WELCOME TO THE DARK SIDE

Making dark mode accessible for web

2018
ember
CONF
ember

when
CONTRIBUTING
seems
SCARY
Ember{{fest}}
The European
Community Ember
Conference
HARVEST

nedap

a.g.vanherwijnen

agvanherwijnen

Anne-Greeth

MinThaMie

Making dark mode accessible for web

index.hbs — ember-website

EXPLORER

OPEN EDITORS
- application.hbs app/te...
- index.hbs app/template...

EMBER-WEBSITE
- templates
  - about
  - community
  - editions
  - learn
  - mascots
    - commission-sent.hbs
    - commission.hbs
    - faq.hbs
    - index.hbs
    - payment-sent.hbs
    - payment.hbs
  - releases
  - survey
  - application.hbs

application.hbs | index.hbs

app > templates > mascots > index.hbs > HTML Language Features > section.contain

controller | _template_ | controller:test

```
1  {{page-title "Mascots"}}
2  <section aria-label="Mascots" class="container">
3    <h1>Tomster and Zoey</h1>
4    <p>
5      Tomster was the first of many friendly faces of the Ember project
6    </p>
7    <p>
8      Tomster is a registered and protected trademark. These images may
9    </p>
10
11   <Mascots::MascotFilters />
12
13   <Mascots::MascotList
14     @display={{this.display}}
15     @mascots={{sort-by "date:desc" this.filteredMascots}}
16   />
17 </section>
```

index.hbs — ember-website

EXPLORER

OPEN EDITORS

application.hbs app/te...

index.hbs app/template...

EMBER-WEBSITE

- templates
  - about
  - community
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  - mascots
    - commission-sent.hbs
  - survey
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application.hbs | index.hbs

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controller | _template_ | controller:test

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{{page-title "Mascots"}}
<section aria-label="Mascots" class="container">
  <h1>Tomster and Zoey</h1>
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  <p>
    Tomster is a registered and protected trademark. These images may
  </p>

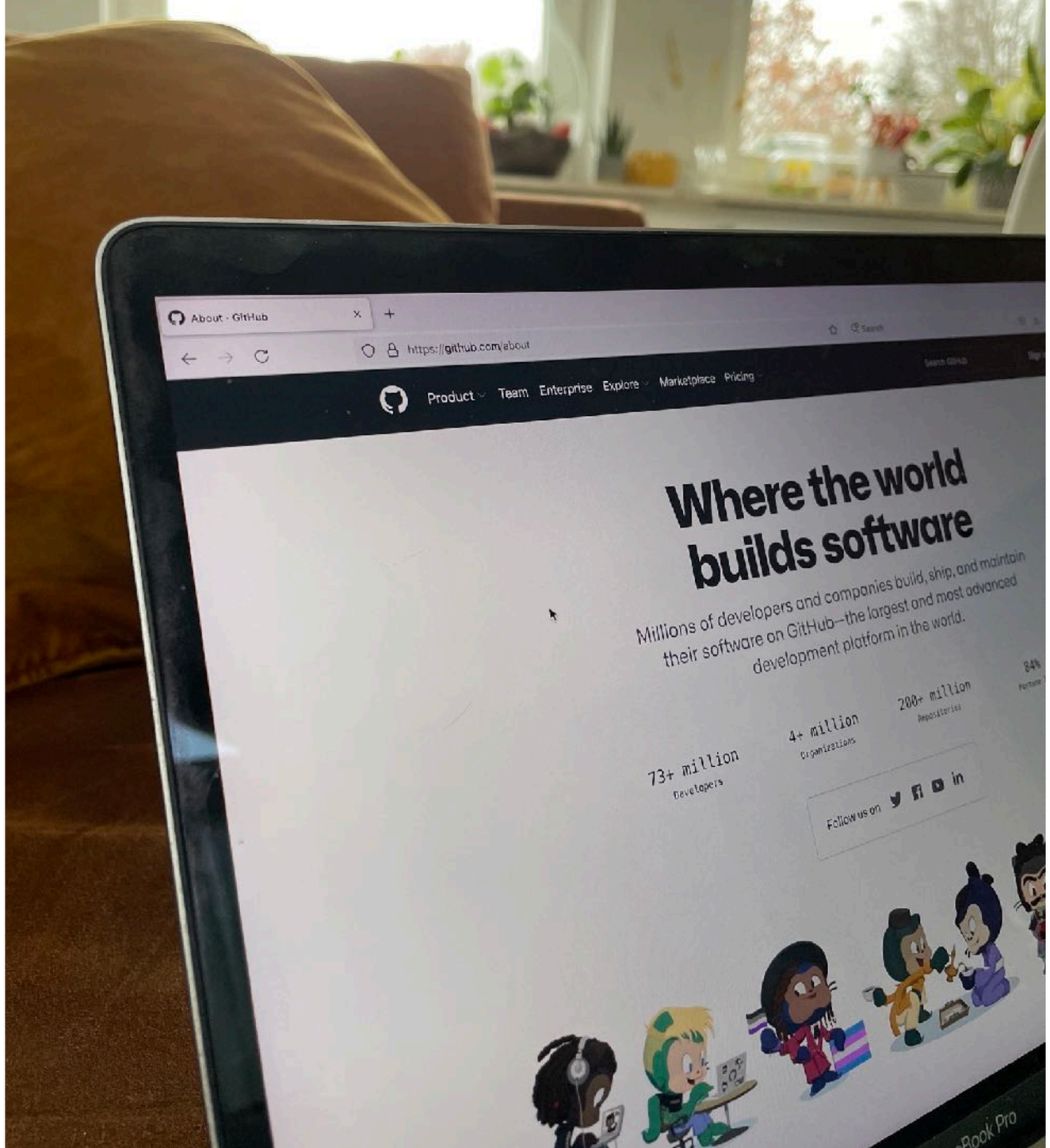
  <Mascots::MascotFilters />

  <Mascots::MascotList
    @display={{this.display}}
    @mascots={{sort-by "date:desc" t
  />
</section>
```

37%

63%

https://css-tricks.com/poll-results-light-on-dark-is-preferred/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Product
Team
Enterprise
Explore
Marketplace
Pricing
Where the world builds software
Millions of developers and companies build, ship, and maintain their software on GitHub—the largest and most advanced development platform in the world.
73+ million
Developers
4+ million
Organizations
200+ million
Repositories
84%
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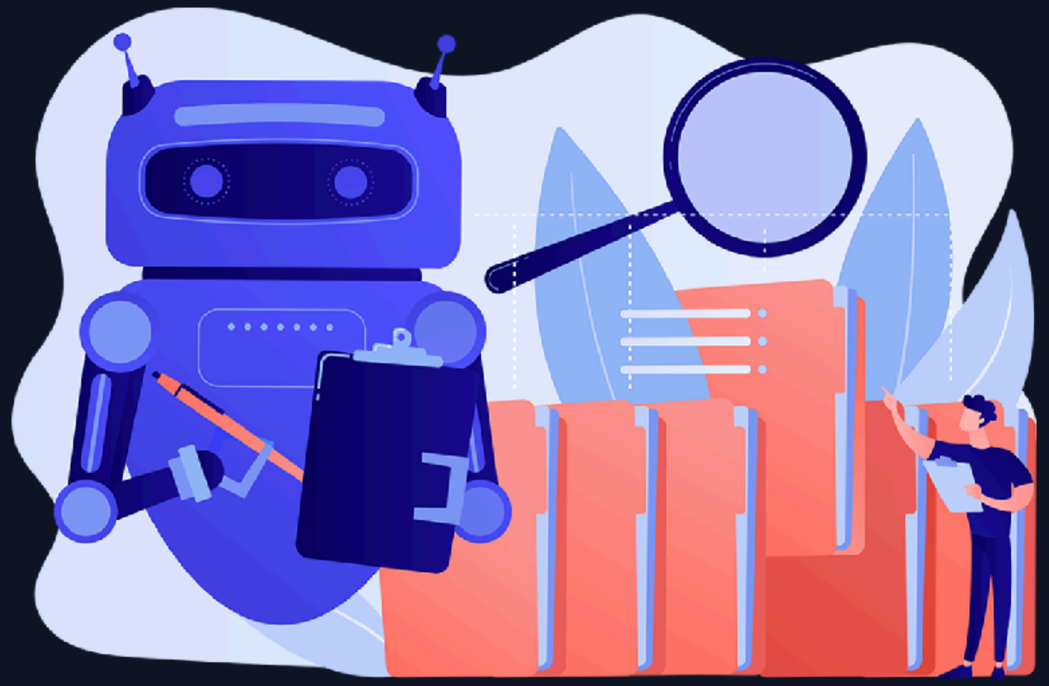
A11y Automation Tracker

A more thorough way to track the potential accessibility violations and the automated linters and tests currently available.



ACCESSIBILITY AUTOMATION

Catch potential a11y violations faster.

It can be hard to keep track of the potential accessibility violations in your code. More automation is being created for linting rules and tests-- and now there is a single site to track the automation available to developers.

Developers

Educate yourself about the ways your apps

Tooling Engineers

Identify potential linting or testing rules that

Business Managers

Keep track of what automation is available

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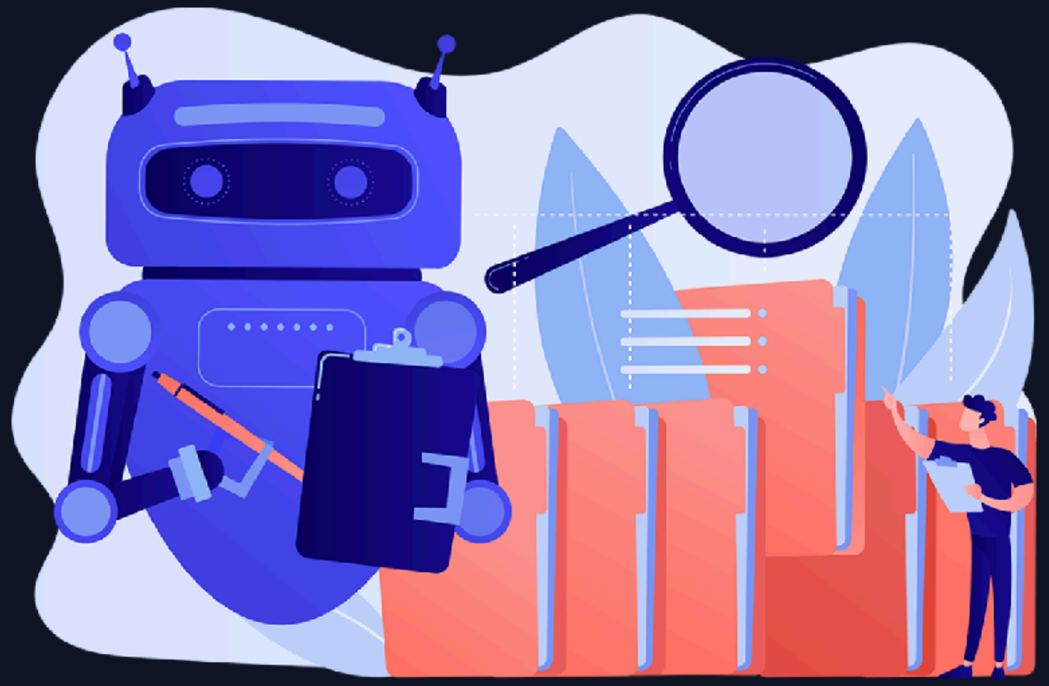

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Potential A11y Violations

FAILURE	LINTING STATUS	TESTING STATUS	MANUAL TESTING STATUS	LEVEL
Abstract Roles	Exists	Exists	Exists	A
Color Differences in Alt Text	Could Exist	Could Exist	Must Exist	A
Area Elements in Image Maps	Exists	Could Exist	Exists	A
ASCII Art	Cannot Exist	Cannot Exist	Must Exist	A
Autocomplete Values	Could Exist	Exists	Exists	AA
Autoplaying Media	Could Exist	Exists	Should Exist	A
Autoplaying Sound	Cannot Exist	Exists	Should Exist	A
Blink Element Use	Exists	Could Exist	Exists	A
Background Image Contrast	Cannot Exist	Cannot Exist	Must Exist	AA
Banner As Body Descendant	Cannot Exist	Exists	Exists	A
Blank th Elements	Could Exist	Could Exist	Must Exist	A
Text for Buttons and Links	Exists	Could Exist	Should Exist	A
Caption Elements in Layout Tables	Could Exist	Could Exist	Must Exist	A

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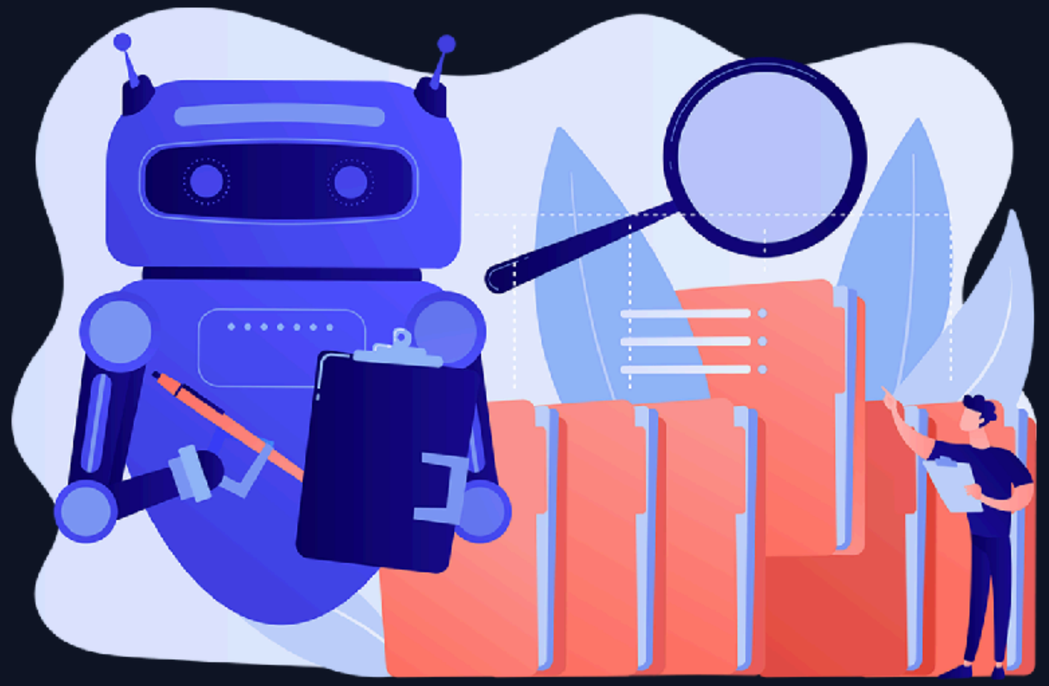

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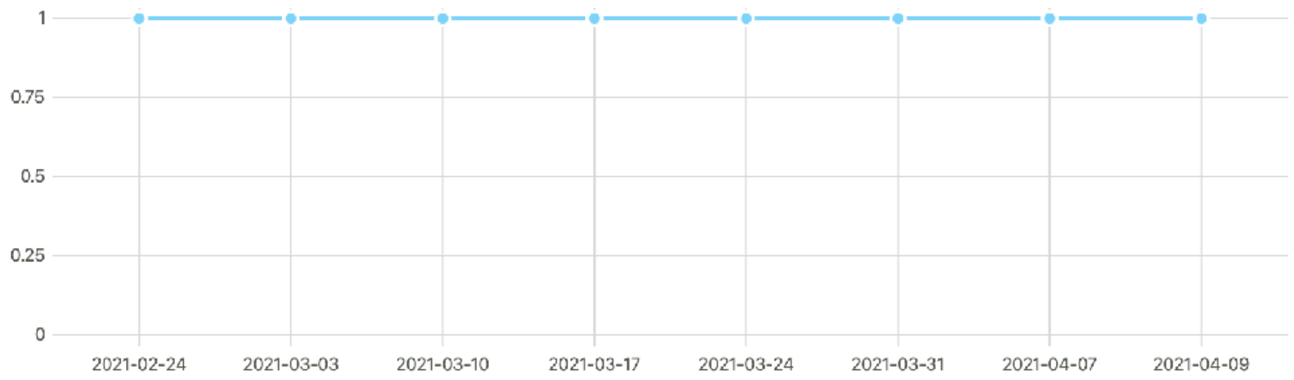
Lint to the Future Dashboard

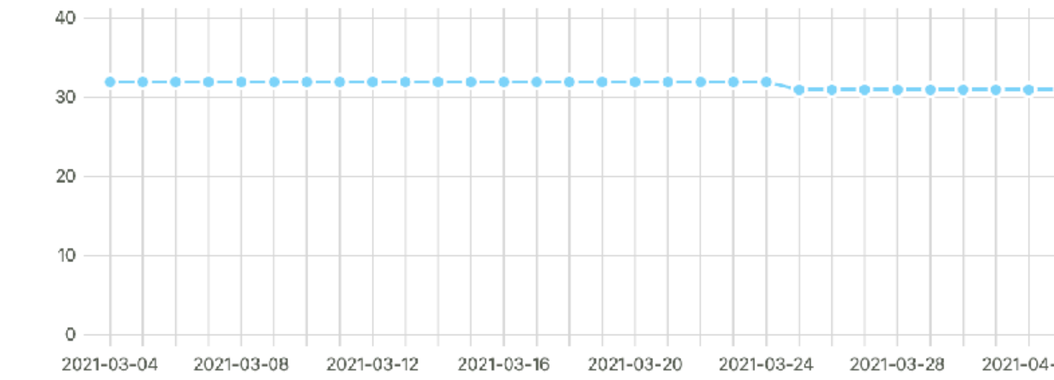
require-valid-alt-text

view files



Daily Weekly

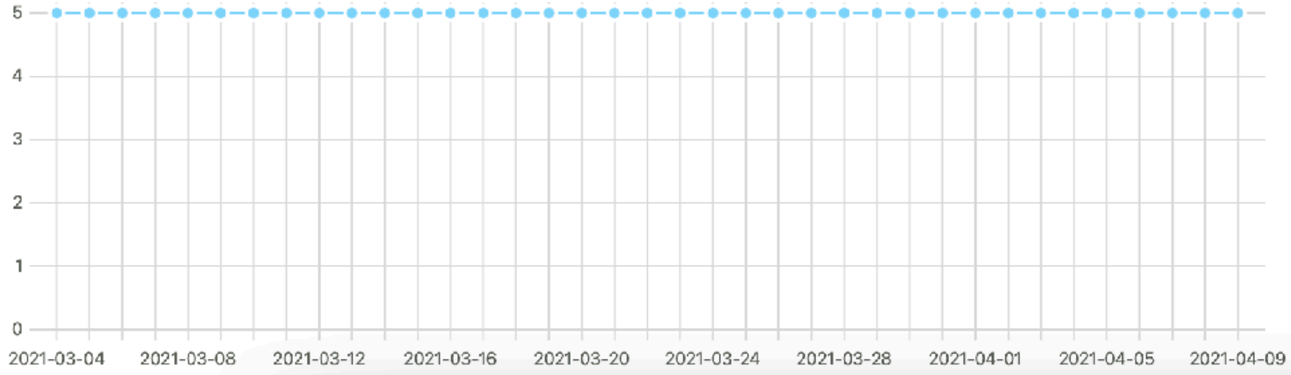
prettier/prettier



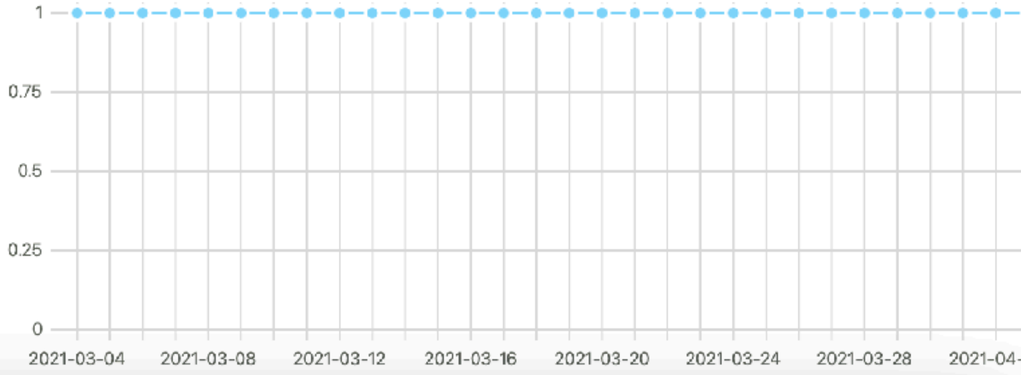
Daily Weekly

ember/no-empty-glimmer-component-classes

view files



ember/no-classic-components



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require-valid-alt-text

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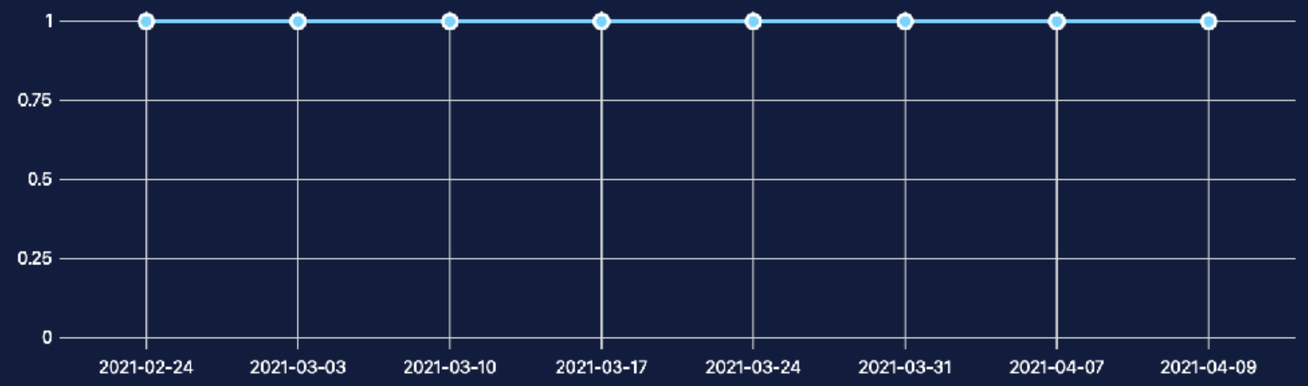

Daily Weekly

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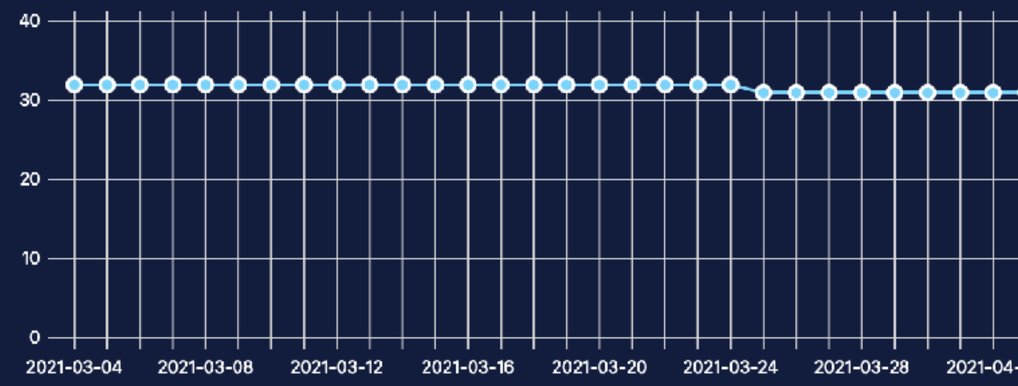

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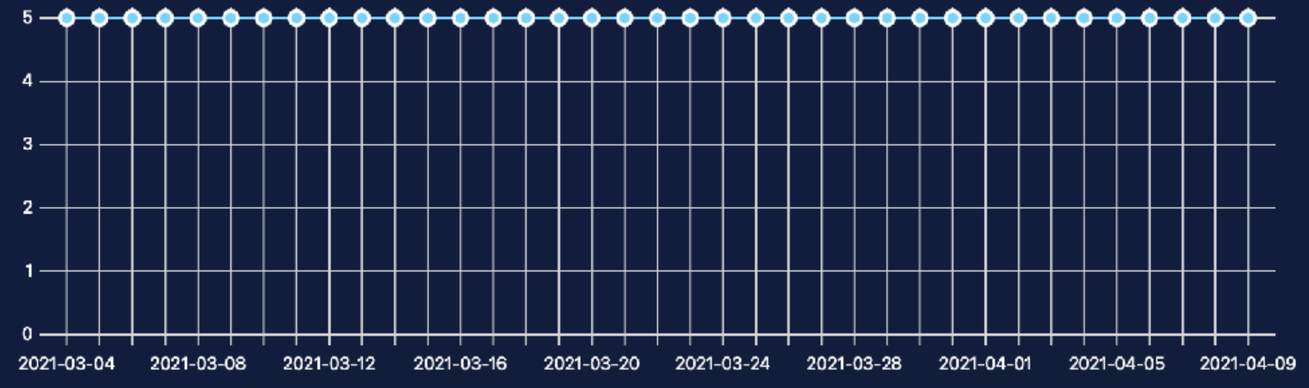

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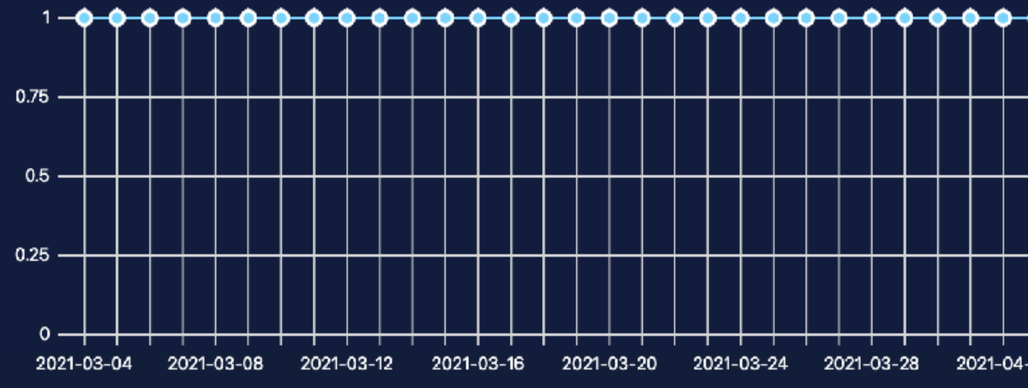

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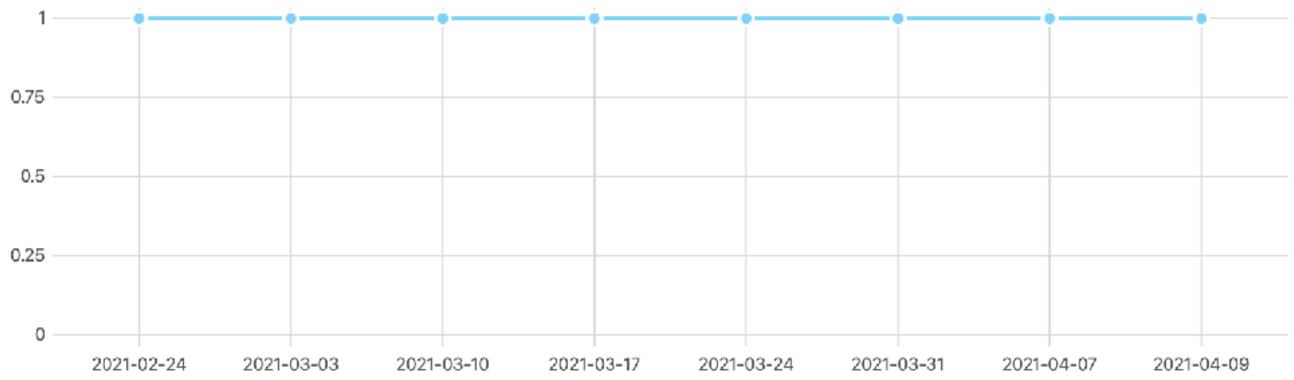

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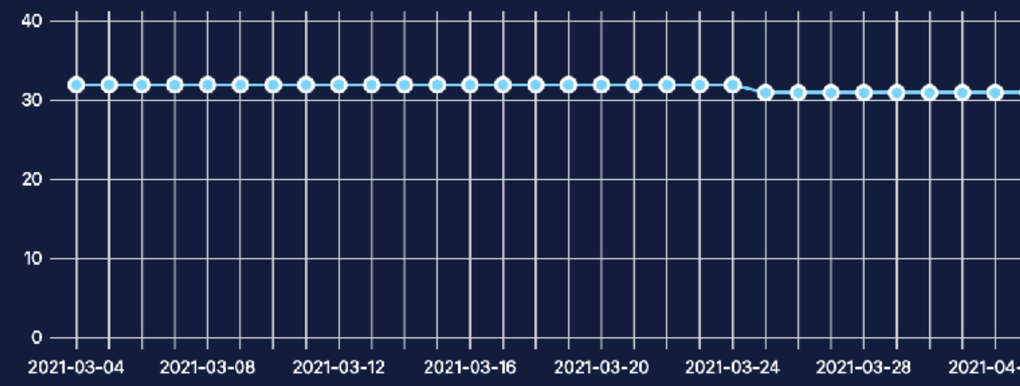

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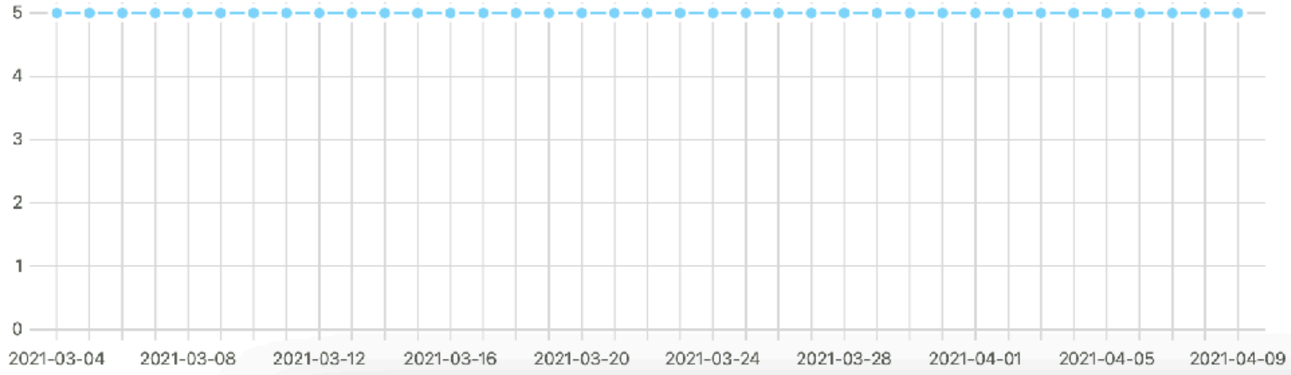

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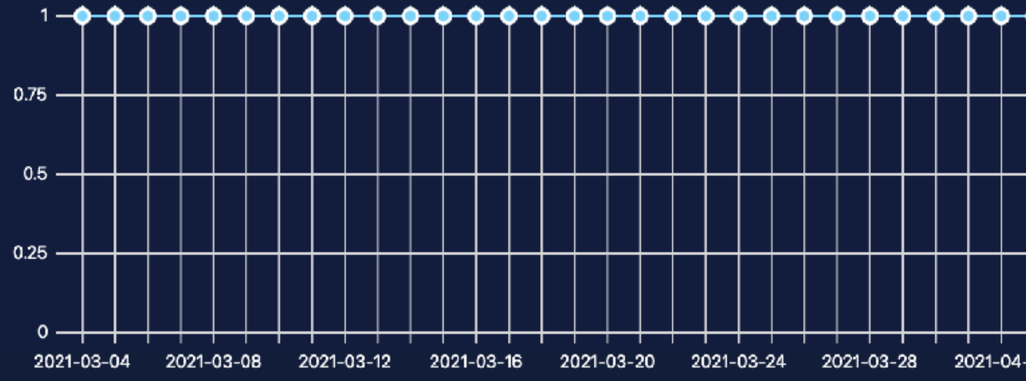


Media queries

@media

Media types

`all`, `print`, `screen`

```
@media screen
```

Media features

Media features

Name	Summary	Notes
any-hover	Does any available input mechanism allow the user to hover over elements?	Added in Media Queries Level 4.
any-pointer	Is any available input mechanism a pointing device, and if so, how accurate is it?	Added in Media Queries Level 4.
aspect-ratio	Width-to-height aspect ratio of the viewport	
color	Number of bits per color component of the output device, or zero if the device isn't color	
color-gamut	Approximate range of colors that are supported by the user agent and output device	Added in Media Queries Level 4.
color-index	Number of entries in the output device's color lookup table, or zero if the device does not use such a table	

```
@media screen and (prefers-color-
scheme: dark) {
  // Insert your CSS here
}
```

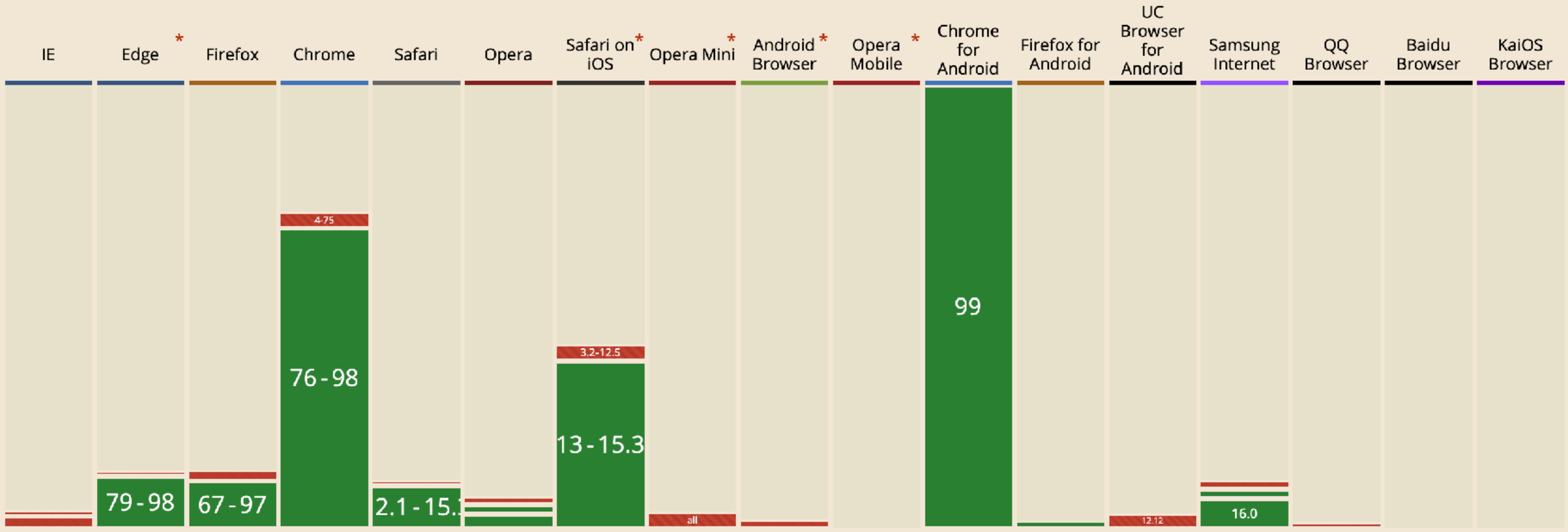
prefers-color-scheme media query - WD

Usage % of all users ?

Global 91.06%

Media query to detect if the user has set their system to use a light or dark color theme.

Current aligned | Usage relative | Date relative | Filtered | All



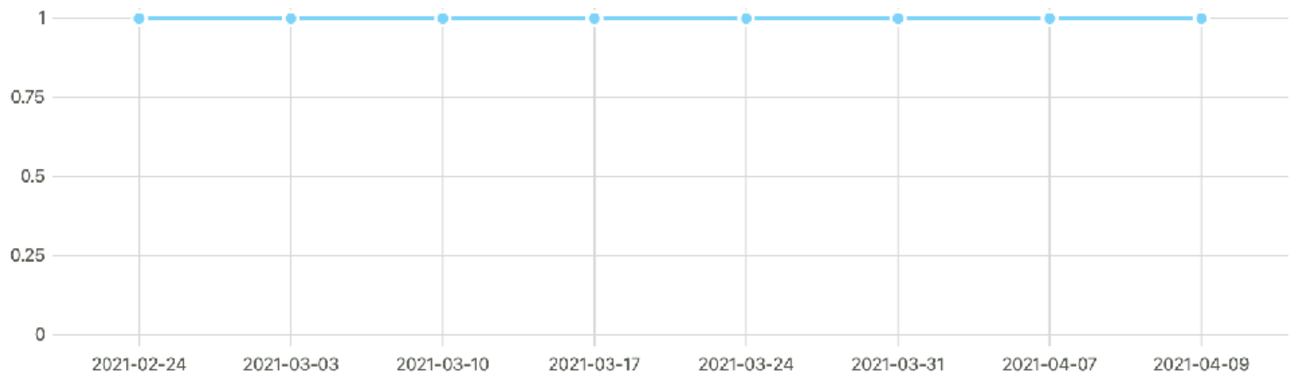
Notes | Test on a real browser | Known issues (0) | Resources (6) | Feedback

Support will also depend on whether or not the OS has support for a light/dark theme preference.

Lint to the Future Dashboard

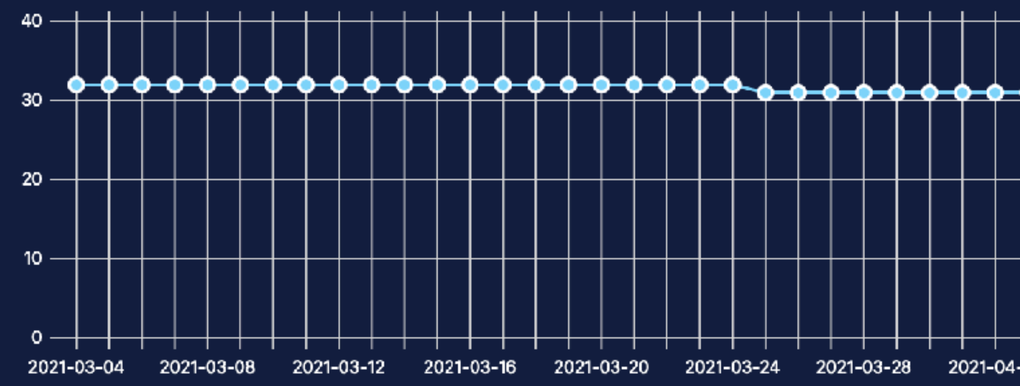
require-valid-alt-text

view files



Daily Weekly

prettier/prettier



Daily Weekly

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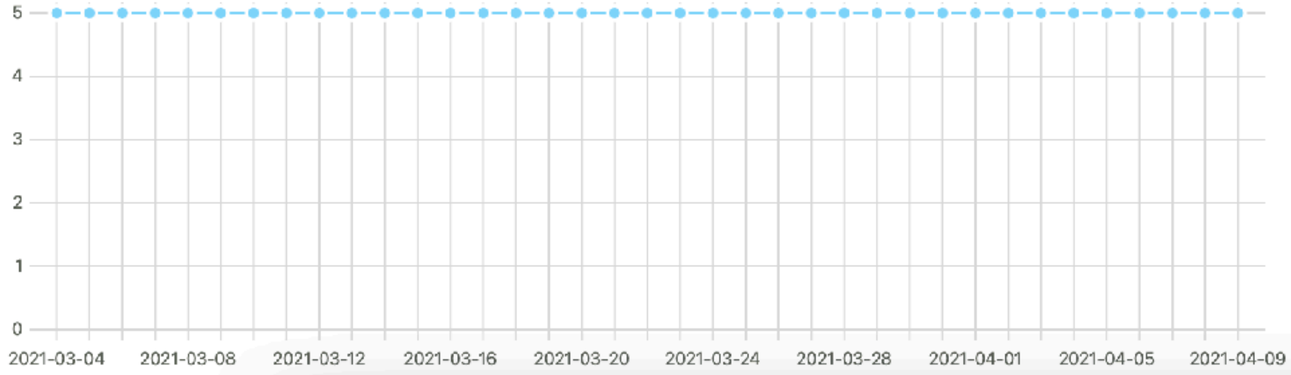

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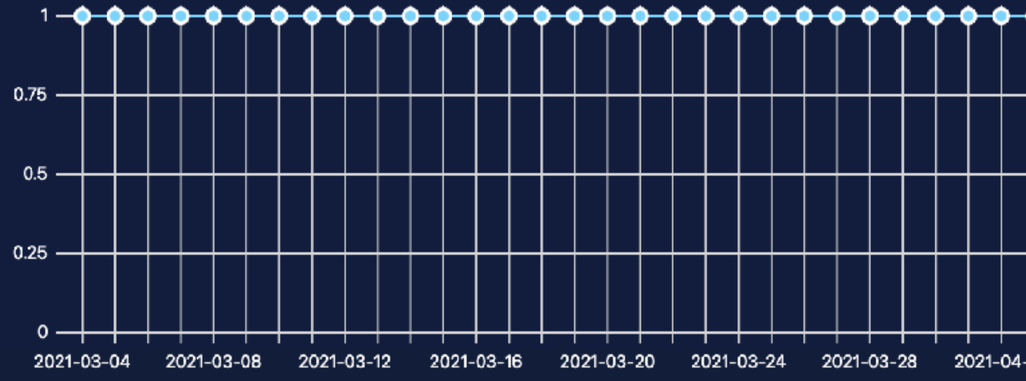
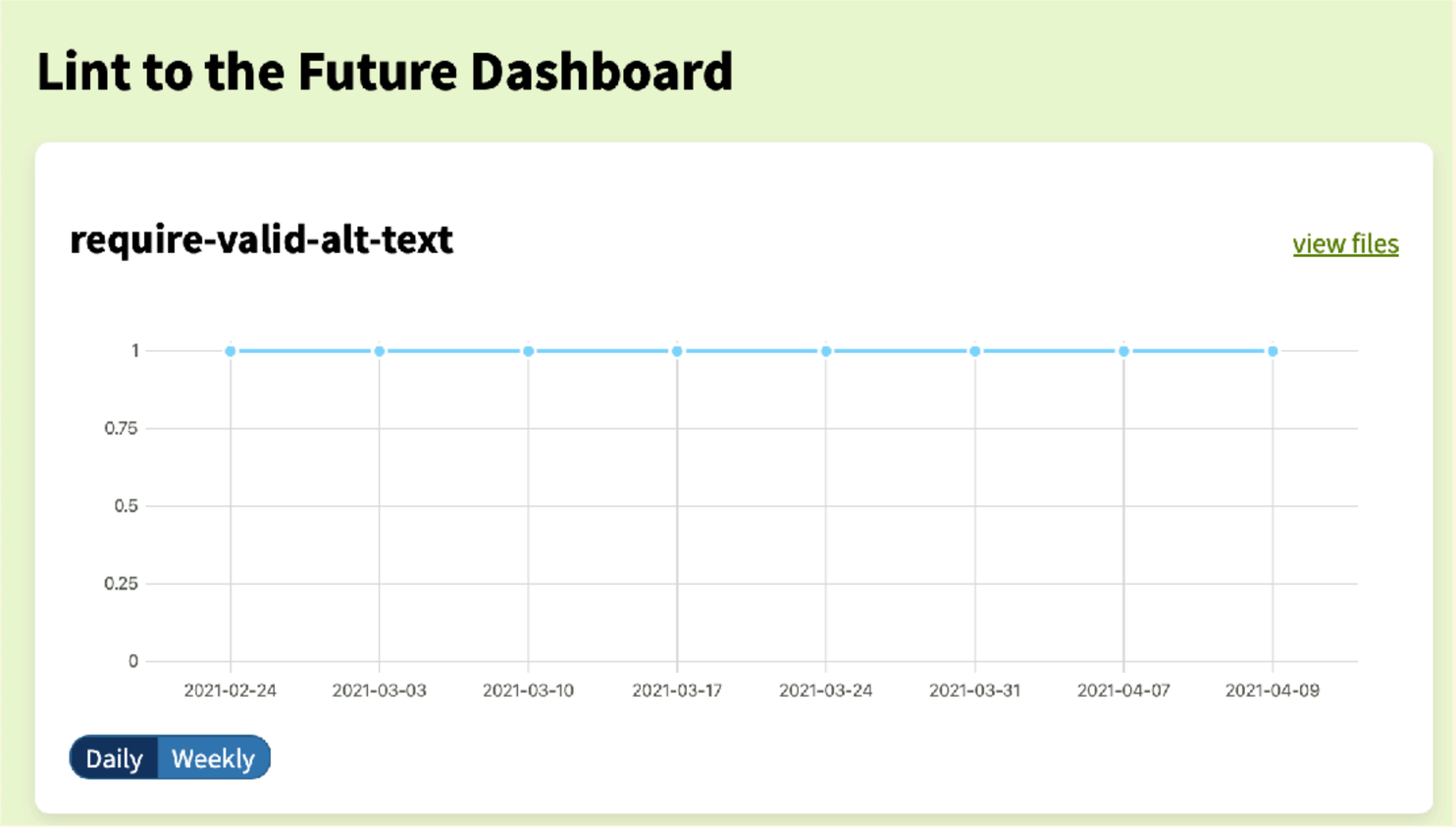


```
@media (prefers-color-scheme: dark) {

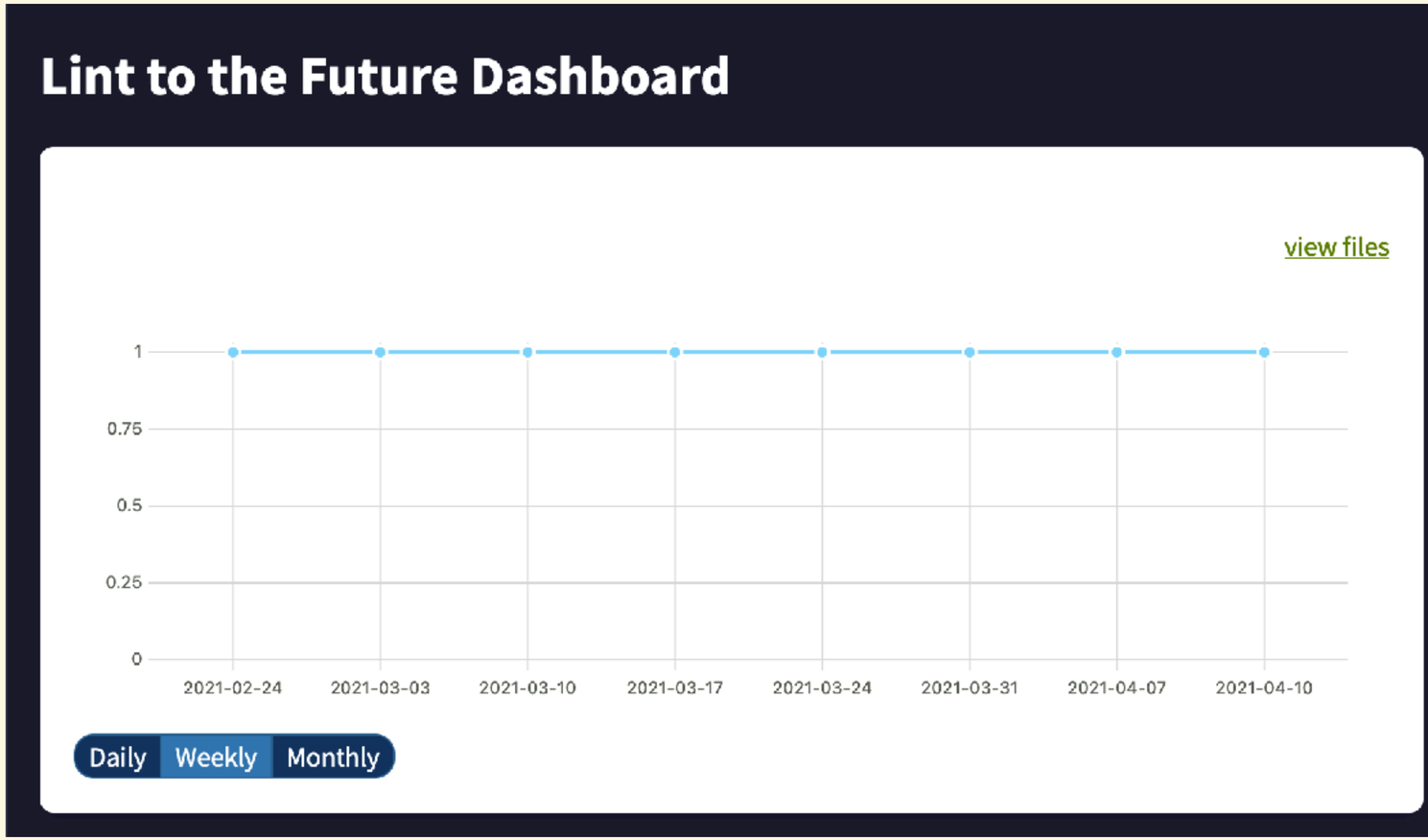
}
```



```
@media (prefers-color-scheme: dark) {
  body {
    background-color: #1A1A2E;
    color: white;
  }



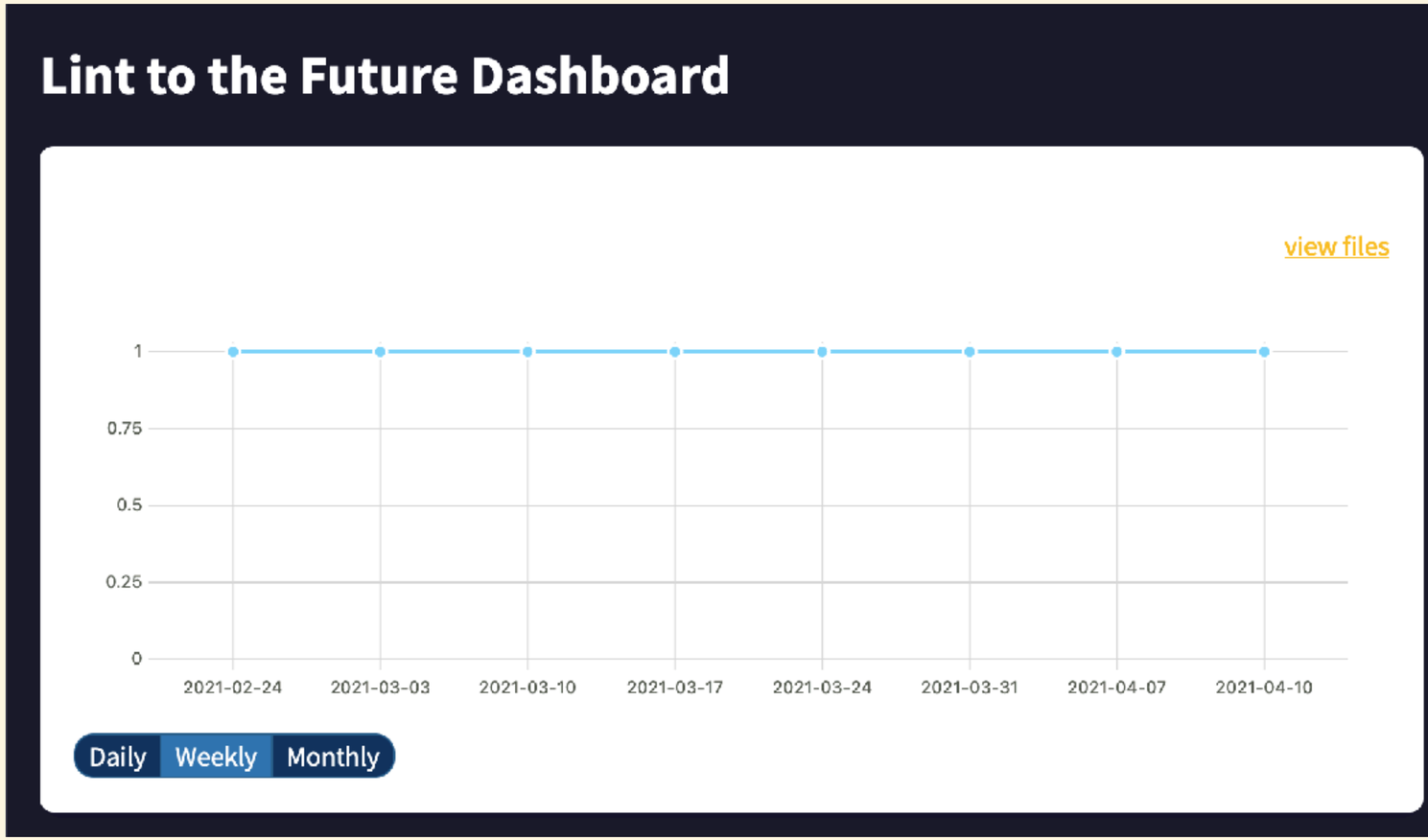
}
```



```
@media (prefers-color-scheme: dark) {
  body {
    background-color: #1A1A2E;
    color: white;
  }
  a {
    color: #FBBF24;
  }



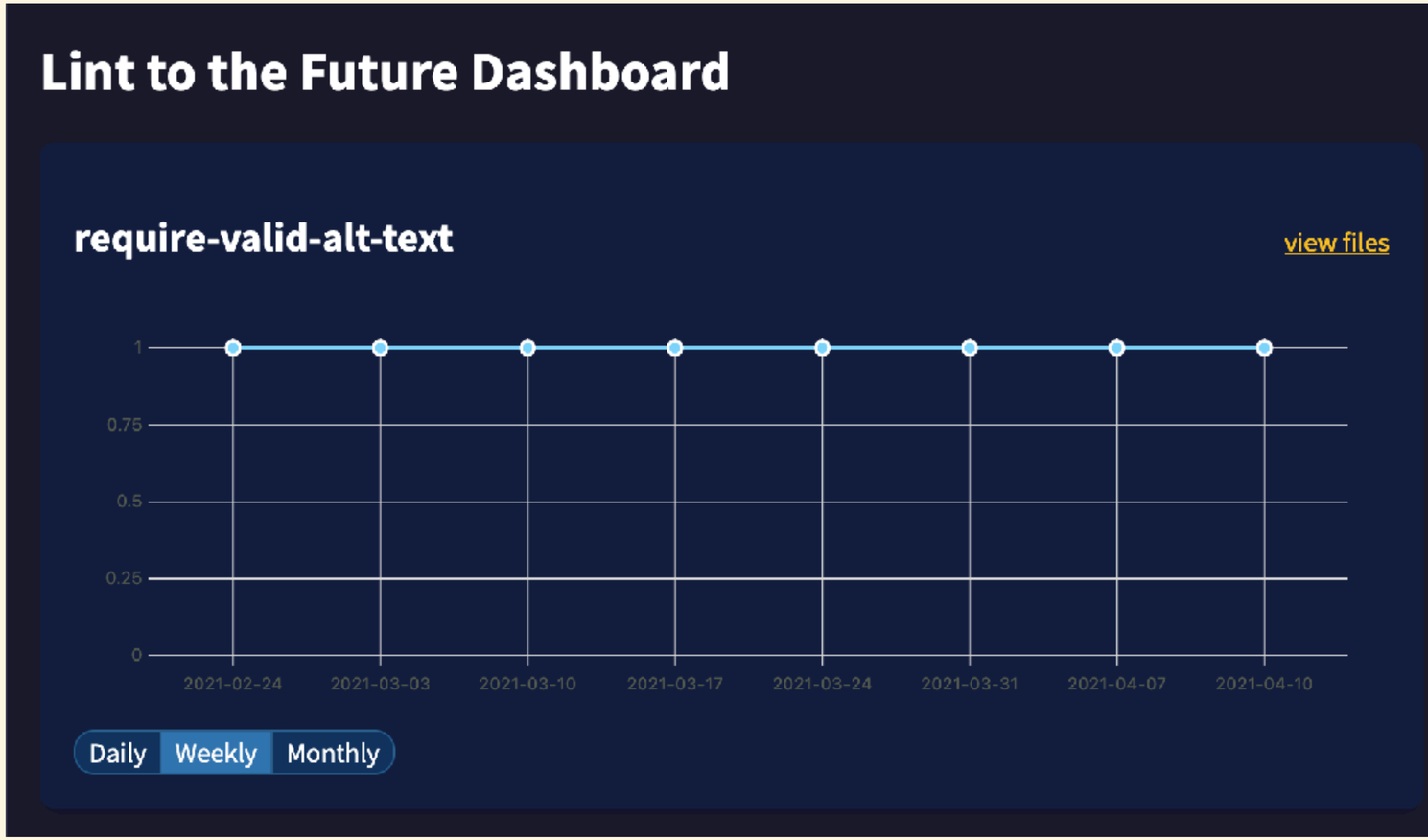
}
```



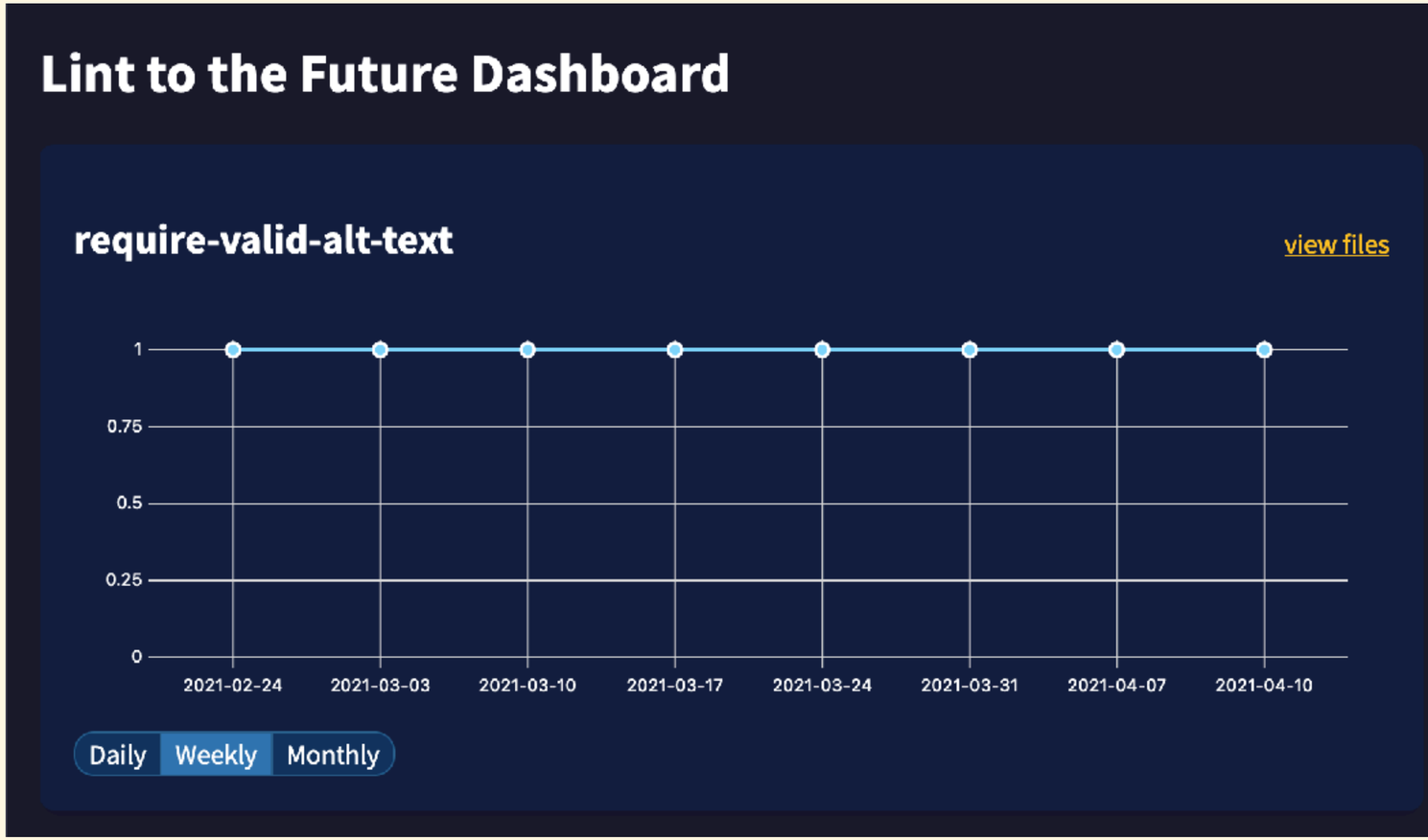
```
@media (prefers-color-scheme: dark) {
  body {
    background-color: #1A1A2E;
    color: white;
  }
  a {
    color: #FBBF24;
  }
  .lttf-chart {
    background-color: #16213E;
  }



}
```



```css
@media (prefers-color-scheme: dark) {
  body {
    background-color: #1A1A2E;
    color: white;
  }
  a {
    color: #FBBF24;
  }
  .lttf-chart {
    background-color: #16213E;
  }
  .chart-container .axis {
    fill: white !important;
  }
}
```



```
:root {
  --background-color: beige;
  --text-color: black;
  --border-radius: 4px;
}
```

```
:root {
  --background-color: beige;
  --text-color: black;
  --border-radius: 4px;
}

body {
  background-color: var(--background-color)
  color: var(--text-color)
}
```

```
:root {
  --background-color: beige;
  --text-color: black;
  --border-radius: 4px;
}

body {
  background-color: var(--background-color)
  color: var(--text-color)
}

@media screen and (prefers-color-scheme: dark) {
  :root {
    --background-color: #12121;
    --text-color: white;
  }
}
```

```
:root {
  --border-radius: 4px;
}

body {
  background-color: var(--background-color)
  color: var(--text-color)
}

@media screen and (prefers-color-scheme: dark) {
  :root {
    --background-color: #12121;
    --text-color: white;
  }
}

@media screen and (prefers-color-scheme: light) {
  :root {
    --background-color: beige;
    --text-color: black;
  }
}
```

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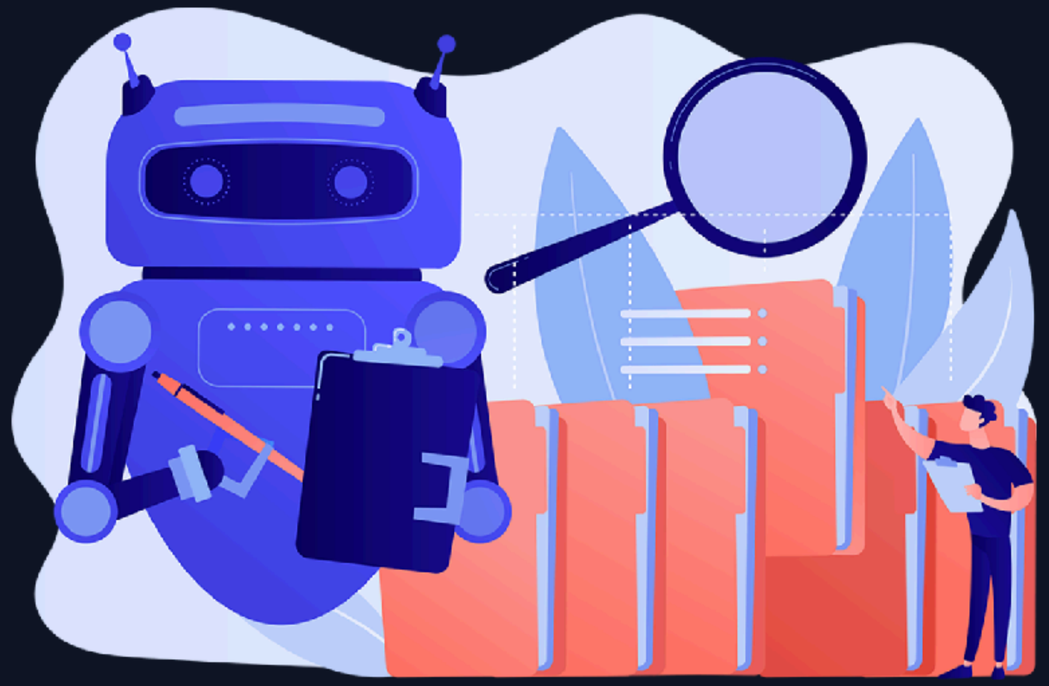

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tailwindcss

2 app/styles/tailwind.config.js

```diff
@@ -4,7 +4,7 @@ const colors = require('tailwindcss/colors');
 module.exports = {
   purge: [],
   presets: [],
-  darkMode: false, // or 'media' or 'class'
+  darkMode: 'media', // or 'media' or 'class'
   plugins: [ require('@tailwindcss/forms'),],
   theme: {
     screens: {
```

dark:

2 app/index.html

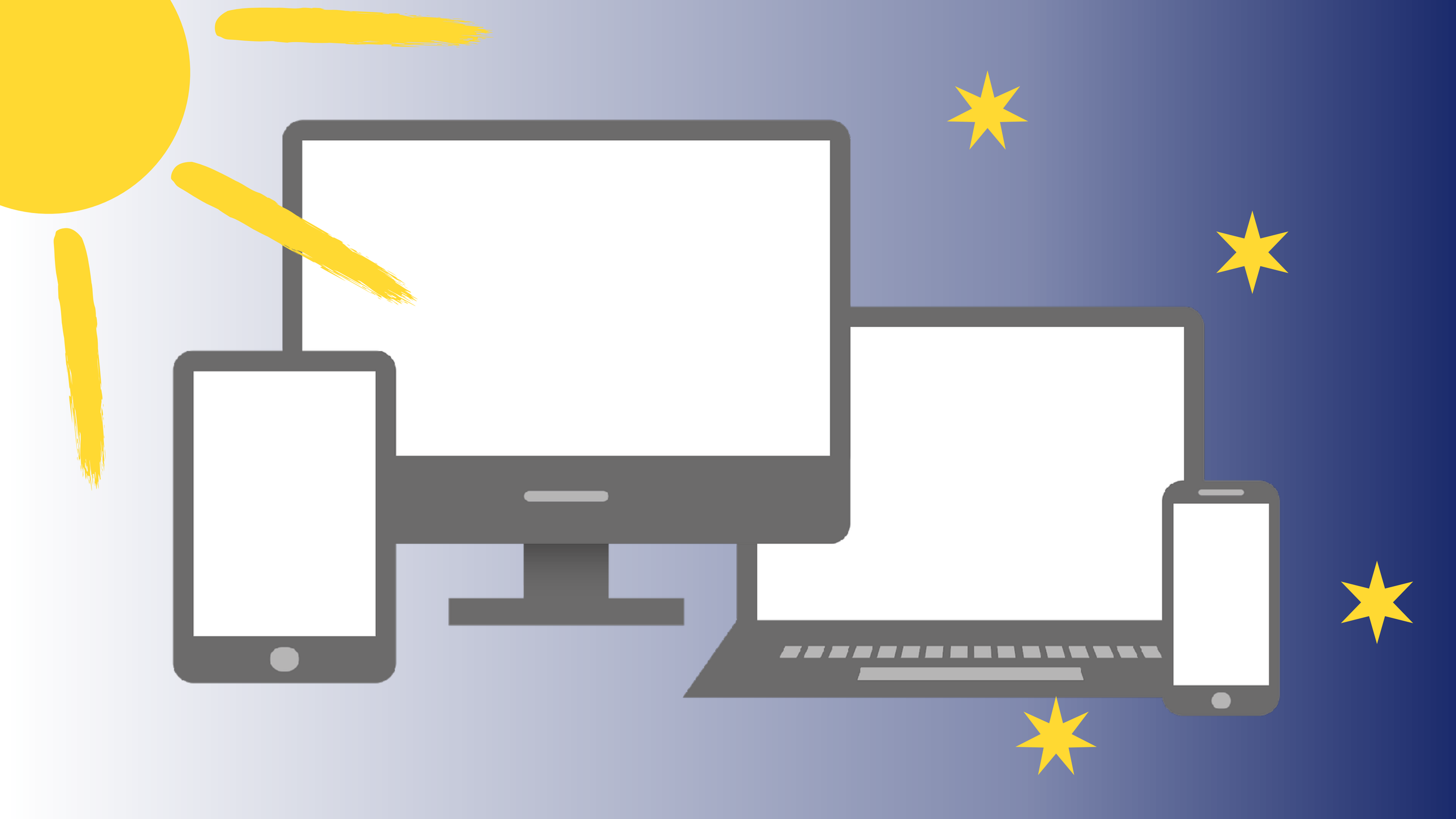
```diff
@@ -16,7 +16,7 @@
16 16
17 17     {{content-for "head-footer"}}
18 18   </head>
19    - <body class="min-h-screen bg-gray-100">
   19 + <body class="min-h-screen bg-gray-100 dark:bg-gray-700">
20 20     {{content-for "body"}}
21 21
22 22     <script src="{{rootURL}}assets/vendor.js"></script>
```

28 app/styles/utilities.css

```diff
@@ -3,38 +3,38 @@
3 3 }
4 4 /* purgecss start ignore */
5 5 .status-exists {
6   - @apply bg-green-100 text-green-900 border-green-300 bg-opacity-60;
  6 + @apply bg-green-100 text-green-900 border-green-300 bg-opacity-60 dark:bg-green-700 dark:text-green-100 dark:bg-opacity-100;
7 7 }
```

100 lines of code changed*

* Actually 101 but 100 looked cooler on the slide :)



A11yAutomation | New Tab

https://a11y-automation.dev

Search

Home | Potential Violations | Automated Tools | GitHub Repo

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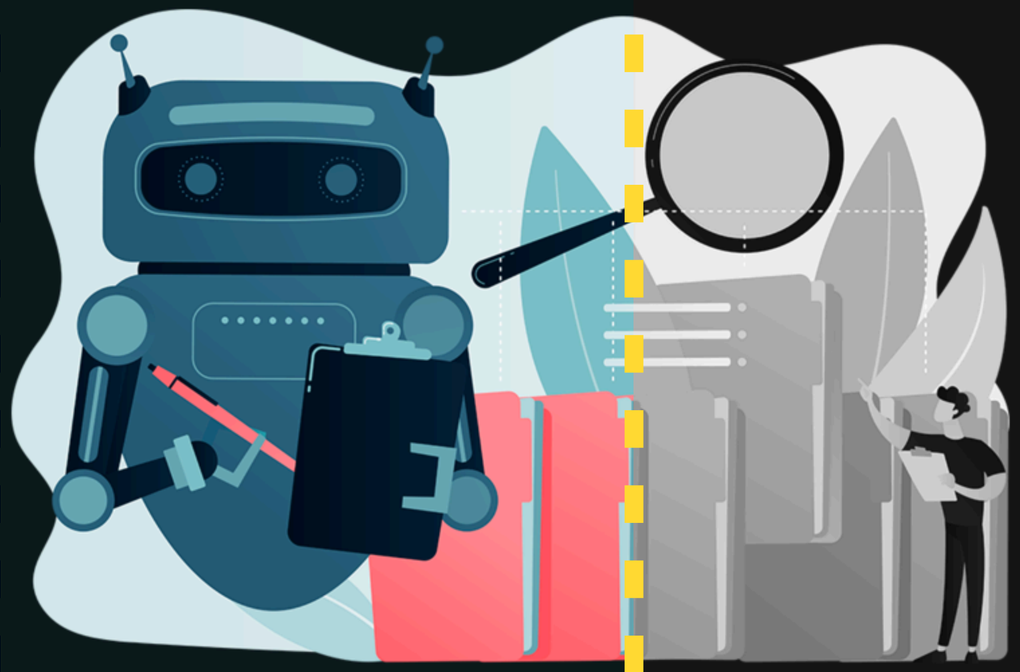

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accessibility

a1cessibility

a2essibility

a3ssibility

a4sibility

a5ibility

a6bility

a7ility

a8lity

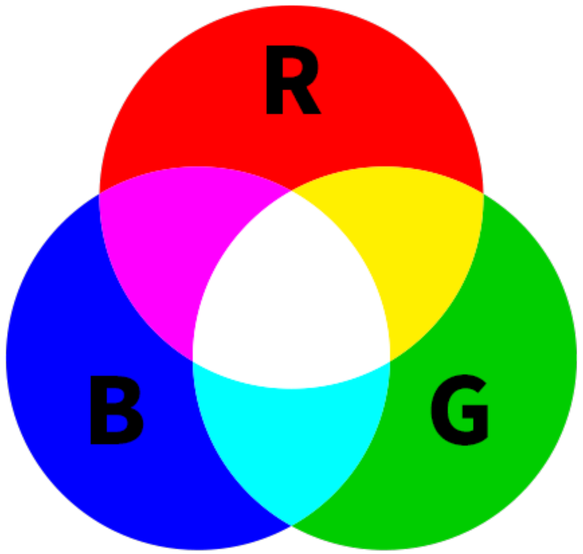
a9ity

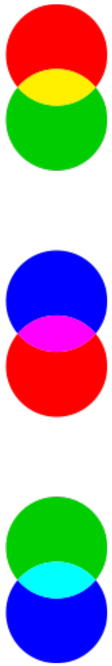
a10ty

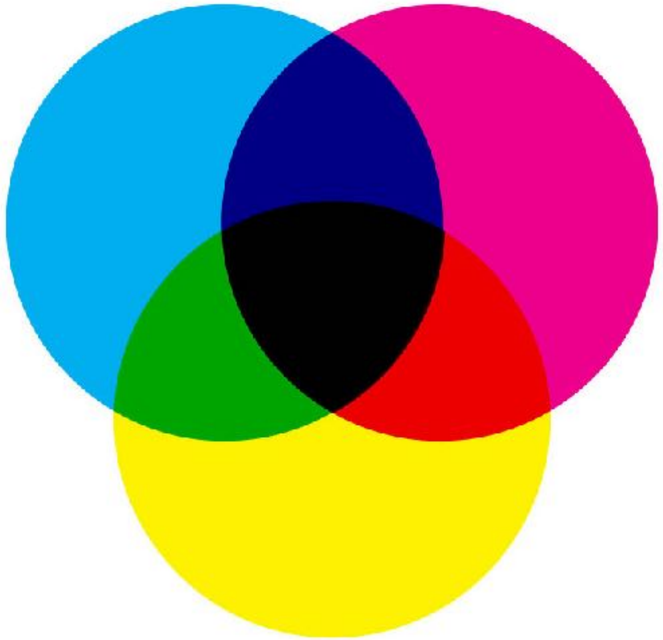
a11y

Colors

WINSOR & NEWTON
Designers GOUACHE
PRIMARY YELLOW
JAUNE PRIMAIRE
AMARILLO PRIMARIO
Permanence A Series/Série 1
14 ml e 0.47 US fl oz
WINSOR & NEWTON
Designers GOUACHE
PRIMARY RED
ROUGE PRIMAIRE
ROJO PRIMARIO
Permanence B Series/Série 1
14 ml e 0.47 US fl oz
WINSOR & NEWTON
Designers GOUACHE
PRIMARY BLUE
BLEU PRIMAIRE
AZUL PRIMARIO
Permanence A Series/Série 1
14 ml e 0.47 US fl oz

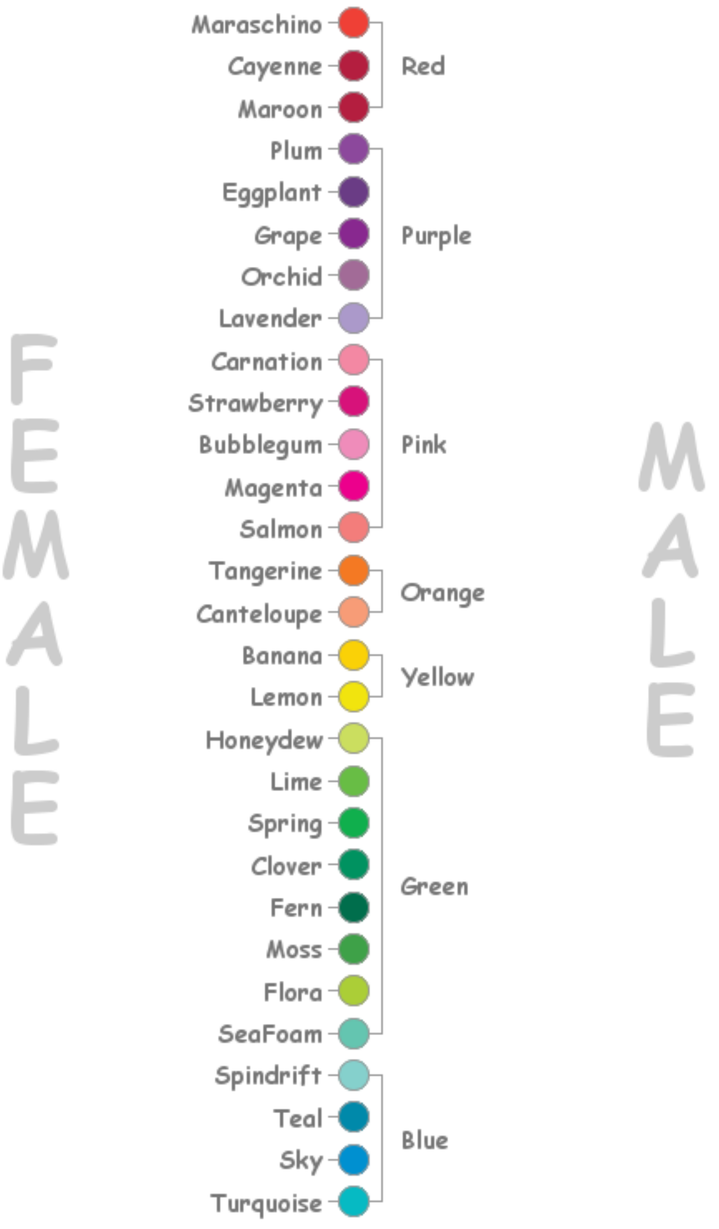






FOR PRINTED MATERIALS
USES INK TO DISPLAY COLOUR

CYAN MAGENTA YELLOW BLACK



Interactive version by Robert Allison on SAS Learning Post

https://enchroma.com/blogs/beyond-color/how-color-blind-see

Web Content Accessibility Guidelines

WCAG

Contrast

Type of content	Minimum ratio (AA rating)	Enhanced ratio (AAA rating)
Body text	4.5 : 1	7 : 1
Large-scale text (120-150% larger than body text)	3 : 1	4.5 : 1
Active user interface components and graphical objects such as icons and graphs	3 : 1	Not defined

Contrast ratios can range from 1 to 21 (commonly written 1:1 to 21:1).

(L1 + 0.05) / (L2 +

- L1 is
- L2 is

L = 0.2126 * **R** +

- if R_{sRGB} <= 0.03
- if G_{sRGB} <= 0.03
- if B_{sRGB} <= 0.03

and R_{sRGB}, G_{sRGB}, and

- $R_{sRGB} = R_{8bit}/255$
- $G_{sRGB} = G_{8bit}/255$
- $B_{sRGB} = B_{8bit}/255$

https://medium.muz.li/the-science-of-color-contrast-an-expert-designers-guide-33e84c41d156

Contrast Checker

Home > Resources > Contrast Checker

Foreground Color

#0000FF

Lightness

Background Color

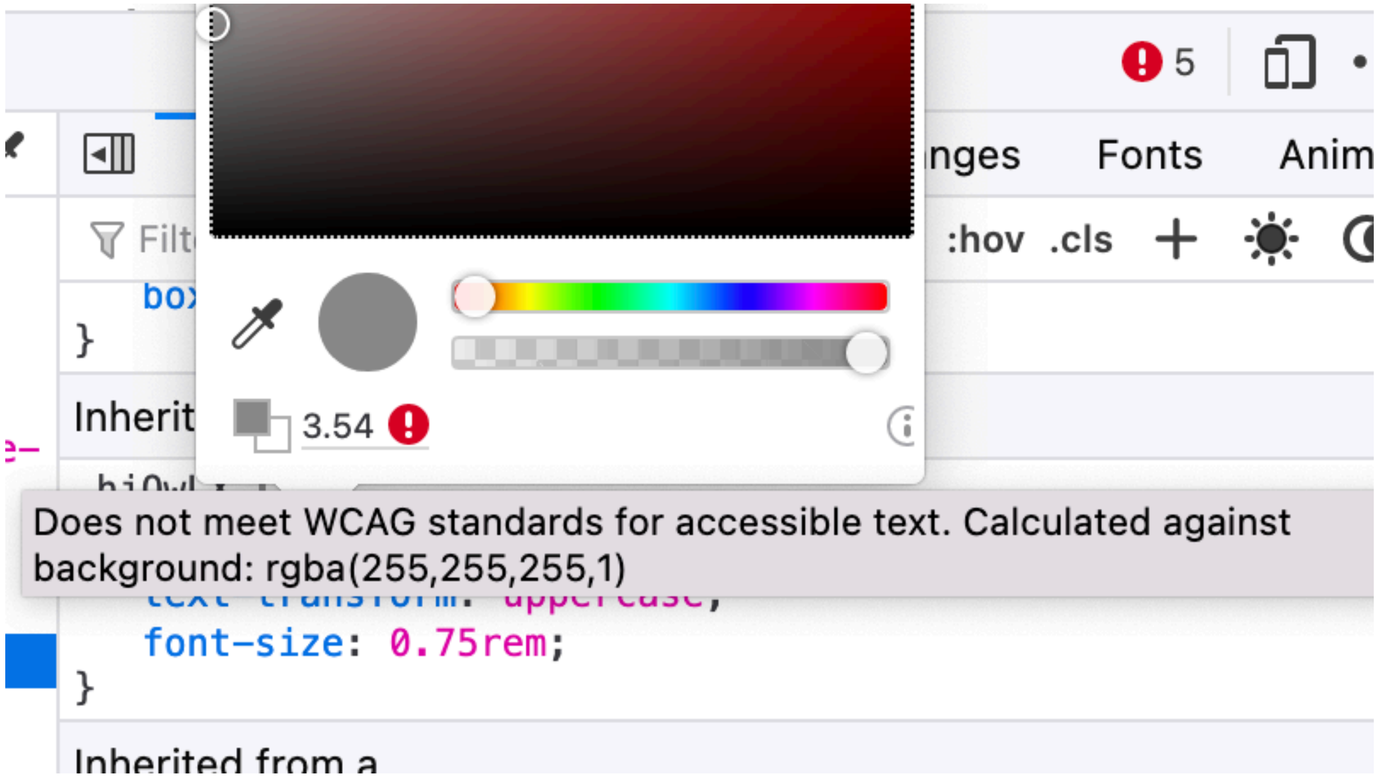
#FFFFFF

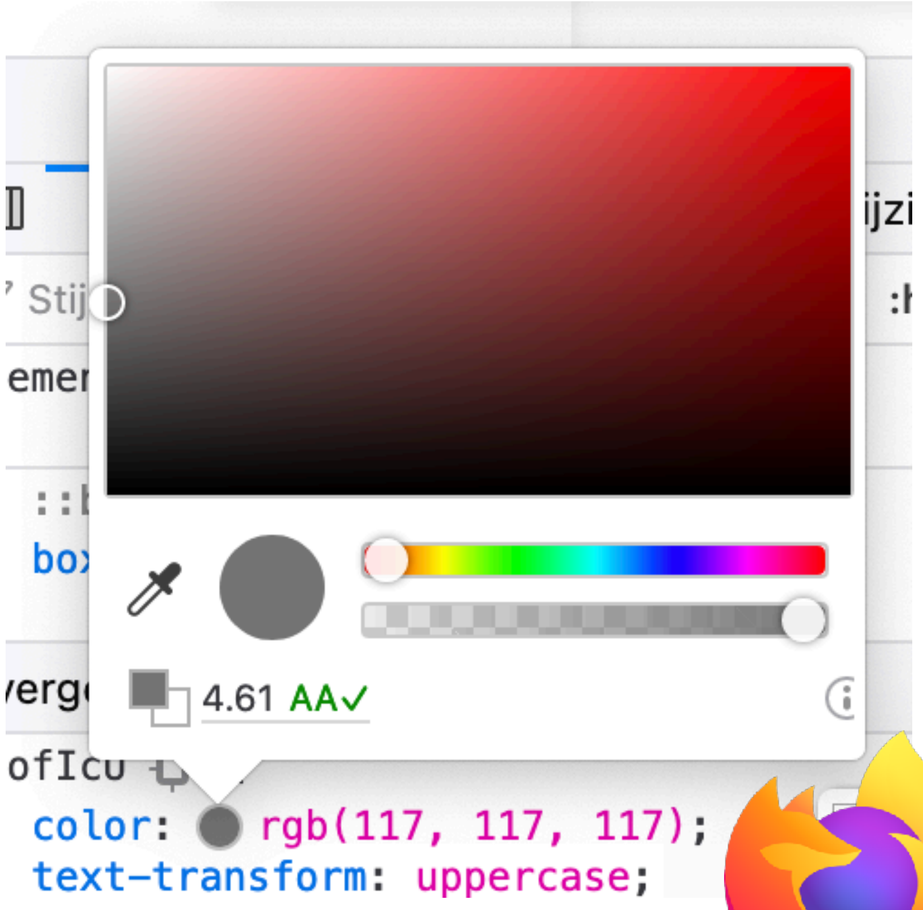
Lightness

Contrast Ratio

8.59:1

permalink


5
nges
Fonts
Anim
Filt
:hov
.cls
box
}
Inherit
3.54
Does not meet WCAG standards for accessible text. Calculated against background: rgba(255,255,255,1)
font-size: 0.75rem;
}
Inherited from a


Stij
box
4.61 AA✓
color: rgb(117, 117, 117);
text-transform: uppercase;

WebAIM: Contrast Checker | rgb to hex - Google Zoeken

https://webaim.org/resources/contrastchecker/

Contrast Checker

Home > Resources > Contrast Checker

Foreground Color

#00004D

Lightness

Background Color

#D22CD0

Lightness

Contrast Ratio

4.52:1

permalink

Normal Text

WCAG AA: **Pass**

WCAG AAA: **Fail**

The five boxing wizards jump quickly.

Large Text

WCAG AA: **Pass**

WCAG AAA: **Pass**

The five boxing wizards jump quickly.

Graphical Objects and User Interface Components

WCAG AA: **Pass**

✓

Text Input

Related Resources

- Contrast and Color Accessibility
- Quick Reference: Testing Web Content for Accessibility
- Web Accessibility for Designers
- Link Contrast Checker

WebAIM: Contrast Checker | rgb to hex - Google Zoeken

https://webaim.org/resources/contrastchecker/

Contrast Checker

Home > Resources > Contrast Checker

Foreground Color

#00004D

Lightness

Background Color

#D22CD0

Lightness

Contrast Ratio

4.52:1

permalink

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✓

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Home > Resources > Contrast Checker

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#00004D

Lightness

Background Color

#D22CD0

Lightness

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Large Text

WCAG AA: **Pass**

WCAG AAA: **Pass**

The five boxing wizards jump quickly.

Graphical Objects and User Interface Components

WCAG AA: **Pass**

✓

Text Input

Developer Tools — WebAIM: Contrast Checker — https://webaim.org/reso...

Inspector | Console | Debugger | Accessibility | 3

Check for issues: Contrast | Simulate: Protanopia (no red) | Show Tabbing Order

Role | Name

Checks

Color and Contrast

2.82

Does not meet WCAG standards for accessible text. Learn more

Properties

name: "The five boxing wizards jump quickly."

role: "text leaf"

WebAIM: Contrast Checker

rgb to hex - Google Zoeken

https://webaim.org/resources/contrastchecke

Contrast Cl

Home > Resources

Foreground Color

#00004D

Lightness

Contrast Ratio

4.52:1

permalink

Normal Text

WCAG AA: Pass

WCAG AAA: Fail

Large Text

WCAG AA: Pass

WCAG AAA: Pass

Graphical Objects and User Interface Components

WCAG AA: Pass

Text Input

Inspector Console Debugger Accessibility

Check for issues: Contrast

Simulate: Protanopia (no red)

Role Name

Checks

Color and Contrast

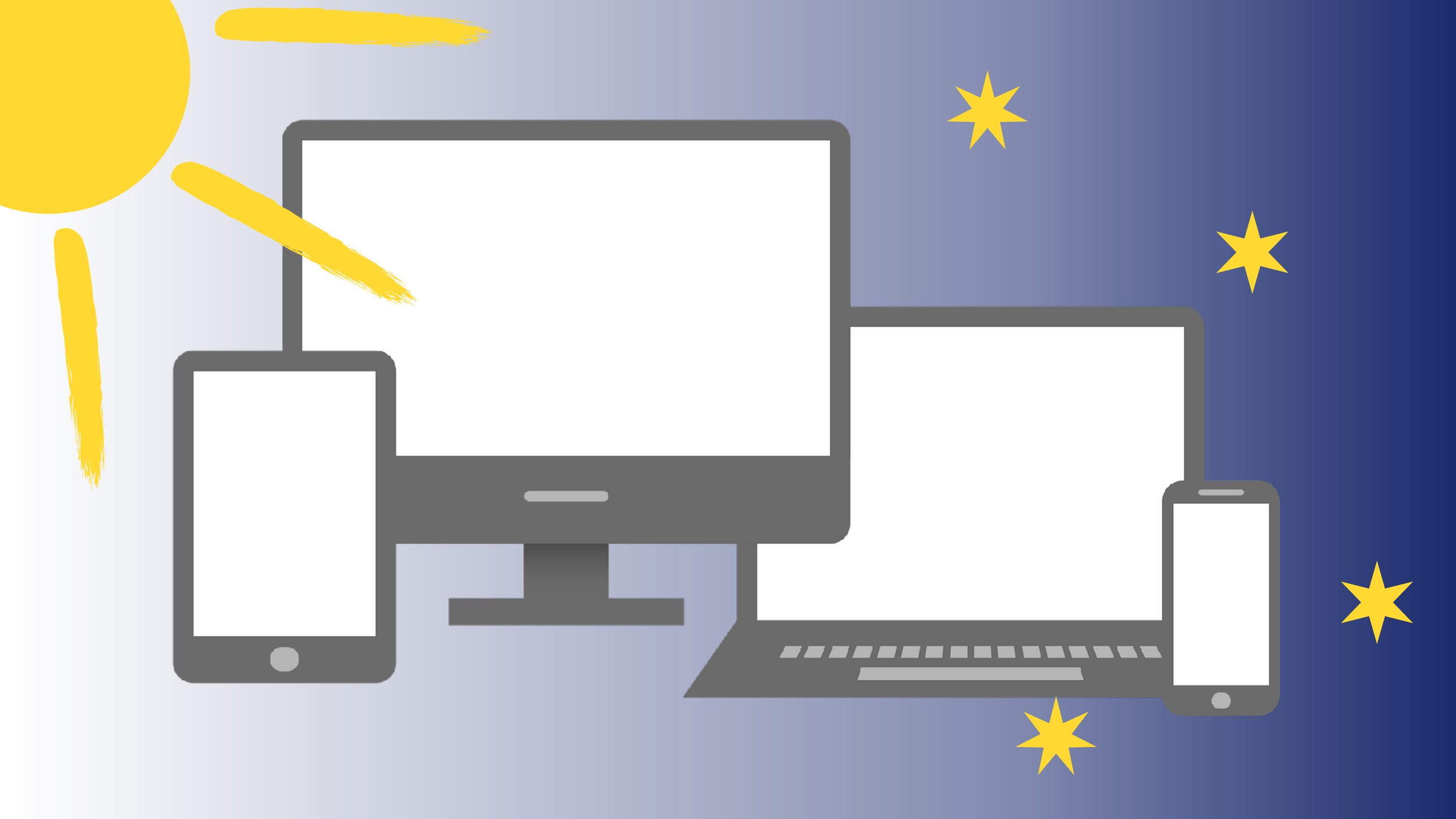
2.82

Does not meet WCAG standards for accessible text. Learn more

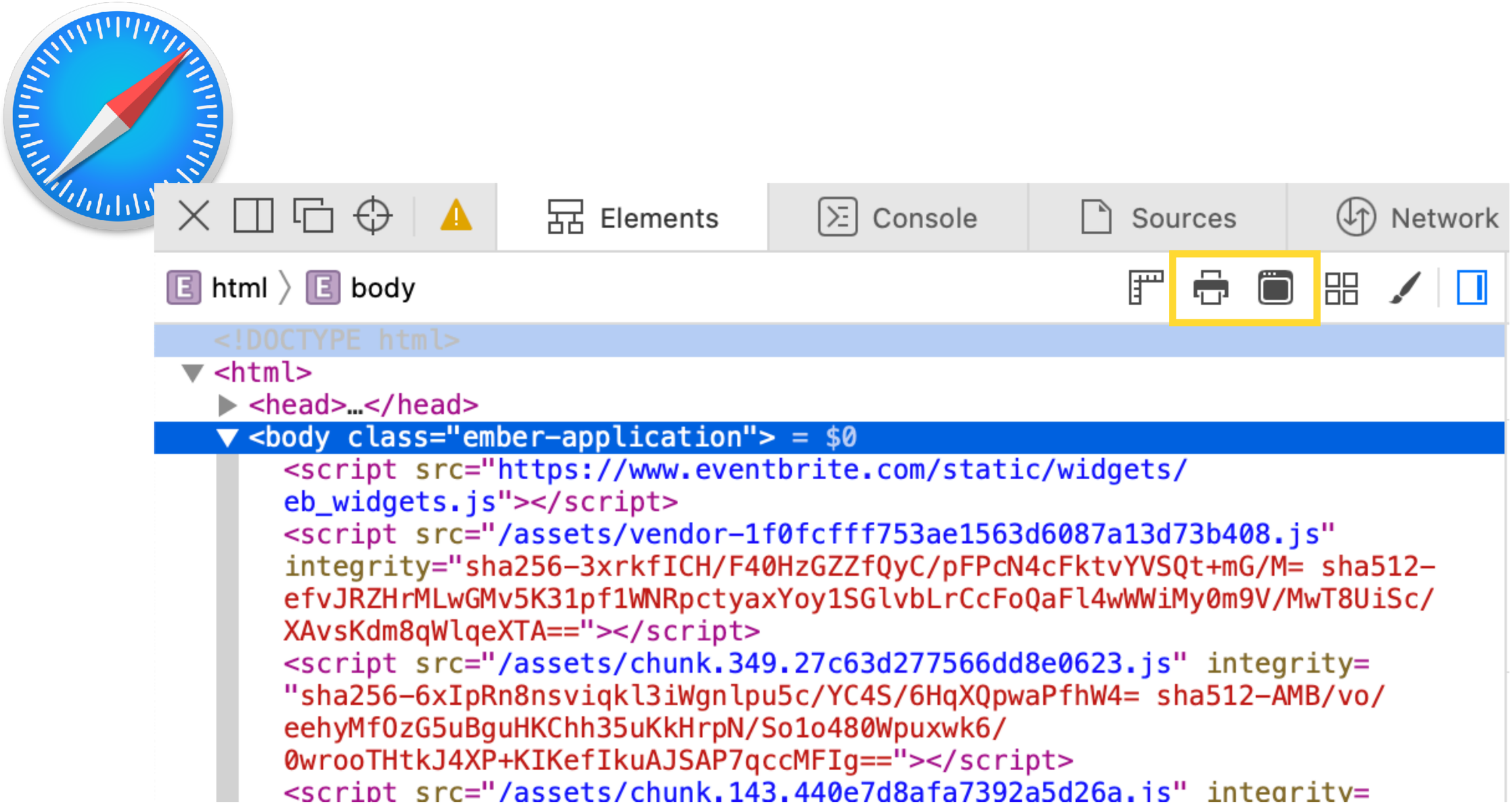
Properties

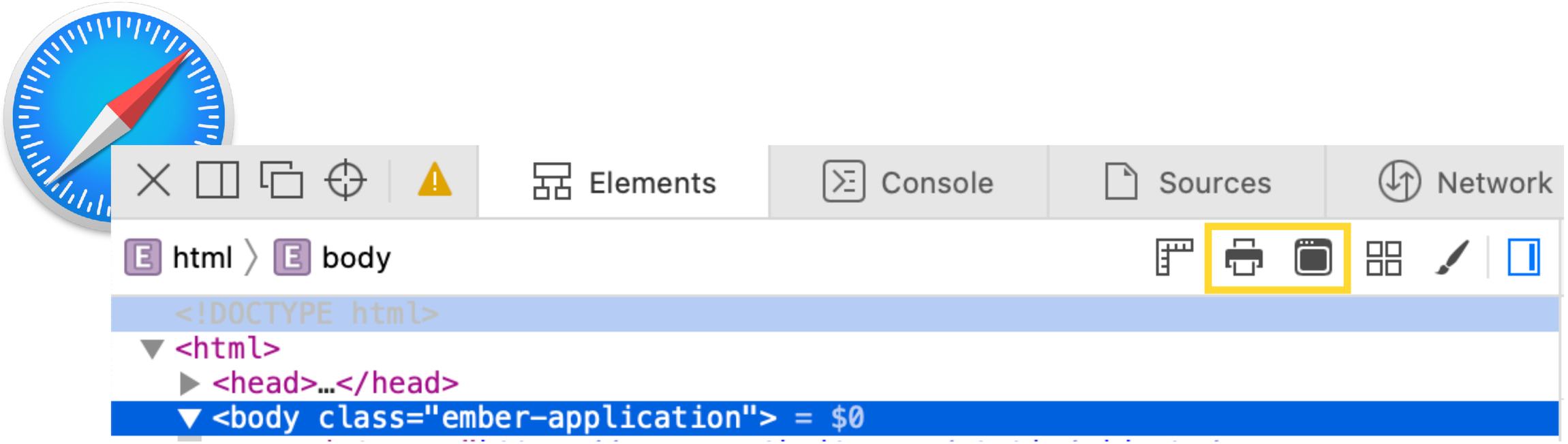
name: "The five boxing wizards jump quickly."

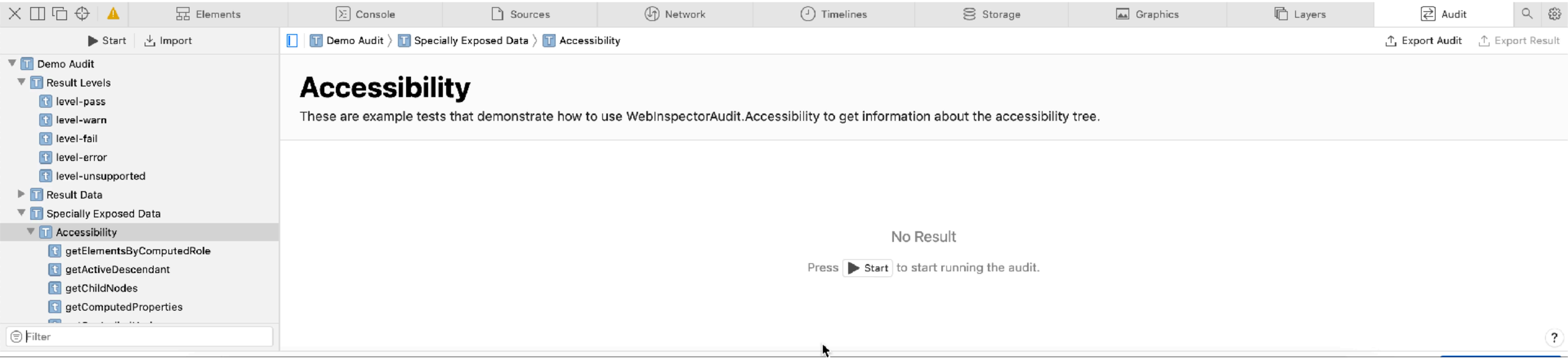
role: "text leaf"

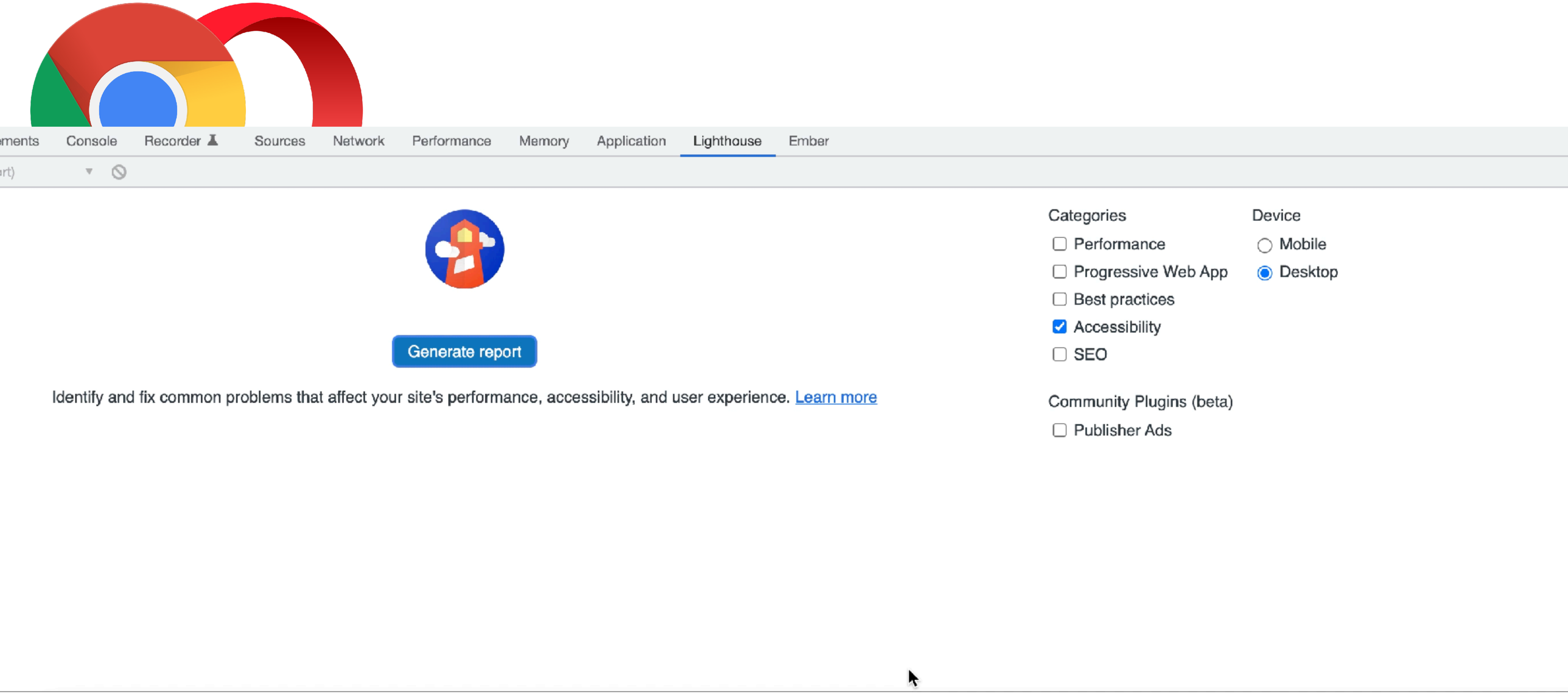


Developer tools


Elements
Console
Sources
Network
html
body
<!DOCTYPE html>
<html>
<head>…</head>
<body class="ember-application"> = $0
<script src="https://www.eventbrite.com/static/widgets/eb_widgets.js"></script>
<script src="/assets/vendor-1f0fcfff753ae1563d6087a13d73b408.js" integrity="sha256-3xrkfICH/F40HzGZZfQyC/pFPcN4cFktvYVSQt+mG/M= sha512-efvJRZHrMLwGMv5K31pf1WNRpctyaxYoy1SGlvbLrCcFoQaFl4wWWiMy0m9V/MwT8UiSc/XAvsKdm8qWlqeXTA==">
<script src="/assets/chunk.349.27c63d277566dd8e0623.js" integrity="sha256-6xIpRn8nsviqkl3iWgnlpu5c/YC4S/6HqXQpwaPfhW4= sha512-AMB/vo/eehyMfOzG5uBguHKChh35uKkHrpN/So1o480Wpuxwk6/0wrooTHtkJ4XP+KIKefIkuAJSAP7qccMFIg==">
<script src="/assets/chunk.143.440e7d8afa7392a5d26a.js" integrity=


Elements
Console
Sources
Network
html
body
<!DOCTYPE html>
<html>
<head>…</head>
<body class="ember-application">
= $0


Elements
Console
Sources
Network
Timelines
Storage
Graphics
Layers
Audit
Start
Import
Demo Audit
Specially Exposed Data
Accessibility
Export Audit
Export Result
Demo Audit
Result Levels
level-pass
level-warn
level-fail
level-error
level-unsupported
Result Data
Specially Exposed Data
Accessibility
getElementsByComputedRole
getActiveDescendant
getChildNodes
getComputedProperties
Filter
Accessibility
These are example tests that demonstrate how to use WebInspectorAudit.Accessibility to get information about the accessibility tree.
No Result
Press Start to start running the audit.


ments
Console
Recorder
Sources
Network
Performance
Memory
Application
Lighthouse
Ember
Generate report
Identify and fix common problems that affect your site's performance, accessibility, and user experience. Learn more
Categories
Performance
Progressive Web App
Best practices
Accessibility
SEO
Device
Mobile
Desktop
Community Plugins (beta)
Publisher Ads

Elements Console Recorder Sources Network Performance Memory Application Lighthouse Ember

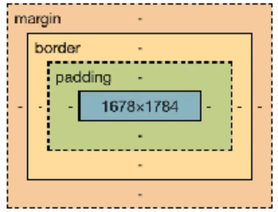
```
<!DOCTYPE html>
<html lang="en" data-ember-extension="1">
  ▶<head>…</head>
…▼<body class="min-h-screen bg-gray-100 dark:bg-gray-700 ember-application"> == $0
    <script src="/assets/vendor-9b6c3d4….js" integrity="sha256-6GYiJqVYvxYzTij0DEKD5n6G1+HsJXw4jk4TdD3jC9Y= sha512-5jJfDiP0
    yfkuvf/bYTR3SIBByReI8qD62F1ogun+g+KdjDccv/0NGsbm4smrai6GRpAGeq5Y1Zwrj8JO+gZnPg==">></script>
    <script src="/assets/a11y-automation-05e5271….js" integrity="sha256-AlXDIUxuEf7Uqto1Ou/B7ZK8qXt3BqlMcMTwNH3016c= sha512
    -T+1MzO+8IgDvw8QRIa4lPWu6AvClbG3pcllCysLv64jO0XaJb+aVTf/arIaJew1WnTSAKckHAGGazYbySEaPEQ==">></script>
    <div id="ember-inspector-highlight-62250081" role="presentation"></div>
  ▶<div id="ember-inspector-tooltip-62250081">…</div>
  ▶<div class="min-h-screen">…</div>
  ▶<footer class="bg-gray-800">…</footer>
  </body>
</html>
```

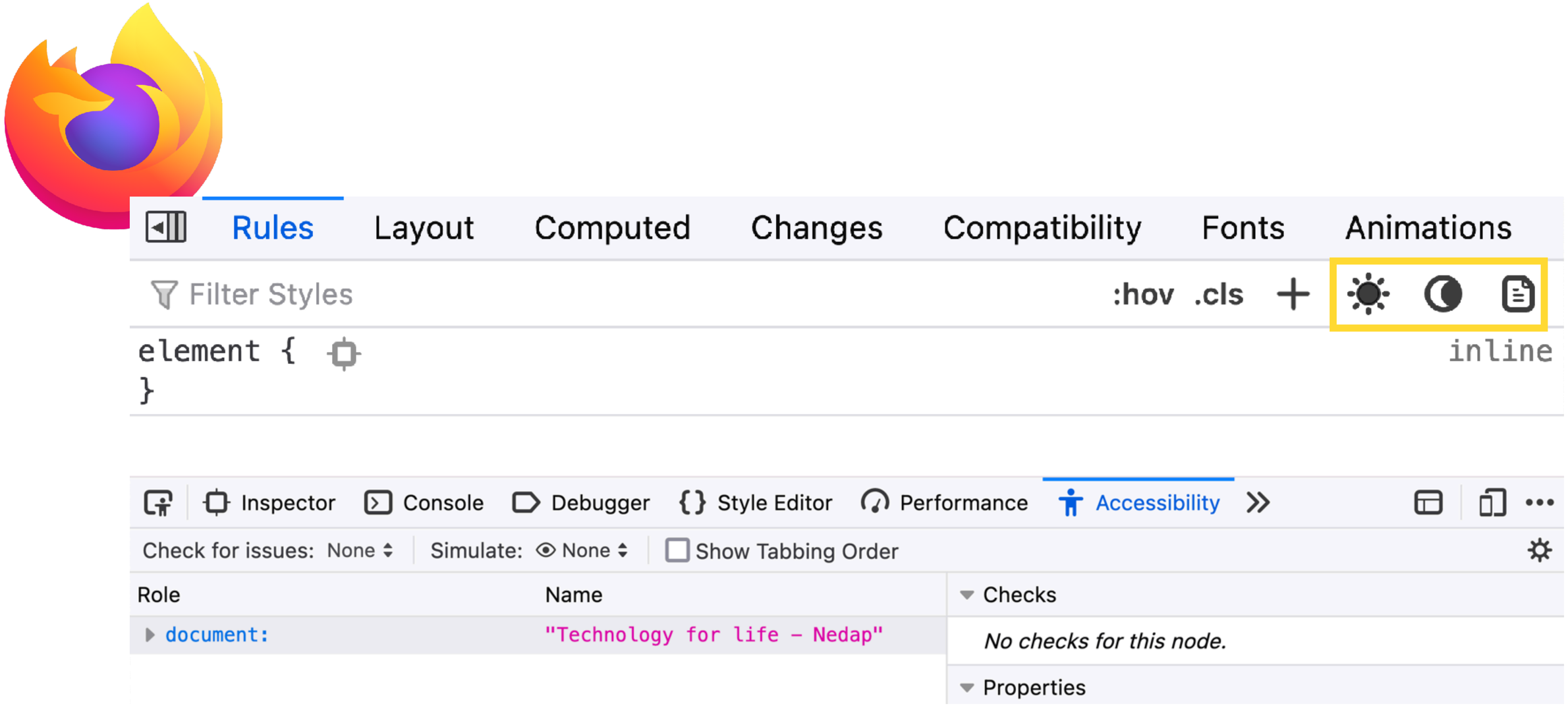
html body.min-h-screen.bg-gray-100.dark\:bg-gray-700.ember-application

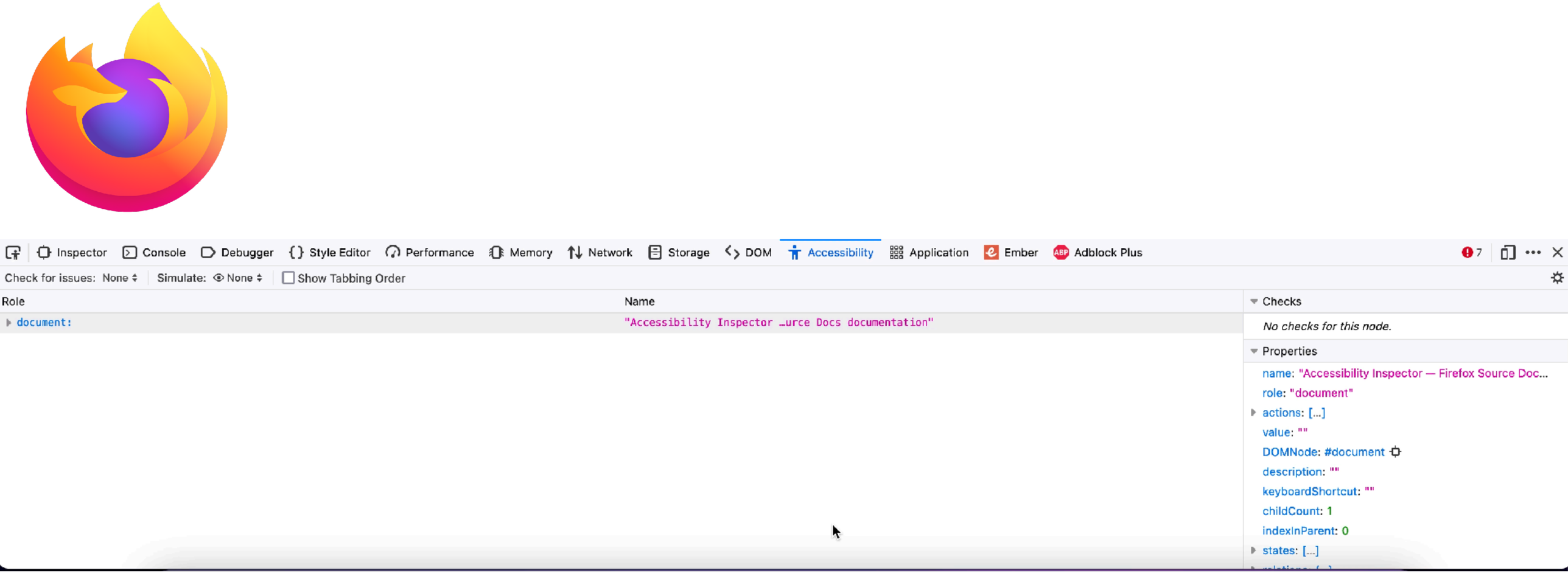
Styles Computed Layout Event Listeners DOM Breakpoints Properties Accessibility

Filter :hov .cls

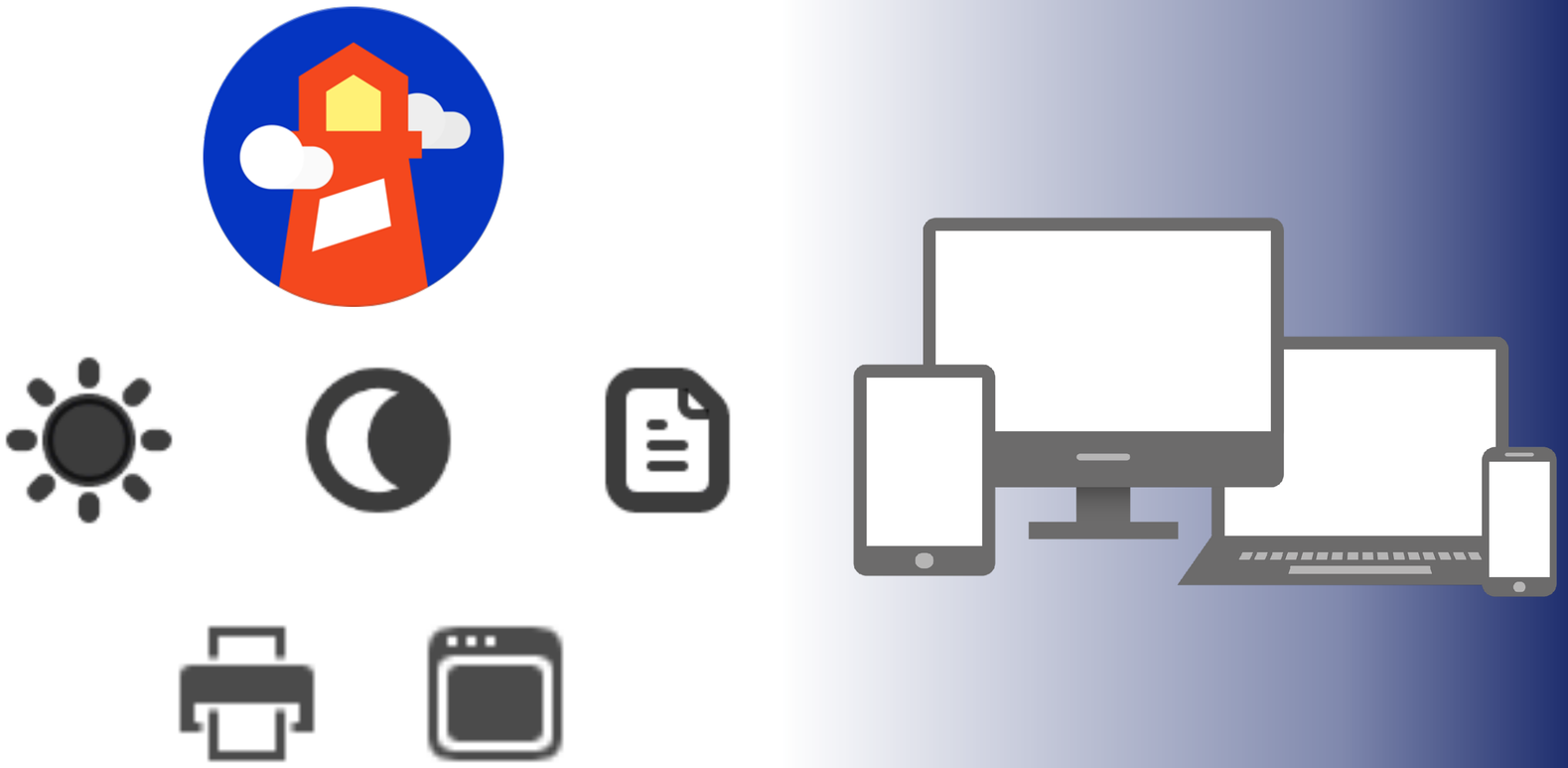
```
*, ::after, ::before {                                   a11y-automa…9486c.css:1
  box-sizing: border-box;
  border-width: ▸ 0;
  border-style: ▸ solid;
  ~~border-color: ▸ currentColor;~~
  --tw-border-opacity: 1;
  border-color: ▸ rgba(229,231,235,var(--tw-border-opacity));
  --tw-shadow: 0 0 #0000;
  --tw-ring-inset: var(--tw-empty, );
  --tw-ring-offset-width: 0px;
  --tw-ring-offset-color: #fff;
  --tw-ring-color: rgba(59, 130, 246, 0.5);
  --tw-ring-offset-shadow: 0 0 #0000;
  --tw-ring-shadow: 0 0 #0000;
}
```




Rules
Layout
Computed
Changes
Compatibility
Fonts
Animations
Filter Styles
:hov
.cls
element {
}
inline
Inspector
Console
Debugger
Style Editor
Performance
Accessibility
Check for issues: None
Simulate: None
Show Tabbing Order
Role
Name
document:
"Technology for life – Nedap"
Checks
No checks for this node.
Properties


Inspector
Console
Debugger
Style Editor
Performance
Memory
Network
Storage
DOM
Accessibility
Application
Ember
Adblock Plus
7
Check for issues: None
Simulate: None
Show Tabbing Order
Role
Name
document:
"Accessibility Inspector …urce Docs documentation"
Checks
No checks for this node.
Properties
name: "Accessibility Inspector — Firefox Source Doc…
role: "document"
actions: […]
value: ""
DOMNode: #document
description: ""
keyboardShortcut: ""
childCount: 1
indexInParent: 0
states: […]

```
@media screen and
(prefers-color-scheme:
dark) {
  // Insert CSS here
}
@media screen and
(prefers-color-scheme:
light) {
  // Insert CSS here
}
```



a.g.vanherwijnen agvanherwijnen MinThaMie

Resources

- https://enchroma.com/blogs/beyond-color/how-color-blind-
- https://a11y-automation.dev/
- https://github.com/mansona/lint-to-the-future
- https://css-tricks.com/poll-results-light-on-dark-is-preferred/
- https://sashamaps.net/docs/resources/20-colors/
- https://webaim.org/resources/contrastchecker/
- https://developer.mozilla.org/en-US/docs/Web/CSS/@media/prefers-color-scheme
- https://linktr.ee/Agathe.Badia