Browser support

110 ✕ 110 9



Popover API

Chrome 114, Safari 17 - TP

```
<div id="event-popup" popover>
  <!-- Popover content goes in here -->
</div>

<button popovertarget="event-popup">Create New Event</button>
```

Support for top-layer, so **you don’t have to manage z-index**. When you open a popover or a dialog, you’re promoting that element to a special layer on top of the page.

Light-dismiss behavior for free in auto popovers, so **when you click outside of an element, the popover is dismissed**, removed from the accessibility tree, and focus properly managed.

Default accessibility for the connective tissue of the popover’s target and the popover itself.

You can now animate display!

```
.settings-popover {
  &:popover-open {
    /*   0. before-change   */
    @starting-style {
      transform: translateY(20px);
      opacity: 0;
    }

    /*   1. open (changed) state   */
    transform: translateY(0);
    opacity: 1;
  }

  /*   2. After-change state */
  transform: translateY(-50px);
  opacity: 0;

  /*  enumarate transitioning properties, including display */
  transition: transform 0.5s, opacity 0.5s, display 0.5s;
}
```

Hello I am an app

Canary only behind #experimental-web-platform-feature flag. Lorem ipsum dolor sit amet consectetur adipisicing elit. Dicta cupiditate ex, quisquam quaerat hic amet beatae reprehenderit ipsum cumque iure quia debitis nobis ad nisi? Reprehenderit libero ullam odio laudantium.

Settings Toolbar



text-wrap: balance

Chrome 114, Safari TP (behind a flag), Firefox implementing



Experimental/Upcoming

Anchor positioning

https://drafts.csswg.org/css-anchor-position-1/

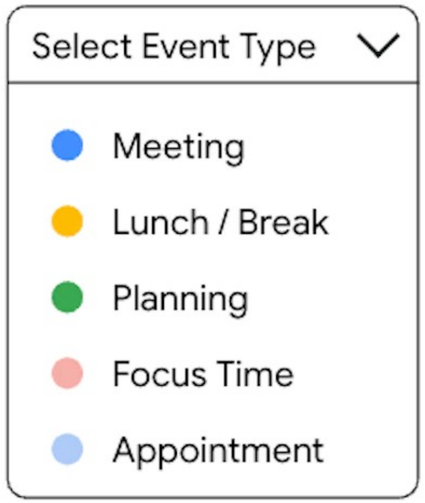
```
.center-tooltip {
  position-fallback: --top-then-bottom;
  translate: -50% 0;
}

@position-fallback --top-then-bottom {
  @try {
    bottom: calc(anchor(top) + 0.5rem);
    left: anchor(center);
  }

  @try {
    top: calc(anchor(bottom) + 0.5rem);
    left: anchor(center);
  }
}
```

<selectmenu>

Available in Chrome with experimental flag enabled







```
<selectmenu>
  <button slot="button" behavior="button">
    <span>Select event type</span>
    <span behavior="selected-value" slot="selected-value"></span>
    <span><img src="icon.svg"/></span>
  </button>
  <option value="meeting">
    <figure class="royalblue"></figure>
    <p>Meeting</p>
  </option>
  <option value="break">
    <figure class="gold"></figure>
     <p>Lunch/Break</p>
  </option>
  ...
</selectmenu>
```

Further reading

- https://developer.chrome.com/blog/whats-new-css-ui-2023
- https://marcoheine.com/blog/new-css-features-in-2023
- https://web.dev/accent-color/
- https://youtu.be/buChHSdsF9A
- https://youtu.be/oDcb3fvtETs
- https://youtu.be/JiVQBqAkkac
- https://developer.chrome.com/articles/high-definition-css-color-guide/#meet-the-new-web-color-spaces
- https://developer.chrome.com/blog/tether-elements-to-each-other-with-css-anchor-positioning/
- https://webkit.org/blog/13096/css-has-pseudo-class/

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