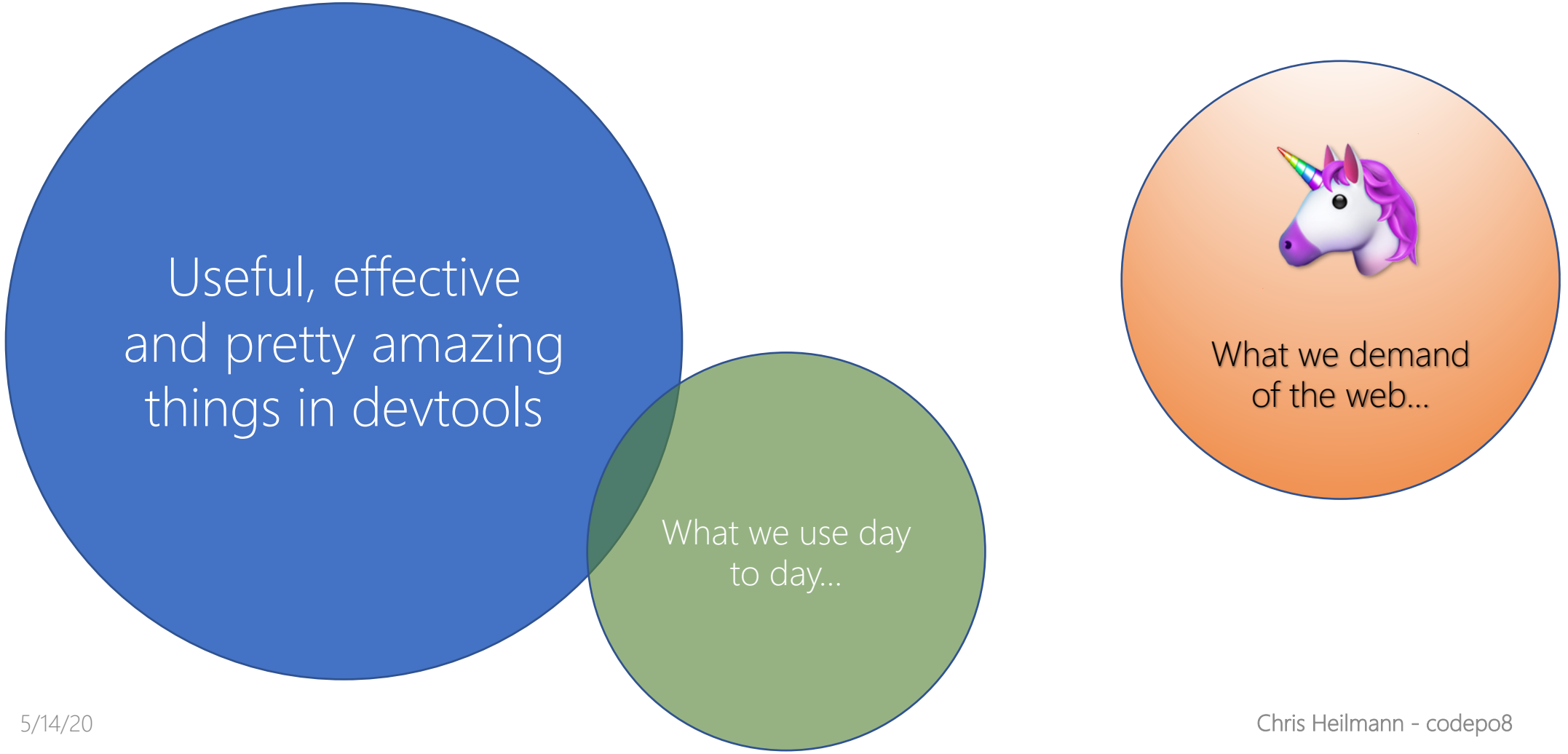
Adventures in Browser tooling

$ whoami

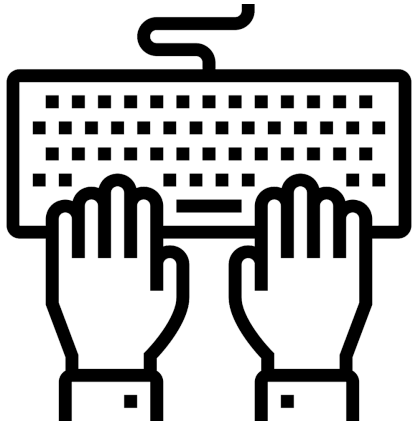
- Chris Heilmann @codepo8 – he/him/his
- Principal Program Manager Microsoft Developer Experience (VSCode, Devtools…)
- W3C Member
- 20 years web developer
- eToys, Agilisys, Yahoo, Mozilla…
- Wrote 3 books, contributed to 10(?)…
- Blogged since 2004, loud on Twitter

Minding the gap…

A demands gap...

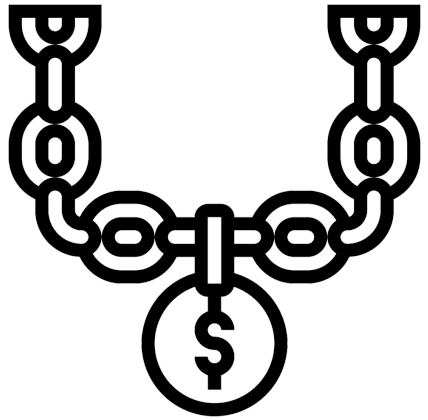


An assumptions gap…



Build it!

Ship it!



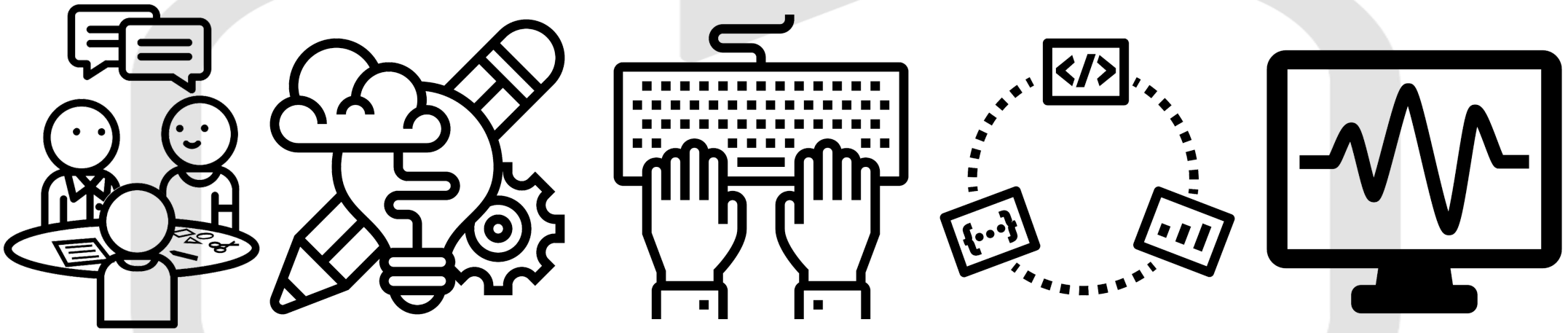
Great success!

The web isn't a native platform

Our products should:

- work independent of device and operating system
- still cater to users of older devices and environments
- not make any assumptions
- be customizable by our users
- have a longer lifetime than the current state of technology

Realities of great software projects…



My audience: developers

Different developers, different needs

“This is a job” developer

I work for a company that defines our tools and computer setup. I know there are probably better things out there, but as I don’t get to use them at work, why bother learning them?

The “switched on” developer

It is frustrating that there are still people out there with old computers and outdated browsers. With a library I can support them as I’d rather learn and try out new things.

The “I am here to deliver” developer

My clients don’t pay extra for fancy new technology. They need to get something that works on their machines. It needs to be legally compliant, you know, accessible so they can’t be sued. That’s why I use a framework.

The “the web is broken” developer

I’ve always worked with higher programming languages and rich UI environments. The web seems like a mess and I don’t want to spend time trying to guess what the outcome of my code is.

The “I’m here to learn” developer

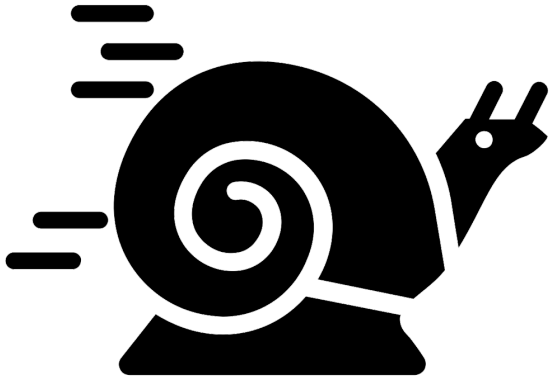
I just started as a web developer and wherever I look, I am confused. There is so much information and often people give contradicting advice. I just want to learn the right thing…

Somehow bitter pills to swallow…

- The caring developer is a tiny fraction of the market
- For many, this is a job to make a living
- New developers don't find an empathic, open world, but an avalanche of choice and opinions
- Satisfying developer needs has no direct correlation to creating better user products

Tech innovation isn't the answer

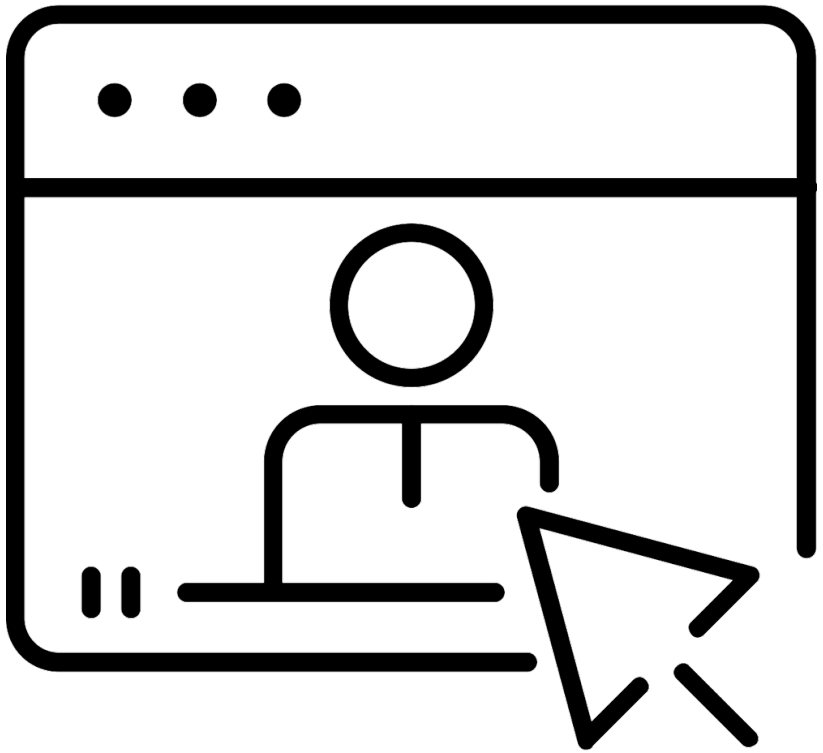
- Constant change in the developer space is a double-edged sword
- We empower a small group of highly motivated people at the cost of overwhelming others
- We don't find out about real problems as we don't ask people outside our bubble



Why are things "slow"?

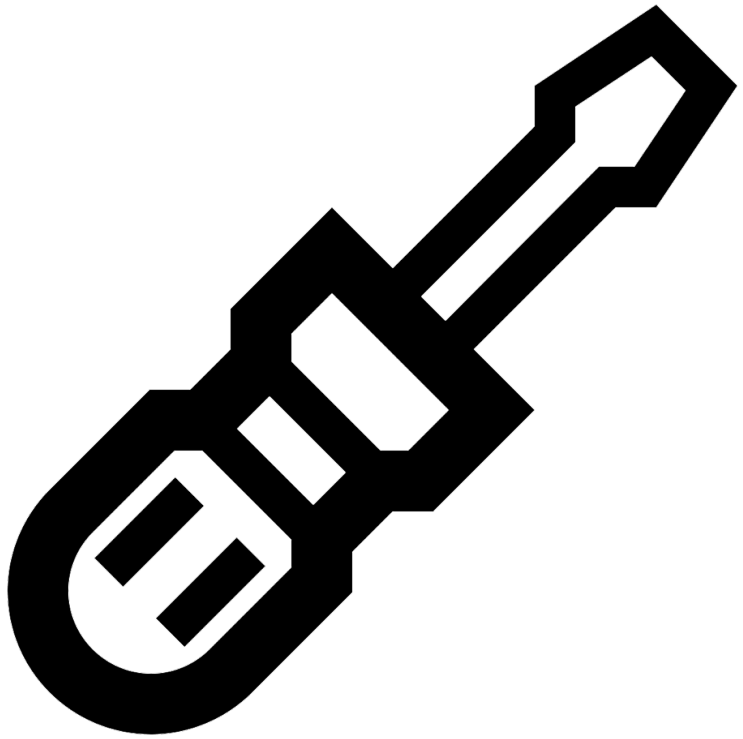
- Security
- Privacy
- Performance
- Maintainability
- Ownership
- Backwards compatibility

Browsers for developers



- Consumption and creation platform
- App platform (Progressive Web Apps, Electron…)
- Test platform (Automation with Puppeteer / Playwright)
- Preview of technology of the web to come (Beta, Canary, Developer builds, flags, origin trials)

Why do we need web standards?

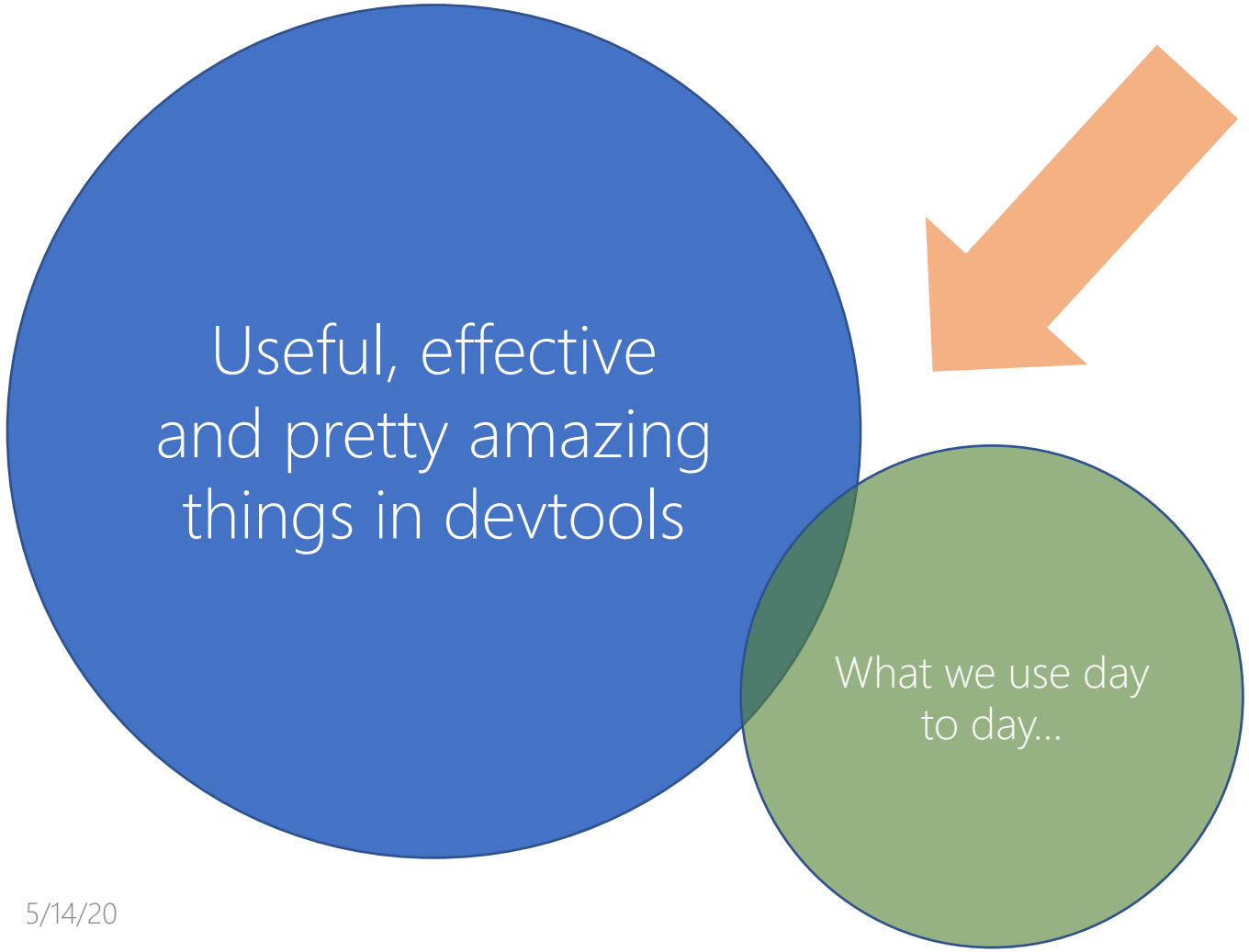


- Predictability of code outcome
- Prevention of monopolies
- Quality control – if your code validates the issue must be somewhere else
- Maintainability, backwards compatibility and future readiness.

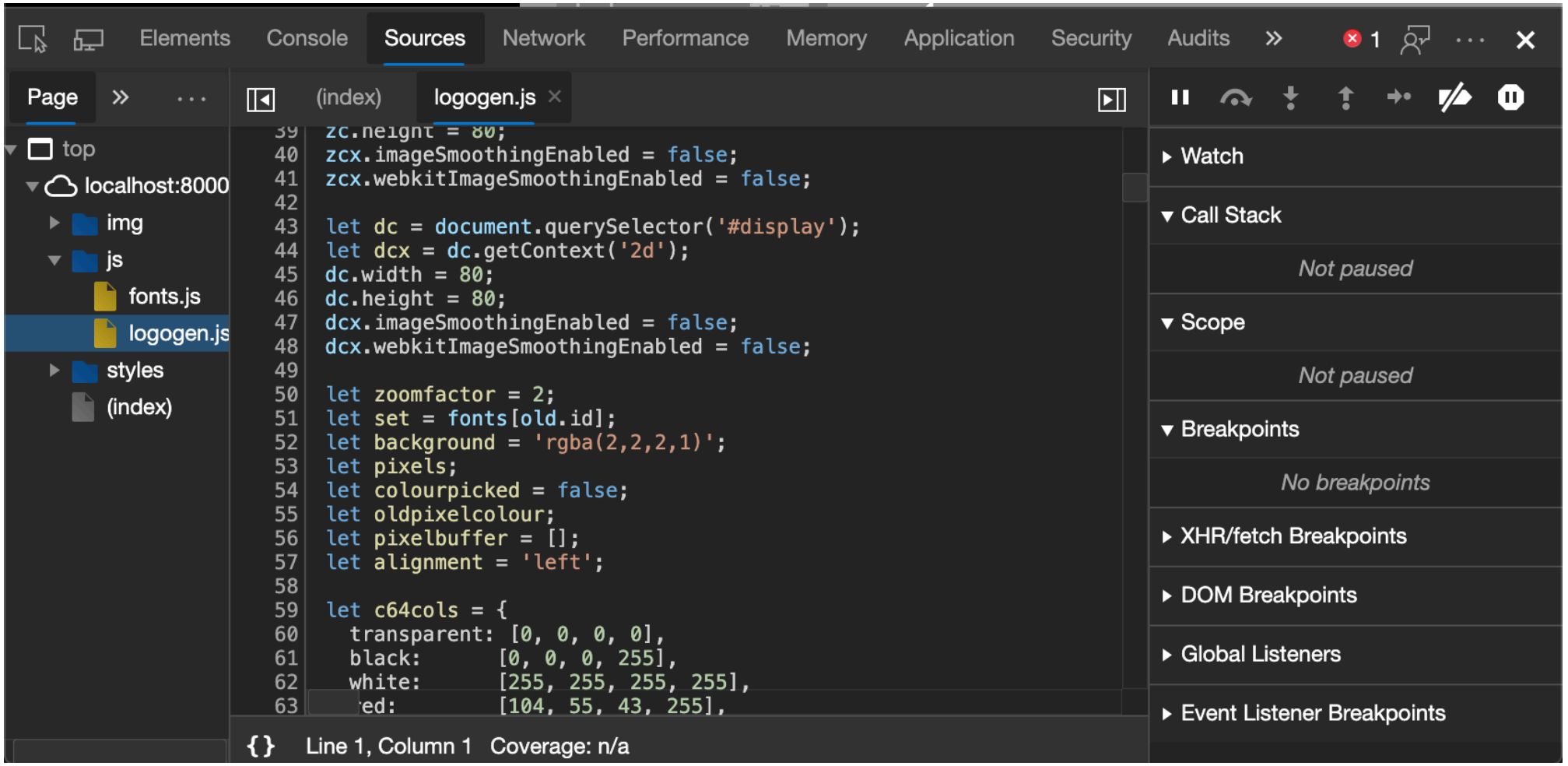
Web standards are an agreement

- They used to be pretty academic
- Nowadays they are informed by use and needs of developers and users collected by browser makers and developers
- Discussions happen in the open and you are welcome to join

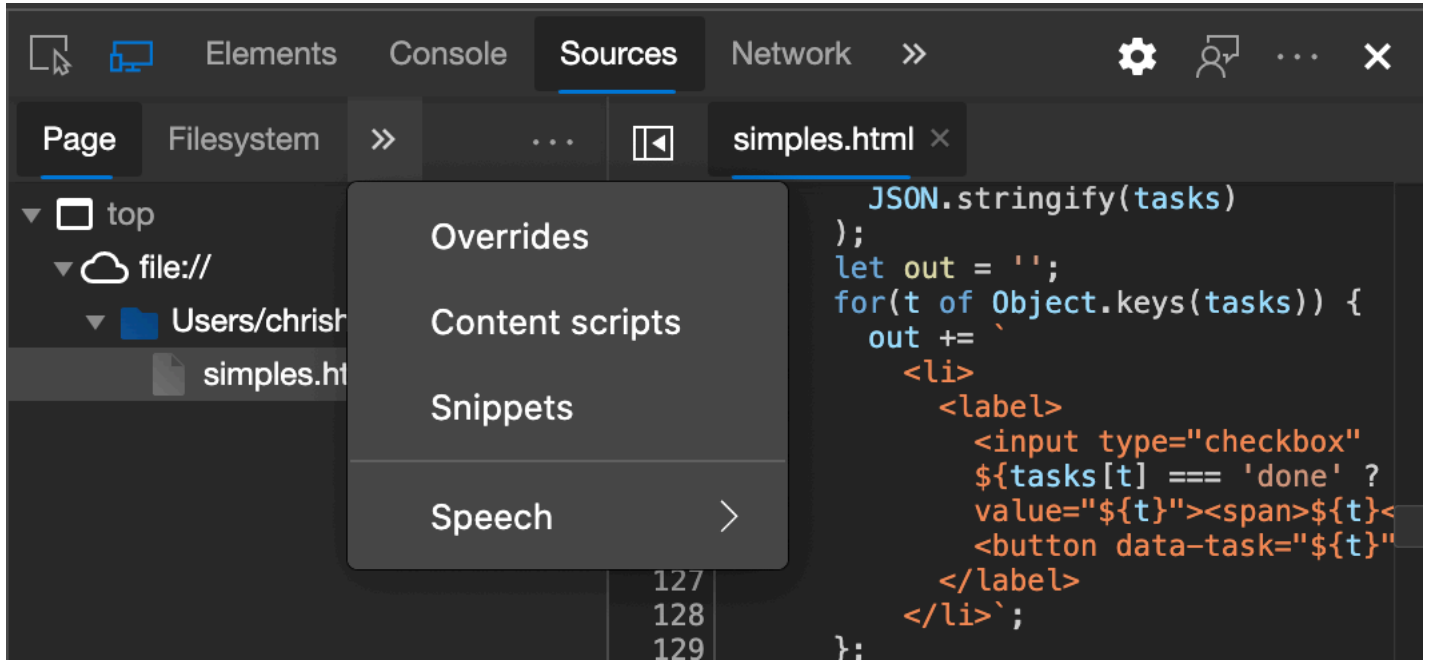
Usage gap


Useful, effective and pretty amazing things in devtools
What we use day to day...

Editor in the browser…



Editor in the browser…



Upgrading your dev experience…

Breakpoints > console.log()

- You can set breakpoints in the editor in the browser
- You can also set breakpoints in your text editor (f.e. Visual Studio Code)
- They are more work upfront than a console.log() - but worth it.

Breakpoints > console.log()

- Your code execution is paused – errors can't slip though
- You get an end-to-end picture of what is happening
- You are not likely to litter the web with yet another console message that end users should never see

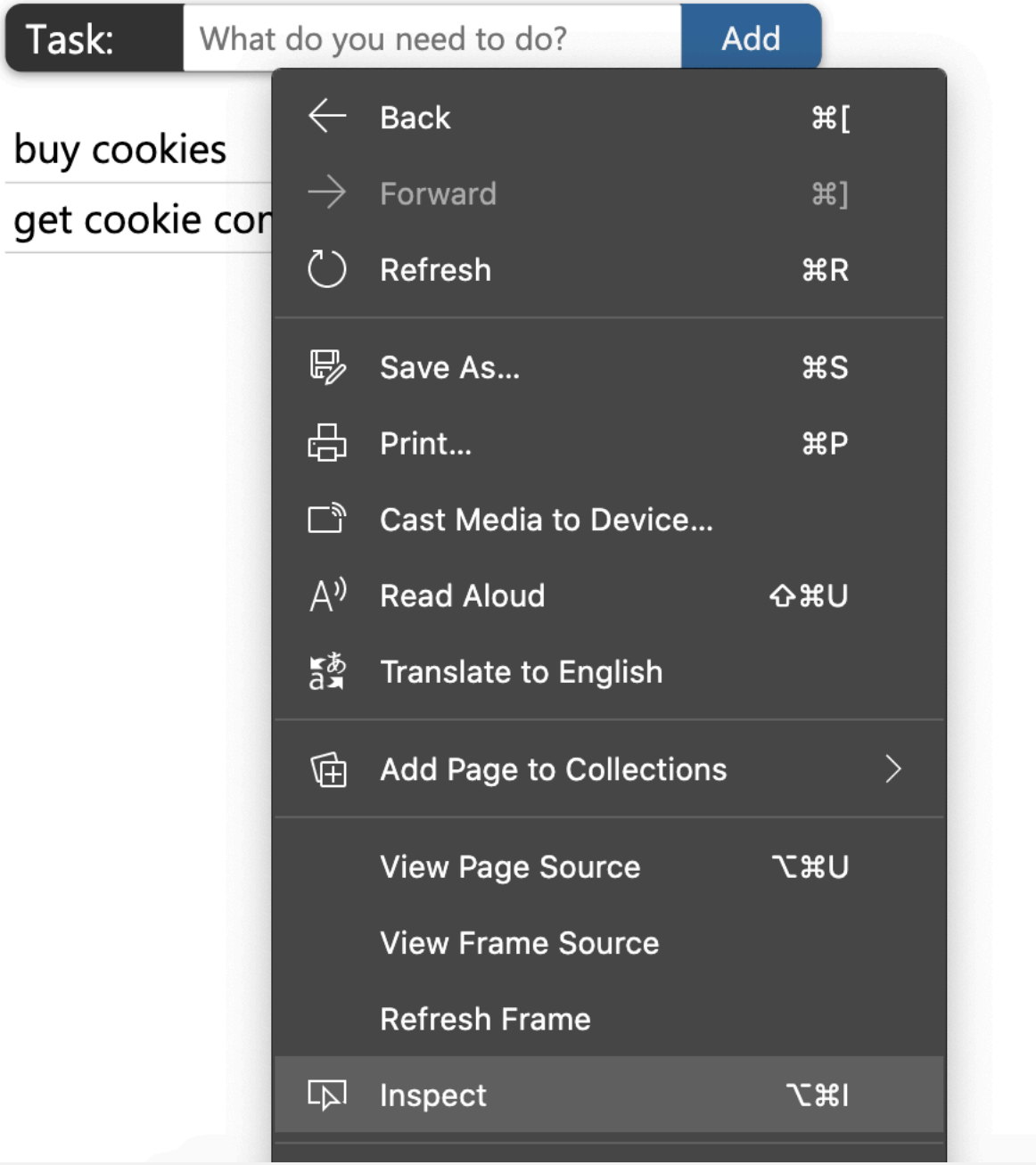
DOM breakpoints!

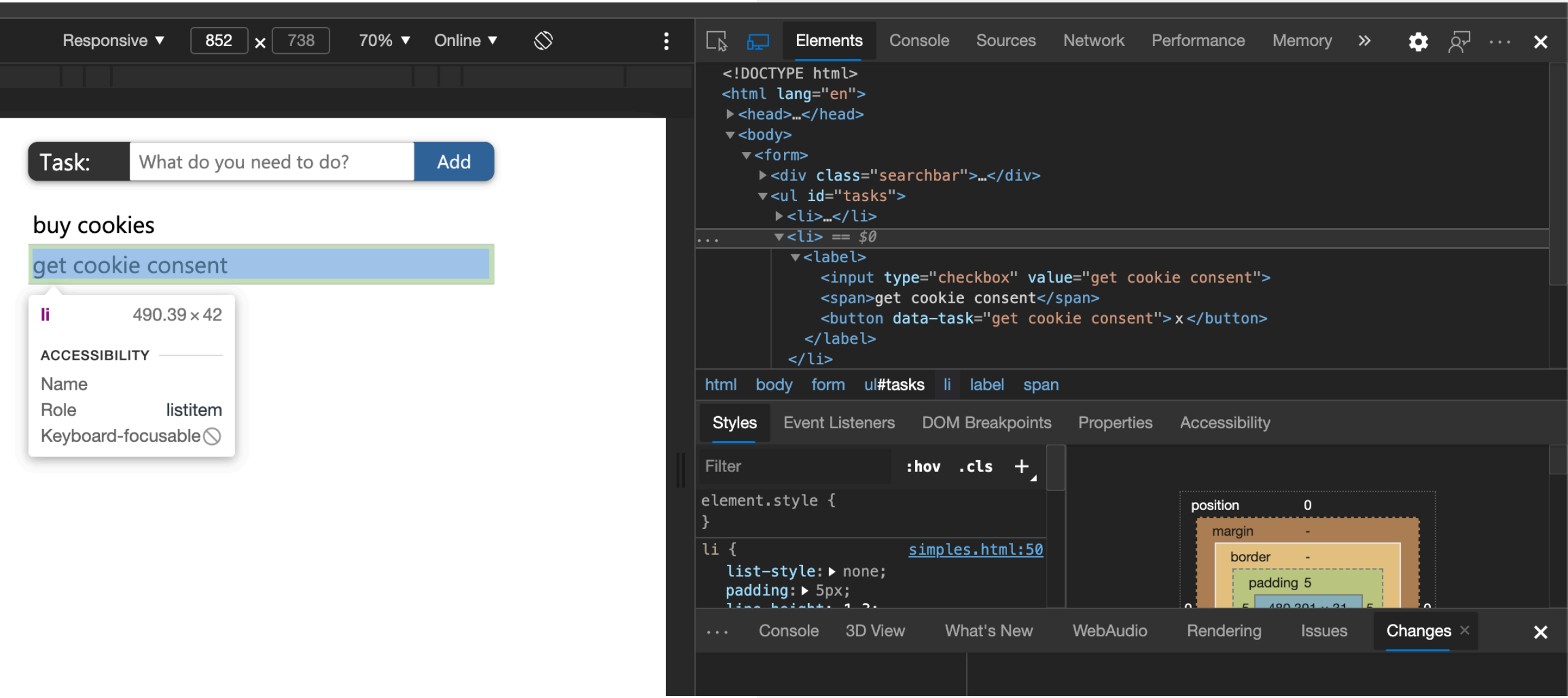
Task: What do you need to do? Add

buy cookies

get cookie consent

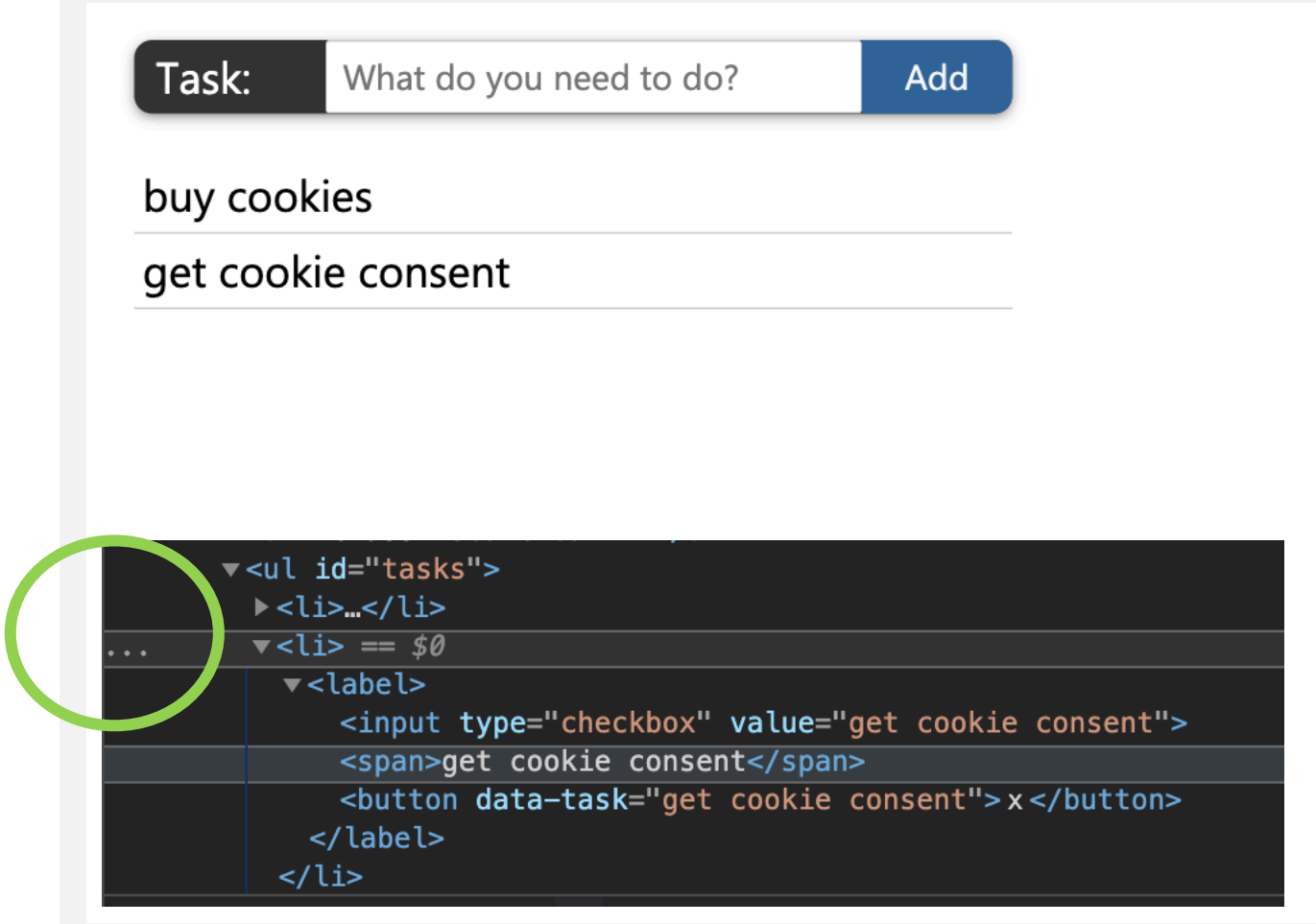
DOM breakpoints?



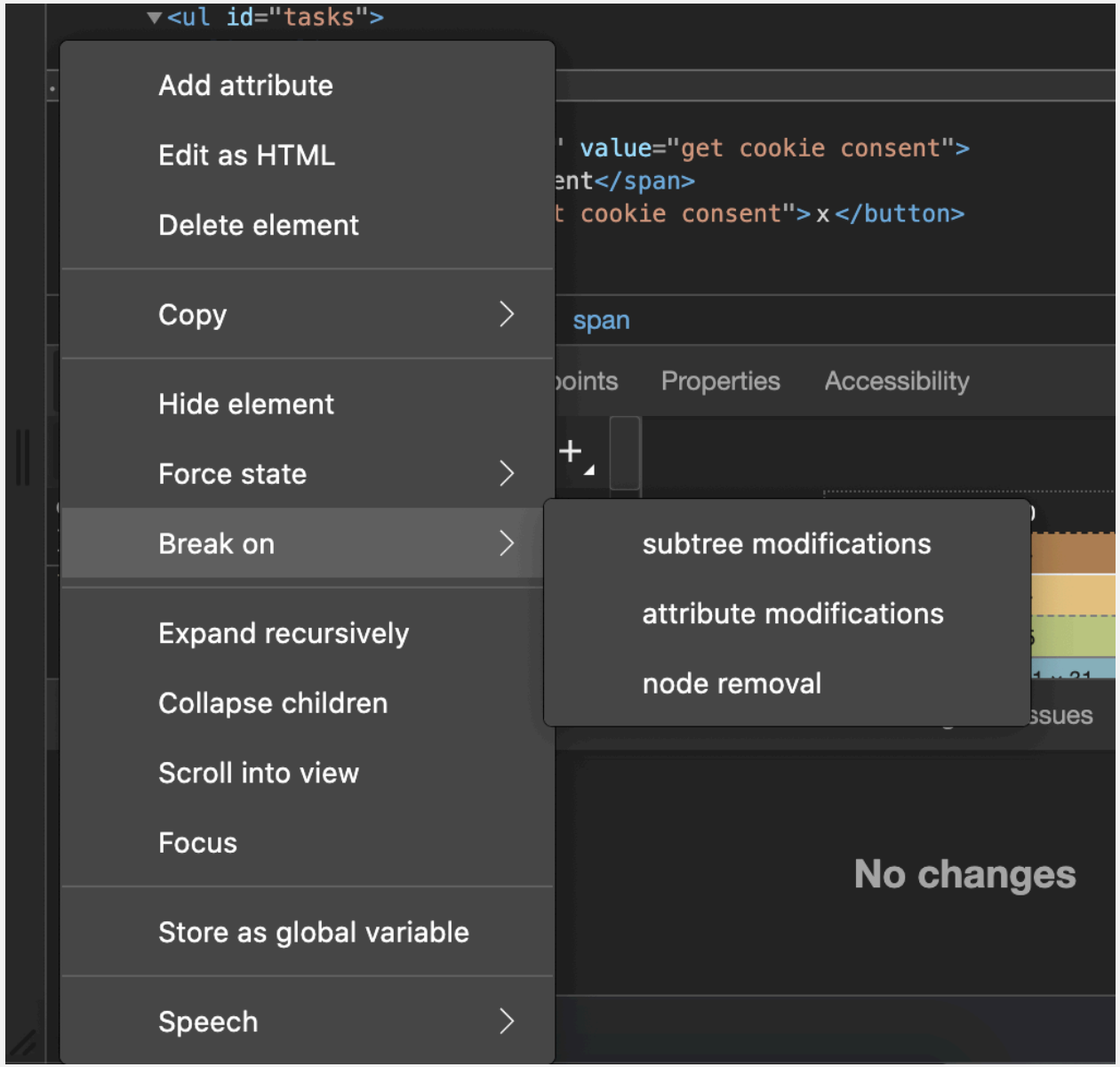

Responsive
852
738
70%
Online
Elements
Console
Sources
Network
Performance
Memory
Task:
What do you need to do?
Add
buy cookies
get cookie consent
li
490.39 × 42
ACCESSIBILITY
Name
Role
listitem
Keyboard-focusable
<!DOCTYPE html>
<html lang="en">
<head>…</head>
<body>
<form>
…
<ul id="tasks">
…
 == $0
<label>
<input type="checkbox" value="get cookie consent">
get cookie consent
<button data-task="get cookie consent">x</button>
</label>

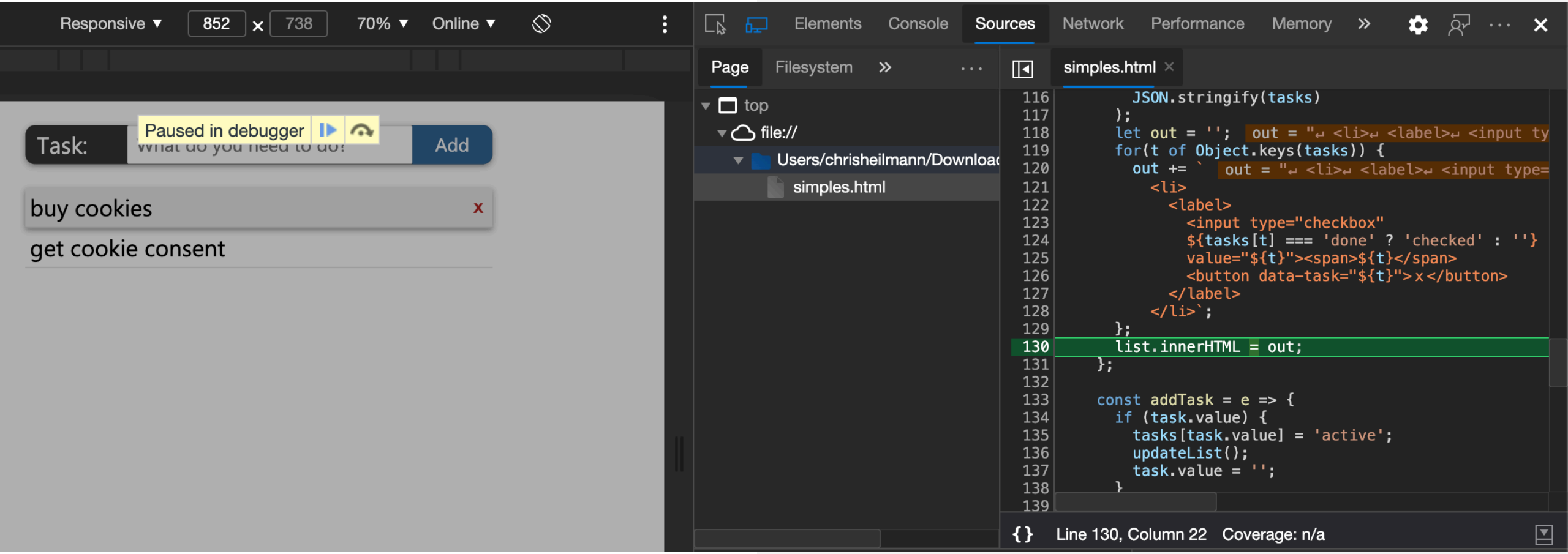
html
body
form
ul#tasks
li
label
span
Styles
Event Listeners
DOM Breakpoints
Properties
Accessibility
Filter
:hov
.cls
element.style {
}
li {
simples.html:50
list-style: none;
padding: 5px;
position
0
margin
-
border
-
padding 5
Console
3D View
What's New
WebAudio
Rendering
Issues
Changes

DOM breakpoints!

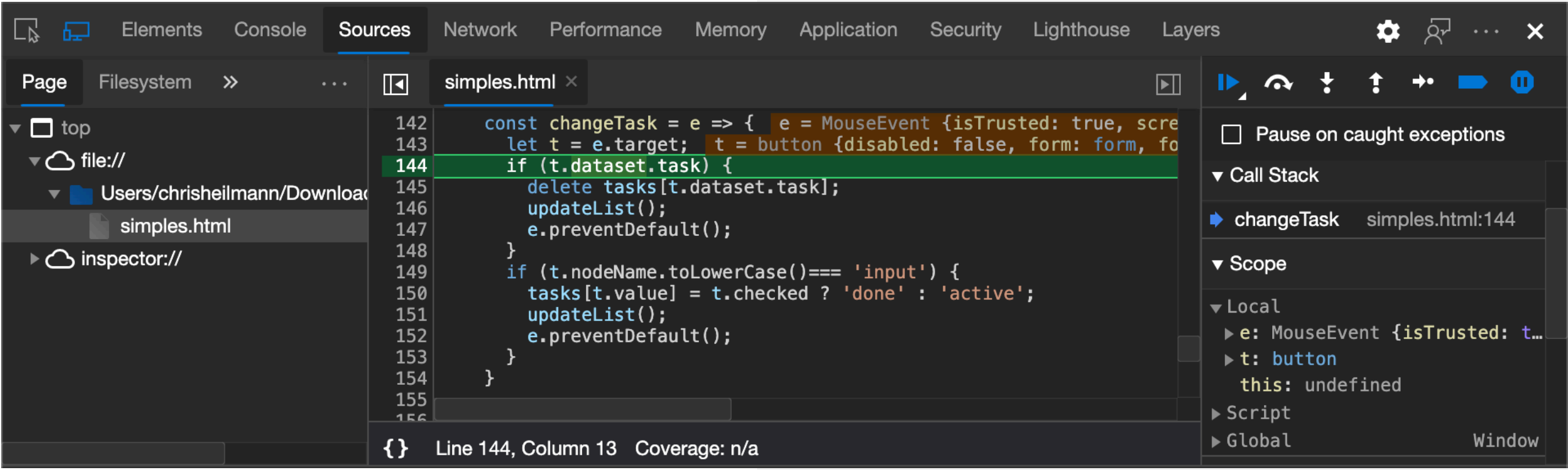


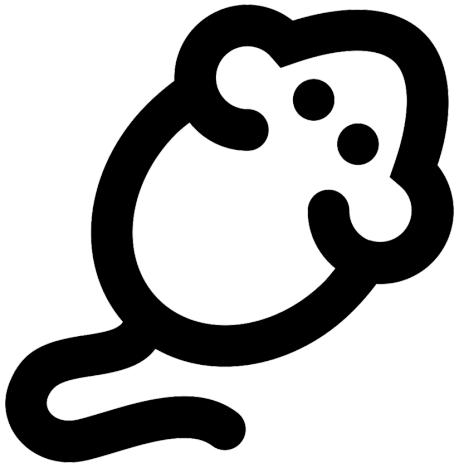
DOM breakpoints!




Responsive
852
738
70%
Online
Elements
Console
Sources
Network
Performance
Memory
Page
Filesystem
simples.html
Task:
Paused in debugger
Add
buy cookies
get cookie consent
top
file://
Users/chrisheilmann/Downloa
simples.html
JSON.stringify(tasks)
let out = '';
for(t of Object.keys(tasks)) {
out += `

<label>
<input type="checkbox"
${tasks[t] === 'done' ? 'checked' : ''}
value="${t}"><span>${t}
<button data-task="${t}">x</button>
</label>
`;
};
list.innerHTML = out;
};
const addTask = e => {
if (task.value) {
tasks[task.value] = 'active';
updateList();
task.value = '';
}
Line 130, Column 22
Coverage: n/a


Elements
Console
Sources
Network
Performance
Memory
Application
Security
Lighthouse
Layers
Page
Filesystem
top
file://
Users/chrisheilmann/Downloa
simples.html
inspector://
simples.html
142 const changeTask = e => { e = MouseEvent {isTrusted: true, scre
143 let t = e.target; t = button {disabled: false, form: form, fo
144 if (t.dataset.task) {
145 delete tasks[t.dataset.task];
146 updateList();
147 e.preventDefault();
148 }
149 if (t.nodeName.toLowerCase()=== 'input') {
150 tasks[t.value] = t.checked ? 'done' : 'active';
151 updateList();
152 e.preventDefault();
153 }
154 }
155
{} Line 144, Column 13 Coverage: n/a
Pause on caught exceptions
Call Stack
changeTask simples.html:144
Scope
Local
e: MouseEvent {isTrusted: t…
t: button
this: undefined
Script
Global Window



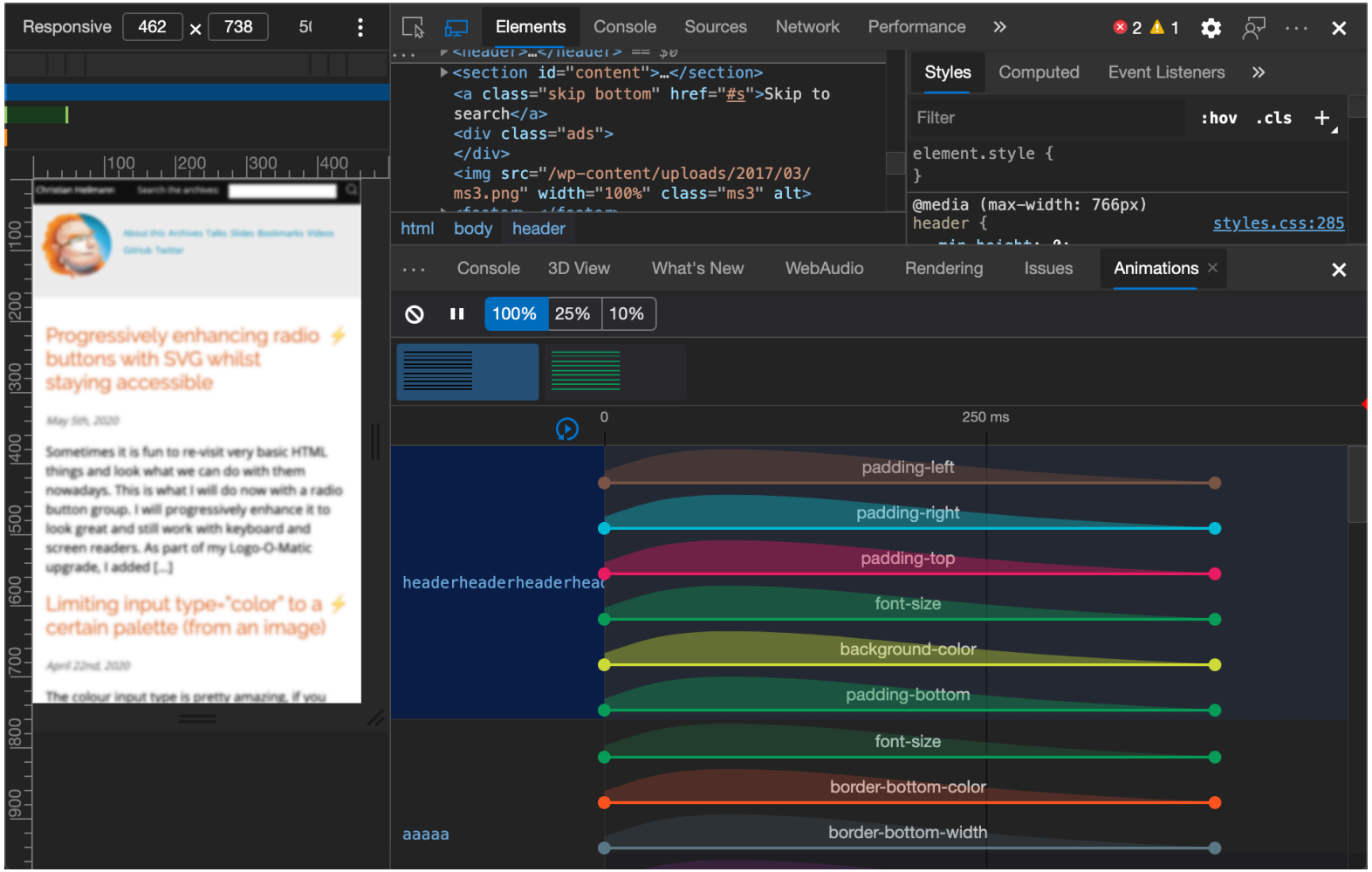
No need for a mouse!

Shortcuts

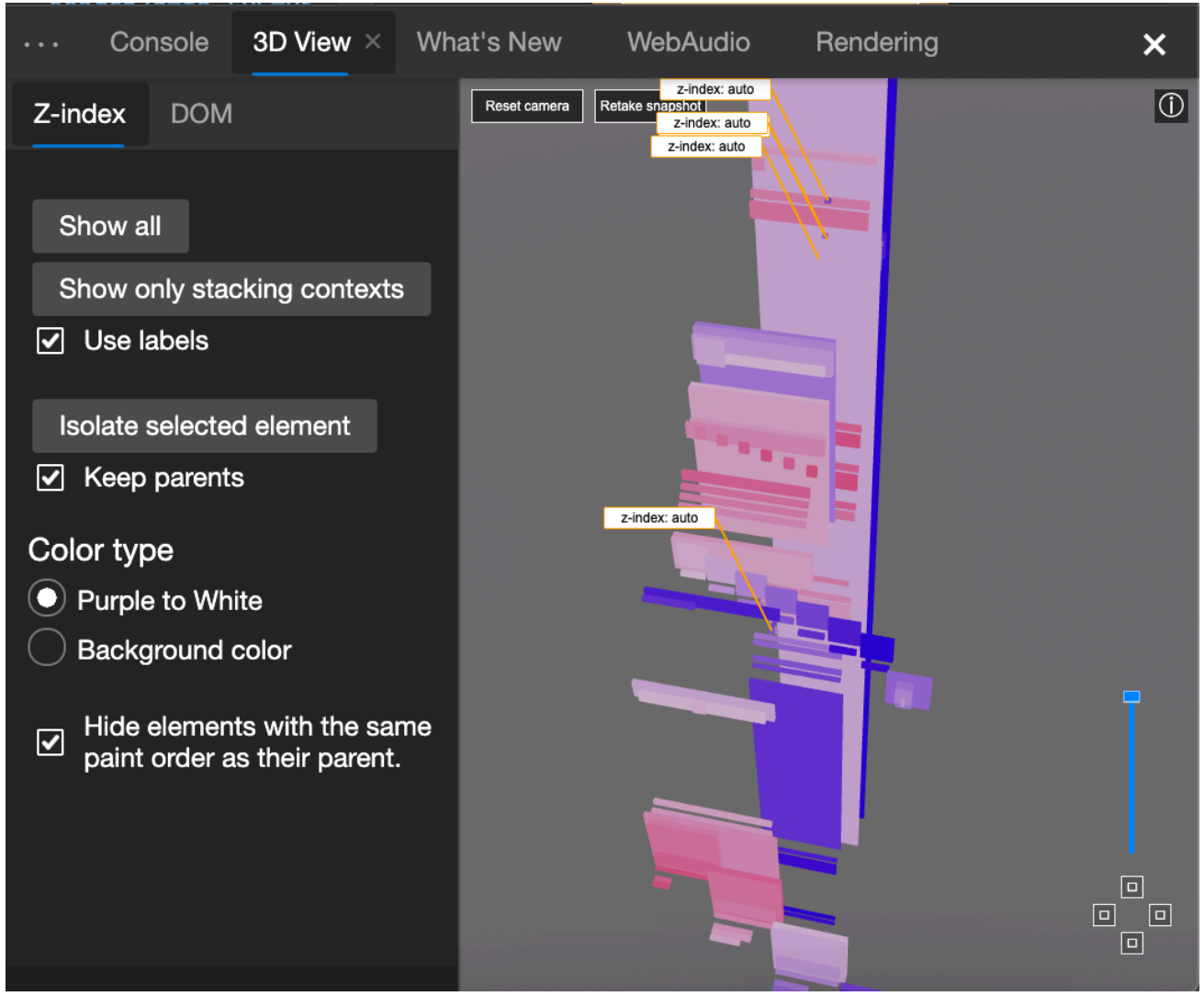
⌥ ↓	Decrement by 0.1
	Debugger
F8 ⌘ \	Pause/ Continue
F10 ⌘ '	Step over
F11 ⌘ ;	Step into
⇧ F11 ⌘ ⇧ ;	Step out
Ctrl . Ctrl ,	Next/previous call frame
Ctrl ⇧ E	Evaluate selection in console
Ctrl ⇧ A	Add selection to watch
⌘ B	Toggle breakpoint
⌘ ⇧ B	Toggle breakpoint enabled
⌘ F8	Toggle all breakpoints
⌘ ⌥ B	Open breakpoint editor

More visual tooling?

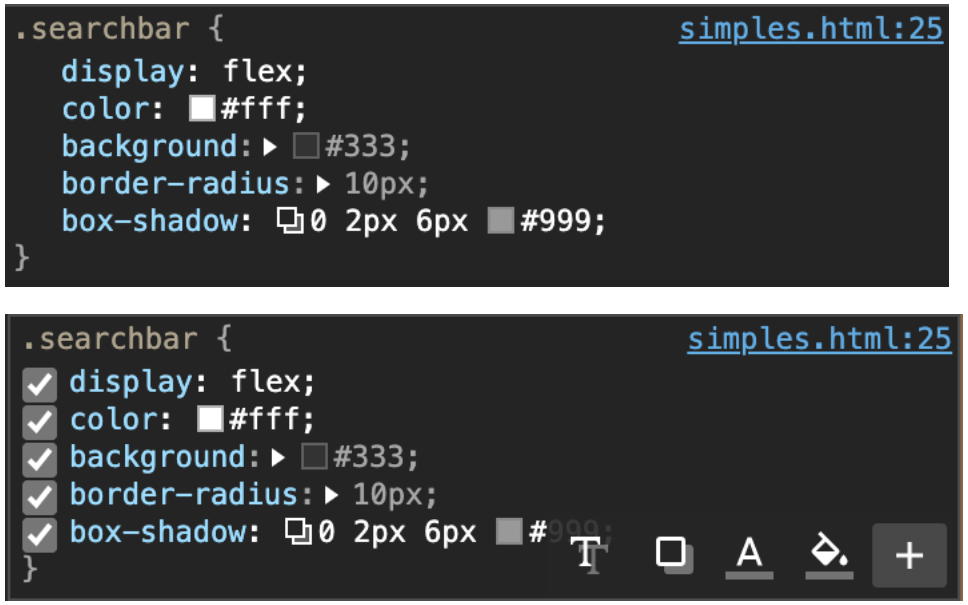
Animation Editor



3D View


Console
3D View
What's New
WebAudio
Rendering
Z-index
DOM
Show all
Show only stacking contexts
Use labels
Isolate selected element
Keep parents
Color type
Purple to White
Background color
Hide elements with the same paint order as their parent.
Reset camera
Retake snapshot
z-index: auto
z-index: auto
z-index: auto
z-index: auto

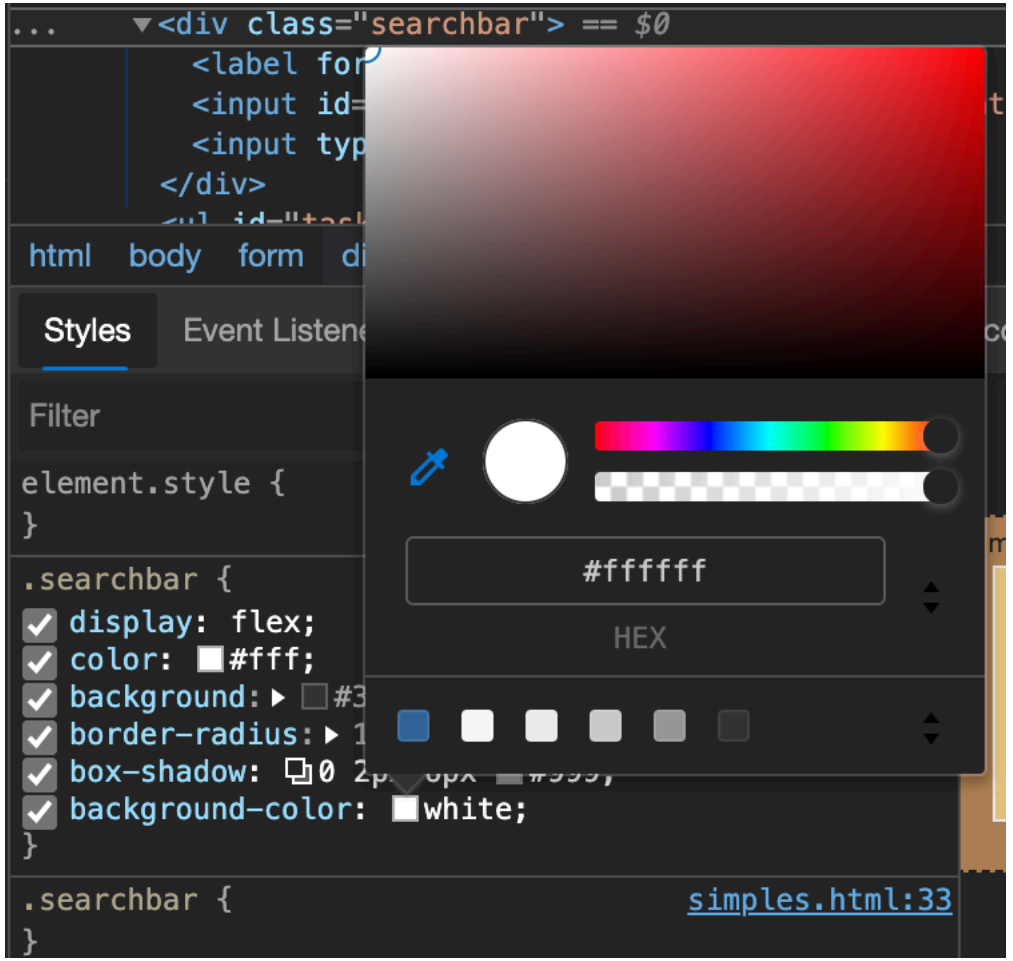
Easy to miss extra features…



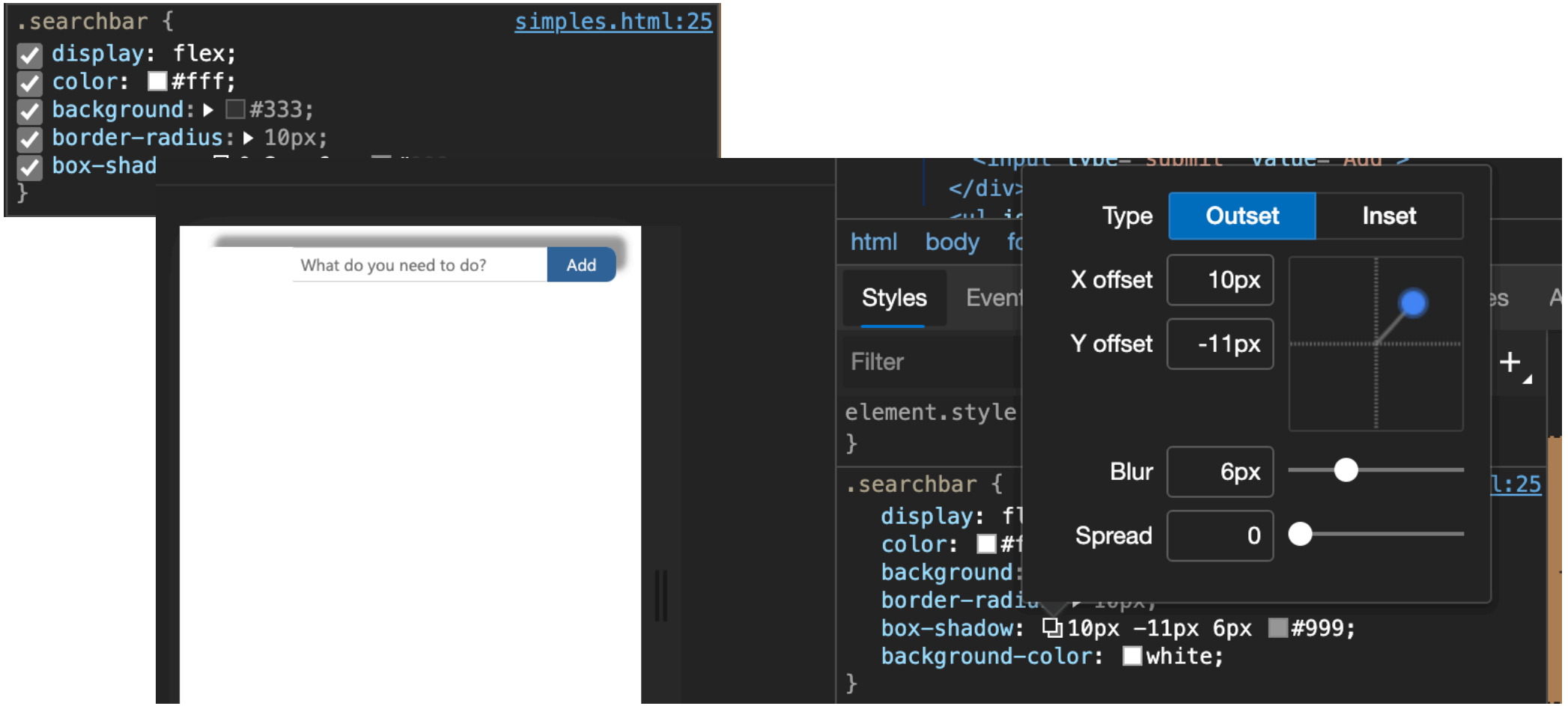
Colour Picker

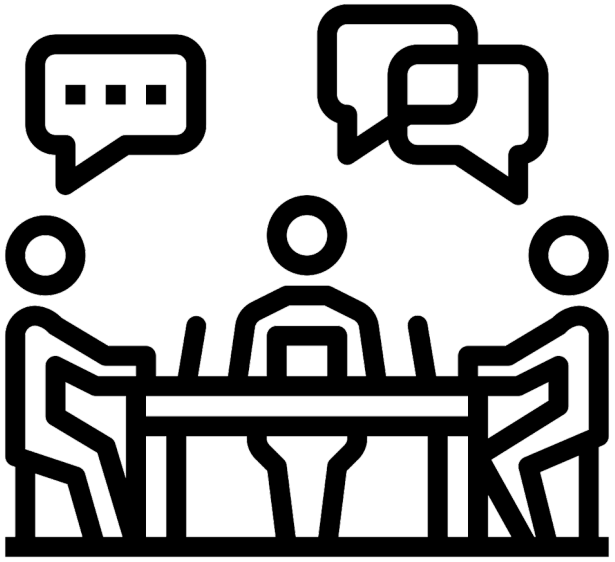
```
.searchbar {                                    simples.html:25
   display: flex;
   color: #fff;
   background: ▸ #333;
   border-radius: ▸ 10px;
   box-shadow: 0 2px 6px #999;
}
```

```
.searchbar {                                    simples.html:25
  display: flex;
  color: #fff;
  background: ▸ #333;
  border-radius: ▸ 10px;
  box-shadow: 0 2px 6px #999;
}
```



Shadow Editor



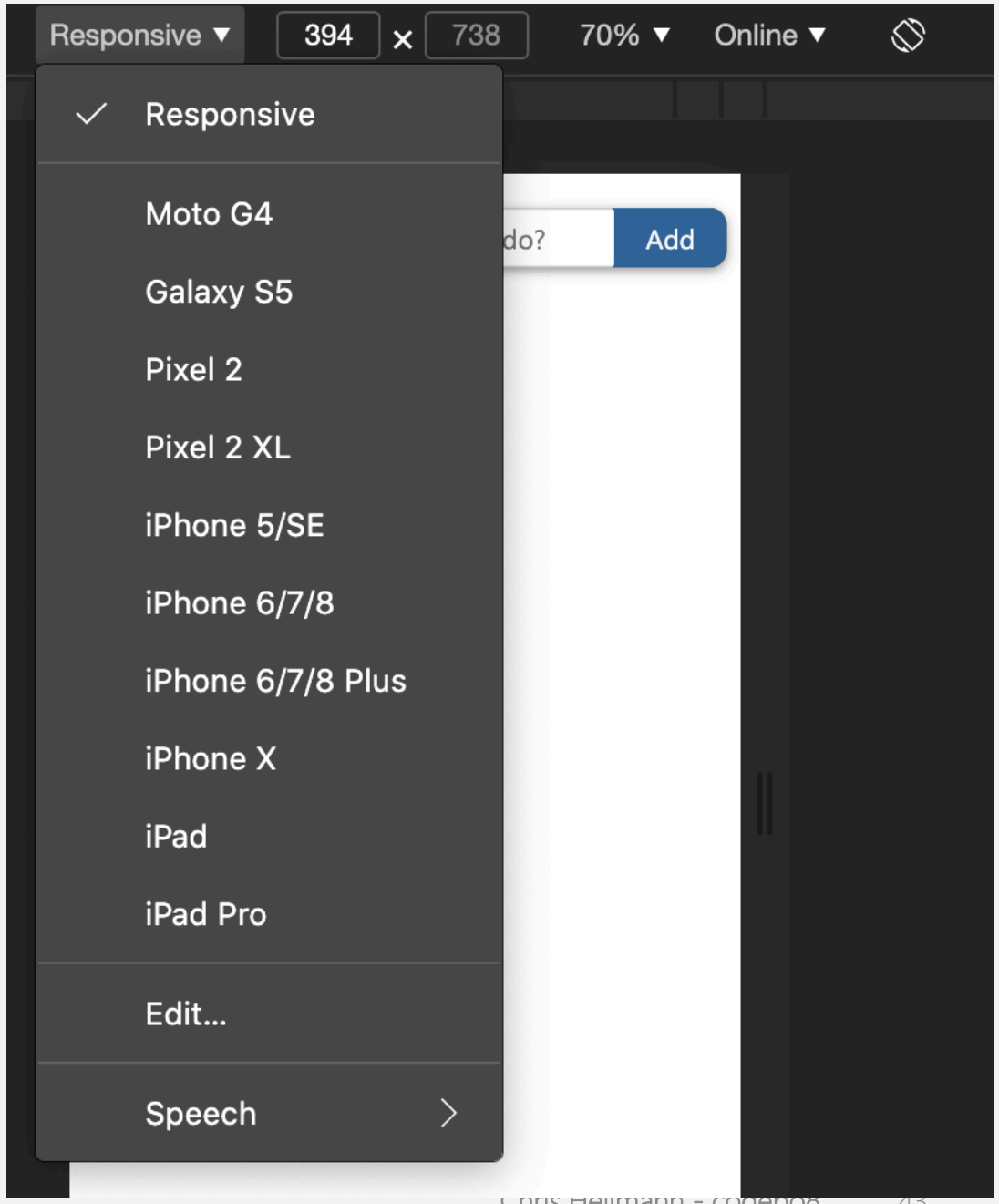


Currently in production:

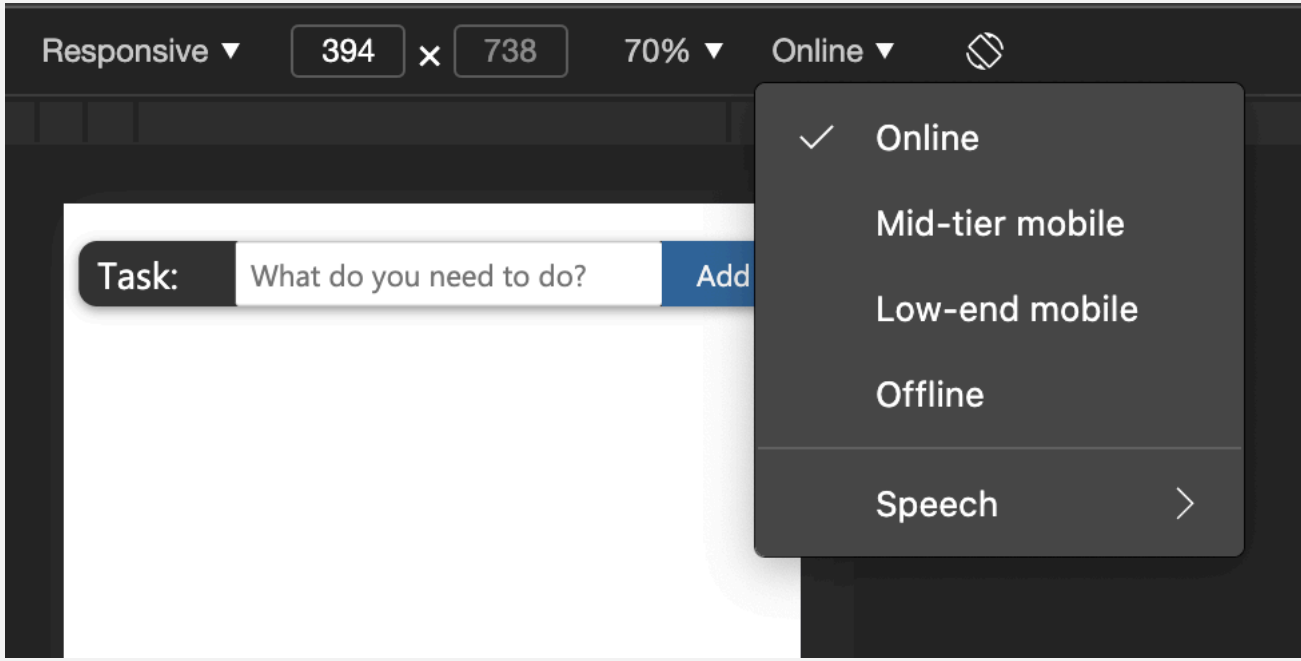
- CSS Grid tooling
- Font tooling
- Service Worker lifecycle visualization
- ??? (you decide)

Emulation

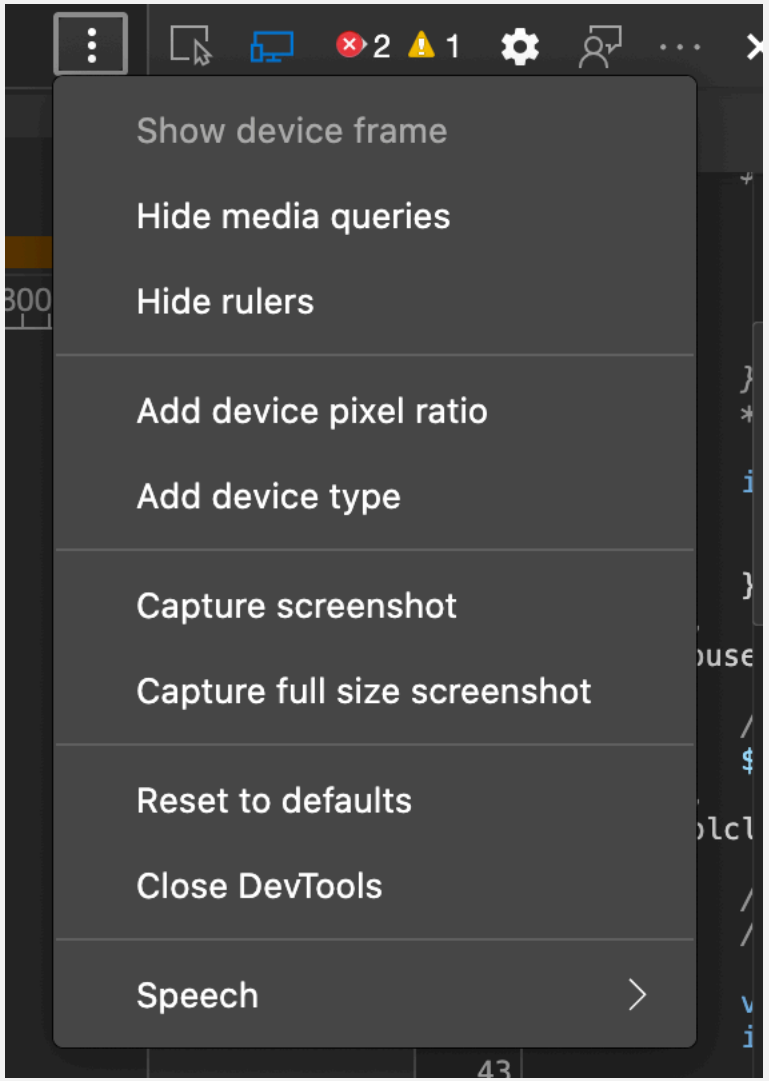
Device Mode

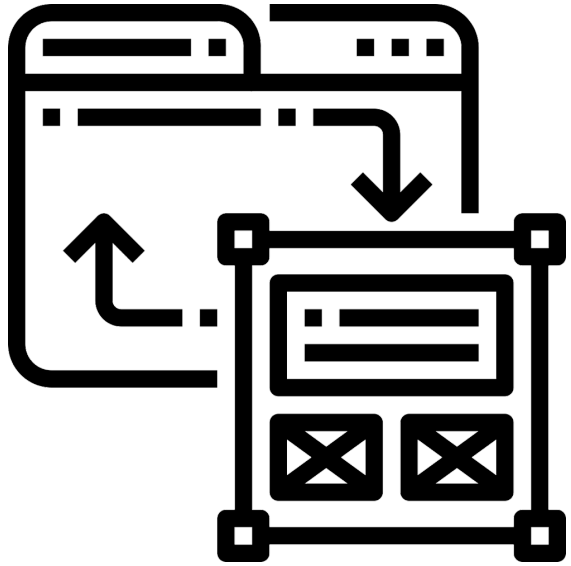

Responsive
394
738
70%
Online
Responsive
Moto G4
Galaxy S5
Pixel 2
Pixel 2 XL
iPhone 5/SE
iPhone 6/7/8
iPhone 6/7/8 Plus
iPhone X
iPad
iPad Pro
Edit...
Speech
do?
Add

Device Mode

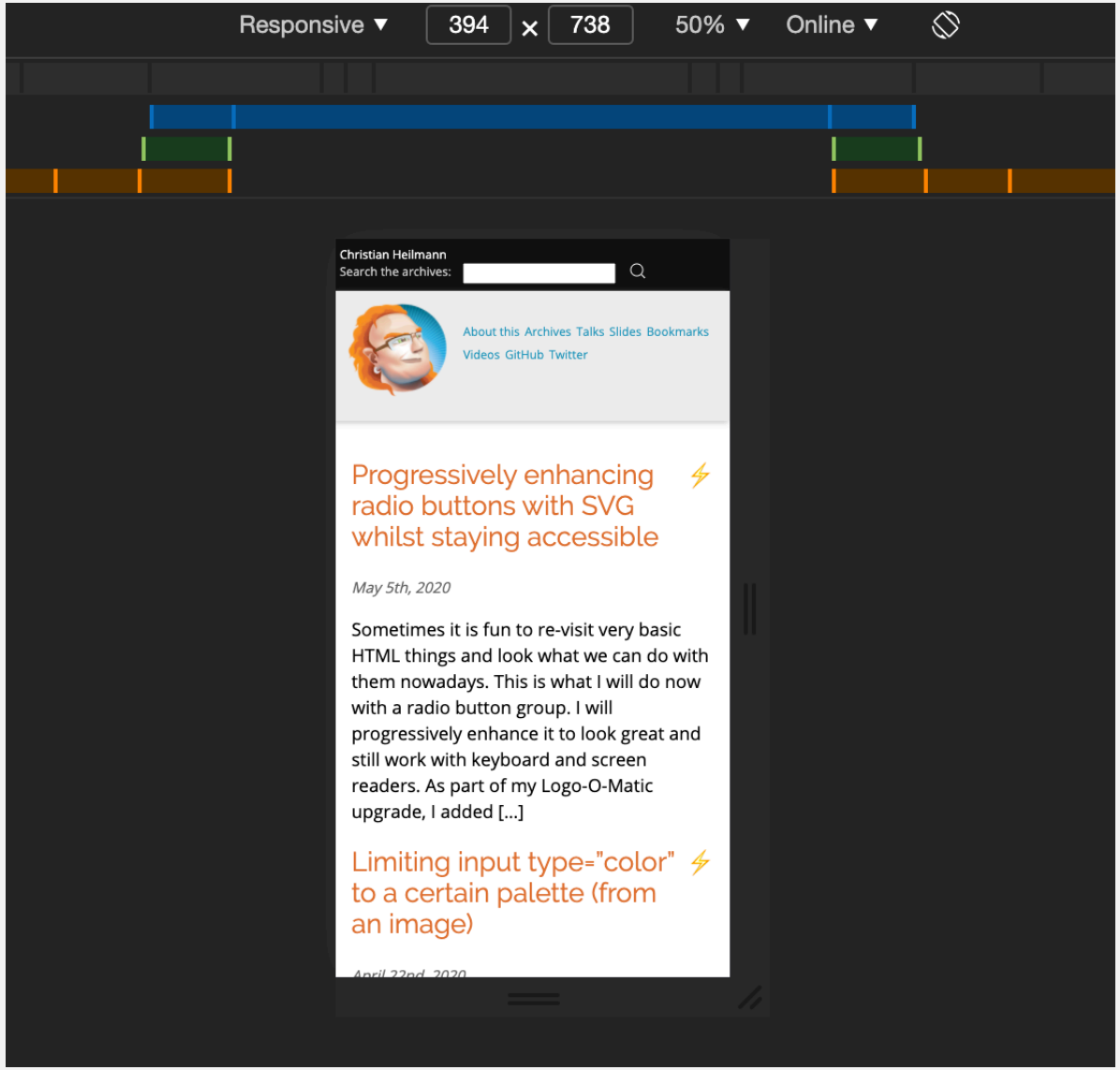

Responsive
394
738
70%
Online
Task:
What do you need to do?
Add
Online
Mid-tier mobile
Low-end mobile
Offline
Speech

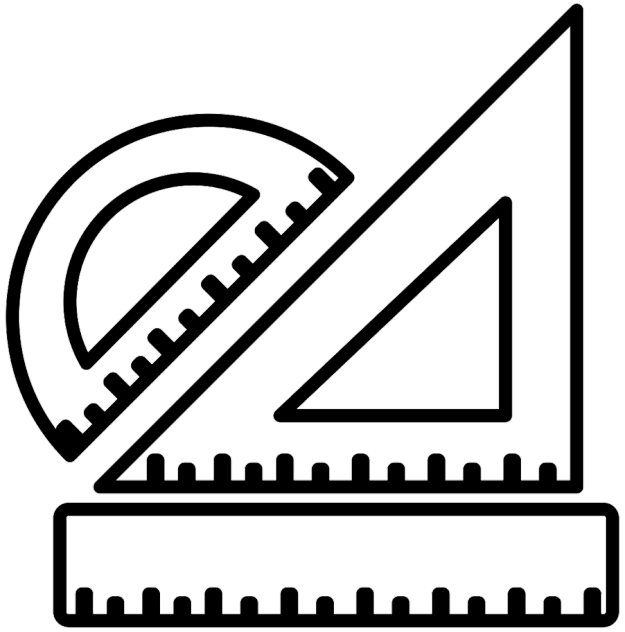
More features of Device Emulation



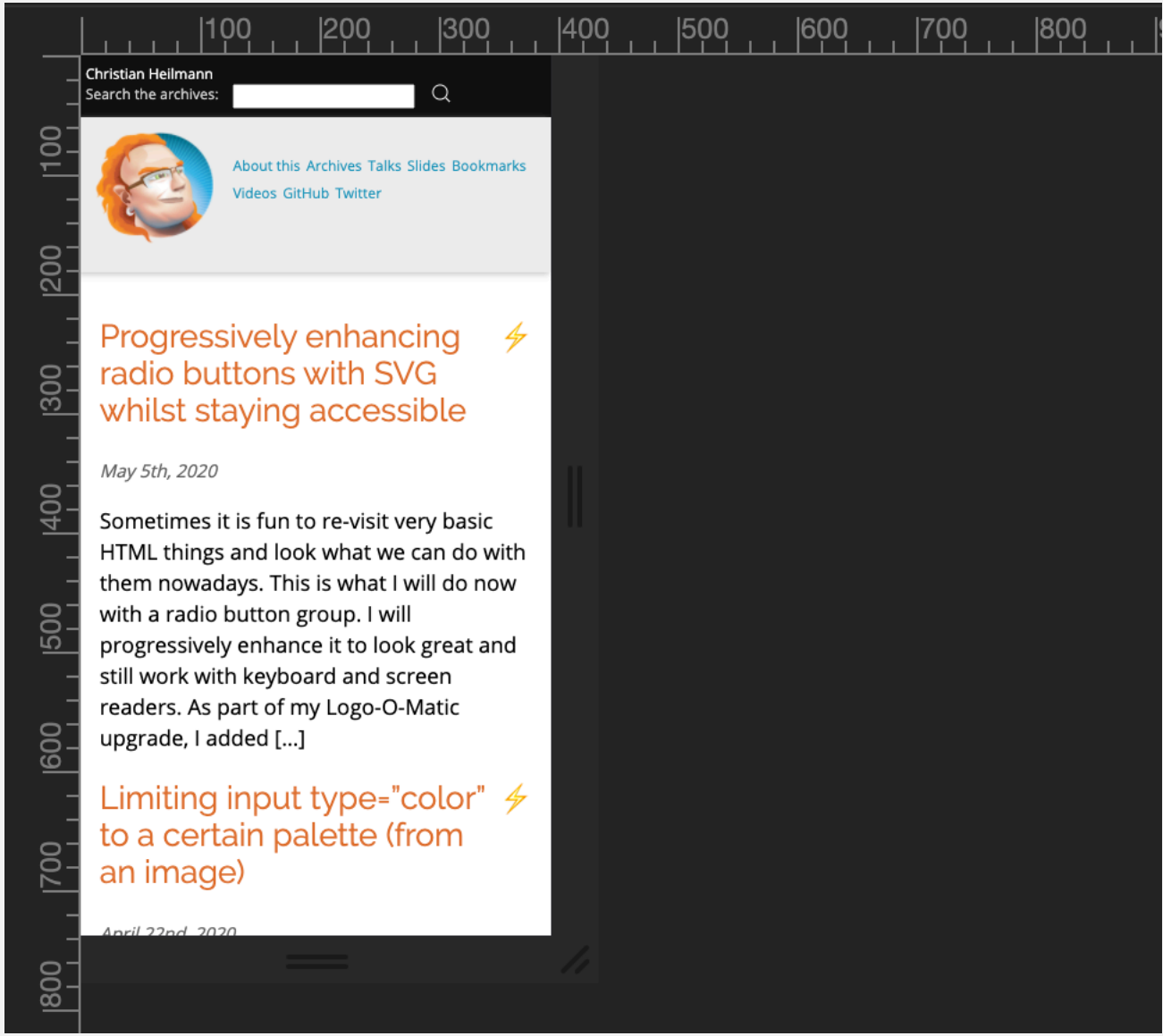


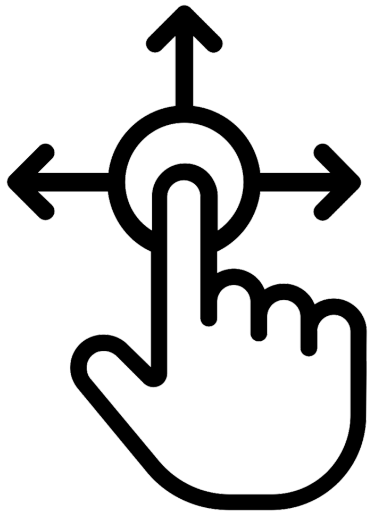
Media Queries



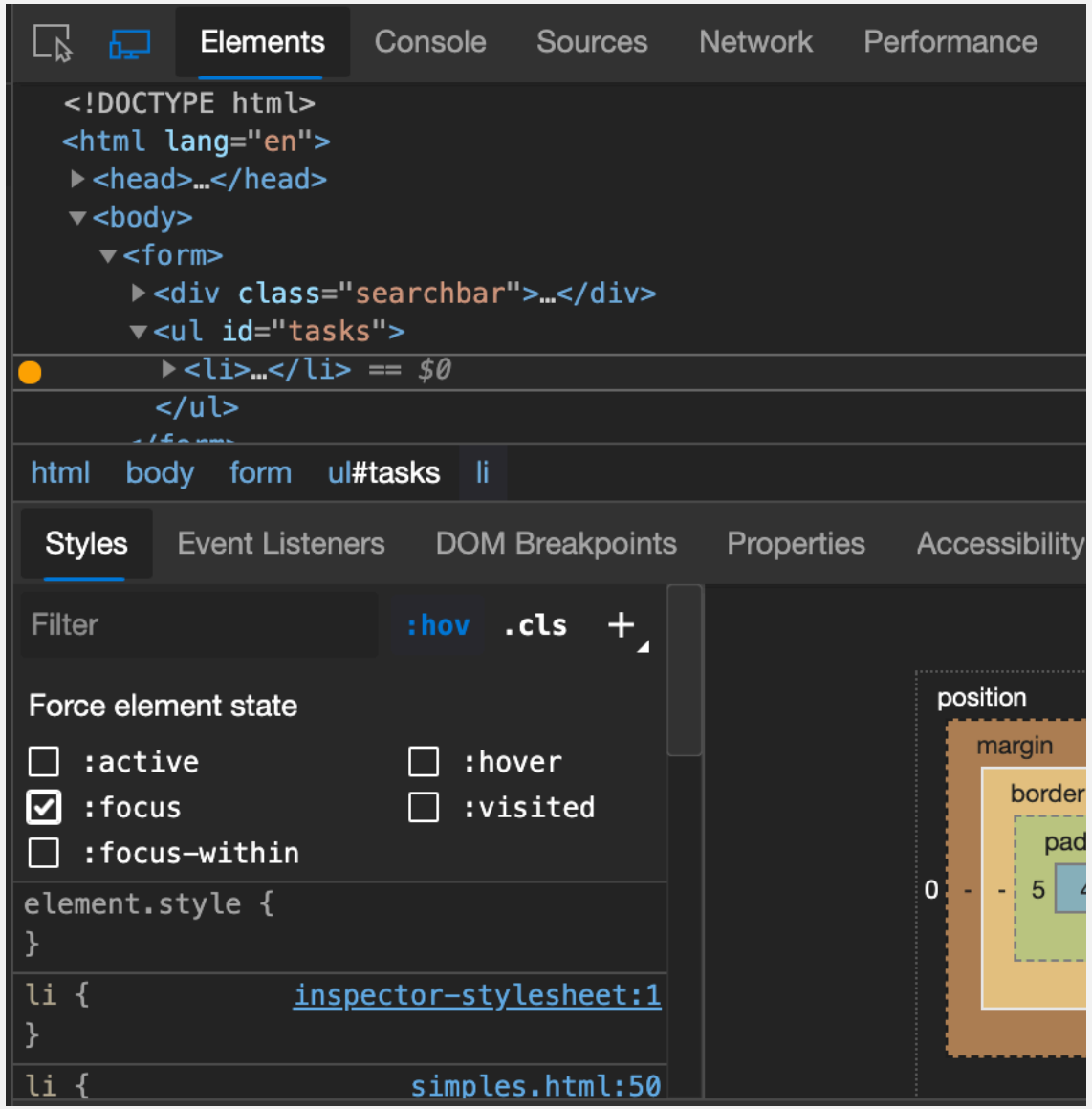


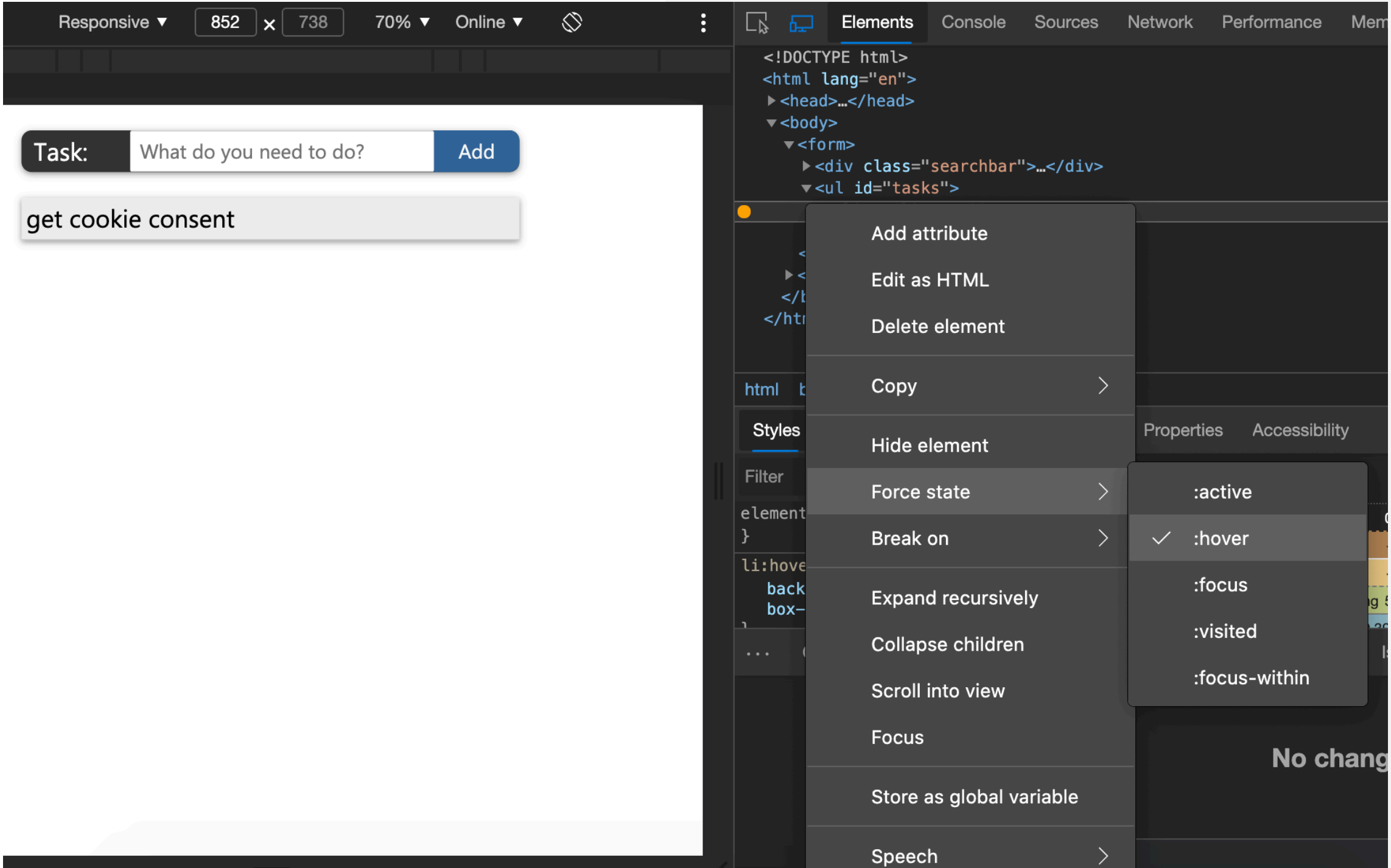
Screen Ruler

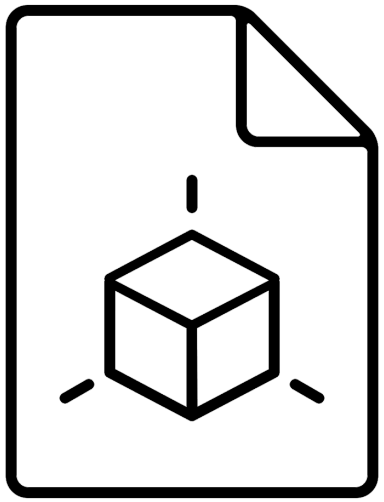




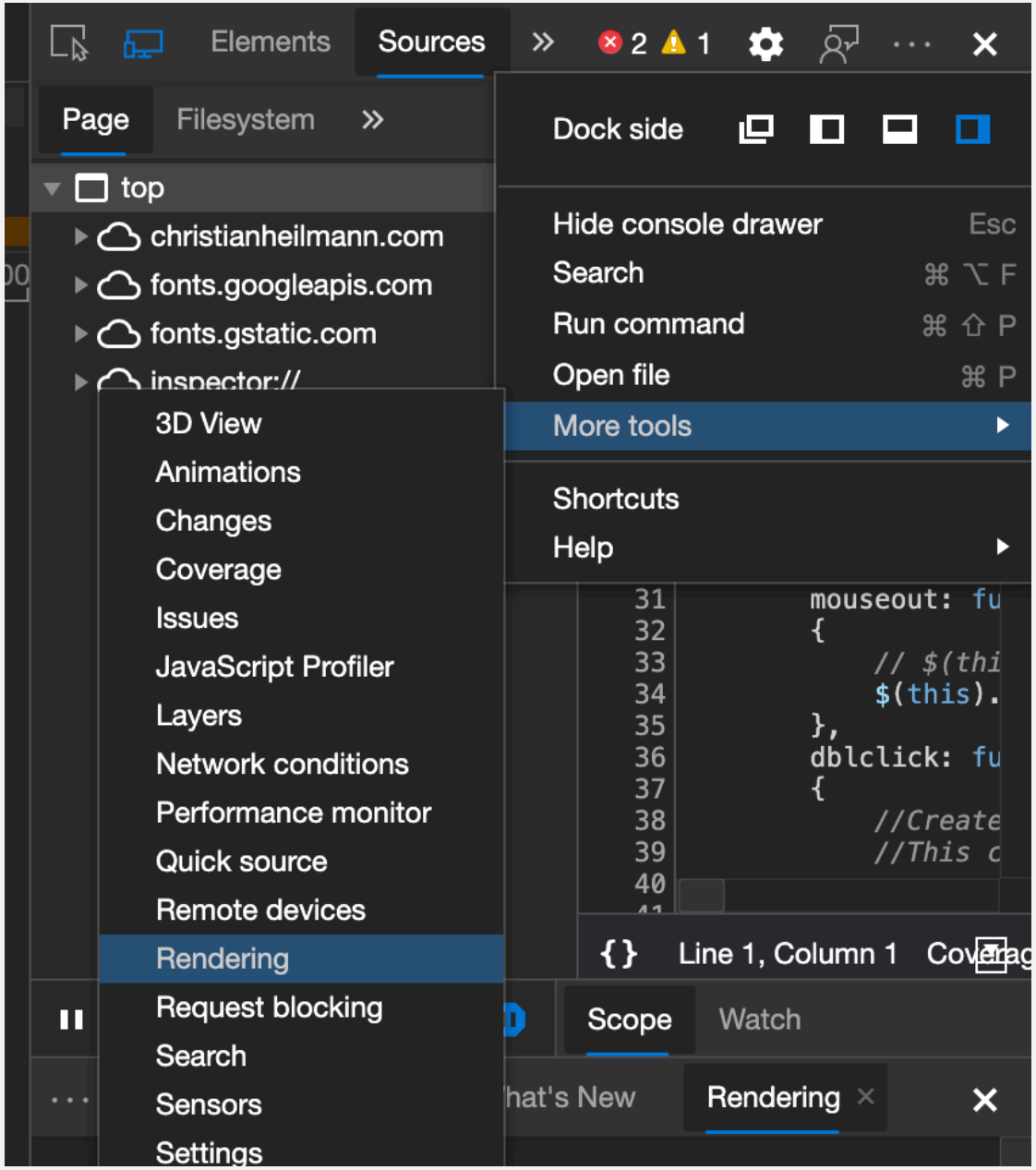
Interaction emulation

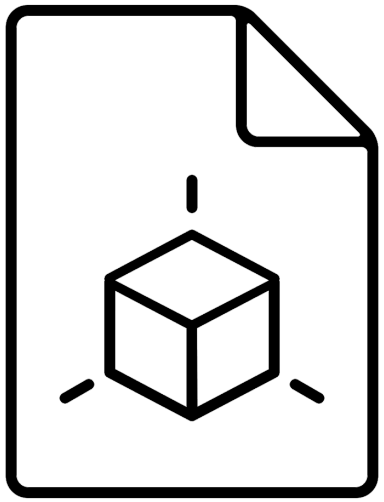



Responsive
852
738
70%
Online
Elements
Console
Sources
Network
Performance
Task:
What do you need to do?
Add
get cookie consent
<!DOCTYPE html>
<html lang="en">
<head>…</head>
<body>
<form>
…
<ul id="tasks">
Add attribute
Edit as HTML
Delete element
Copy
Hide element
Force state
Break on
Expand recursively
Collapse children
Scroll into view
Focus
Store as global variable
Speech
:active
:hover
:focus
:visited
:focus-within
Styles
Properties
Accessibility
Filter
No chang

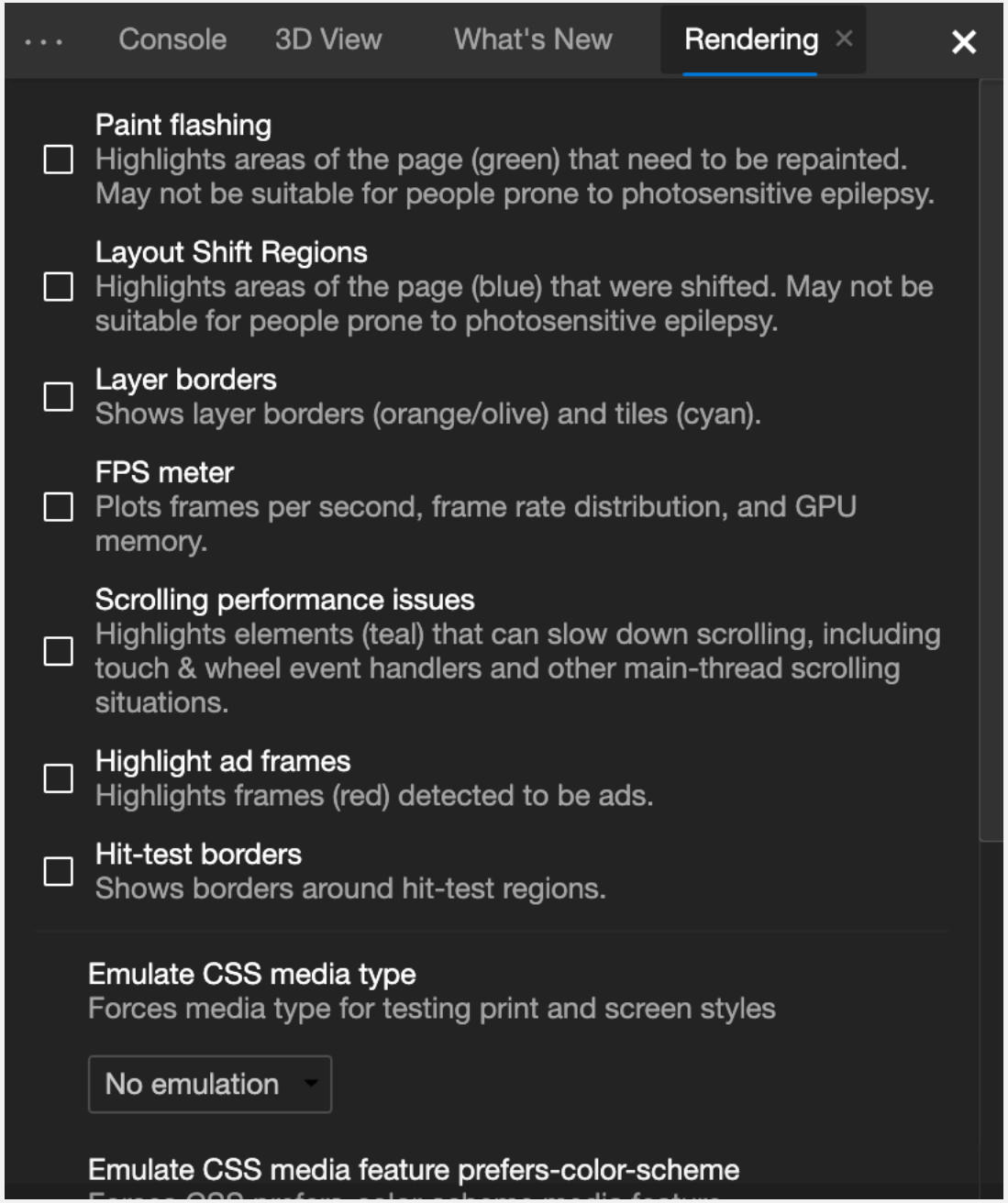


Rendering menu





Rendering menu



Emulate CSS media type
Forces media type for testing print and screen styles

✓ No emulation
print
screen

feature prefers-color-scheme
Forces CSS prefers-color-scheme media feature

Console | 3D View | What's New | Rendering

Paint flashing
Highlights areas of the page (green) that need to be repainted. May not be suitable for people prone to photosensitive epilepsy.

Layout Shift Regions
Highlights areas of the page (blue) that were shifted. May not be suitable for people prone to photosensitive epilepsy.

Layer borders
Shows layer borders (orange/olive) and tiles (cyan).

FPS meter
Plots frames per second, frame rate distribution, and GPU memory.

Scrolling performance issues
Highlights elements (teal) that can slow down scrolling, including touch & wheel event handlers and other main-thread scrolling situations.

Highlight ad frames
Highlights frames (red) detected to be ads.

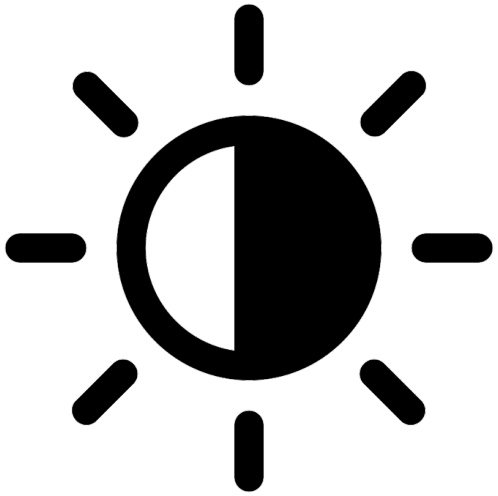
Hit-test borders
Shows borders around hit-test regions.

Emulate CSS media type
Forces media type for testing print and screen styles

No emulation

Emulate CSS media feature prefers-color-scheme

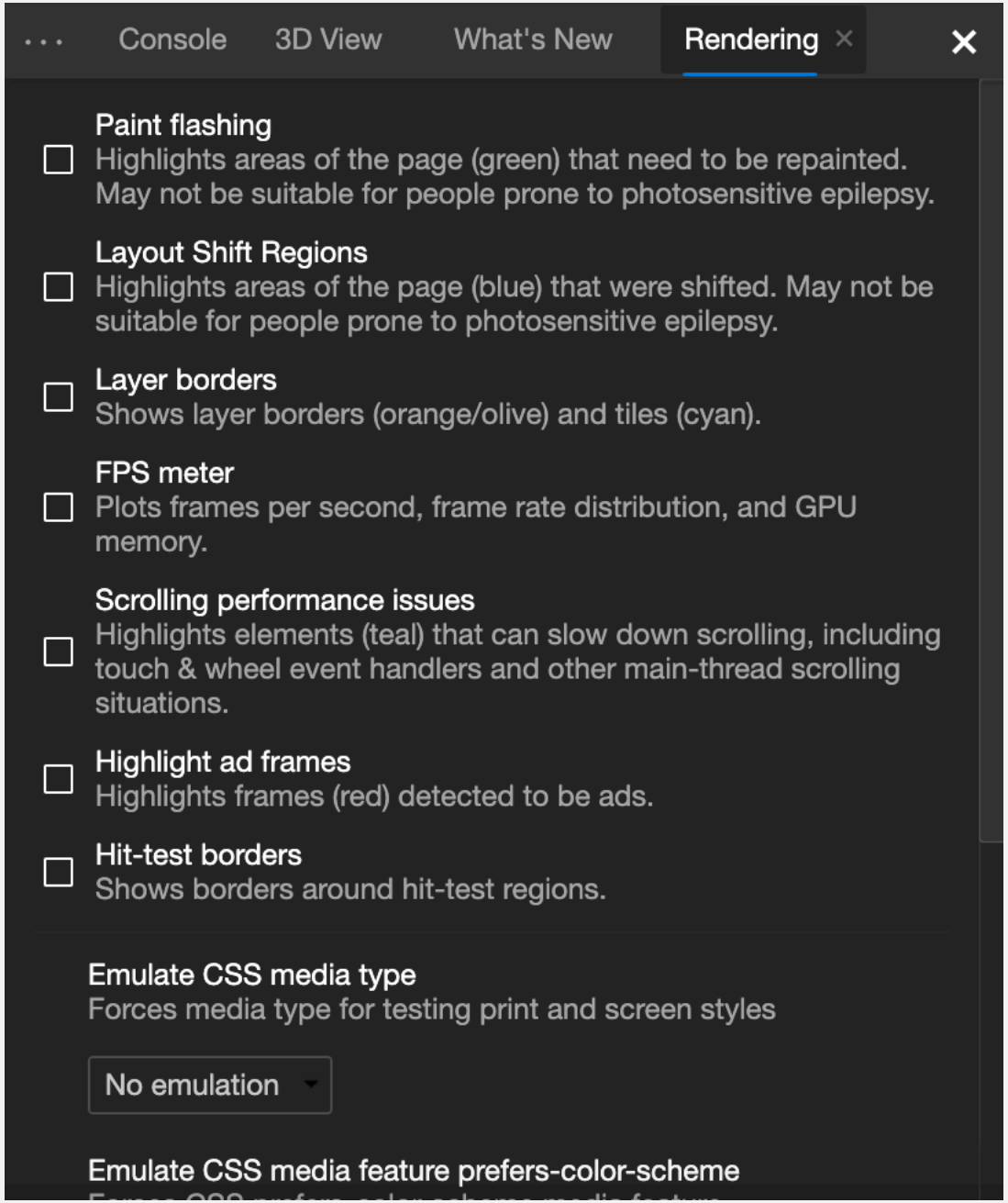
Accessibility concerns

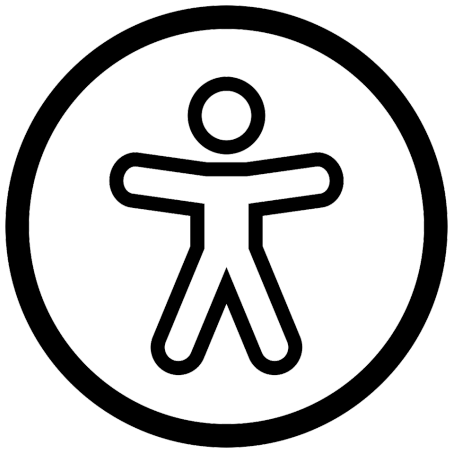


Emulate CSS media feature prefers-color-scheme
Forces CSS prefers-color-scheme media feature

✓ No emulation
prefers-color-scheme: light
prefers-color-scheme: dark

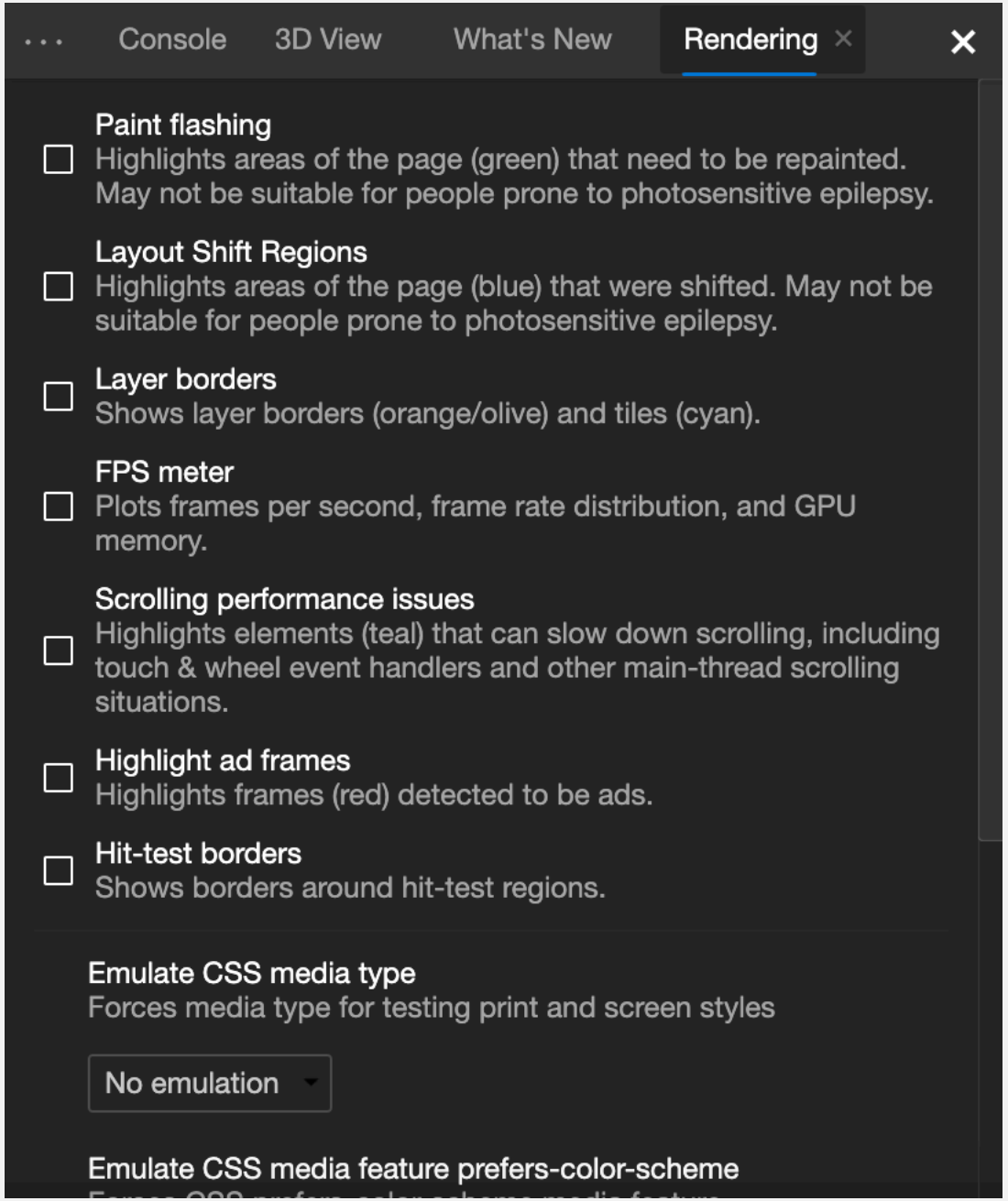
-reduced-motion
Forces CSS prefers-reduced-motion media feature

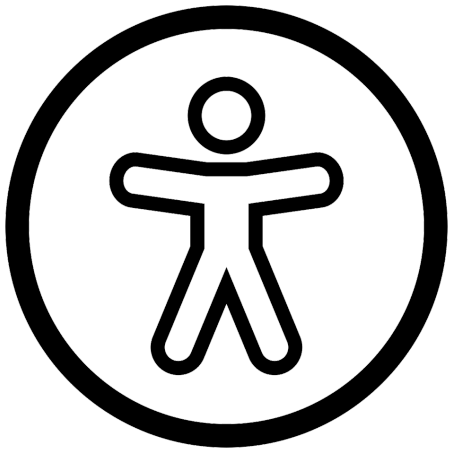




Emulate CSS media feature prefers-reduced-motion
Forces CSS prefers-reduced-motion media feature

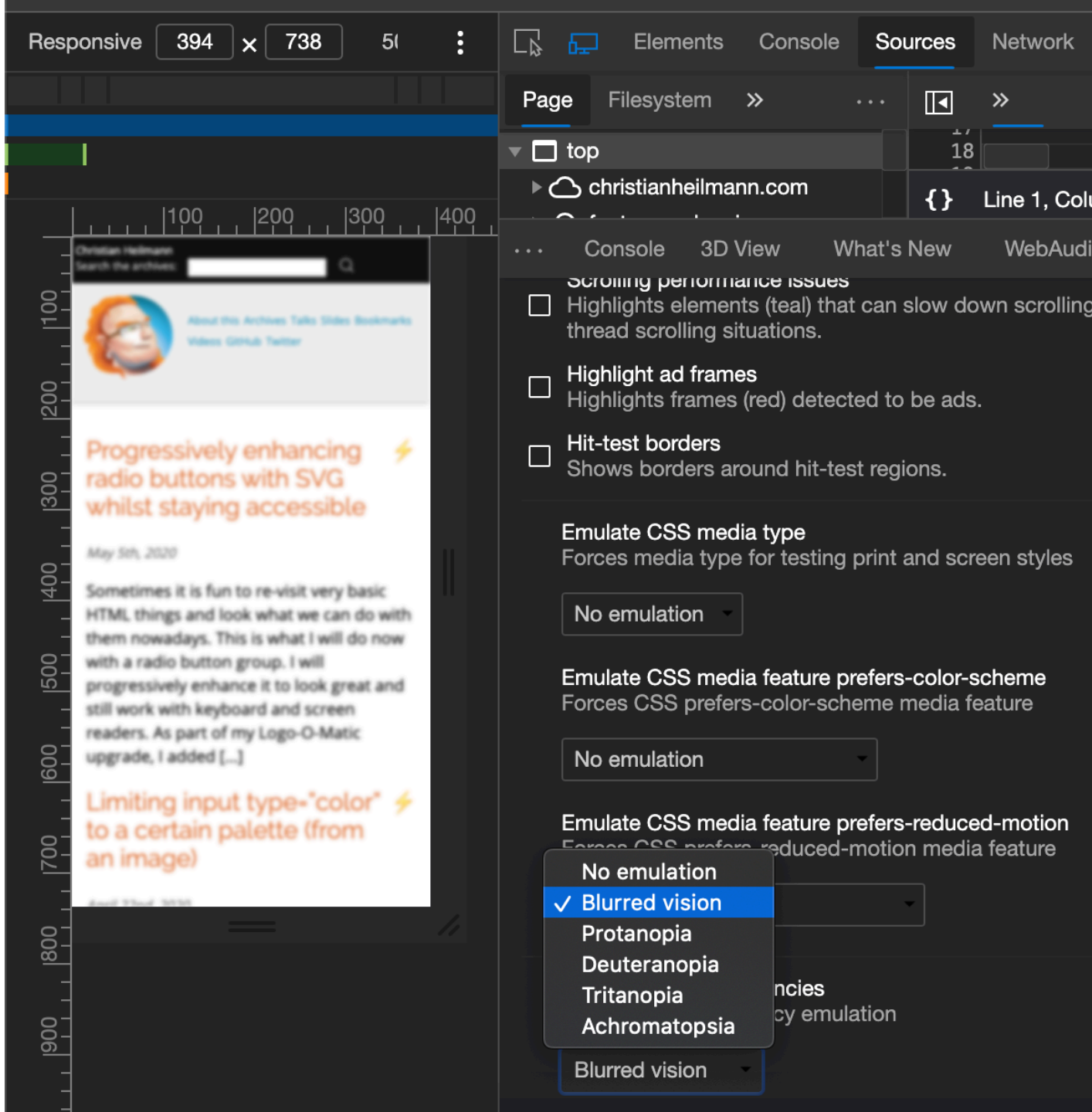
✓ No emulation
prefers-reduced-motion: reduce

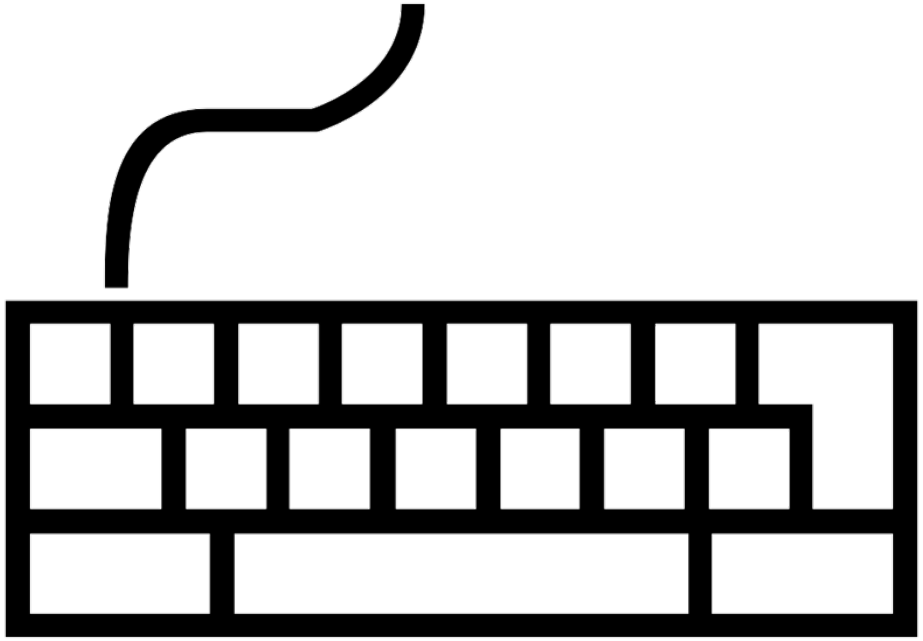




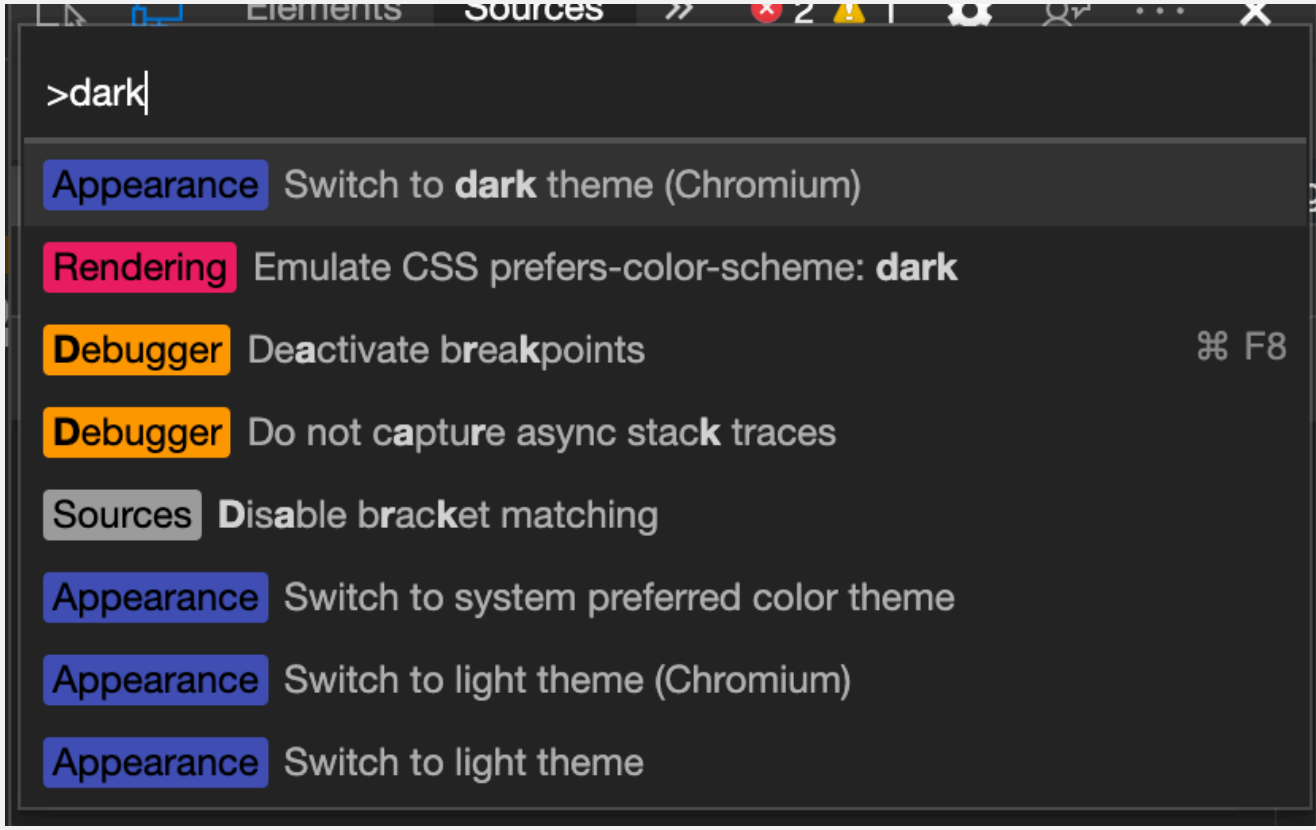
Emulate vision deficiencies
Forces vision deficiency emulation

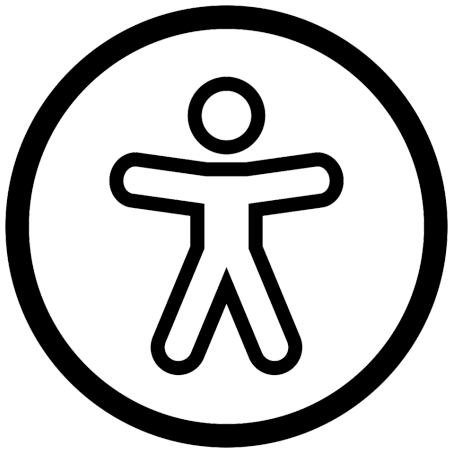
Blurred vision





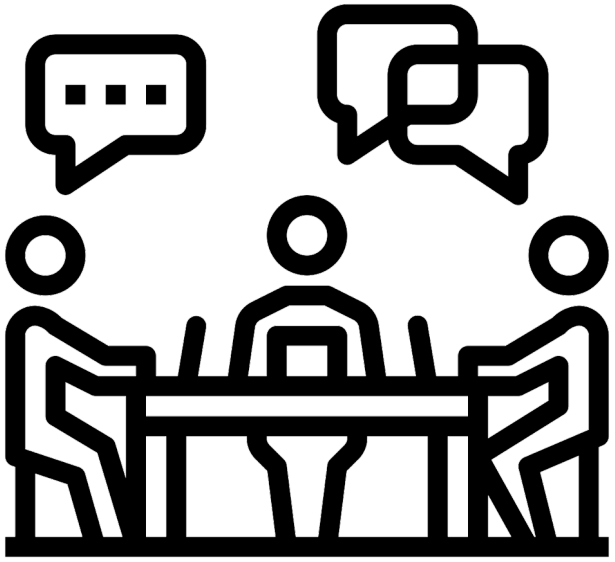
Pro tip: CMD+SHIFT+P





Already shipped:

- Developer tools are keyboard and screenreader accessible
- Developer tools work in high contrast mode



Currently in production:

- High Contrast simulation
- Simpler accessible interfaces
- Accessibility error reporting in context
- Dual Screen Emulation

Need for speed?

Activity Monitor File Edit View Window Help 52 % Mon 13:44

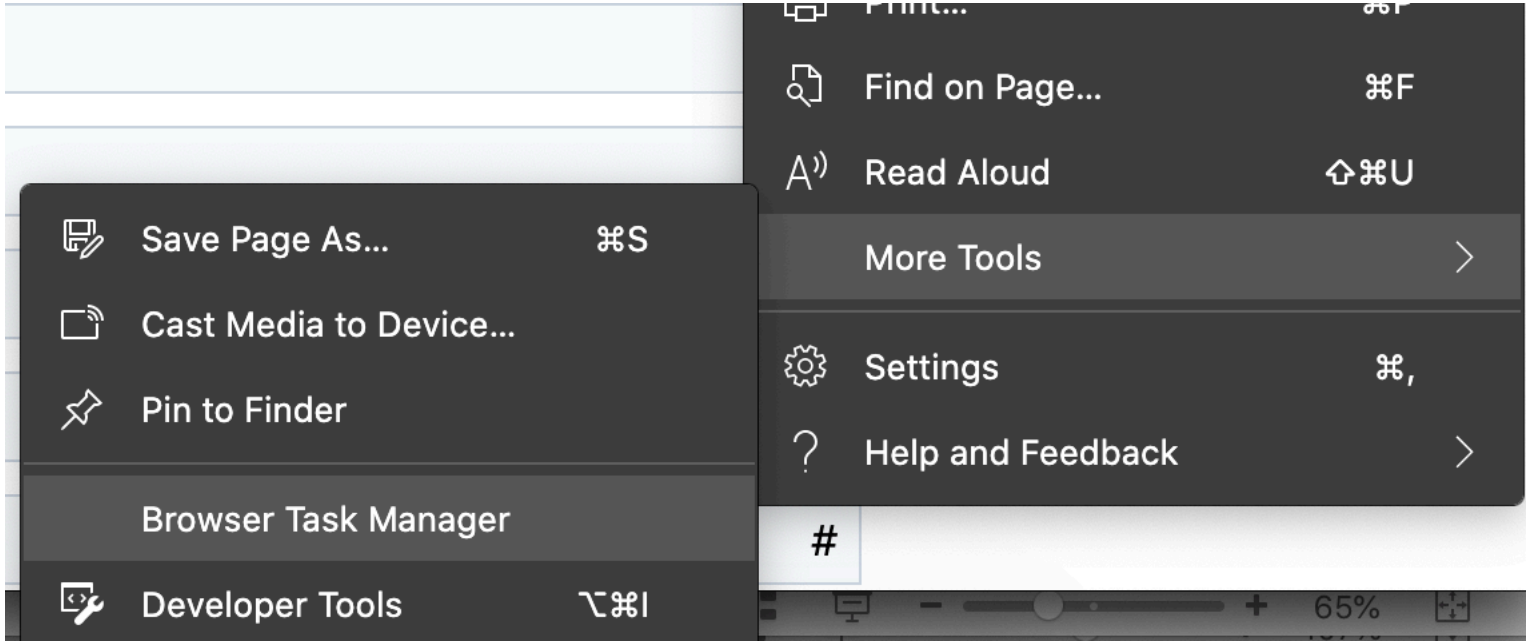
Activity Monitor (My Processes)

CPU Memory Energy Disk Network Search

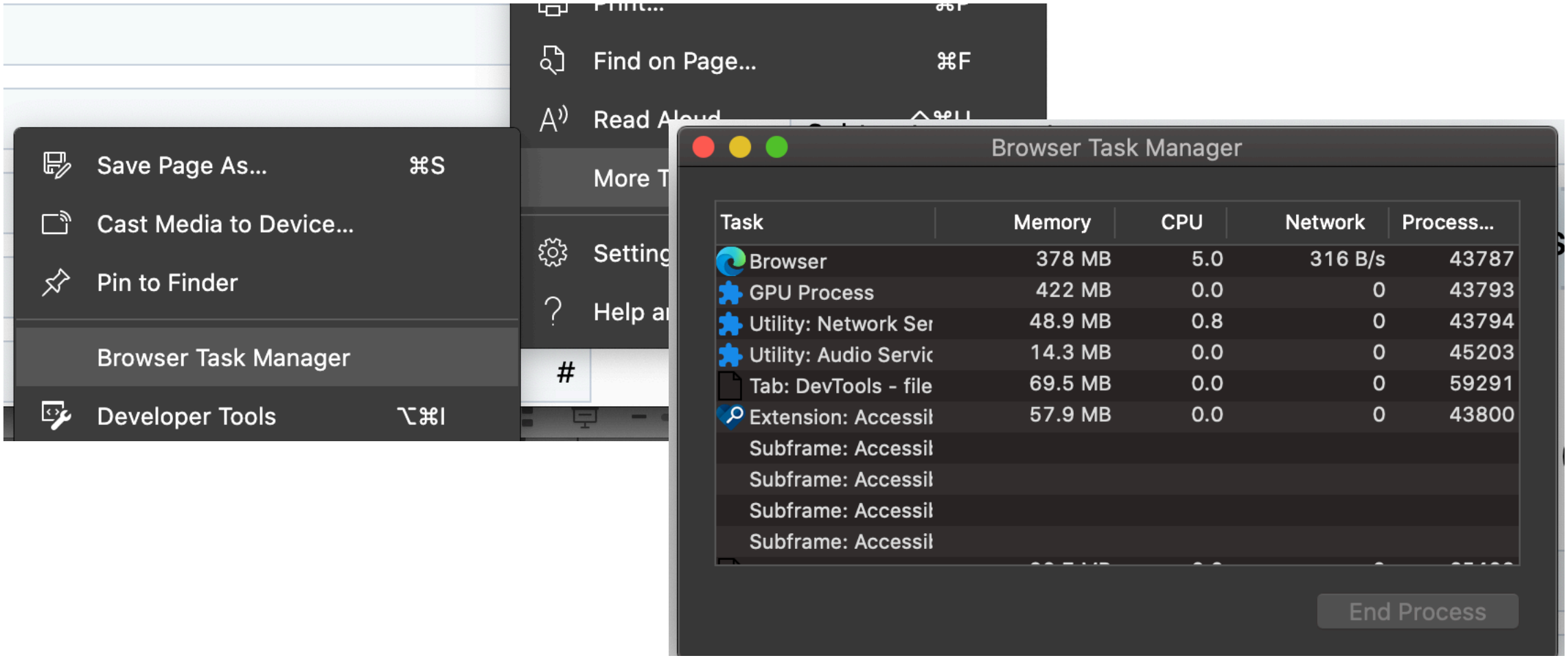
Process Name	% CPU	CPU Time	Threads	Idle Wake-Ups	% GPU	GPU Time	PID	User
Activity Monitor	12,1	5:45:44,90	6	4	0,0	0,00	416	chrisheilmann
Microsoft PowerPoint	3,7	32:24,81	48	68	0,4	4:16,85	43688	chrisheilmann
Microsoft Edge	3,5	45:51,27	85	5	0,0	0,00	43787	chrisheilmann
Microsoft Teams Helper	3,3	11:54,70	14	179	0,0	0,00	66127	chrisheilmann
Firefox	3,2	6:30:21,10	81	27	0,0	42:09,12	900	chrisheilmann
Microsoft Teams	3,2	13:26,26	40	188	0,0	0,00	66079	chrisheilmann
FirefoxCP Web Content	3,1	3:56:41,37	37	97	0,0	0,00	1106	chrisheilmann
FirefoxCP Web Content	2,2	2:52:56,53	37	24	0,0	0,00	1103	chrisheilmann
iconservicesagent	2,1	1:29,30	5	0	0,0	0,41	370	chrisheilmann
Microsoft Edge	1,8	44:27,67	80	35	0,0	0,00	44060	chrisheilmann
Code Helper (GPU)	1,7	30:15,42	8	12	0,0	6:01,97	56760	chrisheilmann
Electron Helper (Renderer)	1,5	20:33,80	22	15	0,0	0,00	56763	chrisheilmann
Microsoft Outlook	1,1	54:55,94	28	12	0,0	3,90	44503	chrisheilmann
FirefoxCP Web Content	0,8	5:41,07	28	21	0,0	0,00	60390	chrisheilmann
FirefoxCP Web Content	0,7	11:32,43	35	16	0,0	0,00	52567	chrisheilmann
Hemingway Editor	0,6	7:58,25	30	0	0,0	0,00	410	chrisheilmann
DashlaneAgent	0,5	13:20,85	9	17	0,0	0,00	42804	chrisheilmann
Microsoft OneNote	0,5	28:05,53	66	13	0,0	0,00	5461	chrisheilmann
DashlanePluginService	0,4	11:53,77	9	17	0,0	0,00	42805	chrisheilmann
Microsoft Edge Helper	0,4	16:44,42	11	4	0,0	0,00	44069	chrisheilmann
Dropbox	0,4	21:06,45	141	13	0,0	0,00	13070	chrisheilmann
Microsoft Edge Helper (Renderer)	0,4	25:51,26	20	2	0,0	0,00	44938	chrisheilmann
AXVisualSupportAgent	0,3	13:53,72	5	10	0,0	0,00	340	chrisheilmann
FirefoxCP Web Content	0,2	6:16,82	27	4	0,0	0,00	62134	chrisheilmann
sharedfilelistd	0,2	9,59	3	0	0,0	0,00	351	chrisheilmann
Microsoft Edge Helper (Renderer)	0,2	6:00,94	17	10	0,0	0,00	44073	chrisheilmann
FirefoxCP WebExtensions	0,2	23:53,72	28	2	0,0	0,00	914	chrisheilmann
Code	0,2	7:51,25	29	2	0,0	0,00	56759	chrisheilmann

System:	11,94 %	CPU LOAD	Threads: 4.325
User:	15,06 %		Processes: 600
Idle:	73,00 %		

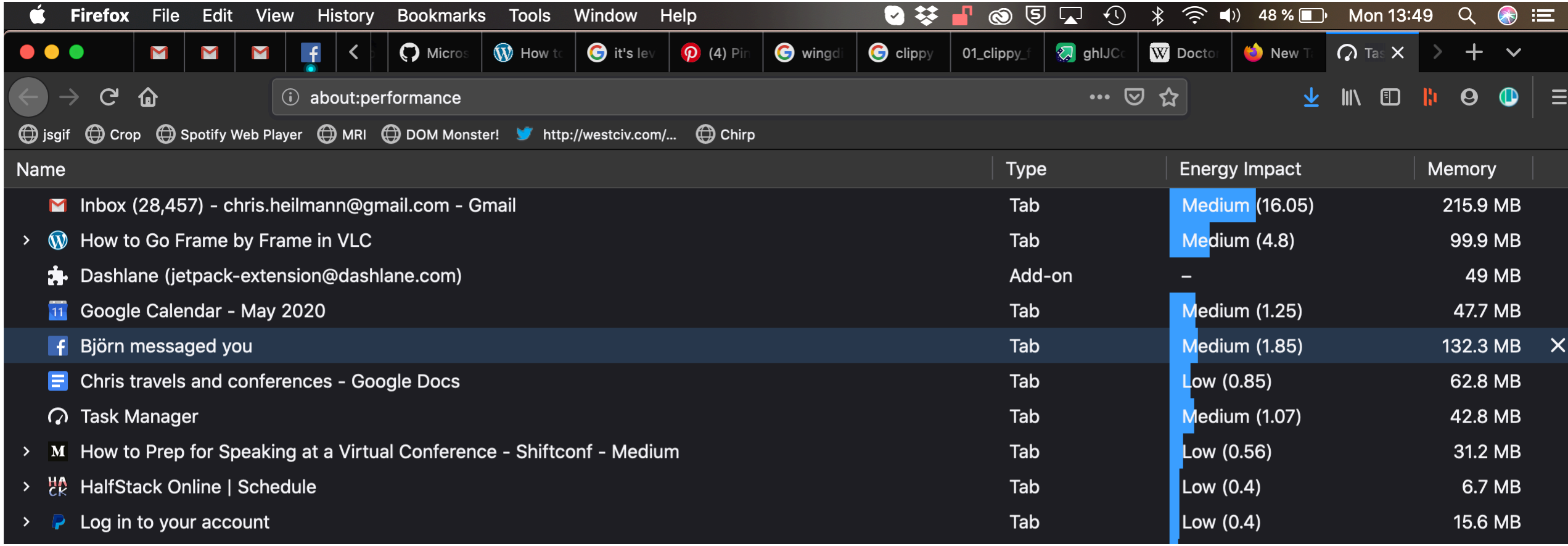
Browser task manager!



Where did my resources go?



Hat tip: also in Firefox!



How the sausage is made…

Innovation in the open…

Microsoft Edge Explainers

https://github.com/MicrosoftEdge/MSEdgeExplainers

Welcome! This repo is home to "explainers" and related documents originating from the Microsoft Edge team.

Jump to section: Active Explainers | Alumni | DevTools | Other documents | Withdrawn

Introduction

Explainers are documents focused on describing a user/ developer/ customer problem (at a high level) and exploring potential solutions. These documents are starting points for engaging in discussion with you and other members of the community. Explainers should address their stated problems in clear and easy to understand language. Proposed solutions should be easy to follow and not too deep in technical details. When you read an explainer, we hope the stated problem is compelling and you can form an opinion for whether the proposed solution would address the problem.

Please provide feedback

We are looking for feedback! Are the stated problems relevant to you? How have they impacted your experience? Do the proposed solutions seem reasonable? Do they follow good web principles? Would they solve a problem you currently have? (We love to hear that; tell us more about your scenario!) Do you have related use-cases we hadn't considered?

Detailed developer tools explainers

DevTools 🧰

We love our developer tools! Checkout these cool innovations being designed for the developer tools:

- 3D View
- CSS Grid Tooling
- Customizable Keyboard Shortcuts
- Dual-screen Emulation
- High Contrast Simulation
- Infobar UI Refresh
- Localization
- Redux for State
- Service Worker Improvements
- Settings Discoverability and Telemetry
- Settings Search
- Stackable Overlays
- webhint

https://github.com/MicrosoftEdge/MSEdgeExplainers

Discussion amongst browser makers

3D View for DevTools

File Edit View Insert Format Tools Add-ons Help See new changes

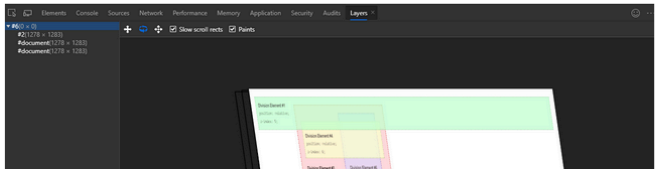
Share

100% Normal text Arial 11

Core user stories

- A developer can debug z-index by isolating an element from the webpage and following its stacking context hierarchy.
- A developer can find areas of the document that have deep DOM nesting.
- A developer can select a DOM element faster by clicking a box in the 3D View than by expanding the Elements xml tree.

The Layers panel has a different purpose that the proposed z-index view. It shows composition layers and its useful to debug repaints, in the screenshot below we can see the same webpage used on the example 1 for the z-index view in page 2.
This shows that all the elements were placed inside the same composition layer even when all of them have a different stacking context.



Yang Guo
5 Nov 2019
Resolve

What overlap does this feature have with the layers view? Could these two features be merged?

Show all 5 replies

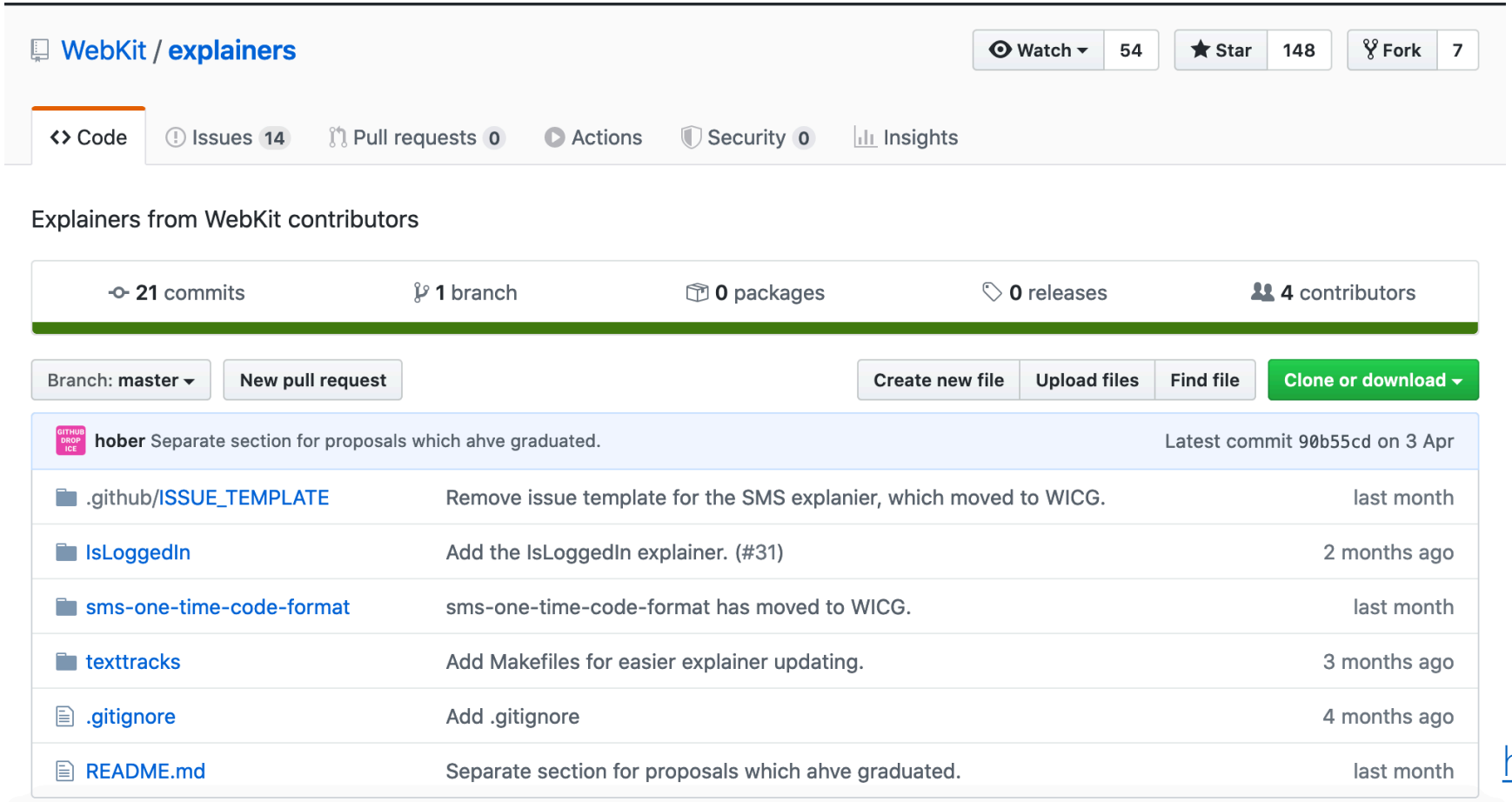
Benedikt Meurer
10 Nov 2019

I'm also still very much concerned that this will be yet another different thing to worry about for developers. Can we

Show more

Benedikt Meu...

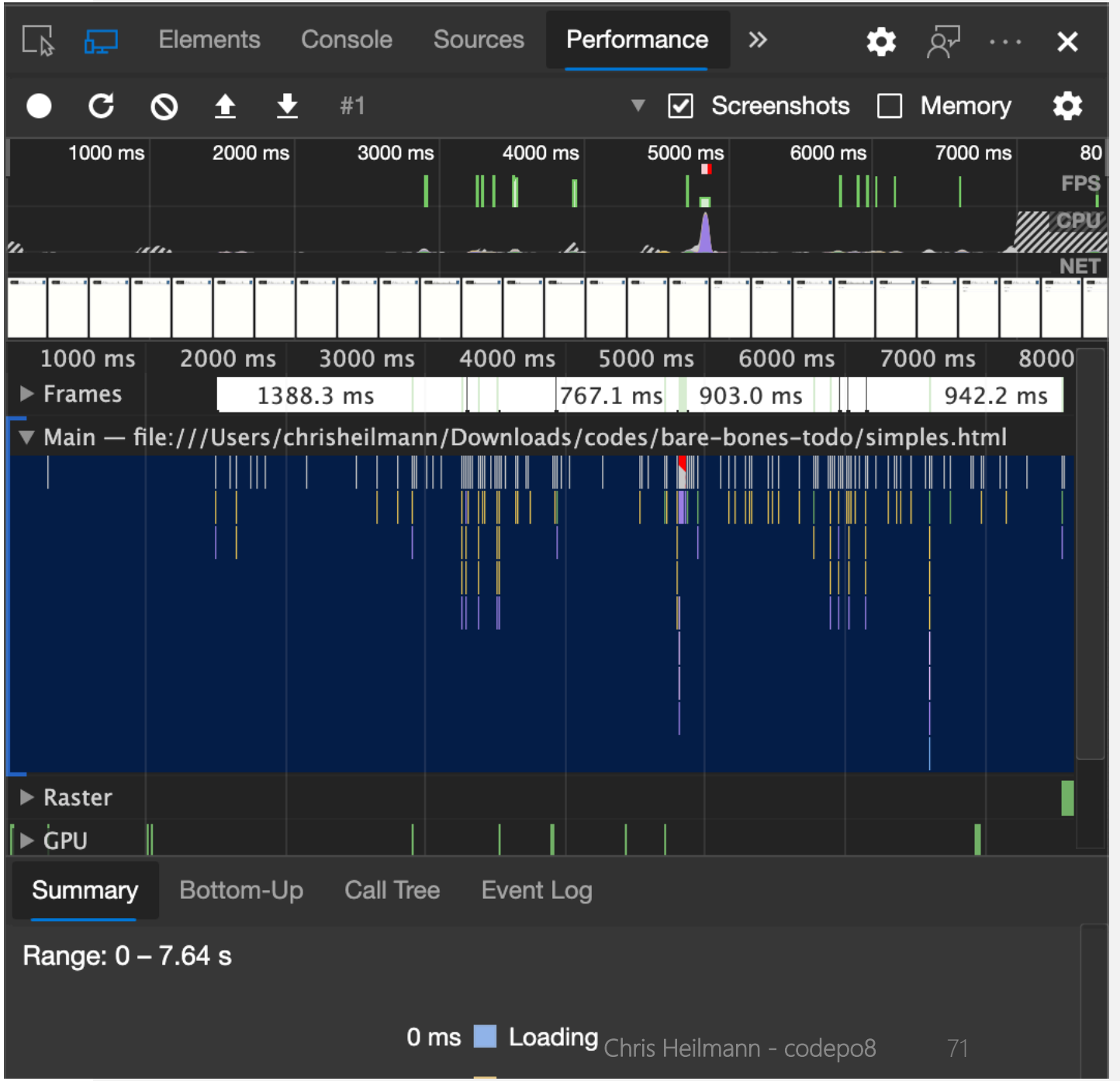
Others join, too!

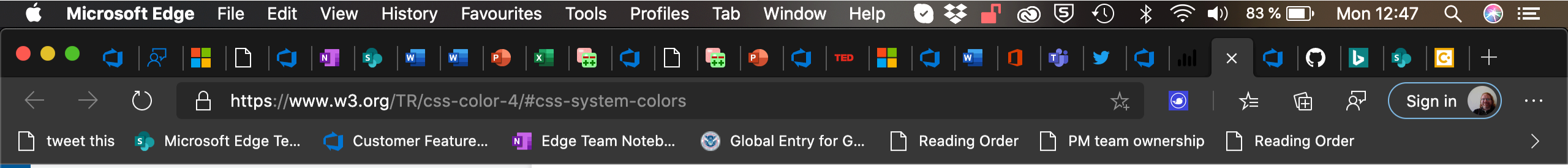


https://github.com/WebKit/explainers

Popping the hood…

What are developer tools made of?





W3C Working Draft

TABLE OF CONTENTS

Authors *may* also use these keywords at any time, but *should* be careful to use the colors in matching background-foreground pairs to ensure appropriate contrast, as any particular contrast relationship across non-matching pairs (e.g. 'Canvas' and 'ButtonText') is not guaranteed.

The <system-color> keywords are defined as follows:

'Canvas'
Background of application content or documents.

'CanvasText'
Text in application content or documents.

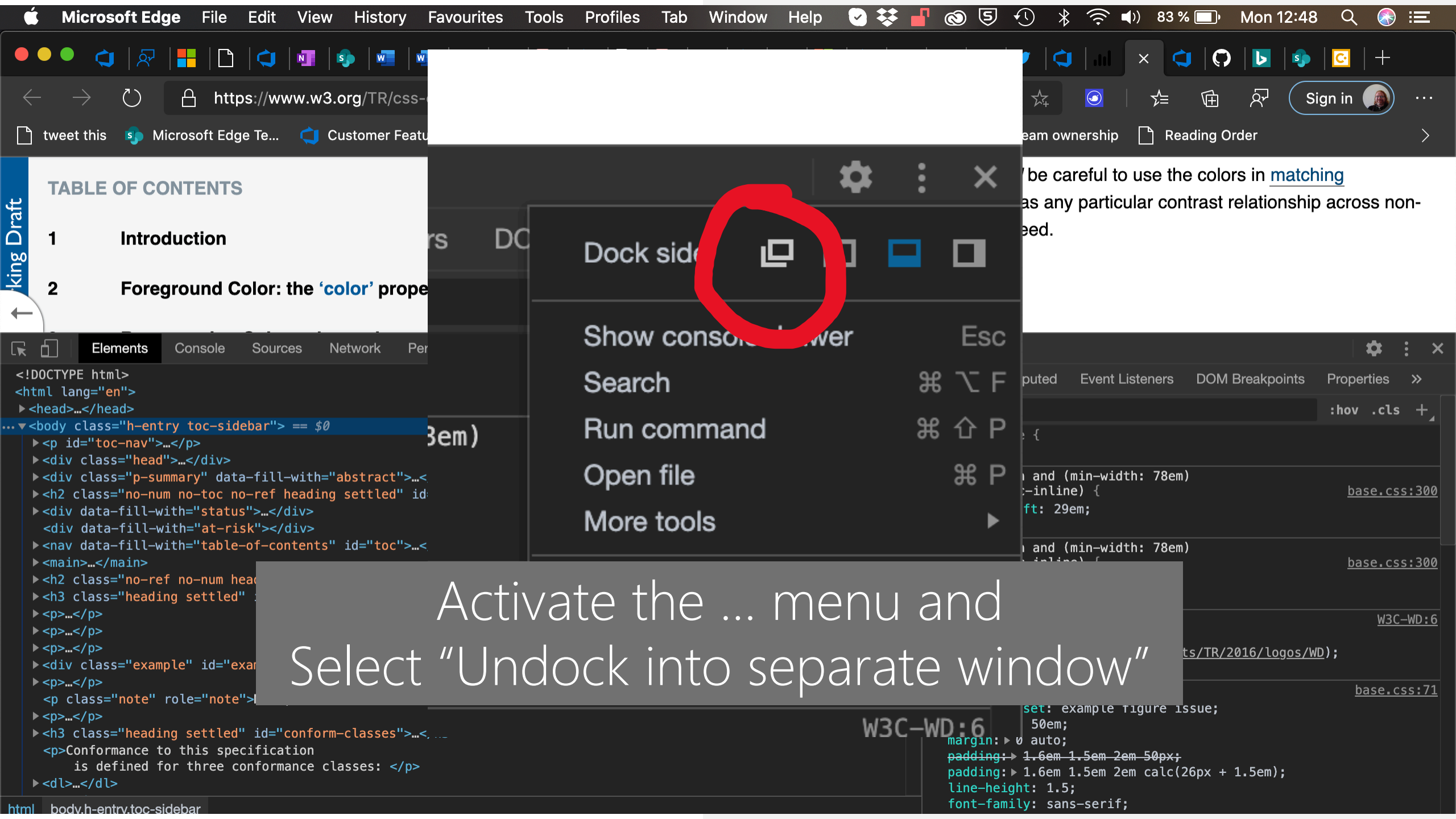
'LinkText'
Text in non-active, non-visited links.

'VisitedText'

Open Developer Tools
(CMD+SHIFT+I on Mac or
F12/CTRL+SHIFT+I on Windows)

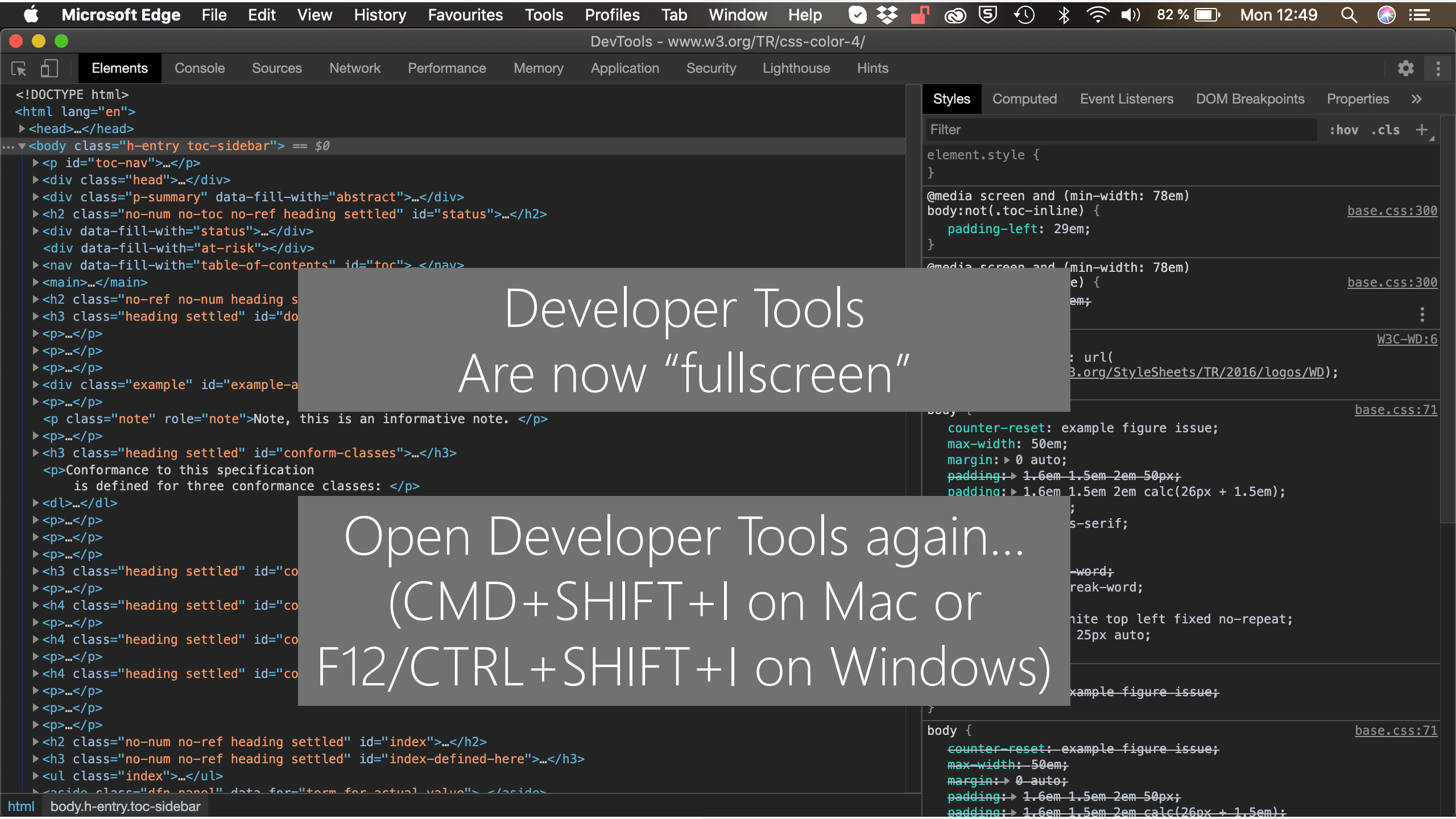
'Field'
Background of input fields.

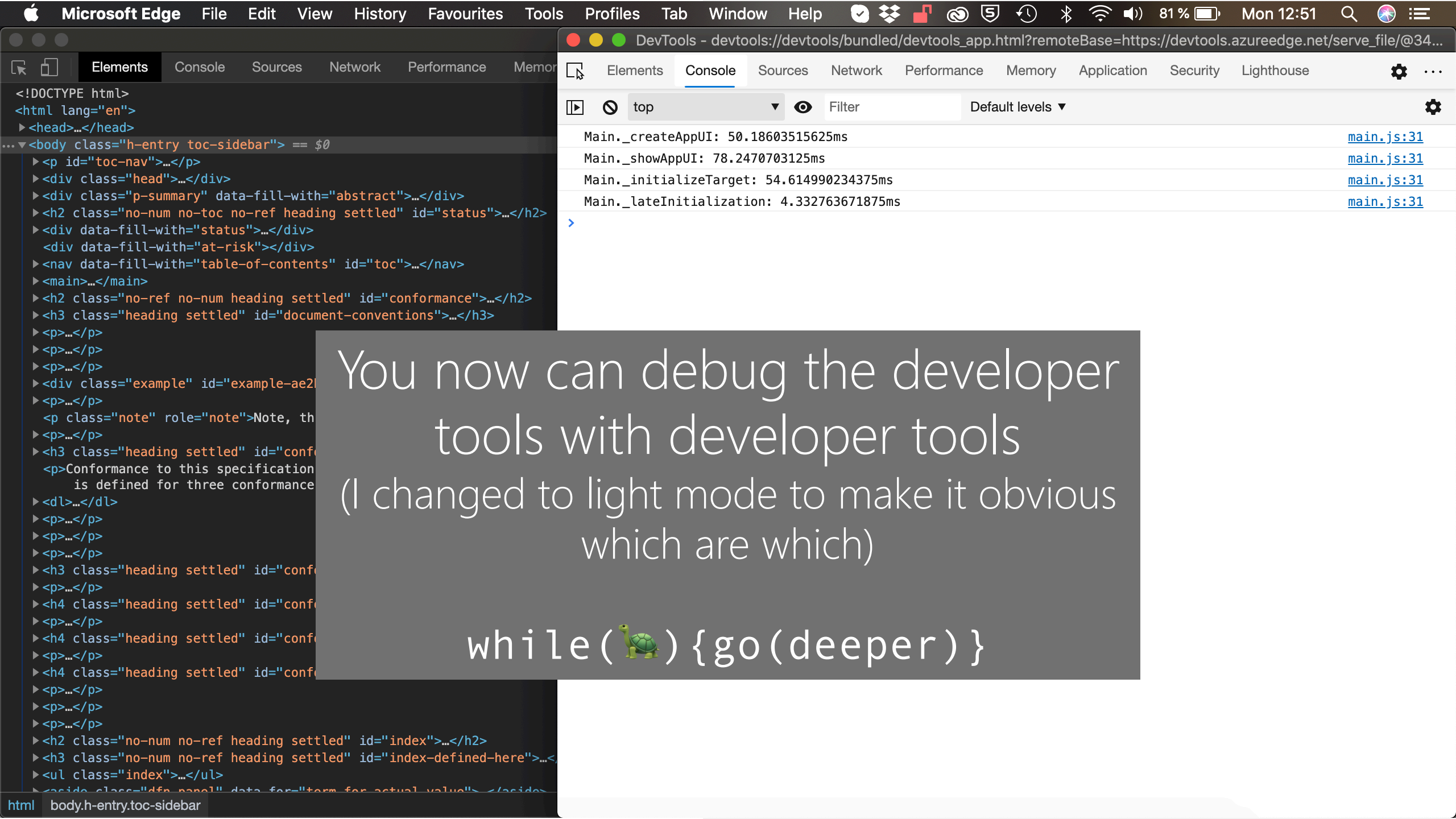
'FieldText'
Text in input fields.


Microsoft Edge File Edit View History Favourites Tools Profiles Tab Window Help
83 % Mon 12:48
https://www.w3.org/TR/css-
Sign in
tweet this
Microsoft Edge Te...
Customer Featu
eam ownership
Reading Order
TABLE OF CONTENTS
1 Introduction
2 Foreground Color: the 'color' prope
be careful to use the colors in matching
as any particular contrast relationship across non-
eed.
Dock side
Show console
Search
Run command
Open file
More tools
Esc
Elements
Console
Sources
Network
Event Listeners
DOM Breakpoints
Properties
<!DOCTYPE html>
<html lang="en">
<head>…</head>
<body class="h-entry toc-sidebar"> == $0
…
…
…
<h2 class="no-num no-toc no-ref heading settled" id
…

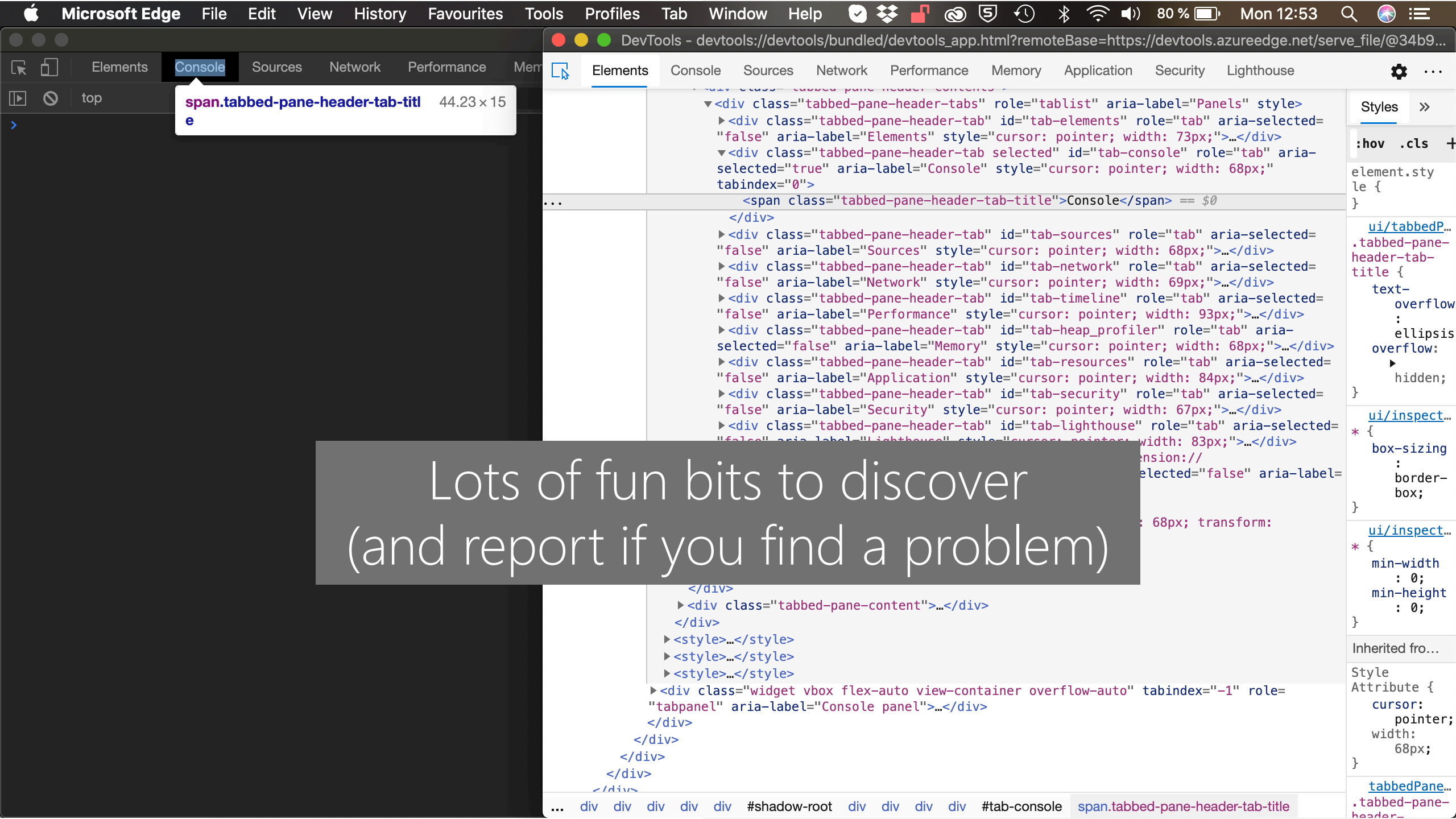
<nav data-fill-with="table-of-contents" id="toc">…
<main>…</main>
<h3 class="heading settled"
…
…
…
<div class="example" id="exa
…

…
<h3 class="heading settled" id="conform-classes">…
Conformance to this specification
is defined for three conformance classes:
<dl>…</dl>
:hov .cls
and (min-width: 78em)
base.css:300
W3C-WD:6
base.css:71
margin: 0 auto;
padding: 1.6em 1.5em 2em 50px;
padding: 1.6em 1.5em 2em calc(26px + 1.5em);
line-height: 1.5;
font-family: sans-serif;
html
body.h-entry.toc-sidebar
Activate the … menu and
Select "Undock into separate window"


Microsoft Edge File Edit View History Favourites Tools Profiles Tab Window Help
82 % Mon 12:49
DevTools - www.w3.org/TR/css-color-4/
Elements Console Sources Network Performance Memory Application Security Lighthouse Hints
Styles Computed Event Listeners DOM Breakpoints Properties
Filter :hov .cls
Developer Tools
Are now "fullscreen"
Open Developer Tools again...
(CMD+SHIFT+I on Mac or
F12/CTRL+SHIFT+I on Windows)
html body.h-entry.toc-sidebar


Microsoft Edge File Edit View History Favourites Tools Profiles Tab Window Help
81 % Mon 12:51
Elements Console Sources Network Performance Memor
<!DOCTYPE html>
<html lang="en">
<head>…</head>
<body class="h-entry toc-sidebar"> == $0
…
…
…
<h2 class="no-num no-toc no-ref heading settled" id="status">…</h2>
…

<nav data-fill-with="table-of-contents" id="toc">…</nav>
<main>…</main>
<h2 class="no-ref no-num heading settled" id="conformance">…</h2>
<h3 class="heading settled" id="document-conventions">…</h3>
…
…
…
…
Conformance to this specification
is defined for three conformance
<dl>…</dl>
…
…
…
…
…
…
…
…
…
…
<h2 class="no-num no-ref heading settled" id="index">…</h2>
<h3 class="no-num no-ref heading settled" id="index-defined-here">…
<ul class="index">…
html
body.h-entry.toc-sidebar
DevTools - devtools://devtools/bundled/devtools_app.html?remoteBase=https://devtools.azureedge.net/serve_file/@34...
Elements Console Sources Network Performance Memory Application Security Lighthouse
top
Filter
Default levels
Main._createAppUI: 50.18603515625ms main.js:31
Main._showAppUI: 78.2470703125ms main.js:31
Main._initializeTarget: 54.614990234375ms main.js:31
Main._lateInitialization: 4.332763671875ms main.js:31
You now can debug the developer tools with developer tools
(I changed to light mode to make it obvious which are which)
while(🐢){go(deeper)}


Microsoft Edge File Edit View History Favourites Tools Profiles Tab Window Help
80 % Mon 12:53
Elements Console Sources Network Performance Mem
top
span.tabbed-pane-header-tab-title
44.23 × 15
DevTools - devtools://devtools/bundled/devtools_app.html?remoteBase=https://devtools.azureedge.net/serve_file/@34b9...
Elements Console Sources Network Performance Memory Application Security Lighthouse
<div class="tabbed-pane-header-tabs" role="tablist" aria-label="Panels" style>
…

Console == $0

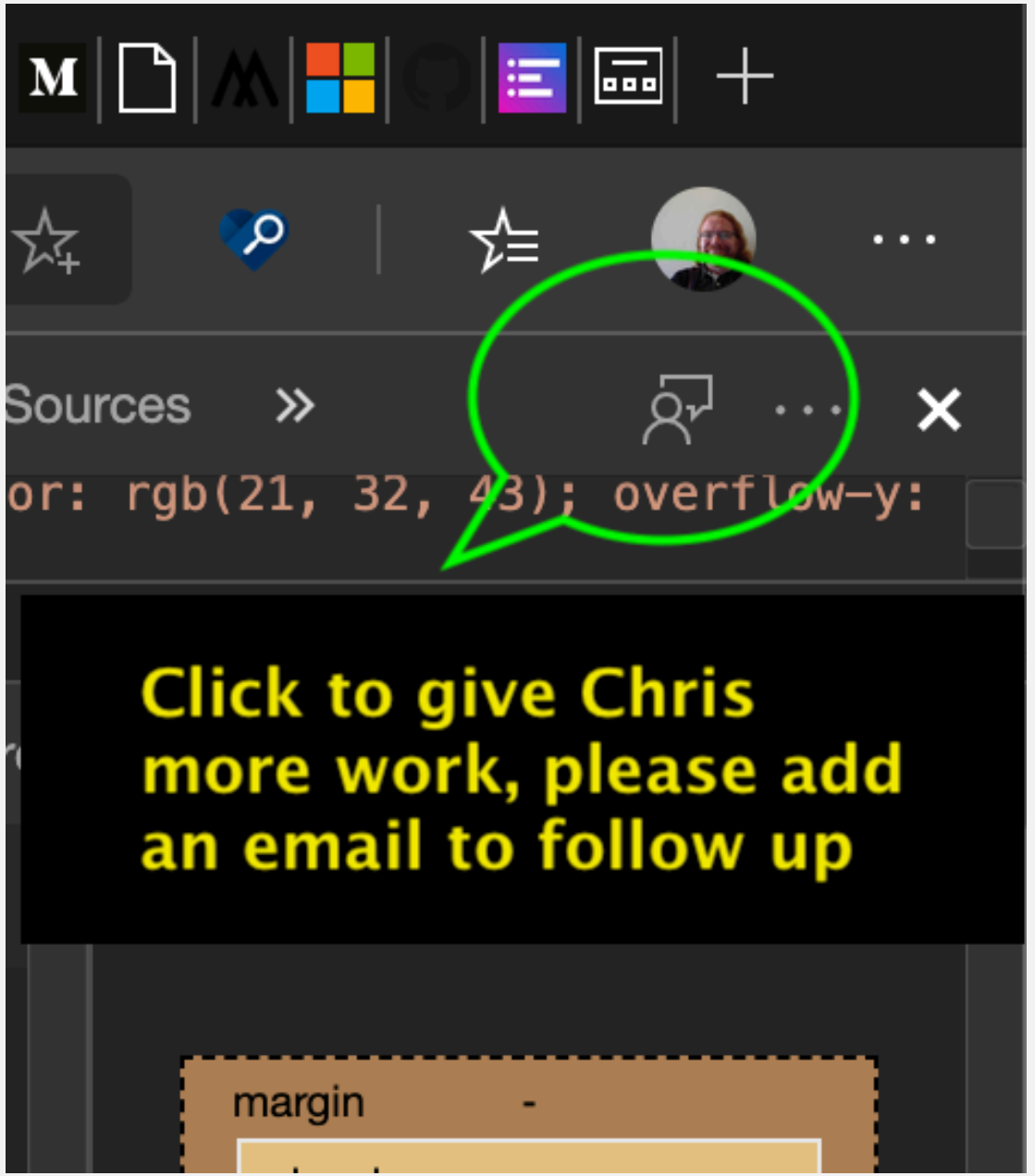
…
…
…
…
…
…
<div class="tabbed-pane-header-tab" id="tab-lighthouse" role="tab" aria-selected="
width: 83px;">…
ension://
elected="false" aria-label=
: 68px; transform:

…

<style>…</style>
<style>…</style>
<style>…</style>
…

Styles
:hov .cls +
element.style {
}
ui/tabbedP…
.tabbed-pane-header-tab-title {
text-overflow: ellipsis
overflow: hidden;
}
ui/inspect…
* {
box-sizing: border-box;
}
ui/inspect…
* {
min-width: 0;
min-height: 0;
}
Inherited fro…
Style Attribute {
cursor: pointer;
width: 68px;
}
tabbedPane…
.tabbed-pane-
div div div div div #shadow-root div div div div #tab-console span.tabbed-pane-header-tab-title
Lots of fun bits to discover
(and report if you find a problem)

In-built reporting tool...



What makes me happy?

What are developer tools made of?

- I like that we use web technology to build developer tools
- This makes them embeddable into other software (VS Code is an Electron shell with Monaco inside)
- It also allows us to build for the web on the web (CodePen, JSBin, Code Sandbox, Workspaces for GitHub)
- It is fun to work in them as you have a predictable environment – we can test upcoming web tech there.

Little touches that go a long way…

```
const doFormStuff = (ev) => {

};
```

Little touches that go a long way…

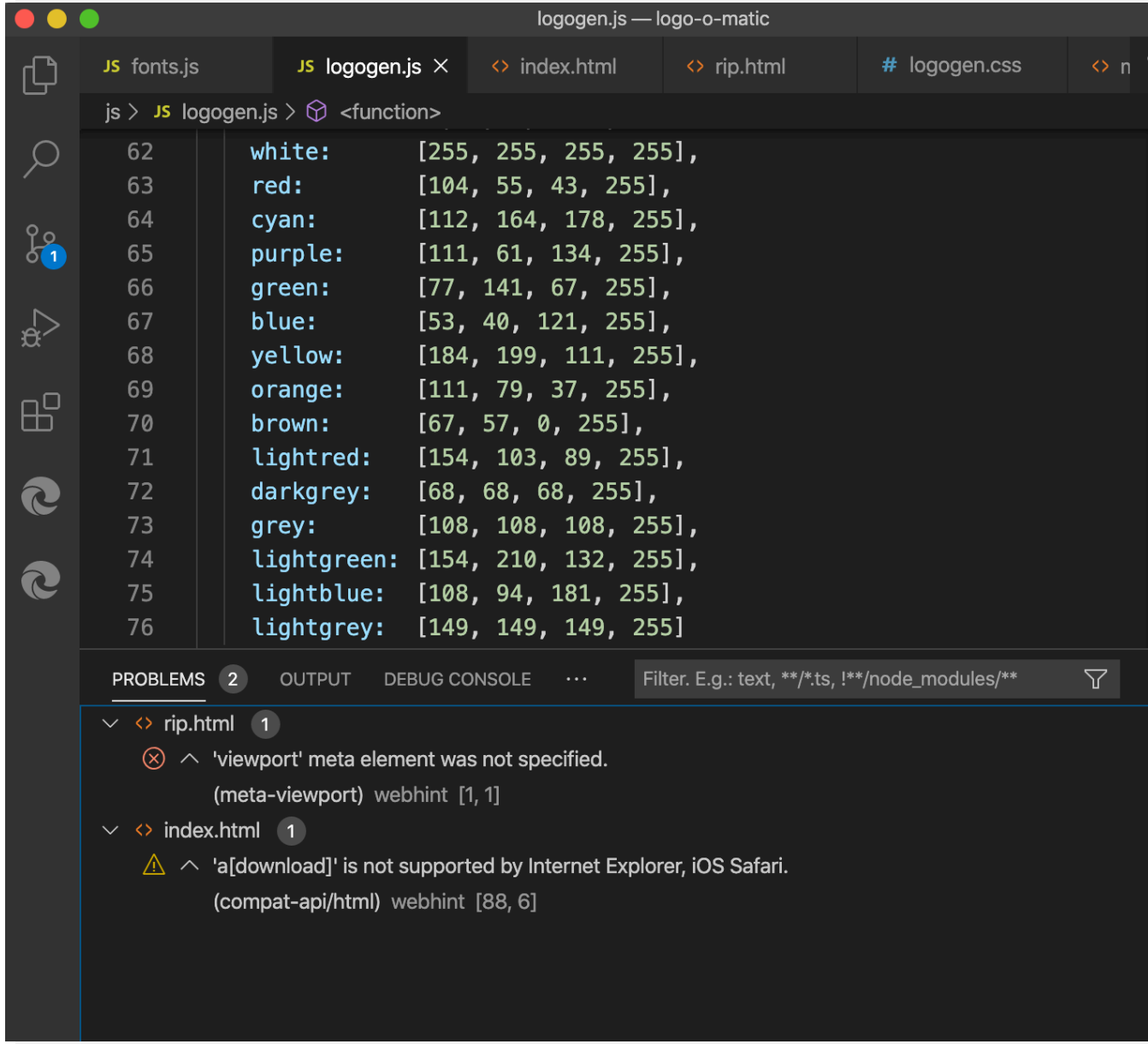
```
const doFormStuff = (ev) => {

};
```

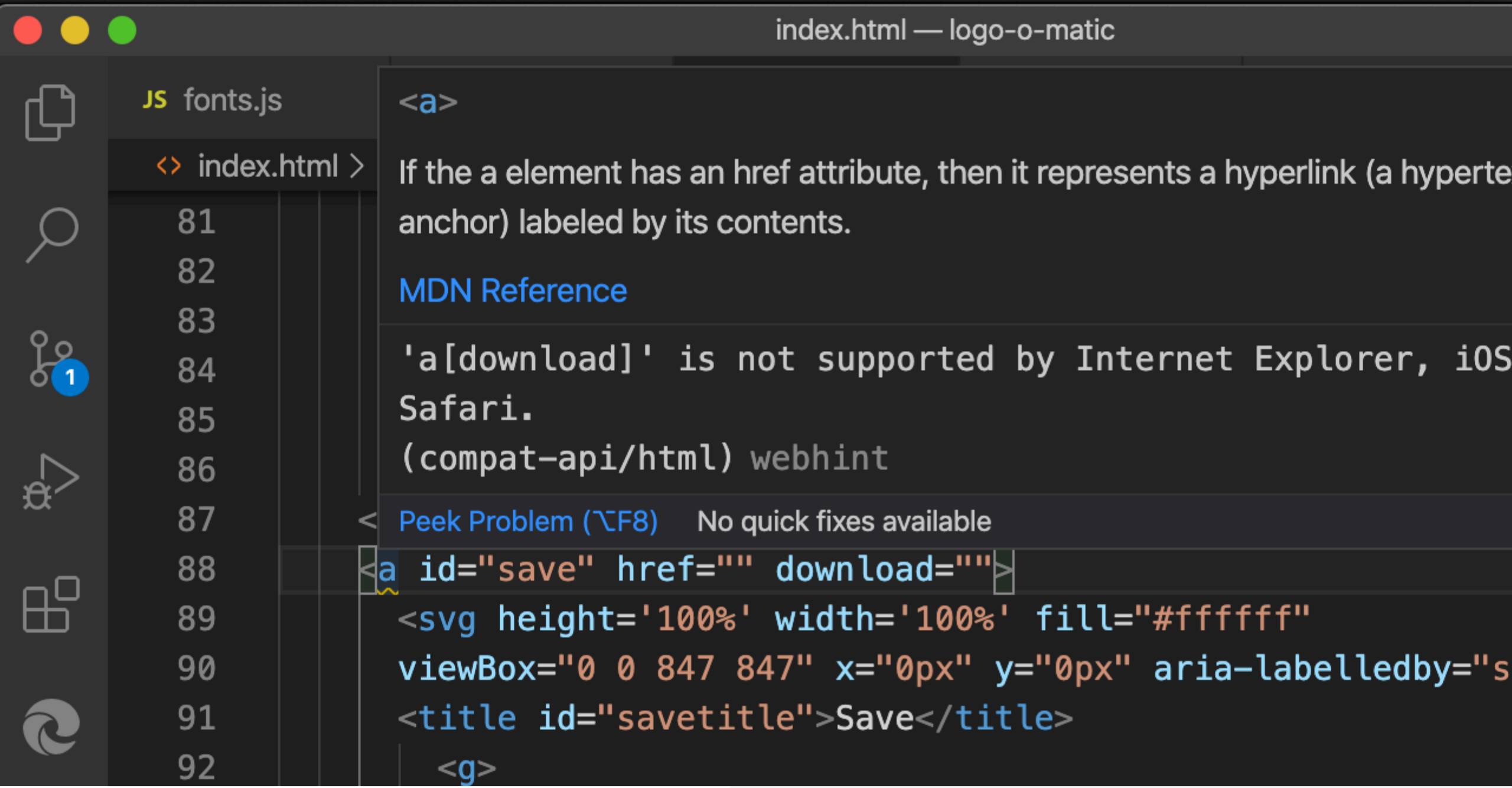
```
const doFormStuff = (ev) => {

};

document.querySelector('form').
  addEventListener('submit', doFormStuff);
```

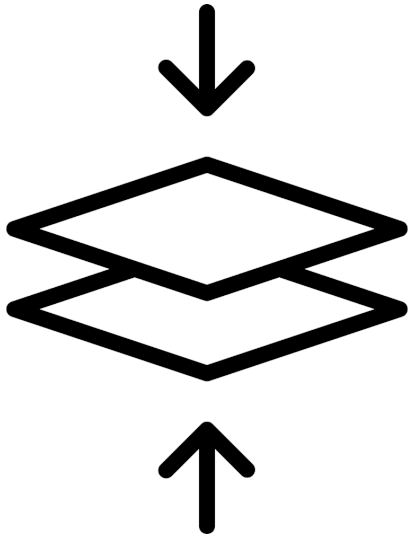
Webhint: testing and best practices

- Testing tool to check web projects for:
  - Accessibility issues
  - Performance problems
  - App readiness
  - Compatibility with standards
  - Common pitfalls to avoid
  - Security issues
- Online service (webhint.io) or node package to integrate in other tools
- Highly customisable

Webhint in VS Code

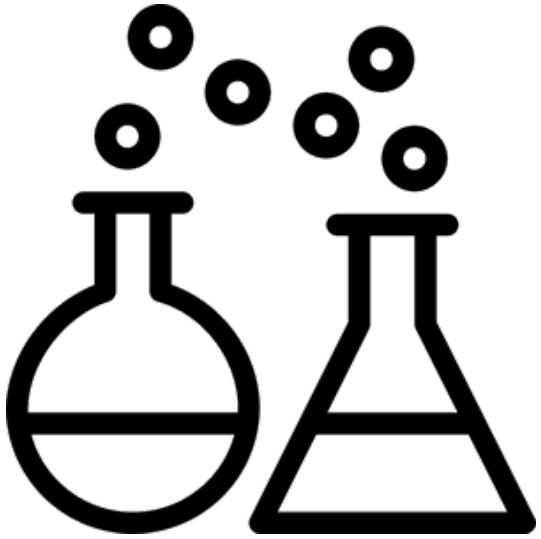



index.html — logo-o-matic
fonts.js
index.html
<a>
If the a element has an href attribute, then it represents a hyperlink (a hyperte
anchor) labeled by its contents.
MDN Reference
'a[download]' is not supported by Internet Explorer, iOS
Safari.
(compat-api/html) webhint
Peek Problem (⌥F8)
No quick fixes available
81
82
83
84
85
86
87
88
89
90
91
92
<a id="save" href="" download="">
<svg height='100%' width='100%' fill="#ffffff"
viewBox="0 0 847 847" x="0px" y="0px" aria-labelledby="s
<title id="savetitle">Save</title>
<g>



Merging of tools

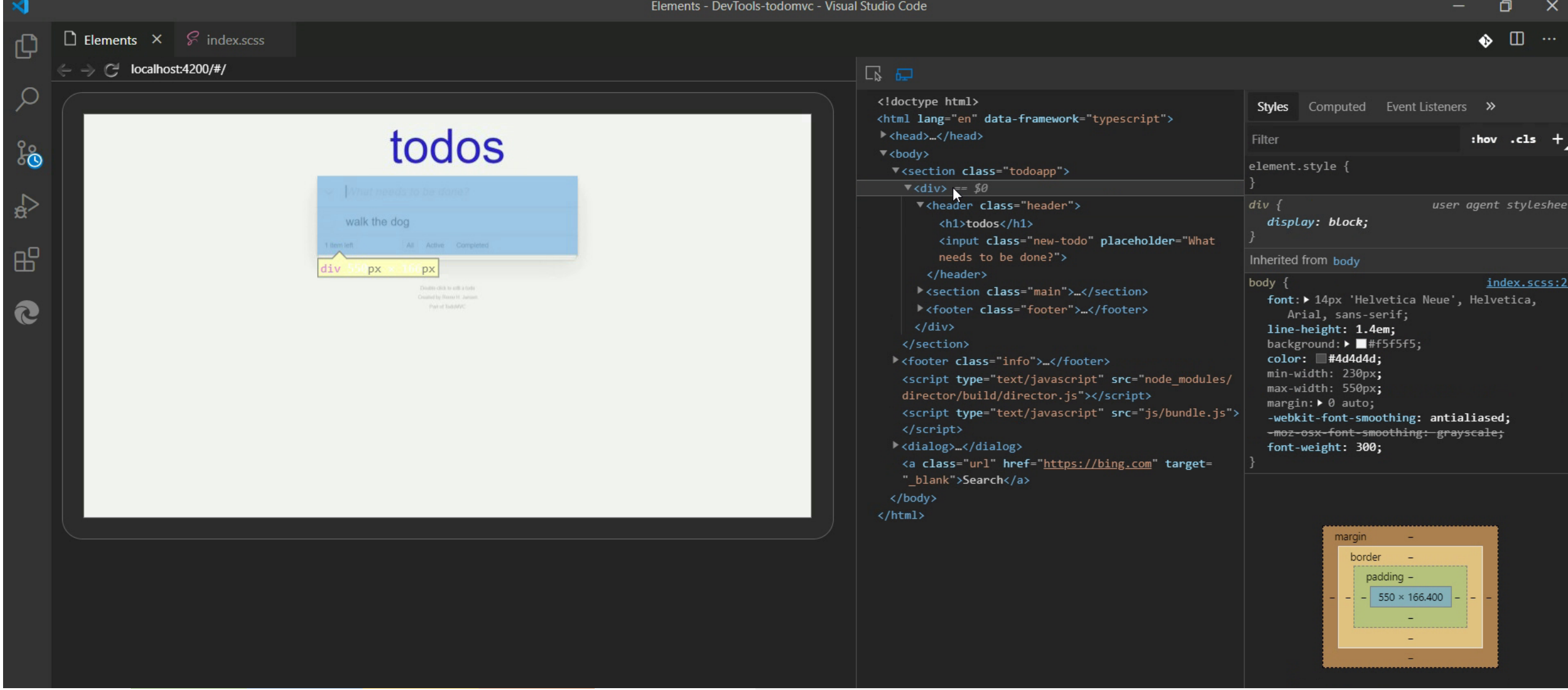
- VS Code is not only an editor, it also includes version control and a terminal
- This means I don't have to jump from one context to another to debug
- However… wouldn't it me cool to have Devtools in VS Code?



Devtools for Code

- Edge/Chromium developer tools inside VS Code
- No need to switch to the browser to try a few things out
- No need to replicate the same functionality in both places

aka.ms/elements4code



aka.ms/elements4code

Thanks – your voice matters!

Chris Heilmann

@codepo8

@EdgeDevTools

christianheilmann.com

Click the feedback in Edge developer tools!