

<feTurbulence>

&&

!important

Chris Heilmann

@codepo8
May 2019



Chris Heilmann @codepo8



- Principal Software Development Engineer
- Microsoft Edge and Developer Experience (VSCode, Devtools...)
- W3C Member WebML Discussion Group
- 20 years web developer
- eToys, Agilisys, Yahoo, Mozilla...
- Wrote 3 books, contributed to 10(?)...

Checking Twitter in the morning...



before



after



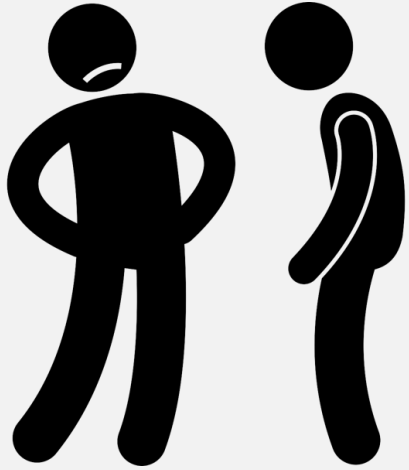
<feTurbulence>



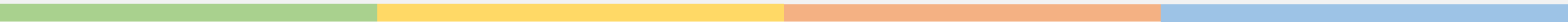
- JavaScript vs. CSS
- Frameworks vs. VanillaJS
- Brevity vs. maintainability
- Tooling vs. low barrier of entry
- Client vs. Server vs. Isomorphic
- Native vs. Web
- Mobile vs. Desktop
- Cats vs. Dogs

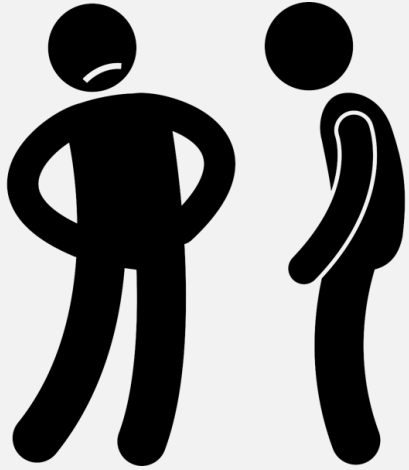
Things we say to
each other without
considering the
context...



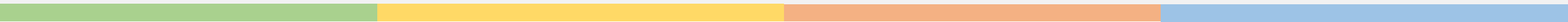


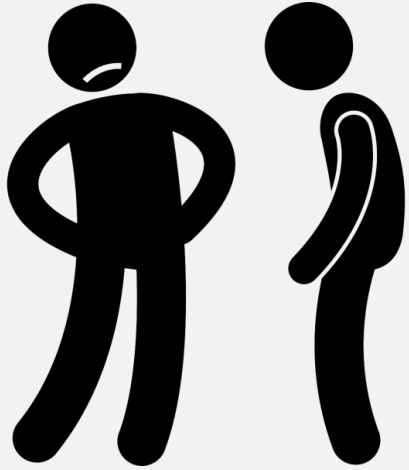
THIS DOES NOT WORK
WHEN THE DATA YOU PUT
IN IS IMPURE!



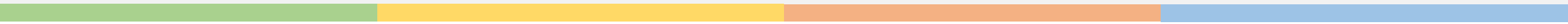


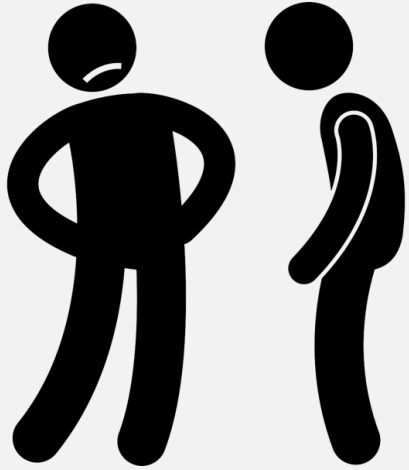
THIS DOESN'T PERFORM
WHEN YOU HAVE A LOT
OF DATA!



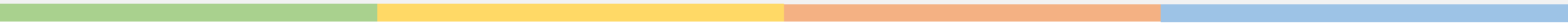


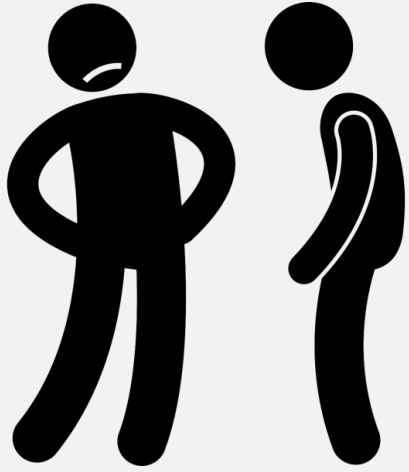
THIS coULD BE wrITten
mUch SHORTER!



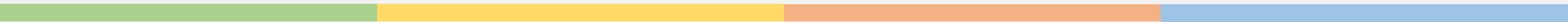


THIS dOeS NOt WORK iN
oLd BrOwSErS!



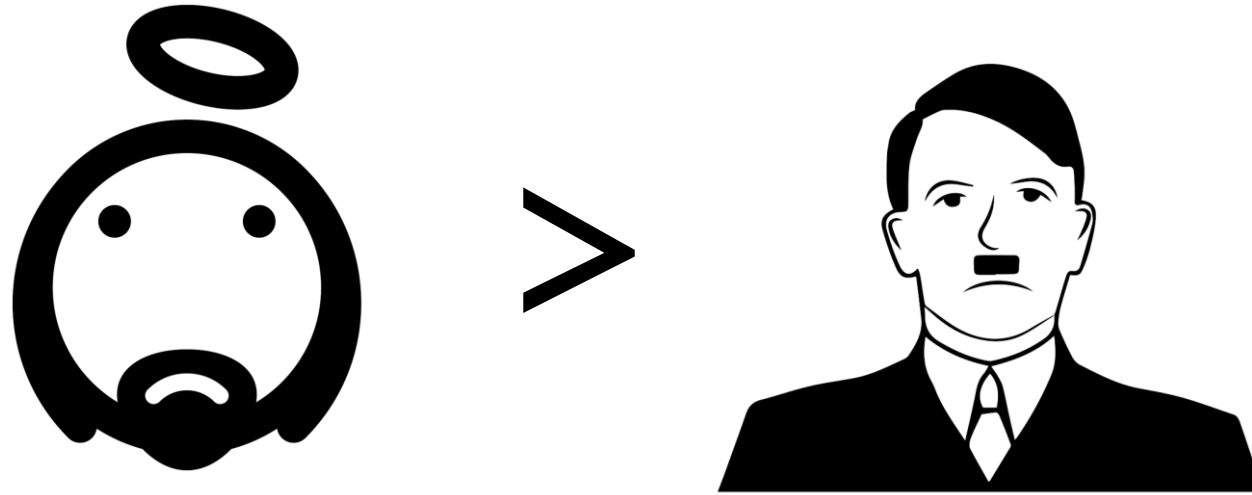


THIS IS nOT ACCeSSIbLe!



Knee-jerk reactions...





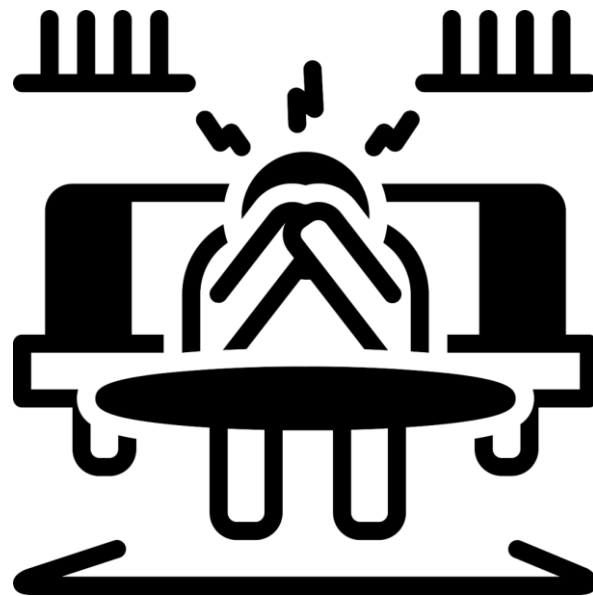
Create indefensible accusations by zooming out and disregarding circumstances





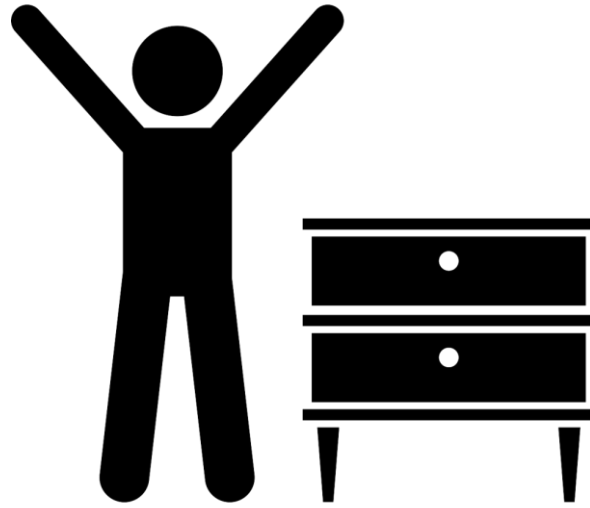
You look clever and caring for the web –
without doing any work!





Is that worth discouraging people?





Is the right place and time to argue for quality when the product is done?





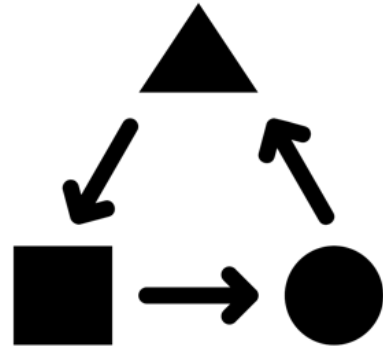
!important



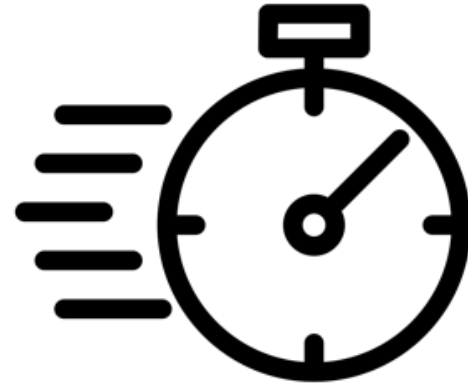
Things that should matter in a web product



Accessibility



Interoperability

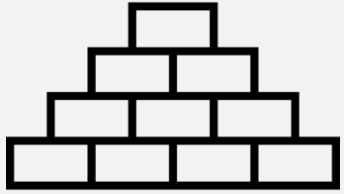


Performance



Security

HTML



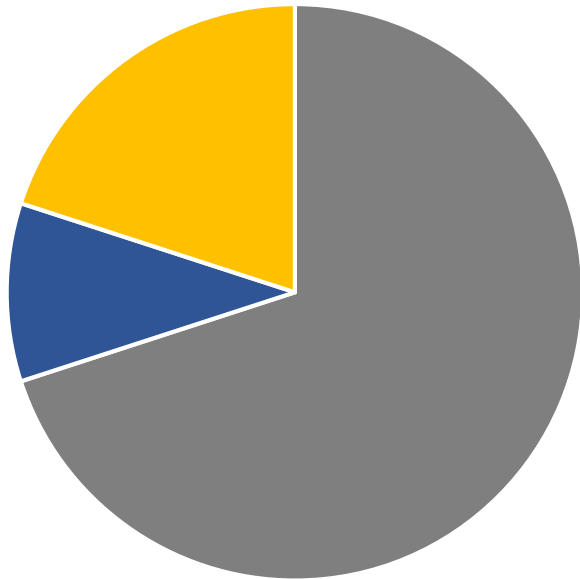
CSS



JavaScript

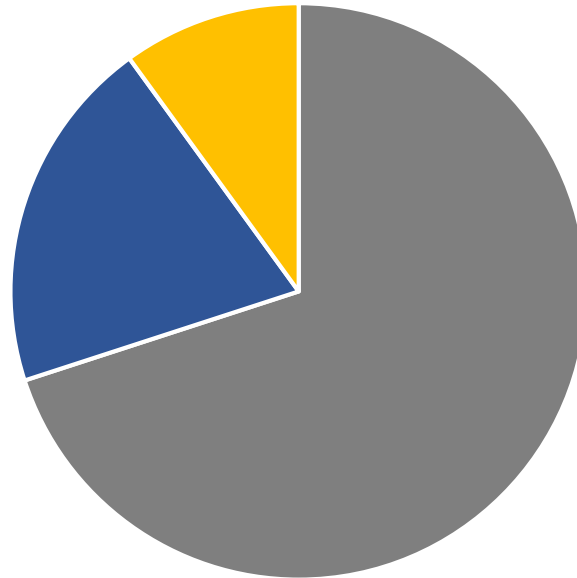


Responsibilities



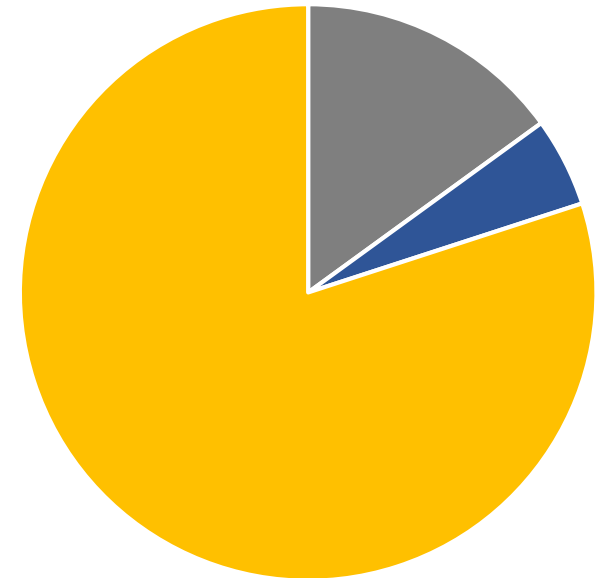
■ Browser ■ Standard ■ You

Responsibilities



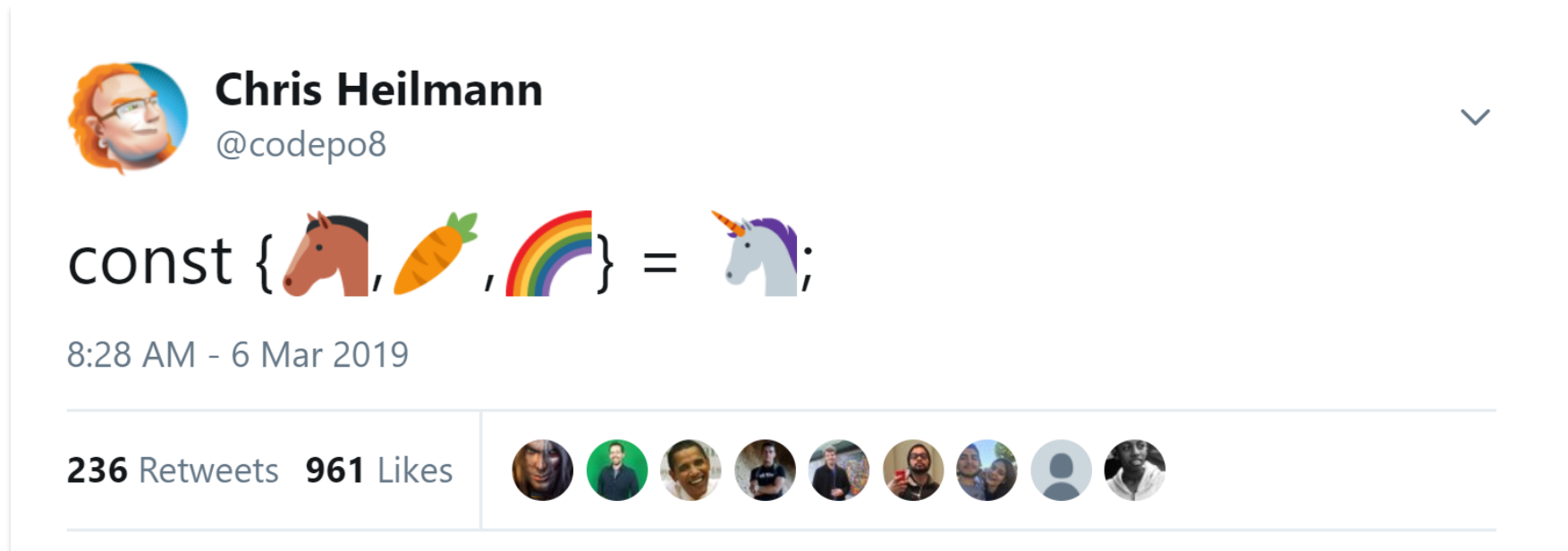
■ Browser ■ Standard ■ You


Responsibilities



■ Browser ■ Standard ■ You

We're well prepared to create magic...




 **Chris Heilmann**
@codepo8

const { 🐎, 🥕, 🌈 } = 🦄;

8:28 AM - 6 Mar 2019

236 Retweets 961 Likes



Browser tabs: (1) T | M CSS | All | S Gett | 3D F | S Privε | Why | * Acce | ↔ A hi | Incl | Wha | Emp | Clev | DEV The | Brea | Wha | Talk | Chri | Chri | Ken | Bro | x + -

Address bar: cityjsconf.org

Navigation: HOME SPEAKERS WORKSHOPS VENUE SCHOLARSHIPS SPONSORS BUY TICKETS

CITY OF LONDON JAVASCRIPT CONFERENCE CITYJS CONFERENCE

Network tab active. View: [Icons] Group by frame [] Preserve log [] Disable cache [] Offline [] No throttling [v]

Filter: [] Hide data URLs [All] XHR JS CSS Img Media Font Doc WS Manifest Other

Name	Status	Type	Initiator	Size	Time	Waterfall
img.png	200	png	e976186...js:2	(disk cache)	11 ms	[Bar]
halfstack-logo.png	200	png	e976186...js:2	(disk cache)	12 ms	[Bar]
aijs.png	200	png	e976186...js:2	(disk cache)	12 ms	[Bar]
jscamp_logo.png	200	png	e976186...js:2	(disk cache)	14 ms	[Bar]
jsnation.png	200	png	e976186...js:2	(disk cache)	16 ms	[Bar]
foundersandcoders.png	200	png	e976186...js:2	(disk cache)	16 ms	[Bar]
fontawesome-webfont.woff2?v=4.7.0	200	font	Other	(disk cache)	5 ms	[Bar]
TK3hWkUHHAJg75-ohoTus9C.woff2	200	font	Other	(disk cache)	3 ms	[Bar]
TK3iWkUHHAJg752GT8G.woff2	200	font	Other	(disk cache)	3 ms	[Bar]
sw.js	304	javascript	sw.js	0 B	167 ms	[Bar]

EXPLORER

3 OPEN EDITORS 3 UNSAVED

TYPOGRAPHY-CHEATSHEET

- github-toggle.html U
- index.html
- JS information.js
- LICENSE
- README.md
- # typography-cheatshe...
- JS typography-cheatshe...

OUTLINE

```

1  [(function(){
2  const setbanner = (msg, x, y) => {
3  →   let banner = document.querySelector('#banner');
4  →   banner.querySelector('span').innerText = msg;
5  →   let textwidth = banner.querySelector('span').offsetWidth;
6  →   if (x + textwidth > screen.width) { x = (screen.width - textwidth) - 50;}
7  →   banner.style.top = y + "px";
8  →   banner.style.left = x +
9  →   }
10 const setevehandlers = ()
11 →   let elements = document.querySelector('#elements');
12 →   elements.addEventListener('click', handleselect);
13 →   }
14 const handleselect = (ev) => {
15 →   if (['path', 'polygon', 'g'].indexOf(ev.target.nodeName.toLowerCase()) !== -1){
16 →     setbanner((information[ev.target.id]), ev.pageX, ev.pageY);
17 →     ev.preventDefault();
18 →   }
19 → };
20 const init = () => {
21 →   setevehandlers();
22 → }
23 init();
24 }]);

```

(method) ParentNode.querySelector<Element>(selectors: string): Element (+2 overloads)

Returns the first element that is a descendant of node that matches selectors.



😊 Set status

Christian Heilmann

codepo8

Senior Program manager for Microsoft working on Edge and anything JavaScript related. AI/ML fanboy. Not here for a new job.

📍 Berlin, Germany
✉ chris.heilmann@gmail.com
🌐 <http://christianheilmann.com>

Edit

Organizations



Overview **Repositories 226** Projects 0 Stars 110 Followers 1.8k Following 4

Find a repository... Type: All Language: All **New**

talk-checklist ★ Star

A checklist for presenters at conferences covering what is necessary and protecting you against possible issues

★ 19 🍴 2 📄 MIT License Updated 6 days ago



github-toggle ★ Star

A bookmarklet to toggle between Repo and GitHub pages

● HTML ★ 5 📄 Apache License 2.0 Updated on Mar 18



presenter-terms ★ Star

A no-nonsense explainer for conference organisers about my presenting terms and topics

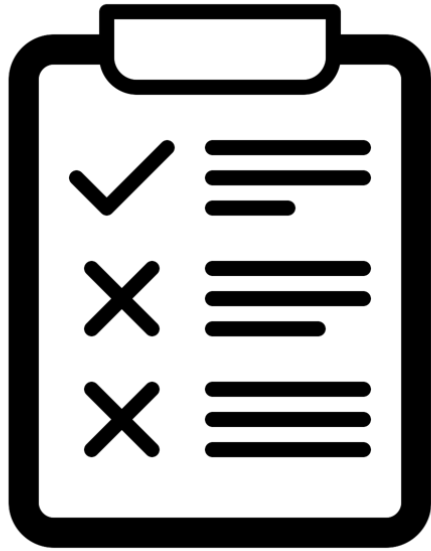
● HTML ★ 74 🍴 11 Updated on Mar 18



typography-cheatsheet ★ Star

An interactive version of Martin Silvertant's excellent Typography cheatsheet. Click the different highlighted sections to get their names





We're empowered
to write great things

- Highly optimised code
- Reusable, clean components
- Modular design systems
- Flexible APIs
- Asynchronous, streaming services
- Experimental, groundbreaking standard proposals
- Automation, task runners, bundlers...



Let's look past our world of conferences,
podcasts and magazines...

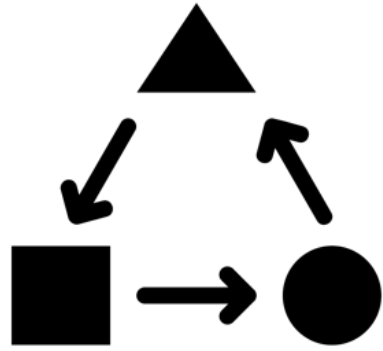




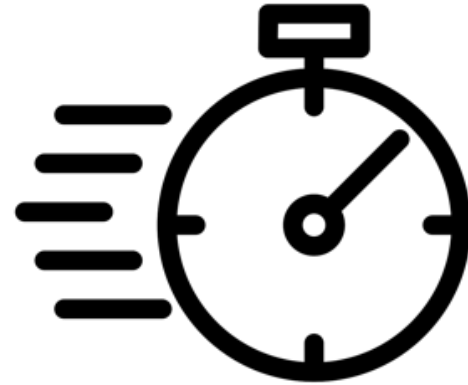
!given



Accessibility



Interoperability



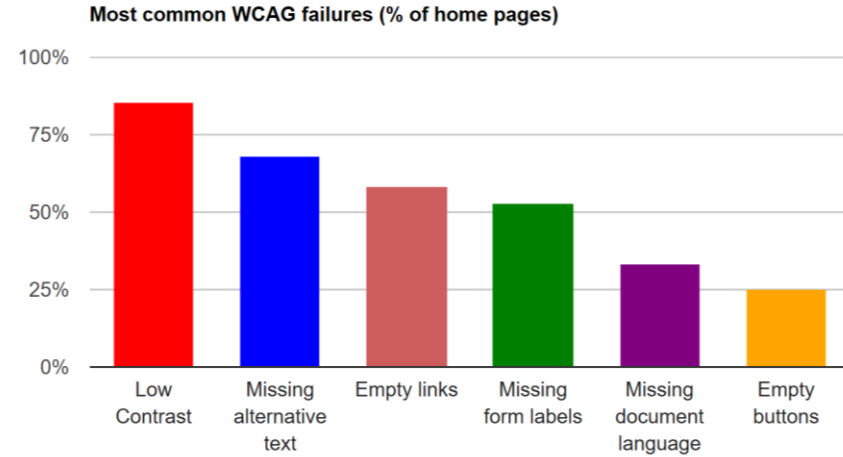
Performance



Security



Rampant accessibility failures...

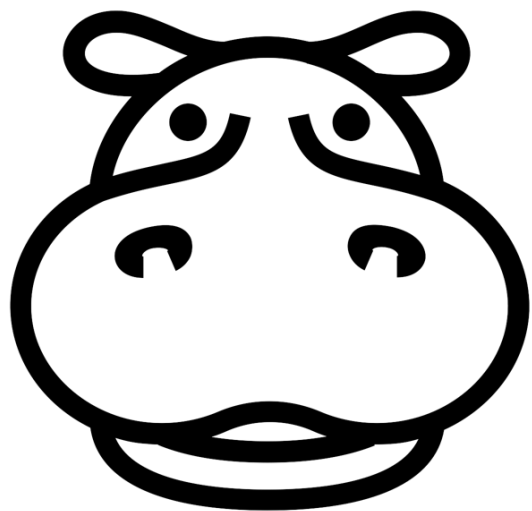


Most common types of WCAG 2 failures

WCAG Failure Type	# of home pages	% of home pages
Low contrast text	852,868	85.3%
Missing alternative text for images	679,964	68%
Empty links	581,408	58.1%
Missing form input labels	528,482	52.8%
Missing document language	329,612	33.1%
Empty buttons	250,367	25%

<https://majestic.com/reports/majestic-million>

<https://webaim.org/projects/million/>



Products full of
craft...



Katie Hempenius

@katiehempenius

Following



Page Weight Percentiles: overall & by resource type

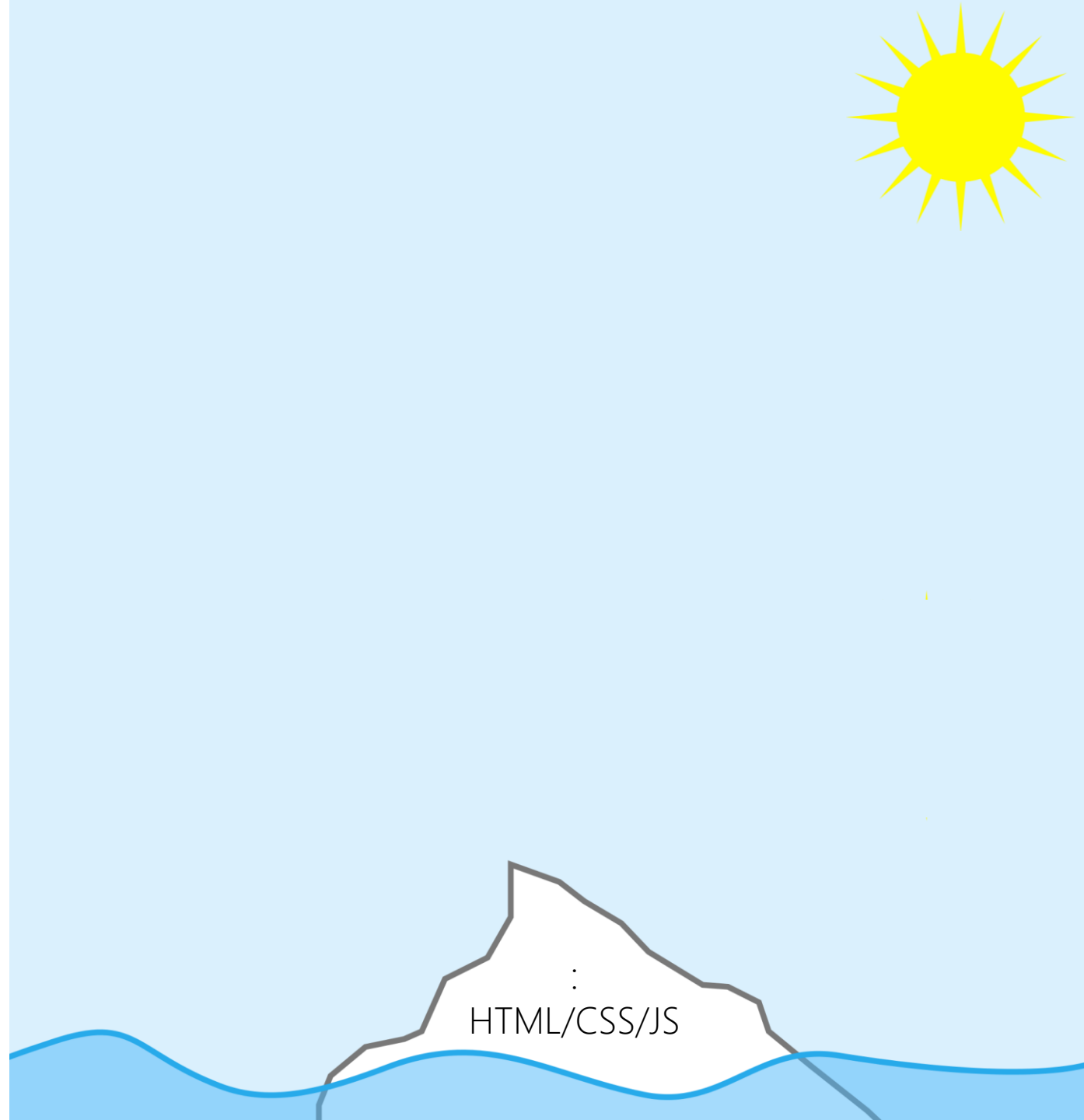
If one of these categories is super high for a site, it's often an indicator that there's "low hanging fruit" performance wins to be had by optimizing that resource type.

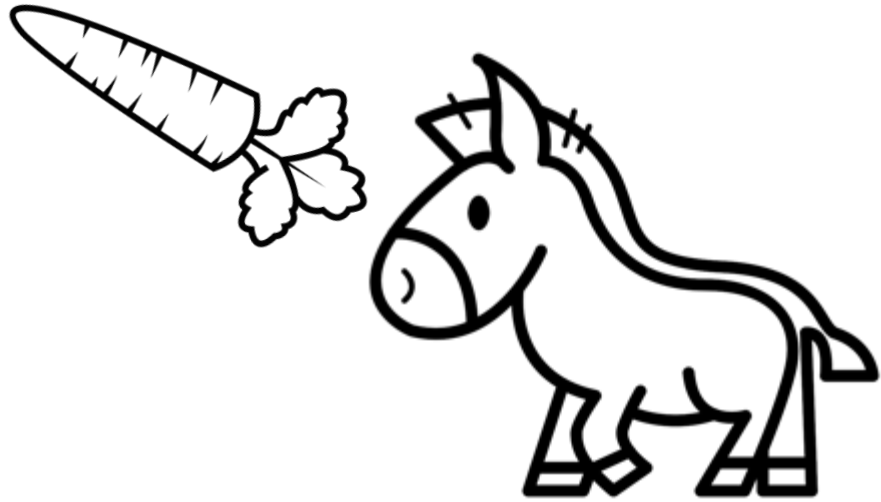
(Data source: [@HTTPArchive](#), Desktop Oct'18 data)

	Overall	Images	JS	Font	CSS	HTML
p90	5.8 MB	4 MB	1.2 MB	290 KB	200 KB	130 KB
p75	3 MB	1.8 MB	780 KB	170 KB	100 KB	60 KB
p50	1.5 MB	650 KB	420 KB	100 KB	50 KB	30 KB
p25	700 KB	180 KB	200 KB	50 KB	20 KB	10 KB
p10	280 KB	40 KB	90 KB	30 KB	10 KB	10 KB

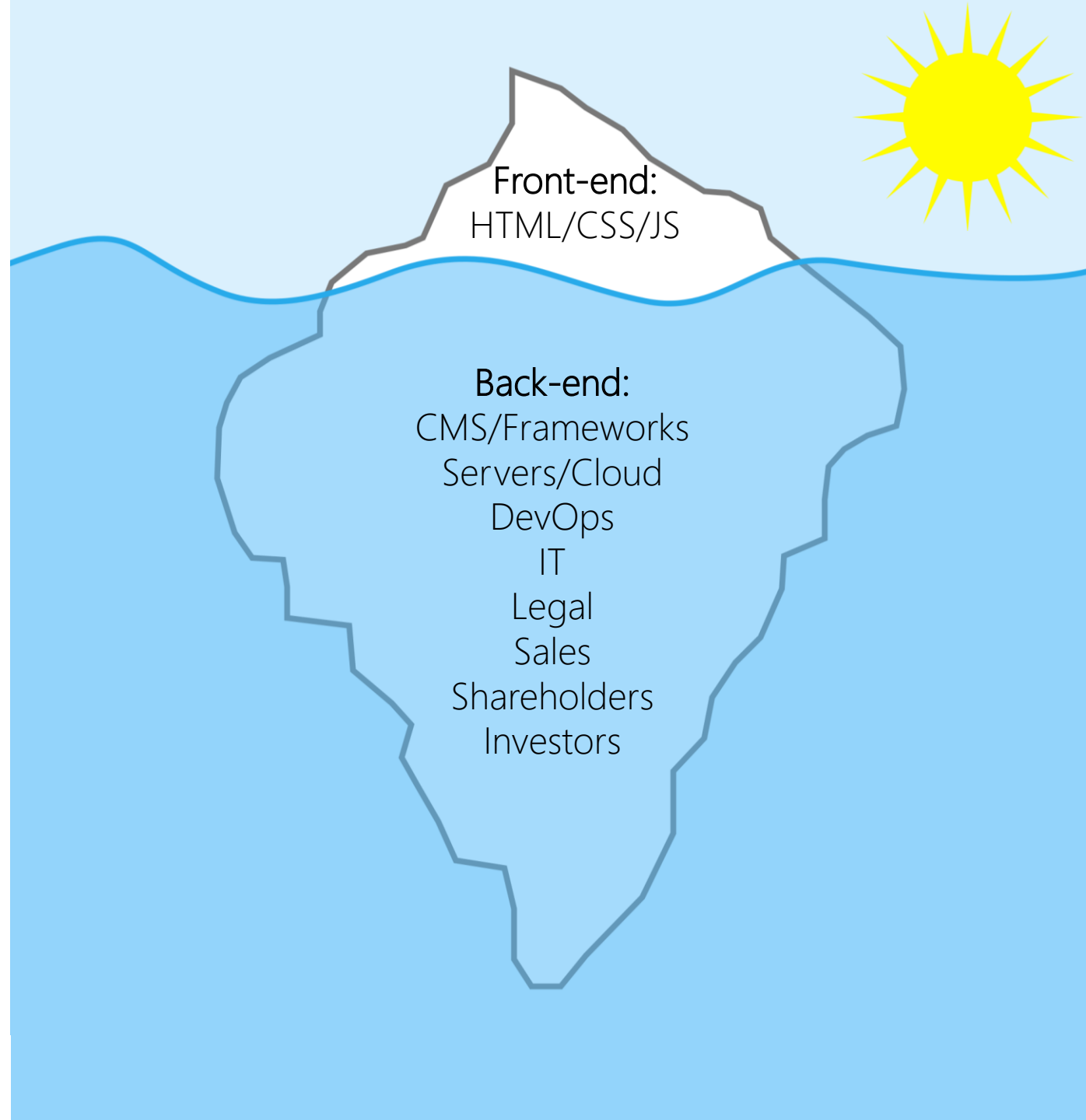


Web products stack





Realities of web products stack...



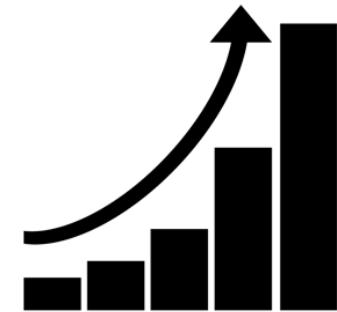
We're competing without knowing it...



Staying in budget
(time + money)



First to Market
(FTM)

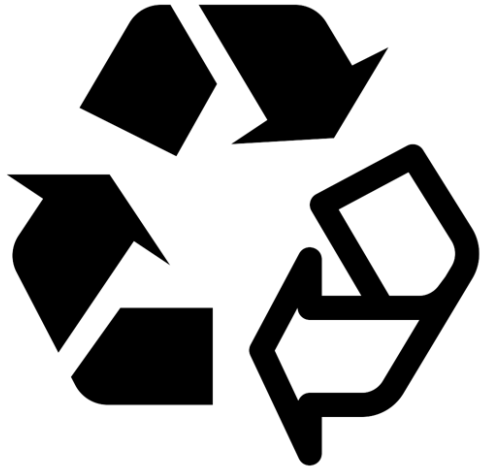


Continuous
growth

Budget = reckless re-use



Staying in budget
(time + money)



Let's start with a framework...



You Retweeted



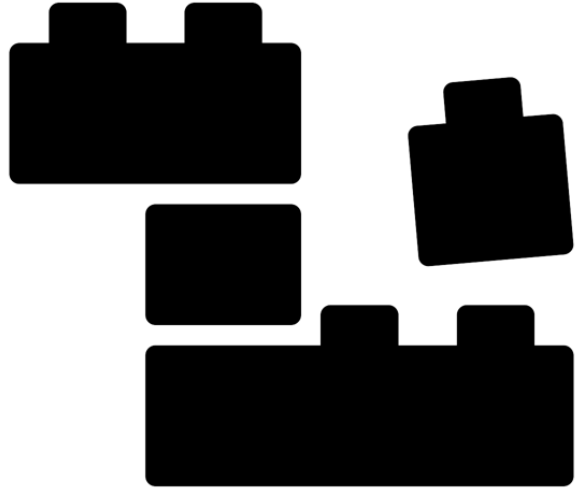
Dylan Beattie @dylanbeattie · Feb 20

```
$ create-react-app my-react-app  
$ cd my-react-app  
$ cloc .
```

Before you even open a text editor, your project contains 1.5 million lines of code. Most of it contributed by volunteers and enthusiasts. No formal review or release process.

This is 'normal' in modern web development.

Language	files	blank	comment	code
JavaScript	12193	204003	223944	1127134
Markdown	1755	71061	2	183288
JSON	1767	523	0	132948
TypeScript	1089	4499	24967	28653
HTML	55	108	30	8198
C/C++ Header	21	1148	347	5959
YAML	162	146	135	5121
XML	12	241	13	2271
CoffeeScript	27	591	51	1513
CSS	23	76	24	1412
Bourne Shell	8	173	129	902
make	23	209	197	670
C++	10	100	54	474
Windows Module Definition	5	88	0	442
Python	1	81	175	355
D	5	0	0	71
Handlebars	2	10	0	54
Bourne Again Shell	2	11	1	43
TOML	1	2	0	39
Lisp	1	0	0	6
DOS Batch	1	0	0	2
SUM:	17163	283070	250069	1499555



The web is
assembled, not
authored...



Katie Hempenius @katiehempenius · Feb 17
"27% of sites are 90-99% third party content"

By @paulcalvano w/ @HTTPArchive data

What is the distribution of 1st party vs 3rd party res...

The last time we looked at this query, we had 470K sites in the HTTP Archive. Now that we're upwards of 1.3 million, I was wondering whether this changed much. S...

discuss.httparchive.org

30% 35% 40% 45% 50% 55% 60% 65%
% of Third Party Content

38% of sites have between 75% and 99% 3rd party content

30 61

<https://discuss.httparchive.org/t/what-is-the-distribution-of-1st-party-vs-3rd-party-resources/100/14>

FTM = FML for quality



First to Market
(FTM)

MVP



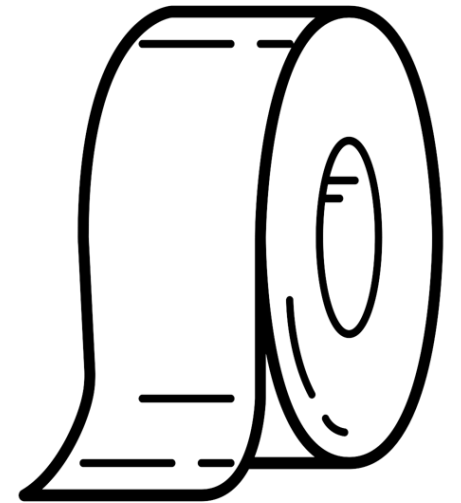
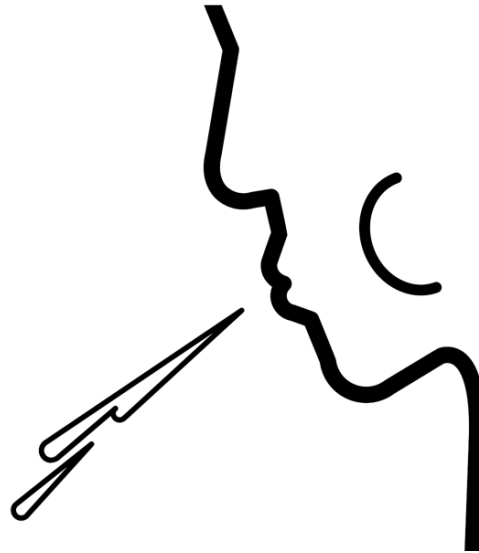
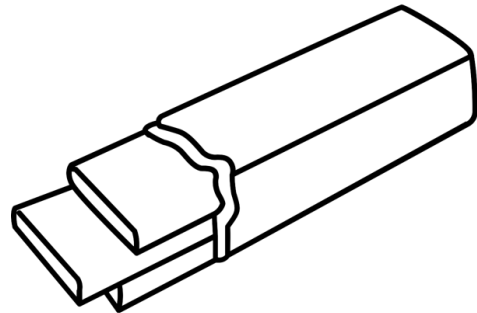
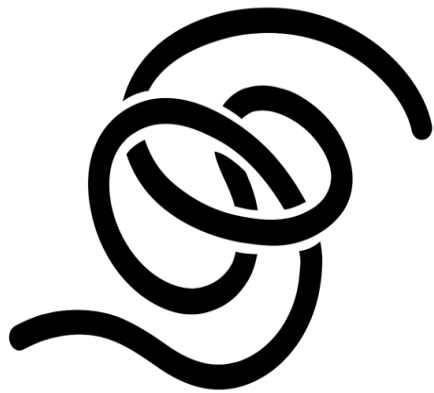
First to Market
(FTM)

MVP = Minimum Viable Product

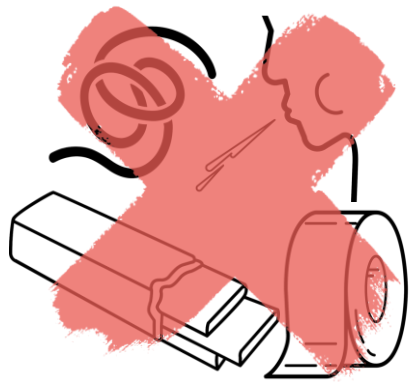


First to Market
(FTM)

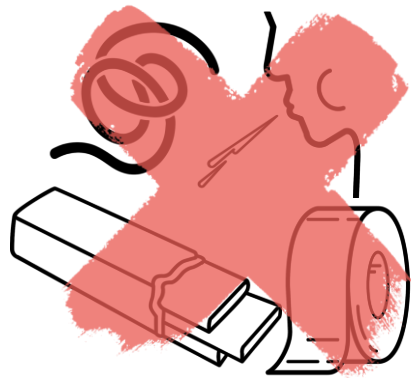
MVP = Most Validation Pending



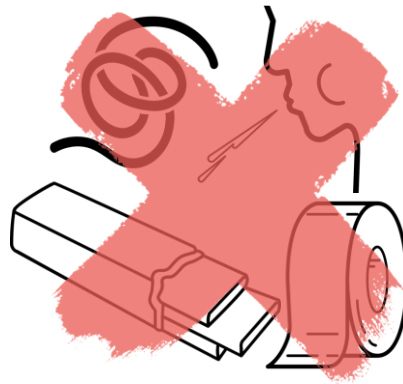
A series of quick wins?



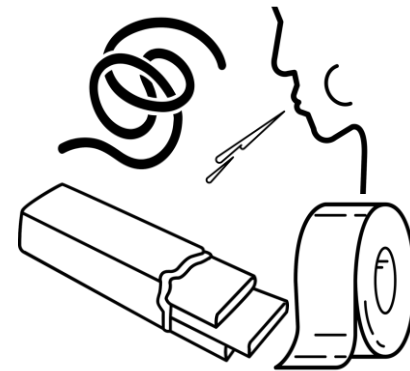
MVP#1



MVP#2



MVP#3



MVP#4

...

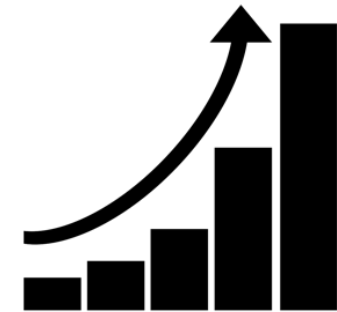
Alas, on the web...



Staying in budget
(time + money)

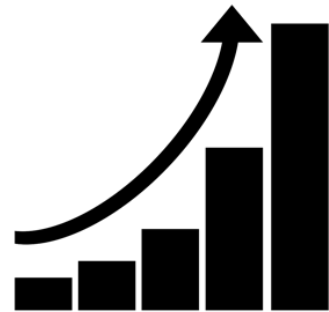


First to Market
(FTM)



Continuous
growth

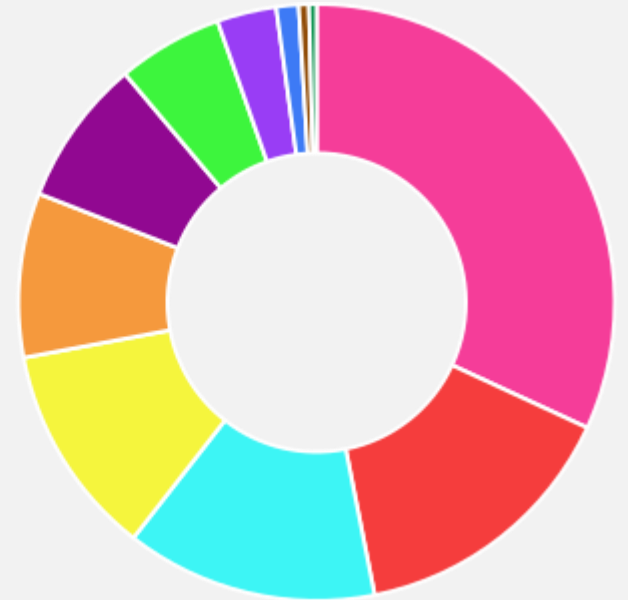
Growth = stickiness + analytics



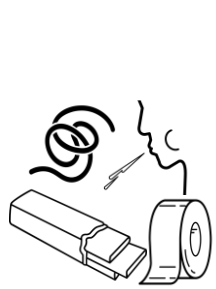
Continuous
growth



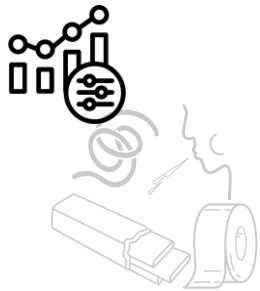
Third party slowness and cruft...



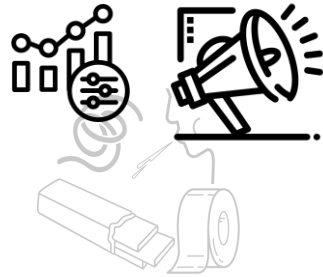
Reuse keeps budgets in check



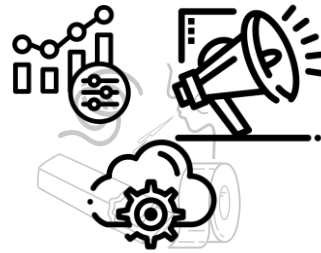
MVP



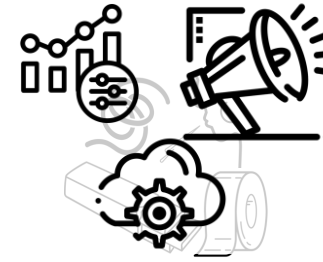
V1
(analytics
enabled)



V2
(marketing
features)



V3
(beefier cloud)



V4
(enterprise,
international
rollout)

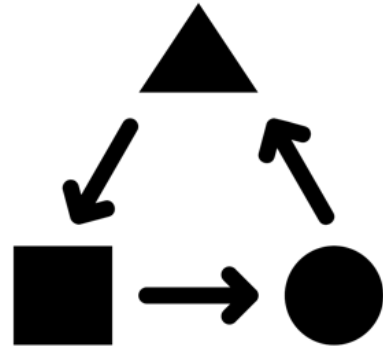


PANIC!!!!

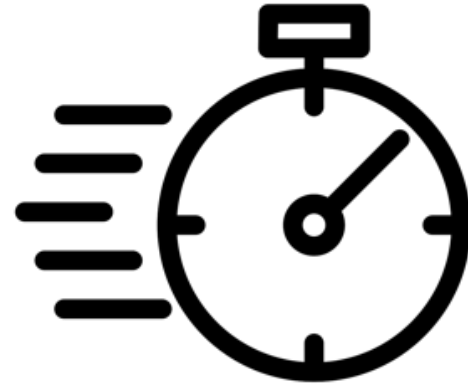
Let's hire some consultants to help us with...



Accessibility



Interoperability



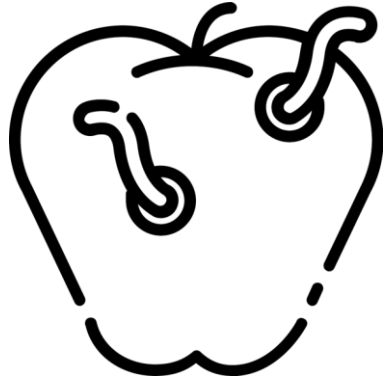
Performance



Security

Because when it costs money, it is
>important

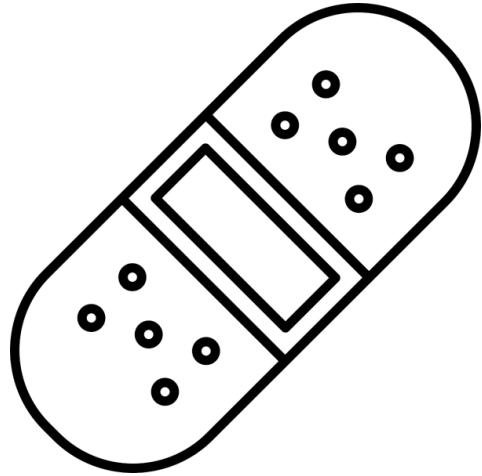




The web is a
platform ripe for
abuse.



- The web is defined as forgiving to developer error
- Browsers can't break the web
- Past browser competition = non-standard APIs live products rely on.
- Craft and security attack vectors
- We can't stop developers from being sloppy...

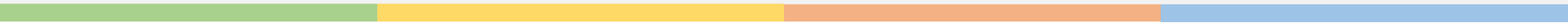


Patches and "solutions"...



- AMP
- Safari limiting JavaScript
- Chrome's "Never Slow Mode"
- All kind of blockers

Well,  ...





What can *we* do?



Front-end:
HTML/CSS/JS

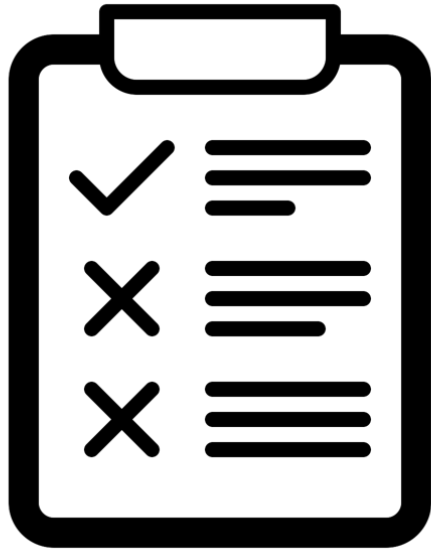
Back-end
CMS/Frameworks
Servers/Cloud
DevOps
IT
Legal
Sales
Shareholders
Investors



Make it hard to screw up driven development

Chris Coyier - Apr 2, 2019

<https://css-tricks.com/make-it-hard-to-screw-up-driven-development/>



We have browser
tool audits...



Audits

Identify and fix common problems that affect your site's performance, accessibility, and user experience. [Learn more](#)

 Device

Mobile

Desktop

Audits


Performance

Progressive Web App

Best practices

Accessibility

SEO

 Throttling

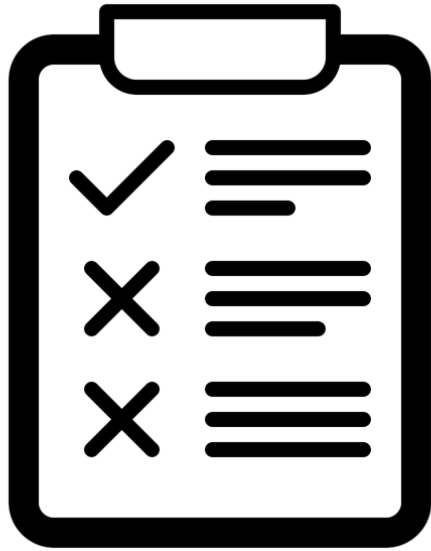
Simulated Fast 3G, 4x CPU Slowdown

Applied Fast 3G, 4x CPU Slowdown

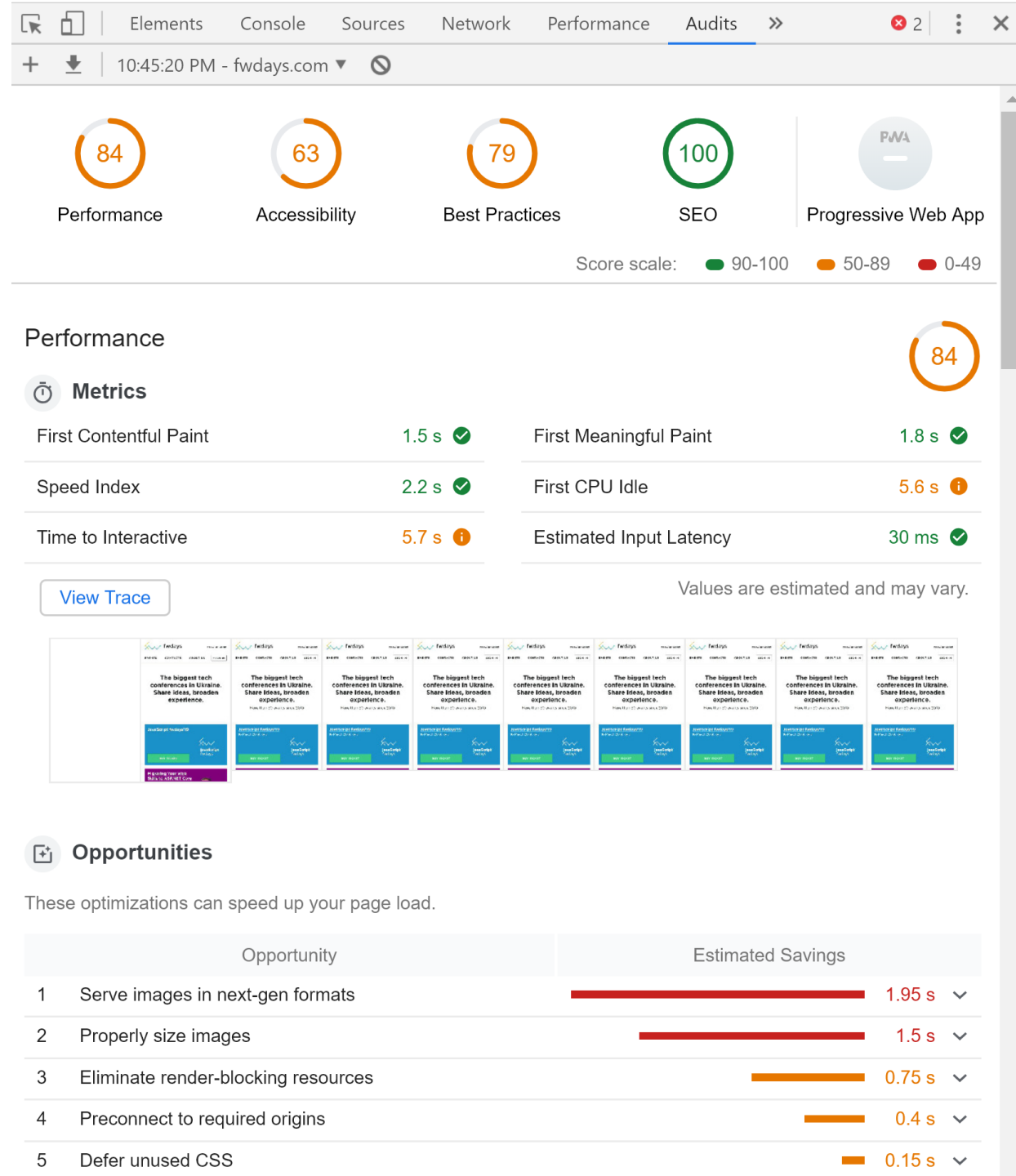
No throttling

Clear storage

Run audits



Auditing report



SCANNING 100%

SCAN TIME: 03:00

HINTS

URL: <https://fwdays.com/en/>

DATE: 2019-03-13 22:46

409

YOUR SCAN RESULT LINK: <https://webhint.io/scan/186276>

webhint version: 4.4.1 Configuration JSON

Security

- disown-opener: 13 hints
- no-protocol-relative-urls: 3 hints
- sri: 22 hints
- strict-transport-security: 51 hints
- validate-set-cookie-header: 7 hints
- x-content-type-options: 41 hints
- ssllabs: 1 hints



webhint.io

	ACCESSIBILITY	HINTS 1	PASSED 0/1
	COMPATIBILITY	HINTS 53	PASSED 4/7
	PWA	HINTS 1	PASSED 3/4
	PERFORMANCE	HINTS 216	PASSED 1/7
	PITFALLS	HINTS 0	PASSED 0/0
	SECURITY	HINTS 138	PASSED 3/10

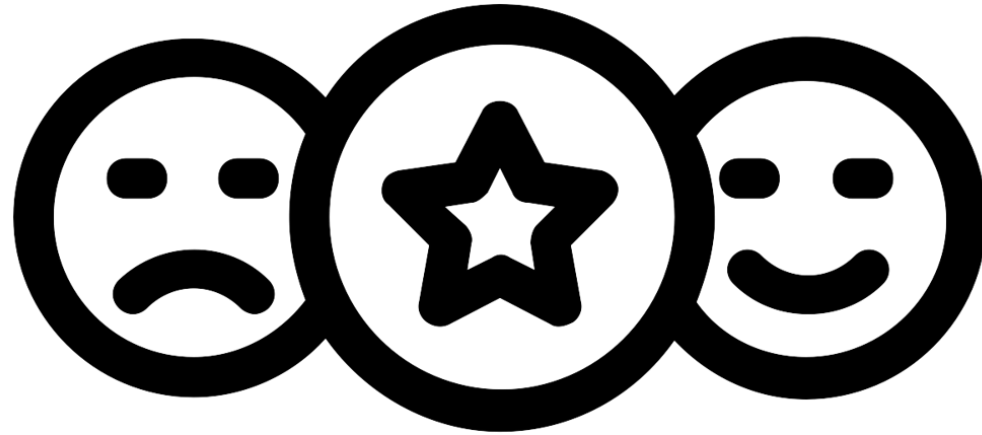
EXPLORER

- OPEN EDITORS
- REPRO
 - fixed
 - src
 - test.html 4
 - test.webmanifest
 - .hintrc

OUTLINE



- Show All Commands Ctrl+Shift+P
- Go to File Ctrl+P
- Find in Files Ctrl+Shift+F
- Start Debugging F5
- Toggle Terminal Ctrl+`



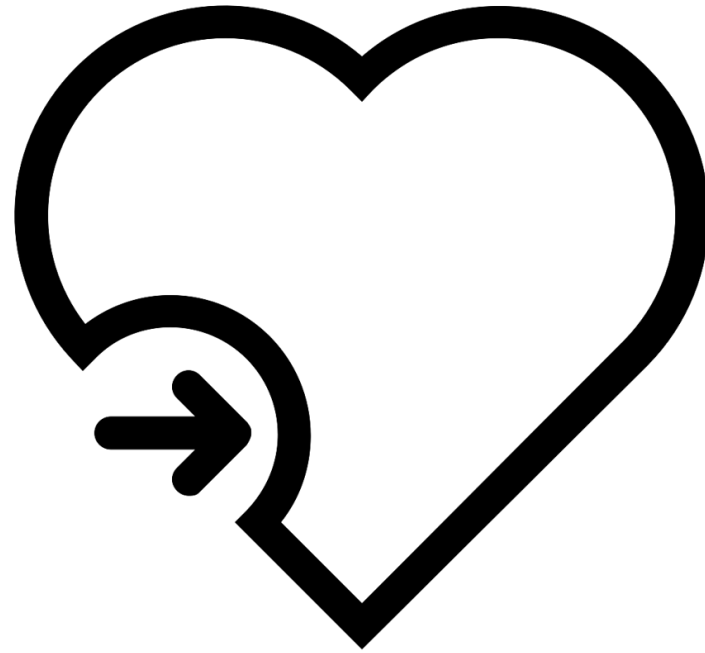
Give feedback and demand features
from browsers, frameworks and tools...





Stop arguing amongst ourselves which
technology is better

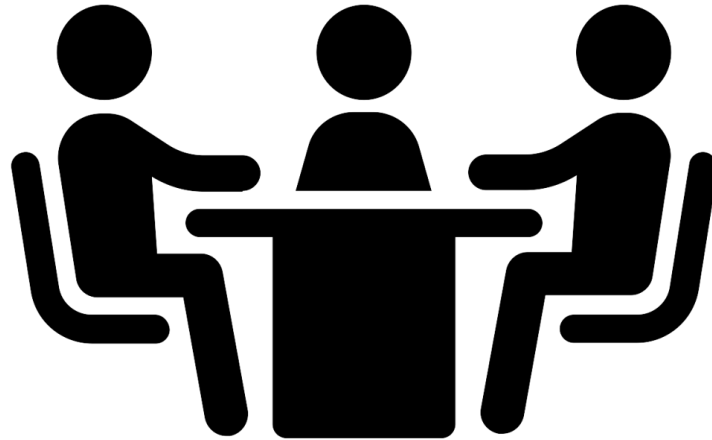




Contribute to products people use
(CMS, build tools, frameworks...)

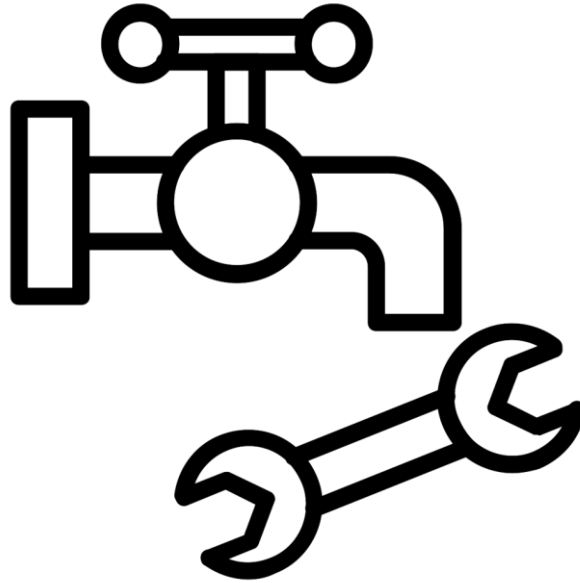


Understand why people do things
wrong before telling them off..



Earn our seat at the table where stupid
decisions are being made





The web is plumbing, not
the new hotness...





Power to the next generation!



Thanks!
Chris Heilmann
@codepo8

