The Architecture

Designing With Constraints

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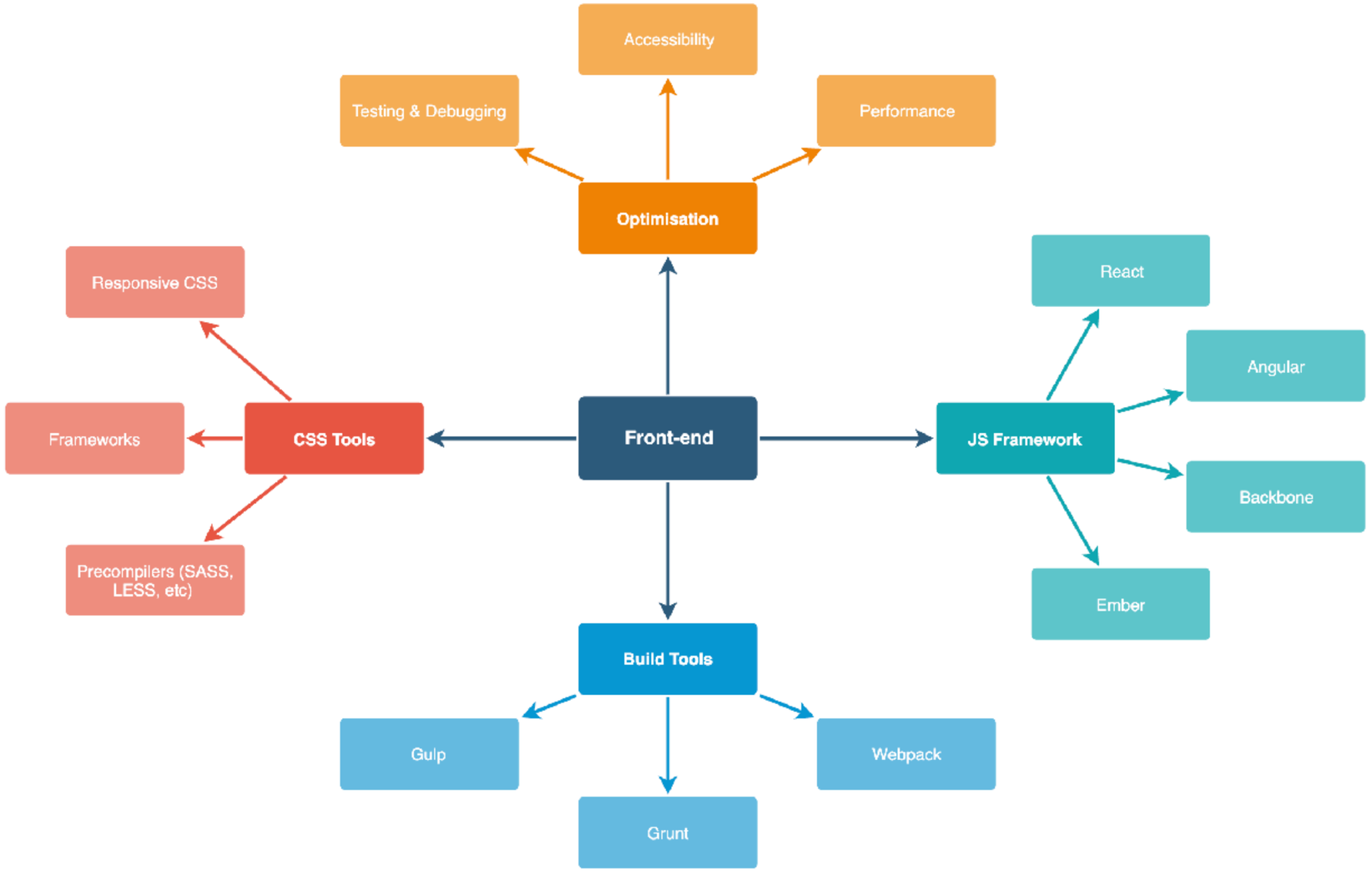
- Hyper Island, Crew 12
- Self-employed
- Currently work as an Architect at H&M
- First website: 16 years ago

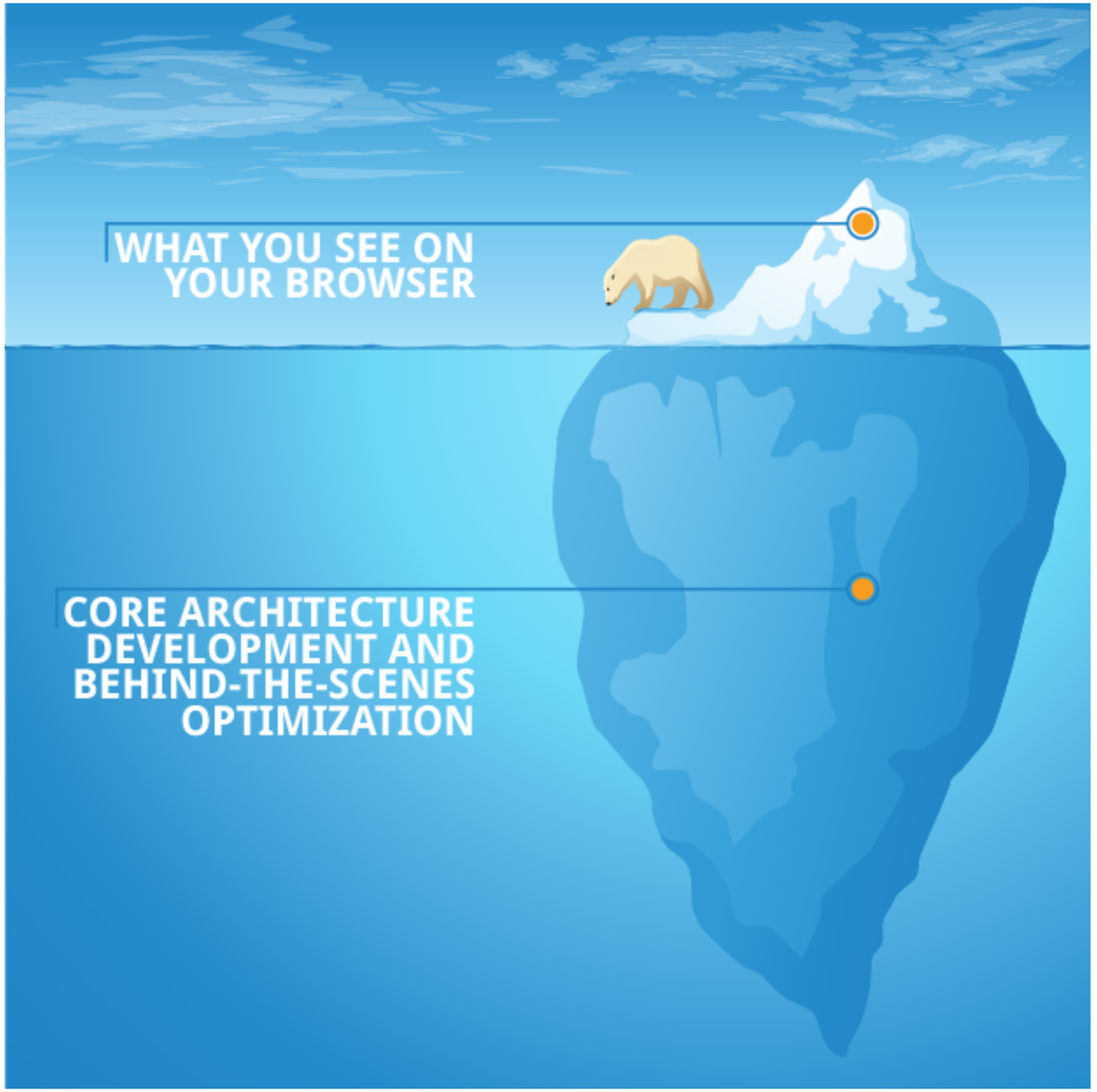
What Is Front End Development?

HTML + CSS + JS = <3

Pillars of front-end development



And some more…


WHAT YOU SEE ON
YOUR BROWSER
CORE ARCHITECTURE
DEVELOPMENT AND
BEHIND-THE-SCENES
OPTIMIZATION

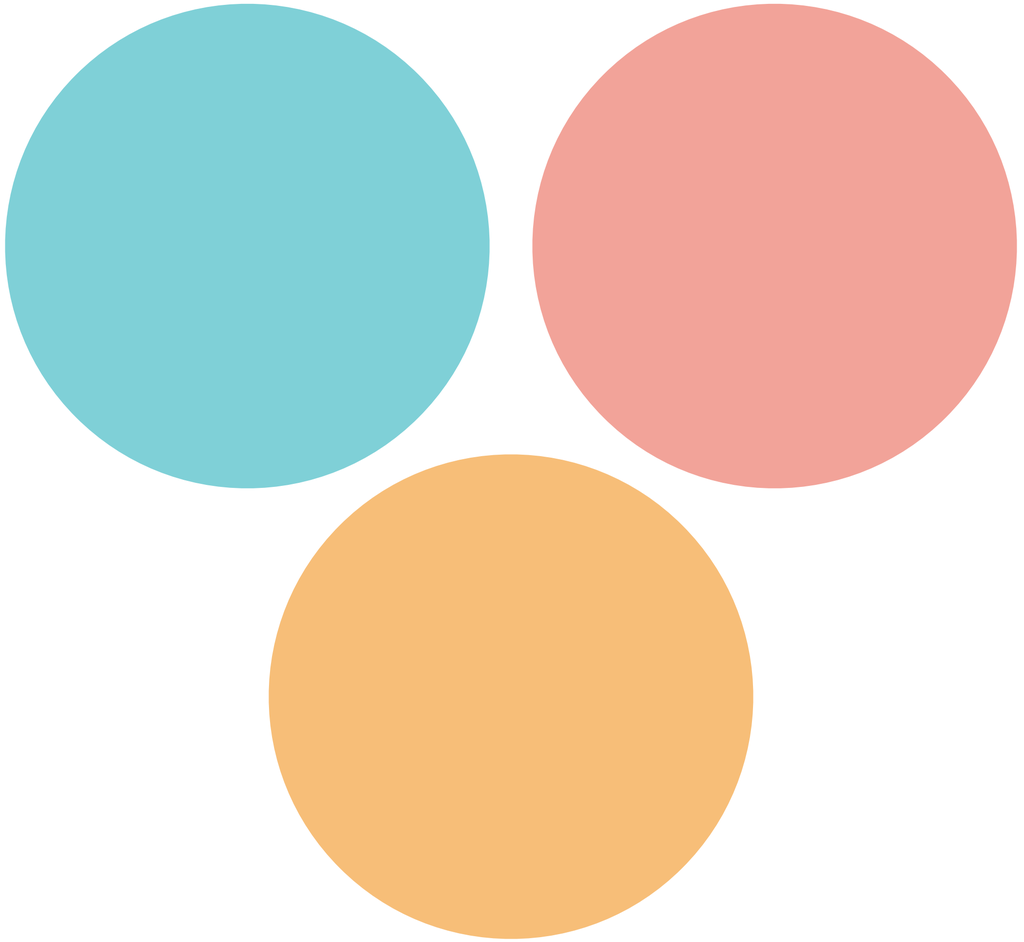
Designing with constraints

Front-end development is the most hostile development environment in the world

- almost all front-end developers

Our Users

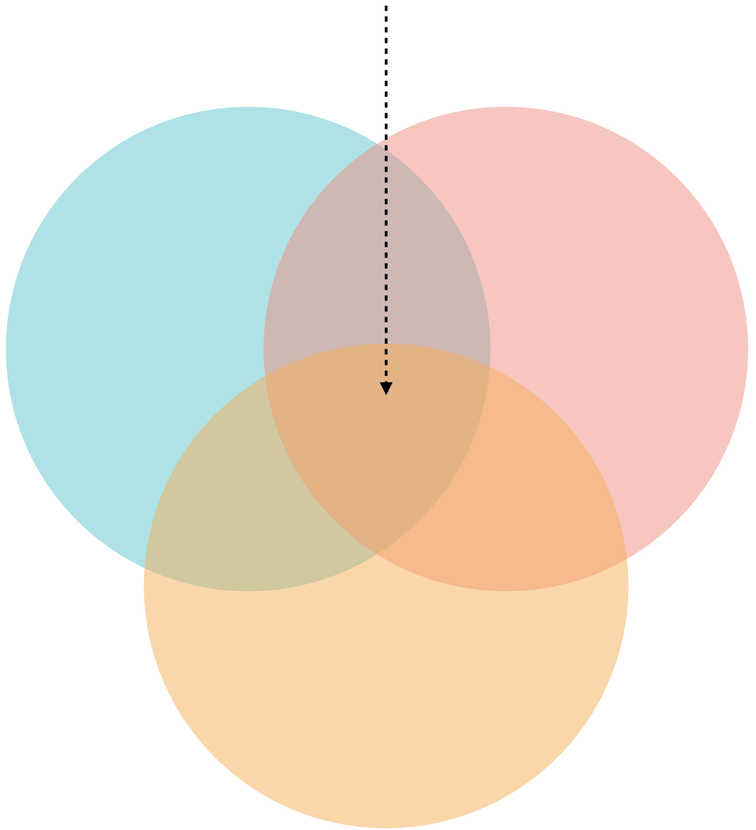
Other Developers



Machines
(i.e. browsers, operation systems, bots, screen readers etc.)

End Users

Perfect Project



Other Developers

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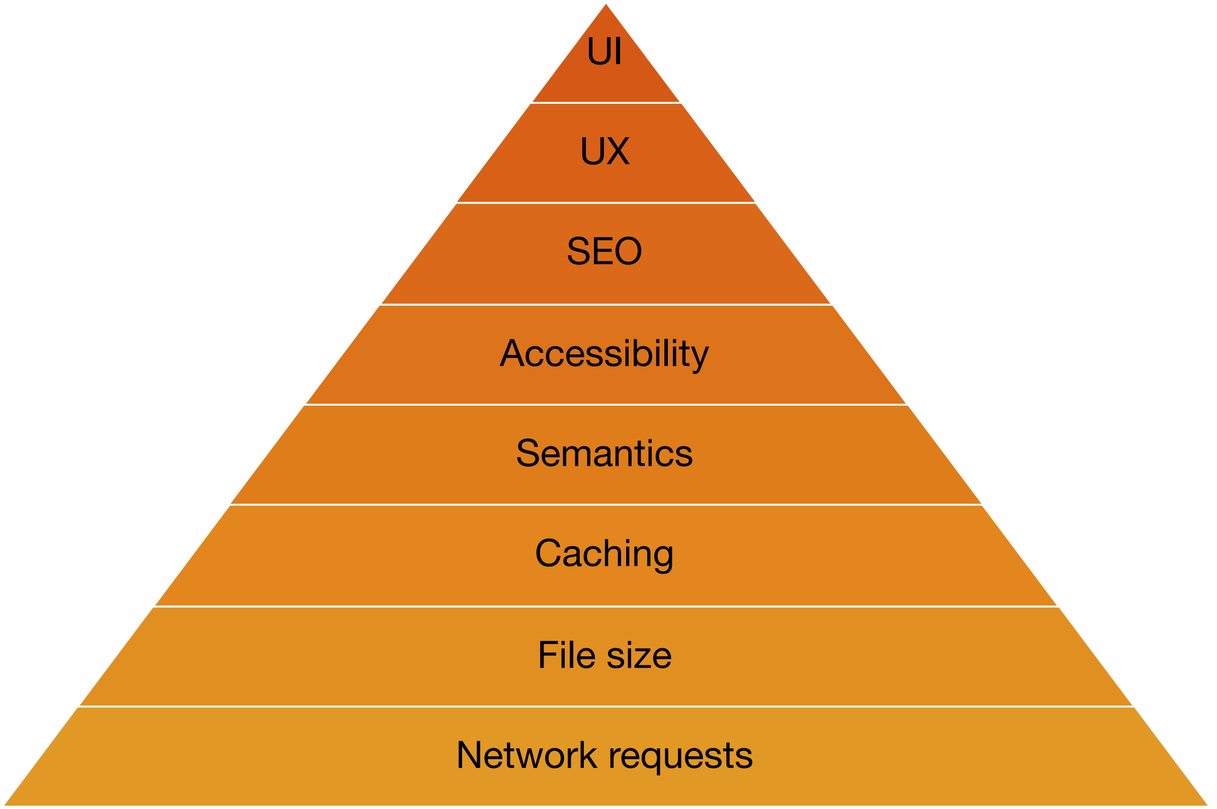
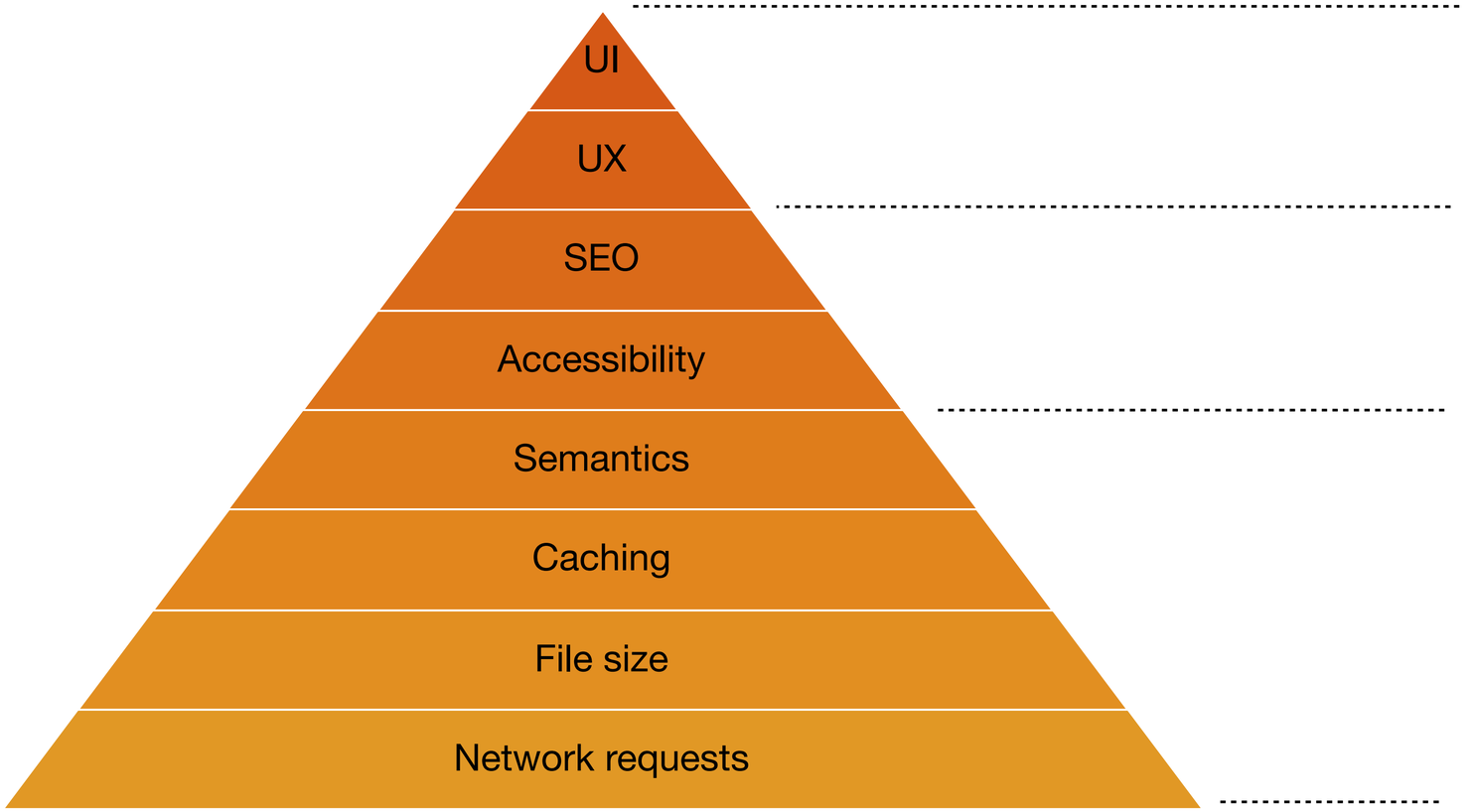
End Users



Front-end “Pyramid of Needs”



Client cares the most about

Client understands importance of

Front End developer's responsibility to care about

"The standard line in this industry is that most clients don't really know the difference between good design and great design."

What Are The Constraints

Loading Time

from Find Out How You Stack Up to New Industry Benchmarks for Mobile Page Speed

As page load time goes from:

1s to 3s the probability of bounce **increases 32%**

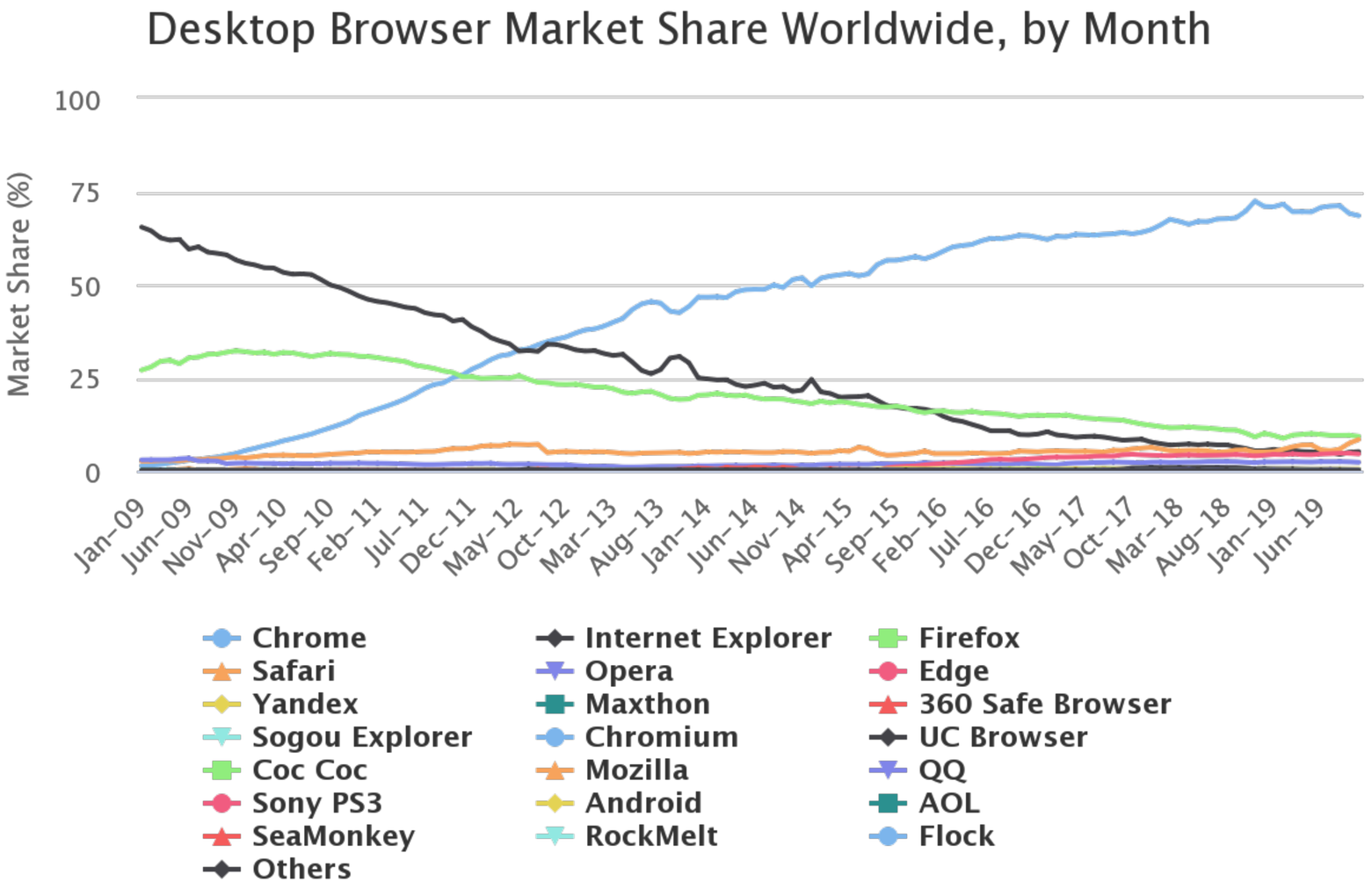
1s to 5s the probability of bounce **increases 90%**

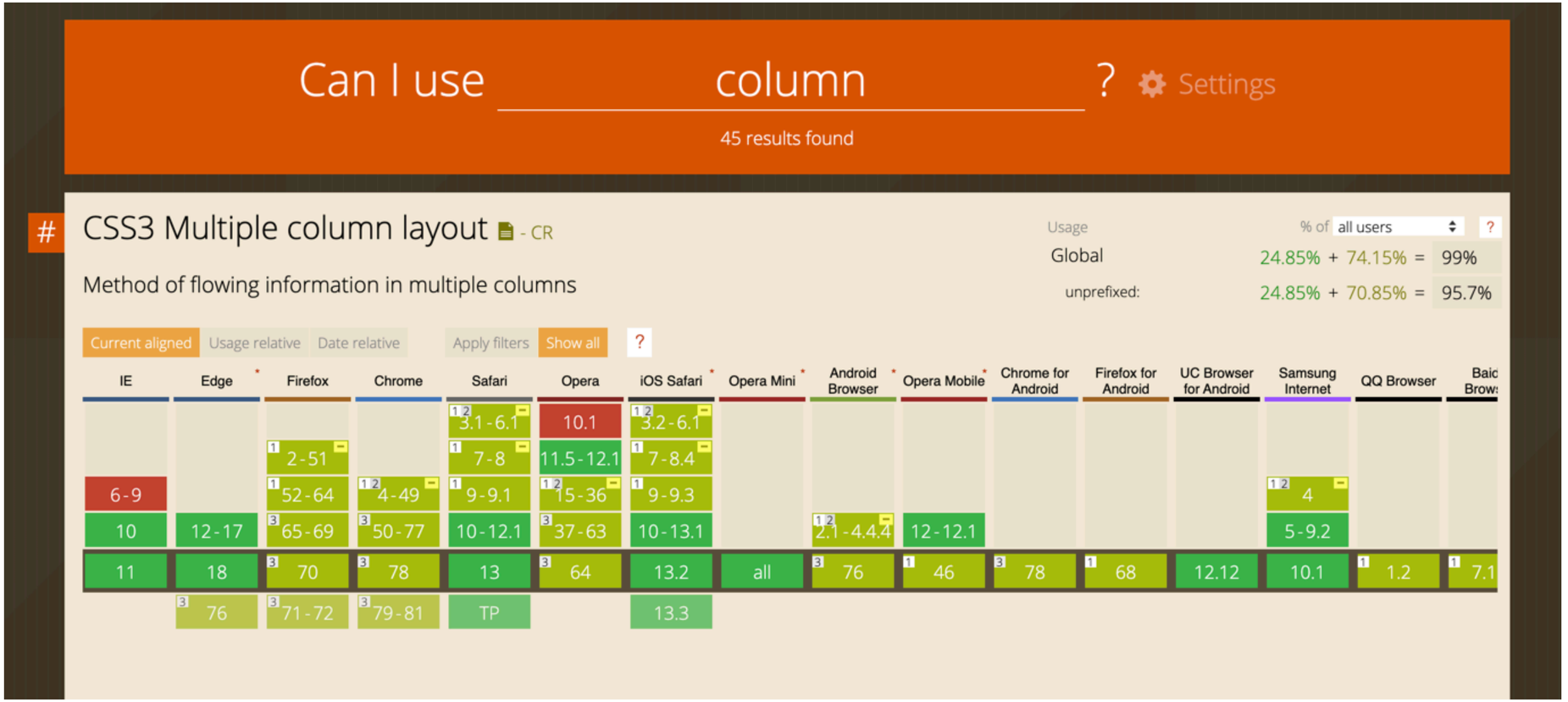
1s to 6s the probability of bounce **increases 106%**

1s to 10s the probability of bounce **increases 123%**

Source: Google/SOASTA Research, 2017.

OS And Browser Support

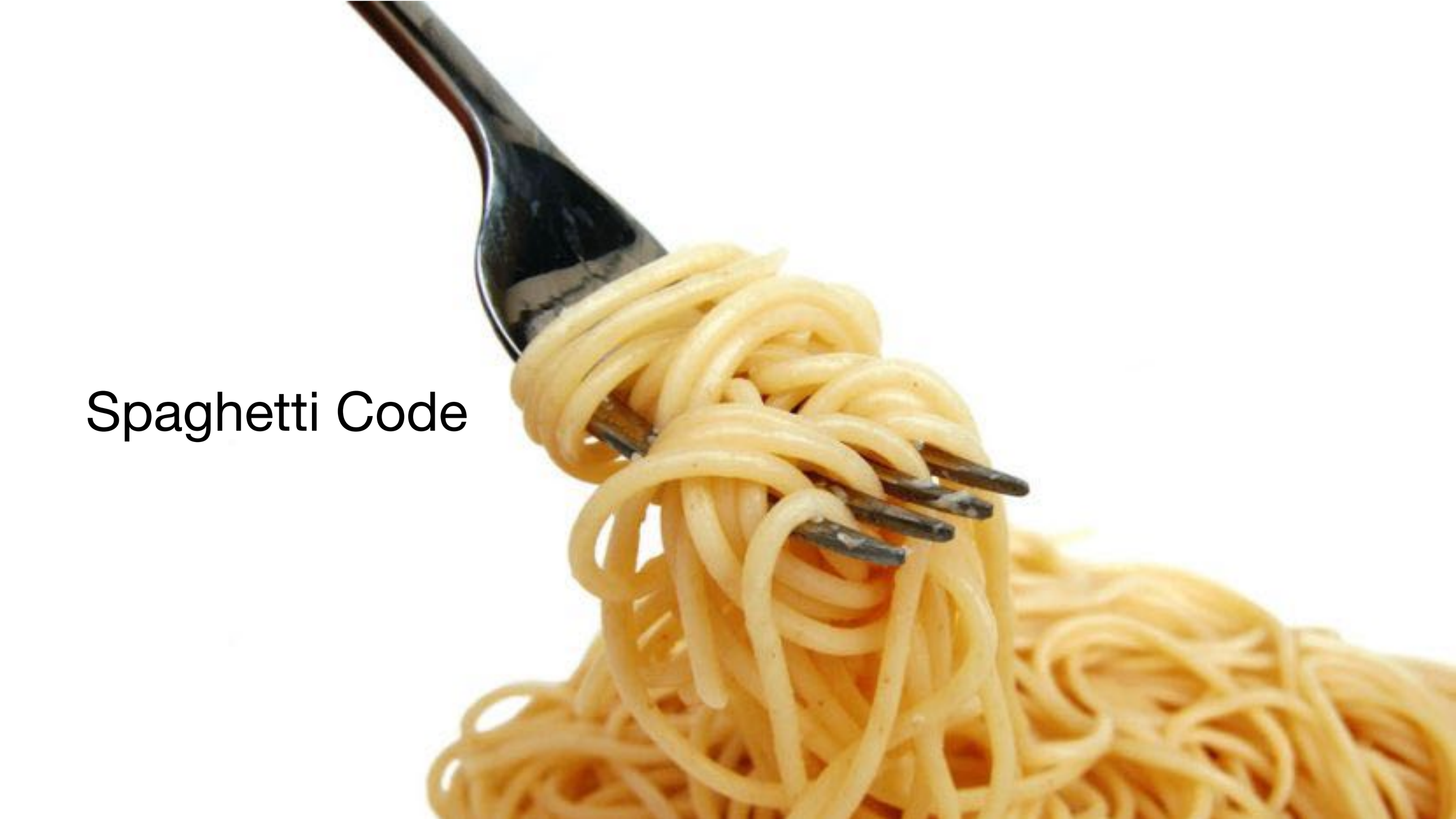

Desktop Browser Market Share Worldwide, by Month
Market Share (%)
100
75
50
25
0
Jan-09
Jun-09
Nov-09
Apr-10
Sep-10
Feb-11
Jul-11
Dec-11
May-12
Oct-12
Mar-13
Aug-13
Jan-14
Jun-14
Nov-14
Apr-15
Sep-15
Feb-16
Jul-16
Dec-16
May-17
Oct-17
Mar-18
Aug-18
Jan-19
Jun-19
Chrome
Internet Explorer
Firefox
Safari
Opera
Edge
Yandex
Maxthon
360 Safe Browser
Sogou Explorer
Chromium
UC Browser
Coc Coc
Mozilla
QQ
Sony PS3
Android
AOL
SeaMonkey
RockMelt
Flock
Others
© Dazeinfo GraphFarm / Source: StatCounter


Can I use column ? Settings
45 results found
CSS3 Multiple column layout - CR
Method of flowing information in multiple columns
Usage
% of all users
Global
24.85% + 74.15% = 99%
unprefixed:
24.85% + 70.85% = 95.7%
Current aligned
Usage relative
Date relative
Apply filters
Show all
IE
Edge
Firefox
Chrome
Safari
Opera
iOS Safari
Opera Mini
Android Browser
Opera Mobile
Chrome for Android
Firefox for Android
UC Browser for Android
Samsung Internet
QQ Browser
6-9
10
11
12-17
18
76
2-51
52-64
65-69
70
71-72
4-49
50-77
78
79-81
3.1-6.1
7-8
9-9.1
10-12.1
13
TP
10.1
11.5-12.1
15-36
37-63
64
3.2-6.1
7-8.4
9-9.3
10-13.1
13.2
13.3
all
2.1-4.4.4
76
12-12.1
46
78
68
12.12
4
5-9.2
10.1
1.2
7.1

Stuff gets complicated

- a technical term about complex solutions developed over time

Spaghetti Code



I’m harvesting credit card numbers and passwords from your site. Here’s how.

January 5th 2018

TWEET THIS

The following is a true story. Or maybe it’s just based on a true story. Perhaps it’s not true at all.

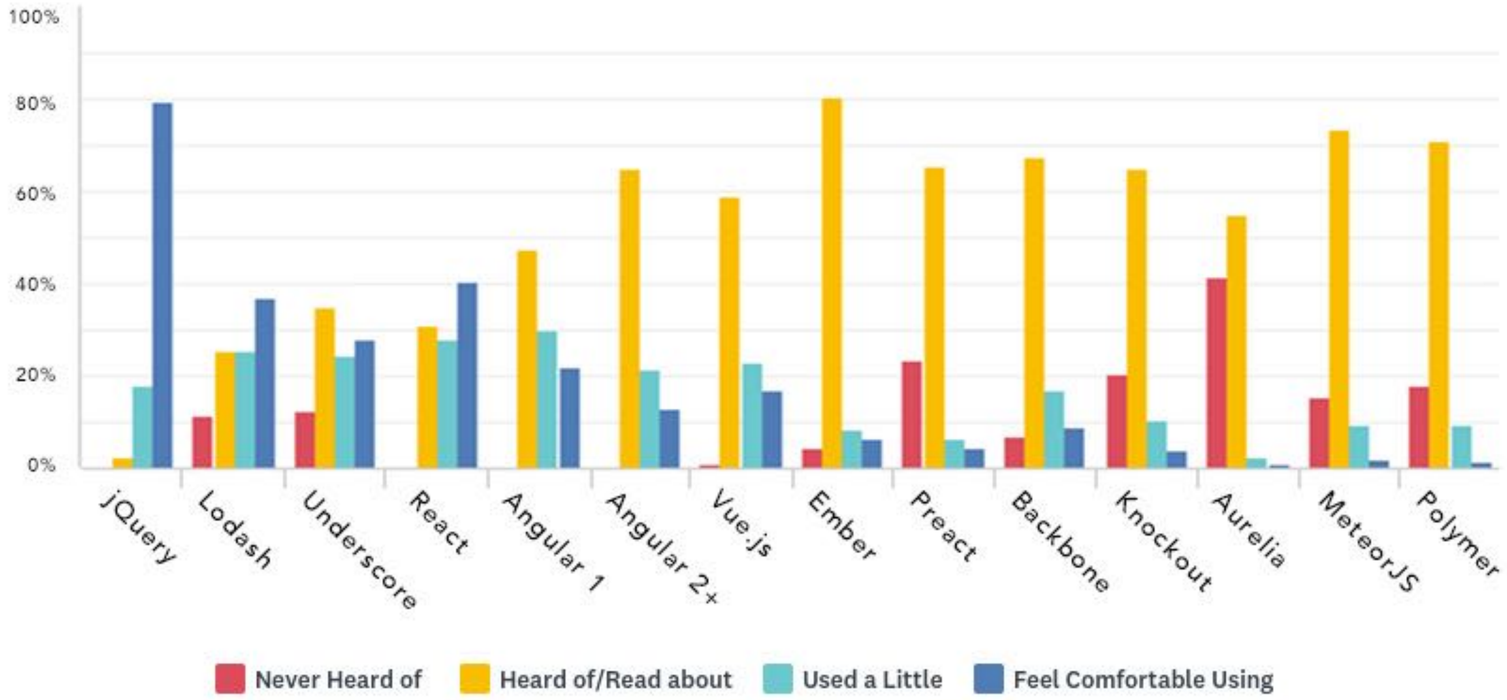
It’s been a frantic week of security scares—it seems like every day there’s a new vulnerability. It’s been a real struggle for me personally to pretend like I understand what’s going on when asked about it by family members.

Seeing people close to me get all flustered at the prospect of being “powned” has really put things in perspective for me.

Dependencies

Create React App (CRA) installs **1300+ dependencies** to render “Hello World”.

Most of them don’t reach production but can pose high security risk.



74.1% of all websites use jQuery*

*https://w3techs.com/technologies/details/js-jquery

What other constraints can you identify?

How To Face Constraints

Write
Clean Code

Code is clean if it can be understood easily – by everyone on the team. Clean code can be read and enhanced by a developer other than its original author. With understandability comes readability, changeability, extensibility and maintainability.

Summary of 'Clean code' by Robert C. Martin

Set up
Payload Budget

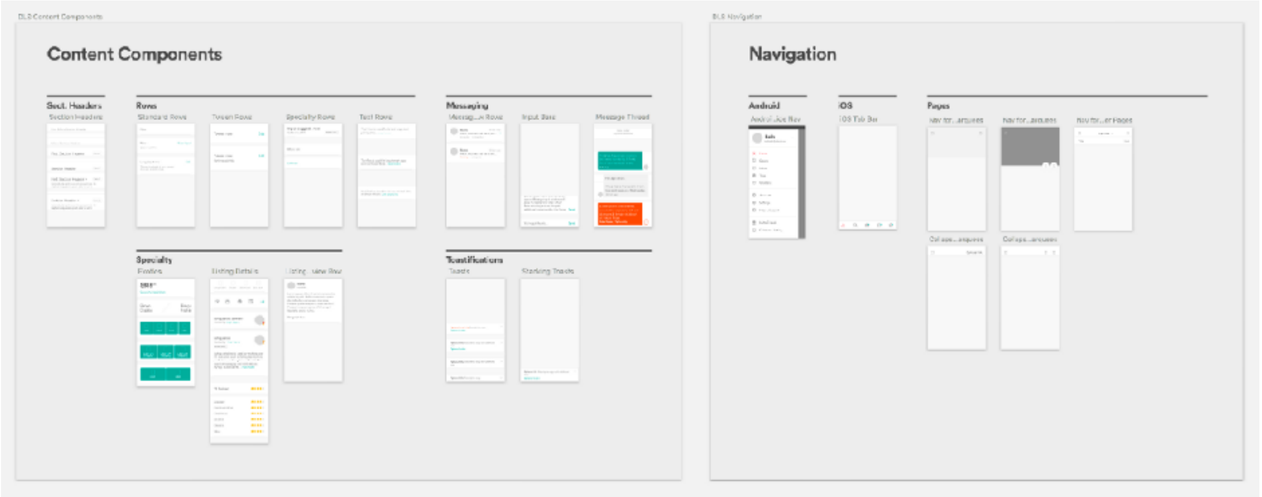
Example:

- Start Page only has maximum of 10 pictures

- Load resources < 2s on slow 3G

Adhere to
Separation of Layers

Create a **Component Library**

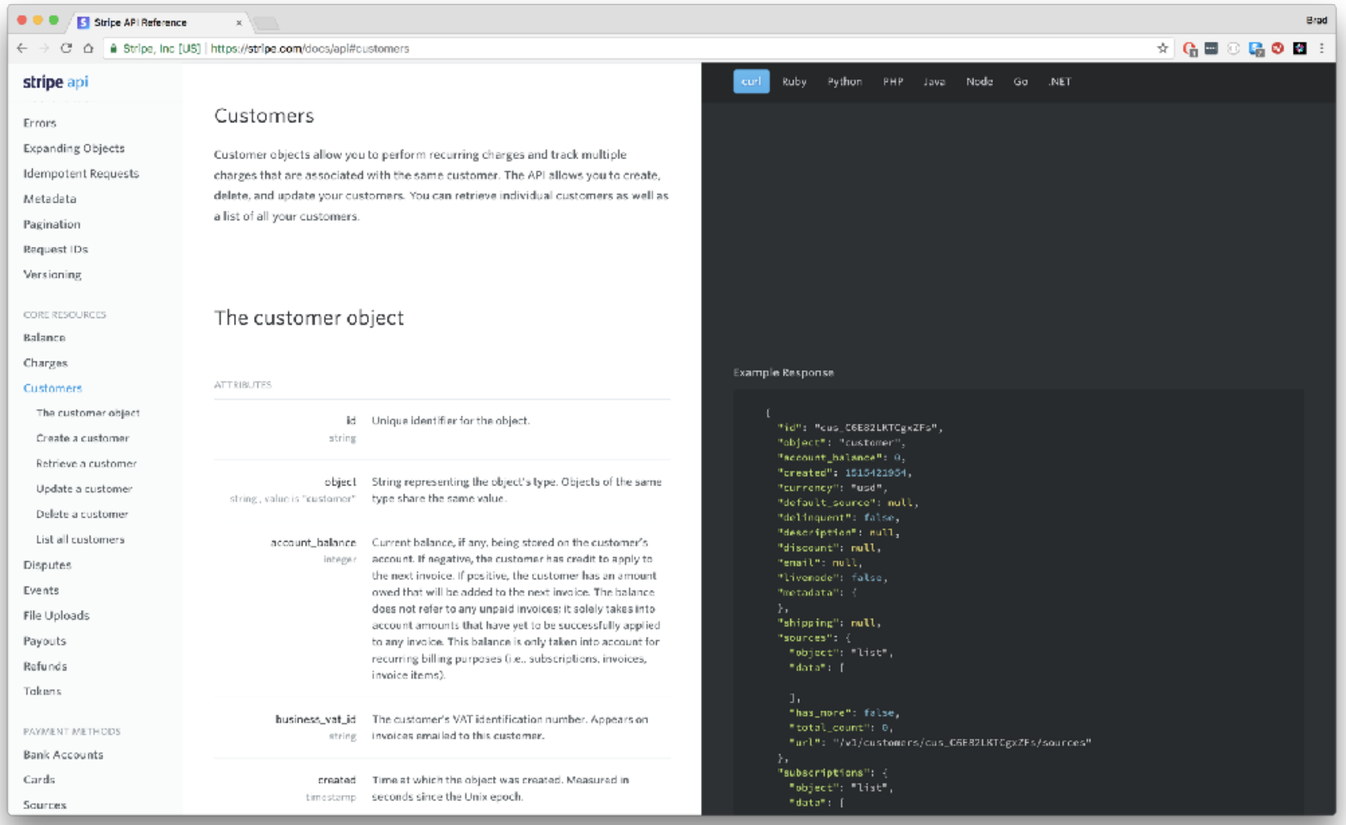


AirB’n’B Component Library

Design for humans

Develop for robots

Keep up-to-date **Documentation**

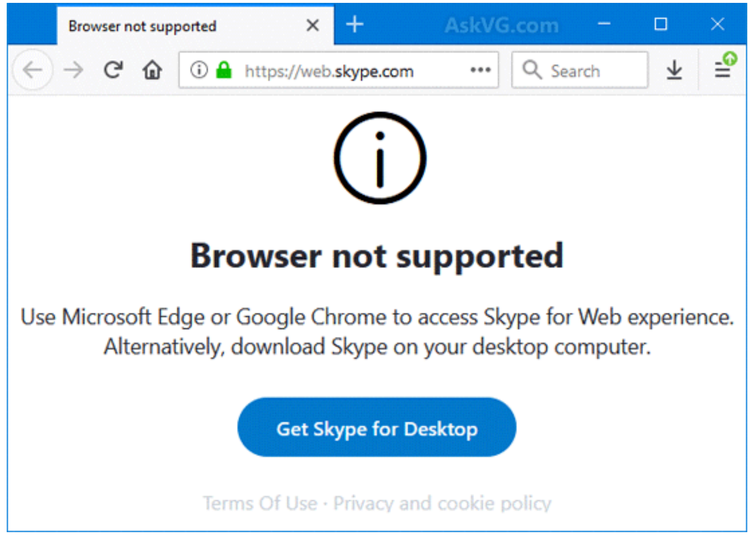


Stripe API Documentation

Suggestions?

Conclusion

My god, it’s full of stars!



Don't be that dev

“Seeing ourselves as artisans, and working to build craftsmanship in the product we create, is the key to building quality reputations and securing our community’s future.”

- Richard Glover, Smashing Magazine

Thank You!

Resources

- Must read: Frond-end Handbook 2019
- SVT Play easter egg (search for ‘geocities’)
- Article on hidden vulnerability of dependencies
- Summary of 'Clean code' by Robert C. Martin
- Front-end Tools Survey 2018