Web Development
The Absolute Basics

R. Scott Granneman & Jans Carton

2.4

Notes & URLs for this presentation can be found...

» underneath the link to this slide show on granneman.com
» at files.granneman.com/presentations/webdev/Web-Dev-Intro.txt

Scott Granneman

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Responsive Web Design for Designers

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Home

Scott Gran... n a Web development company in St. Louis, Missouri. Scott has written six books, cont... nns for SecurityFocus and *Linux Magazine*. He is an Adjunct Professor at Washington... ity, teaching courses on technology, security, web development, & the Internet. As... ops, and hosts websites for clients in 12 states using an open source, UNIX-based cont... esentations all over the United States, and loves speaking to people.

Key Si...

Pages you'...

Teaching

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Background

HTML

<u>H</u>yper<u>t</u>ext <u>M</u>arkup <u>L</u>anguage

Hypertext
Linking

Markup
» Annotating a document with *tags* of instructions
» *Not* programming!

Language
Structured set of instructions for a computer

Tim Berners-Lee

Tim Berners-Lee

Invented the World Wide Web & HTML
1989-1991

Tim Berners-Lee

Current director of the World Wide Web Consortium (W3C)

W3C®

International standards organization for the World Wide Web

HTML
CSS
WOFF
XML
XSLT
PNG
SVG

See www.w3.org/TR/

Oct. 1991	*HTML Tags* (informal)
Nov. 1995	HTML 2
Jan. 1997	HTML 3.2
Dec. 1997	HTML 4.0
Dec. 1999	HTML 4.01
Oct. 2014	HTML5

WorldWideWeb: Proposal for a HyperText Project

To:

P.G. Innocenti/ECP, G. Kellner/ECP, D.O. Williams/CN

From:

T. Berners-Lee/CN, R. Cailliau/ECP

Date:

12 November 1990

HyperText is a way to link and access information of various kinds as a web of nodes in which the user can browse at will. It provides a single user-interface to large classes of information (reports, notes, data-bases, computer documentation and on-line help). We propose a simple scheme incorporating servers already available at CERN.
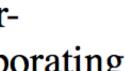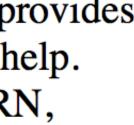
T. Berners-Lee *R. Cailliau*

WorldWideWeb:

Proposal for a HyperText Project
T. Berners-Lee / CN, R. Cailliau / ECP

Abstract:

HyperText is a way to link and access information of various kinds as a web of nodes in which the user can browse at will. Potentially, HyperText provides a single user-interface to many large classes of stored information such as reports, notes, data-bases, computer documentation and on-line systems help. We propose the implementation of a simple scheme to incorporate several different servers of machine-stored information already available at CERN, including an analysis of the requirements for information access needs by experiments.

Proposal for a HyperText Project
T. Berners-Lee / CN, R. Cailliau / ECP

Abstract:

HyperText is a way to link and access information of various kinds as a web of nodes in which the user can browse at will. Potentially, HyperText provides a single user-interface to many large classes of stored information such as reports, notes, data-bases, computer documentation and on-line systems help. We propose the implementation of a simple scheme to incorporate several different servers of machine-stored information already available at CERN, including an analysis of the requirements for information access needs by experiments.

Web Hypertext Application Technology Working Group (WHATWG)

Founded in 2004 by Apple, Opera, & Mozilla in response to slow development of HTML & CSS by W3C

Wanted to act as a spur to the W3C

For 10+ years there have been specifications for HTML available on both the WHATWG & the W3C websites
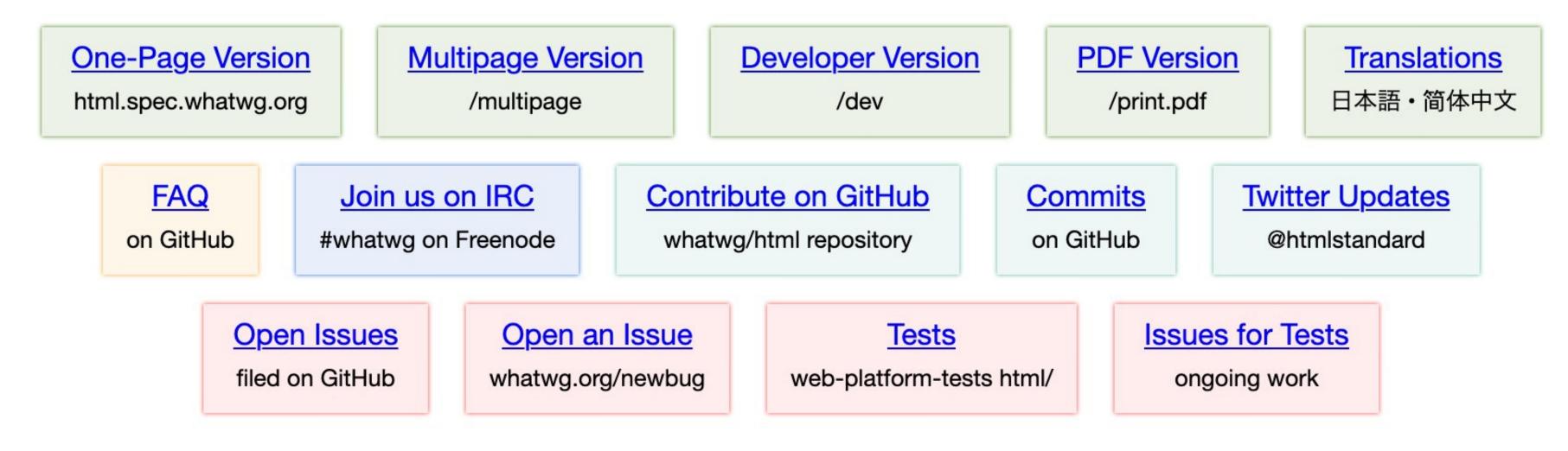
This is obviously confusing

May 2019

W3C & WHATWG agree that they will work together to produce a Living Standard for HTML, which WHATWG will maintain on its website

HTML

Living Standard — Last Updated 3 September 2019

One-Page Version html.spec.whatwg.org	**Multipage Version** /multipage	**Developer Version** /dev	**PDF Version** /print.pdf	**Translations** 日本語・简体中文

FAQ on GitHub	**Join us on IRC** #whatwg on Freenode	**Contribute on GitHub** whatwg/html repository	**Commits** on GitHub	**Twitter Updates** @htmlstandard

Open Issues filed on GitHub	**Open an Issue** whatwg.org/newbug	**Tests** web-platform-tests html/	**Issues for Tests** ongoing work

Table of contents

Compatibility

Console

DOM

Encoding

Fetch

Fullscreen API

Infra

MIME Sniffing

Notifications API

Quirks Mode

Storage

Streams

URL

XMLHttpRequest

Other standards developed by the WHATWG

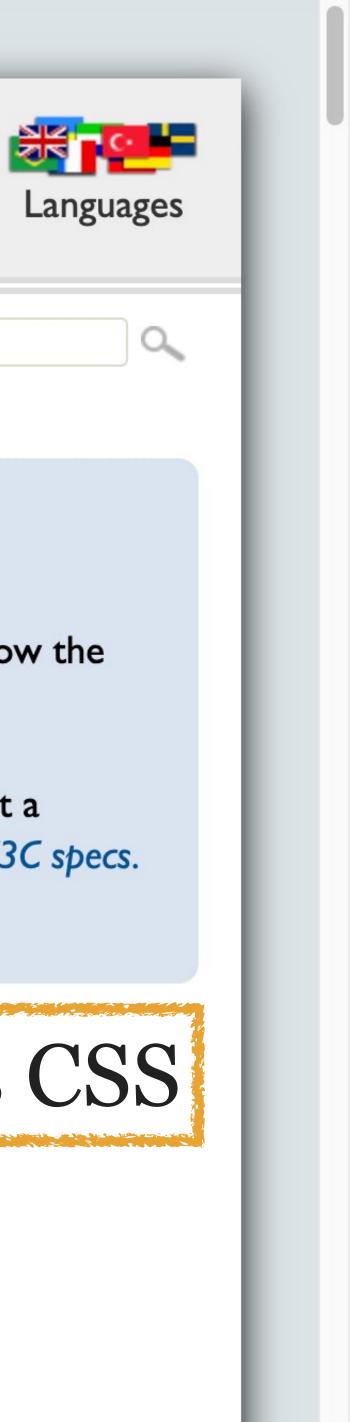CSS HOME   LEARN & USE   SOFTWARE   PARTICIPATE / DRAFTS

CSS SPECIFICATIONS

This page contains a list of all completed specifications and drafts by the CSS WG (formerly 'CSS & FP WG'). If you want to follow the development of CSS3, this is the place to start. You have ideas? Contributions? See 'If you want to help' on this page.

A specification is not a manual. There is no excuse for badly written drafts and please complain if you find one. But specs do target a specific audience. See fantasai's *Understanding the CSS Specifications*.. J. David Eisenberg has written another useful *How to read W3C specs.* Or you can read about 'modules,' 'levels,' 'snapshots' and the CSS process.

The W3C still handles CSS

WHAT'S NEW? 🔊

- 2020-06-18 Updated Working Draft: *CSS Inline Layout Level 3*.
- 2020-06-03 Updated Working Draft: *CSS Containment Level 2*.
- 2020-06-04 Updated Working Draft: *CSS Inline Layout Level 3*.
- 2020-06-03 Updated Working Draft: *CSS Overflow Level 3*. Updated Working Draft: *Media Queries Level 5*.

Completed	Current	Upcoming	Notes	▢▢
CSS Snapshot 2018	NOTE		Latest stable CSS	▢▢
CSS Snapshot 2017	NOTE			▢▢
CSS Snapshot 2015	NOTE			▢▢
CSS Snapshot 2010	NOTE			▢▢
CSS Snapshot 2007	NOTE			▢▢
CSS Color Level 3	REC	REC		▢▢
CSS Namespaces	REC	REC		▢▢
Selectors Level 3	REC	REC		▢▢
CSS Level 2 Revision 1	REC	REC	See Errata	▢▢
Media Queries	REC	REC		▢▢
CSS Style Attributes	REC	REC		▢▢
CSS Fonts Level 3	REC	REC		▢▢
CSS Writing Modes Level 3	REC	REC		▢▢
CSS Basic User Interface Level 3	REC	REC		▢▢
CSS Containment Level 1	REC	REC		▢▢

Stable	Current	Upcoming	Notes	▢▢
CSS Backgrounds and Borders Level 3	CR	PR		▢▢
CSS Conditional Rules Level 3	CR	CR		▢▢
CSS Multi-column Layout Level 1	WD	CR		▢▢
CSS Values and Units Level 3	CR	PR		▢▢
CSS Flexible Box Layout Level 1	CR	PR		▢▢
CSS Cascading and Inheritance Level 3	CR	PR		▢▢
CSS Counter Styles Level 3	CR	PR		▢▢

SITE MAP

What is Ecma | Activities | News | Standards

Printer Friendly Version

History

Presentation

Organisation

Technical Committees

Members
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Welcome

Ecma International is an industry association founded in 1961, dedicated to the standardization of information and communication systems.

We are also here:

Since 1961 and continuing in full force today, **Ecma International**®facilitates the timely creation of a wide range of global Information and Communications Technology (ICT) and Consumer Electronics (CE) standards, for:

- Access Systems and information exchange between systems;
- Acoustics;
- Close Proximity Electric Induction Data Transfer;
- Dart;
- Electromagnetic Compatibility and Electromagnetic Fields (EMC and EMF);
- Information Storage;
- ECMAScript;

Latest News

Last results of the 119th General Assembly held by teleconference, June 16, 2020

The presentations given at the TC53 seminar in Tokyo on a modern approach to embedded software are available

A short presentation to explain standardization at Ecma, its process

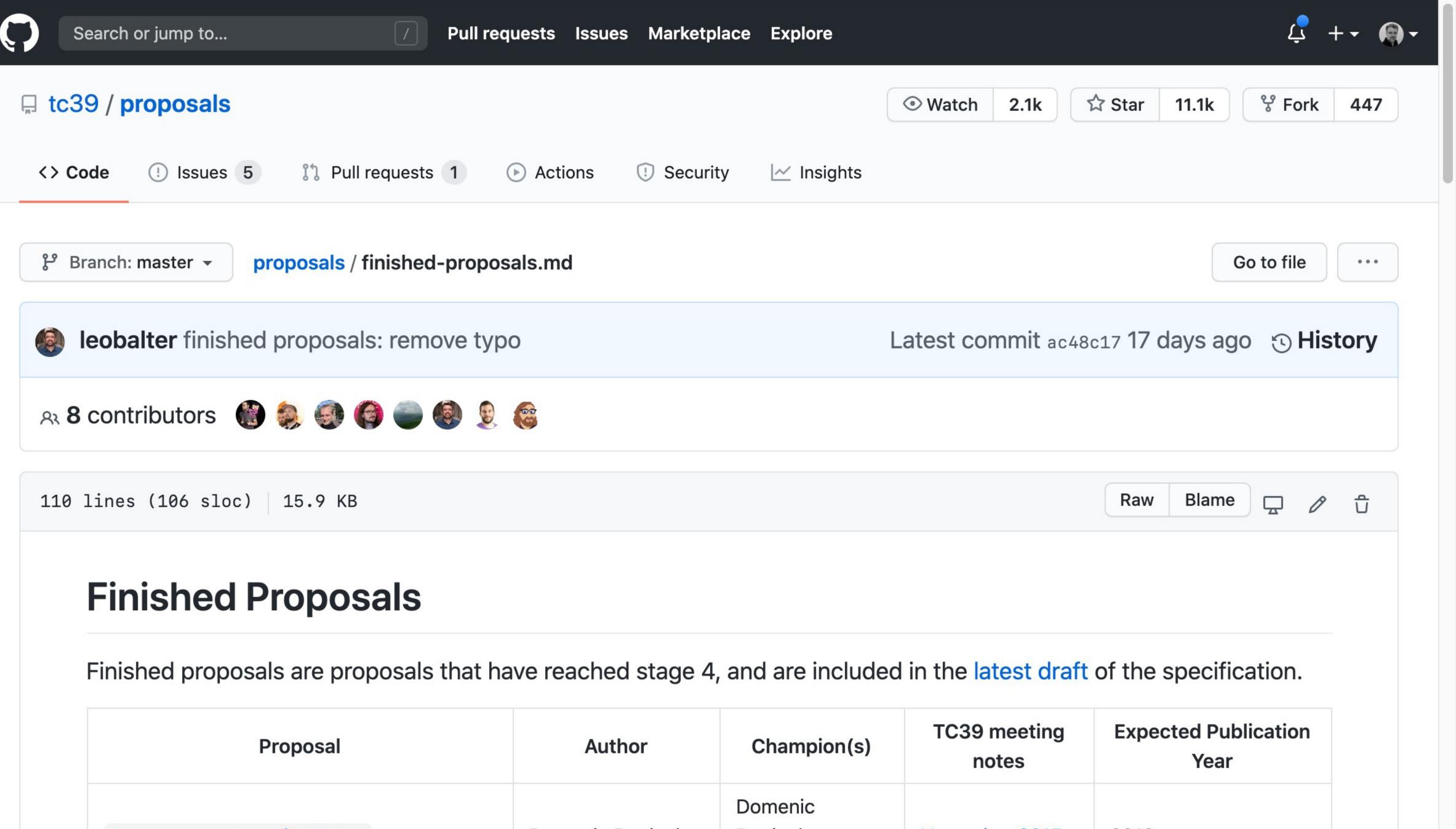European Computer Manufacturers Association (*ECMA*) oversees ECMAScript, aka JavaScript

ECMA-262, 10th edition, June 2019

ECMAScript® 2019 Language Specification

Contributing to this Specification

This specification is developed on GitHub with the help of the ECMAScript community. There are a number of ways to contribute to the development of this specification:

GitHub Repository: https://github.com/tc39/ecma262
Issues: All Issues, File a New Issue
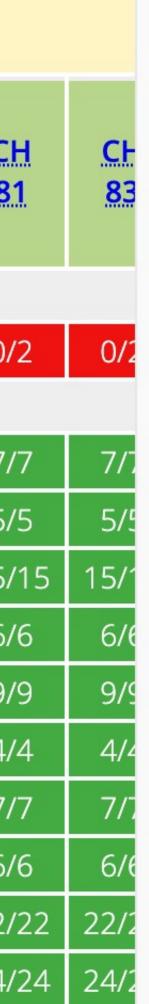Pull Requests: All Pull Requests, Create a New Pull Request
Test Suite: Test262

Editors:

tc39 / **proposals**

Watch 2.1k   ☆ Star 11.1k   Fork 447

<> **Code**   ① Issues 5   ⑂ Pull requests 1   ▷ Actions   ⊘ Security   Insights

⑂ Branch: master ▾   **proposals** / finished-proposals.md   Go to file   ⋯

leobalter finished proposals: remove typo   Latest commit `ac48c17` 17 days ago   ⟳ **History**

⧉ **8 contributors**   👤👤👤👤👤👤👤👤

110 lines (106 sloc) | 15.9 KB   Raw   Blame   🖥   ✎   🗑

Finished Proposals

Finished proposals are proposals that have reached stage 4, and are included in the latest draft of the specification.

Proposal	Author	Champion(s)	TC39 meeting notes	Expected Publication Year
	Domenic	Domenic		

			March 2019	2020
`import()`	Domenic Denicola	Domenic Denicola	June 2019	2020
`BigInt`	Daniel Ehrenberg	Daniel Ehrenberg	June 2019	2020
`Promise.allSettled`	Jason Williams Robert Pamely Mathias Bynens	Mathias Bynens	July 2019	2020
`globalThis`	Jordan Harband	Jordan Harband	October 2019	2020
`for-in` mechanics	Kevin Gibbons	Kevin Gibbons	December 2019	2020
Optional Chaining	Gabriel Isenberg Claude Pache Dustin Savery	Gabriel Isenberg Dustin Savery Justin Ridgewell Daniel Rosenwasser	December 2019	2020
Nullish coalescing Operator	Gabriel Isenberg	Gabriel Isenberg Justin Ridgewell Daniel Rosenwasser	December 2019	2020
`import.meta`	Domenic Denicola	Gus Caplan	March 2020	2020
`String.prototype.replaceAll`	Peter Marshall Jakob Gruber Mathias Bynens	Mathias Bynens	June 2020	2021

Sort by [Engine types ▾] Show obsolete platforms ☐

■ V8 ■ SpiderMonkey ■ JavaScriptCore ■ Chakra ■ Carakan ■ KJS
■ Other

Show unstable platforms ☑

⬤ Minor difference (1 point)   ⬤ Small feature (2 points)
⬤ Medium feature (4 points)   ⬤ Large feature (8 points)

Keep up with what's supported

Feature name ►	Current browser	Compilers/polyfills												
		Babel 7 + core-js 3	Closure 2020.05	Type-Script + core-js 3	es6-shim	Konq 4.14[1]	IE 11	FF 68 ESR	FF 77	FF 78 ESR	FF 79 Beta	FF 80 Nightly	CH 81	CH 83
Optimisation														
⬤ proper tail calls (tail call optimisation) ►	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2
Syntax														
⬤ default function parameters ►	7/7	4/7	5/7	5/7	0/7	0/7	0/7	7/7	7/7	7/7	7/7	7/7	7/7	7/7
⬤ rest parameters ►	5/5	3/5	2/5	4/5	0/5	0/5	0/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5
⬤ spread syntax for iterable objects ►	15/15	14/15	11/15	14/15	0/15	0/15	0/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
⬤ object literal extensions ►	6/6	6/6	5/6	6/6	0/6	0/6	0/6	6/6	6/6	6/6	6/6	6/6	6/6	6/6
⬤ for..of loops ►	9/9	9/9	6/9	9/9	0/9	0/9	0/9	9/9	9/9	9/9	9/9	9/9	9/9	9/9
⬤ octal and binary literals ►	4/4	4/4	2/4	4/4	2/4	0/4	0/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4
⬤ template literals ►	7/7	6/7	5/7	5/7	0/7	0/7	0/7	7/7	7/7	7/7	7/7	7/7	7/7	7/7
⬤ RegExp "y" and "u" flags ►	6/6	6/6	0/6	2/6	0/6	0/6	0/6	6/6	6/6	6/6	6/6	6/6	6/6	6/6
⬤ destructuring, declarations ►	22/22	21/22	20/22	21/22	0/22	0/22	0/22	22/22	22/22	22/22	22/22	22/22	22/22	22/22
⬤ destructuring, assignment ►	24/24	24/24	22/24	24/24	0/24	0/24	0/24	24/24	24/24	24/24	24/24	24/24	24/24	24/24

98%   98%

So if HTML & CSS are constantly evolving, which parts can you use?

Can I use

? ⚙ Settings

Index of features

Latest features

- Streams
- :focus-ring CSS pseudo-class
- Media Fragments
- Selection controls for input & textarea
- WebUSB

Most searched features

1. Flexbox
2. CSS Grid
3. CSS calc()
4. SVG
5. CSS transforms

Did you know?

By default, older browser versions are only shown if they have >= 0.5% usage share. You can increase or decrease this value from the **Settings panel**.

Next

Browser scores

Current version Dev version

Chrome 61: 301
Firefox 56: 297

Third party tools

- The CanIUse Embed — Add support tables to your site
- Caniuse Component — Add support tables to your presentations
- Caniuse command line tool

caniuse.com

Can I use   grid   ?   ⚙ Settings

3 results found

CSS Grid Layout 📄 - CR

Method of using a grid concept to lay out content, providing a mechanism for authors to divide available space for layout into columns and rows using a set of predictable sizing behaviors. Includes support for all `grid-*` properties and the `fr` unit.

Current aligned   Usage relative   Date relative   Show all

IE	Edge *	Firefox	Chrome	Safari	iOS Safari *	Opera Mini *	Chrome for Android	UC Browser for Android	Samsung Internet
			[1] 49 🚩						
			63						
			66		10.3				
			67		11.2				4
[2] 11 ▬	17	61	68	11.1	11.4	all	67	11.8	7.2
	18	62	69	12	12				
		63	70	TP					
			71						

CSS Grid Layout 📄 - CR

Method of using a grid concept to lay out content, providing a mechanism for authors to divide available space for layout into columns and rows using a set of predictable sizing behaviors. Includes support for all `grid-*` properties and the `fr` unit.

Usage   % of all users

Global   84.02% + 3.38% = 87.4%

unprefixed: 84.02%

Current aligned   Usage relative   Date relative   Show all

IE	Edge *	Firefox	Chrome	Safari	iOS Safari *	Opera Mini *	Chrome for Android	UC Browser for Android	Samsung Internet
			[1] 49 🚩						
			63						
			64		10.3				
	16	58	65	11	11.2				4
[2] 11 ▬	17	59	66	11.1	11.3	all	66	11.8	6.2
	18	60	67	TP					
		61	68						
			69						

Notes   Known issues (2)   Resources (13)   Feedback

[1] Enabled in Chrome through the "experimental Web Platform features" flag in chrome://flags

IE	Edge	Firefox	Chrome	Safari	Opera	iOS Safari	Opera Mini	Android	Blackberry	Opera Mobile	Chrome Android	Firefox Android	IE Mobile	UC for Android	Samsung Internet	QQ	Baidu
		43	50		34												
		44	51	3.1	35												
		45	52	3.2	36												
		46	53	4	37	3.2											
		47	54	5	38	4.1											
		48	55	5.1	39	4.3											
		49	56	6	40	5.1											
		50	57	6.1	41	6.1		2.1									
		51	58	7	42	7.1		2.2									
		52	59	7.1	43	8		2.3									
		53	60	8	44	8.4		3									
6	12	54	61	9	45	9.2		4									
7	13	55	62	9.1	46	9.3		4.1									
8	14	56	63	10	47	10.2		4.3									
9	15	57	64	10.1	48	10.3		4.4		12					4		
10	16	58	65	11	49	11.2		4.4.4	7	12.1			10		5		
11	17	59	66	11.1	50	11.3	all	62	10	37	66	57	11	11.8	6.2	1.2	7.12
	18	60	67	TP	51												
		61	68		52												
			69														

Show all

IE	Edge *	Firefox	Chrome	Safari	Opera *	iOS Safari *	Opera Mini *	Android *	Blackberry	Opera Mobile *	Chrome Android	Firefox Android	IE Mobile	UC for Android	Samsung Internet	QQ	Baidu
		45	52		37												
		[3] 46	[1] 53	3.1	[1] 38												
		[3] 47	[1] 54	3.2	[1] 39												
		[3] 48	[1] 55	4	[1] 40	3.2											
		[3] 49	[1] 56	5	[1] 41	4.1											
		[3] 50	[4] 57	5.1	[1] 42	4.3											
		[3] 51	58	6	[1] 43	5.1											
		[4] 52	59	6.1	44	6.1		2.1									
		[4] 53	60	7	45	7.1		2.2									
		54	61	7.1	46	8		2.3									
		55	62	8	47	8.4		3									
6	[2] 12	56	63														
7	[2] 13	57	64														
8	[2] 14	58	65												4		
9	[2] 15	59	66							12					5		
[2] 10	16	60	67						7	12.1			[2] 10		6.2		
[2] 11	17	61	68	11.1	53	11.4	all	67	10	46	67	60	[2] 11	11.8	7.2	[1] 1.2	7.12
	18	62	69	12		12											
		63	70	TP													
			71														

Chrome 65

Support info	Browser version
✓ Supported	Released Mar 5, 2018

Usage

Global: **0.29%**

CSS Grid Layout 📄 - CR

Method of using a grid concept to lay out content, providing a
mechanism for authors to divide available space for layout into
columns and rows using a set of predictable sizing behaviors.
Includes support for all `grid-*` properties and the `fr` unit.

| Current aligned | **Usage relative** | Date relative | | Showing all |

Notes   Known issues (2)   Resources (13)   Feedback

📝 SIDE NOTE

What about JavaScript?

Sort by [Engine types ▾]   Show obsolete platforms ☐

Show unstable platforms ☑

🟩 V8   🟧 SpiderMonkey   🟦 JavaScriptCore   🟦 Chakra   🟥 Carakan   🟦 KJS
🟨 Other
⚪ Minor difference (1 point)   ⚪ Small feature (2 points)
⚪ Medium feature (4 points)   ⚪ Large feature (8 points)

Feature name ▶	Current browser	Babel 7 + core-js 3	Closure 2020.05	Type-Script + core-js 3	es6-shim	Kong 4.14[1]	IE 11	FF 68 ESR	FF 77	FF 78 ESR	FF 79 Beta	FF 80 Nightly	CH 81	CH 83
										98%		98%		
Optimisation														
⚪ proper tail calls (tail call optimisation) ▶	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2
Syntax														
⚪ default function parameters 🔄 ▶	7/7	4/7	5/7	5/7	0/7	0/7	0/7	7/7	7/7	7/7	7/7	7/7	7/7	7/7
⚪ rest parameters 🔄 ▶	5/5	3/5	2/5	4/5	0/5	0/5	0/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5
⚪ spread syntax for iterable objects 🔄 ▶	15/15	14/15	11/15	14/15	0/15	0/15	0/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
⚪ object literal extensions 🔄 ▶	6/6	6/6	5/6	6/6	0/6	0/6	0/6	6/6	6/6	6/6	6/6	6/6	6/6	6/6
⚪ for..of loops 🔄 ▶	9/9	9/9	6/9	9/9	0/9	0/9	0/9	9/9	9/9	9/9	9/9	9/9	9/9	9/9
⚪ octal and binary literals ▶	4/4	4/4	2/4	4/4	2/4	0/4	0/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4
⚪ template literals 🔄 ▶	7/7	6/7	5/7	5/7	0/7	0/7	0/7	7/7	7/7	7/7	7/7	7/7	7/7	7/7
⚪ RegExp "y" and "u" flags 🔄 ▶	6/6	6/6	0/6	2/6	0/6	0/6	0/6	6/6	6/6	6/6	6/6	6/6	6/6	6/6
⚪ destructuring, declarations 🔄 ▶	22/22	21/22	20/22	21/22	0/22	0/22	0/22	22/22	22/22	22/22	22/22	22/22	22/22	22/22
⚪ destructuring, assignment 🔄 ▶	24/24	24/24	22/24	24/24	0/24	0/24	0/24	24/24	24/24	24/24	24/24	24/24	24/24	24/24

How the Web Works

Browsers are the Web clients & make requests

Web servers respond to client requests

HTTP is the set of rules determining how browsers & servers communicate with each other

Browsers
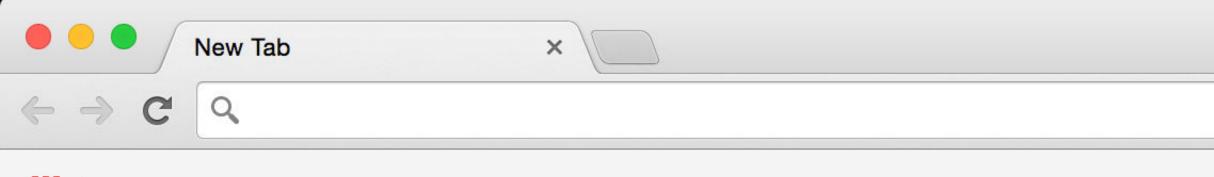
You cannot support *all* browsers (unless you are, say, Amazon)

You need to choose the browsers you will support
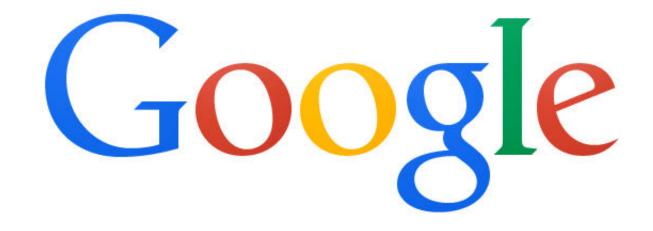
4 levels of support you need to consider:

» Everything looks & works the same in all browsers
» Site must look the same, but functionality can be different across browsers
» Functionality must be the same, but looks can be different across browsers
» Looks & functionality can both differ across browsers

Browser Parts

Gmail   Images

Google

Search Google or type URL

Welcome to Google C   Chrome Web Store

New Tab ✕
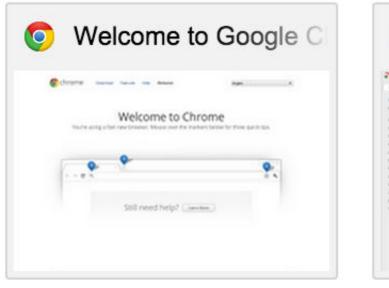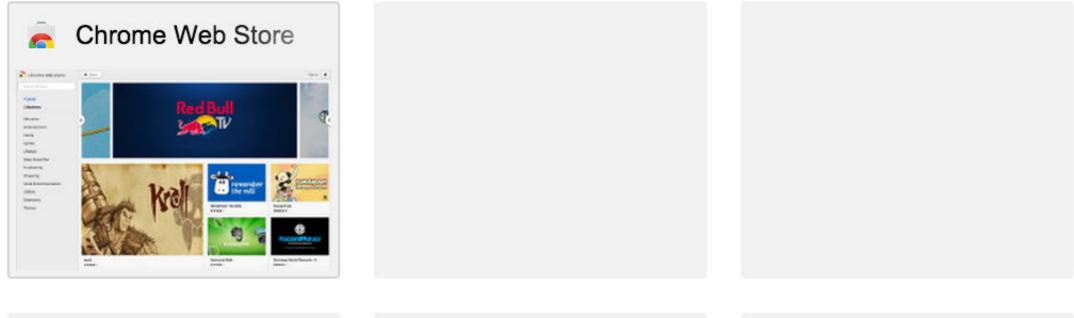
Apps   For quick access, place your bookmarks here on the bookmarks bar.   Import bookmarks now…
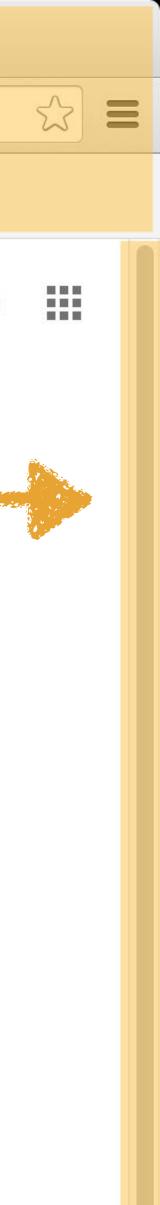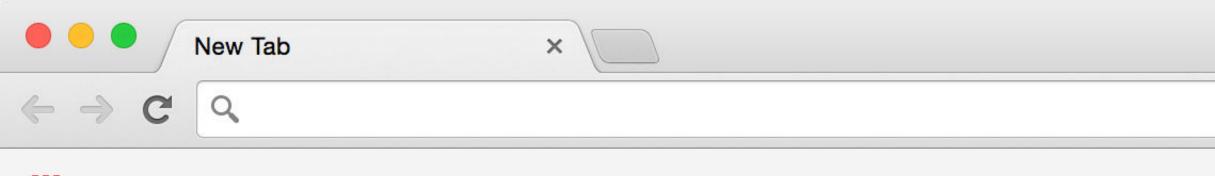
Gmail   Images

Chrome

Google

Search Google or type URL

Welcome to Google C...   Chrome Web Store
Welcome to Chrome

Gmail   Images   ⠿

Viewport

Google

Search Google or type URL   🎤

Welcome to Google C

Chrome Web Store
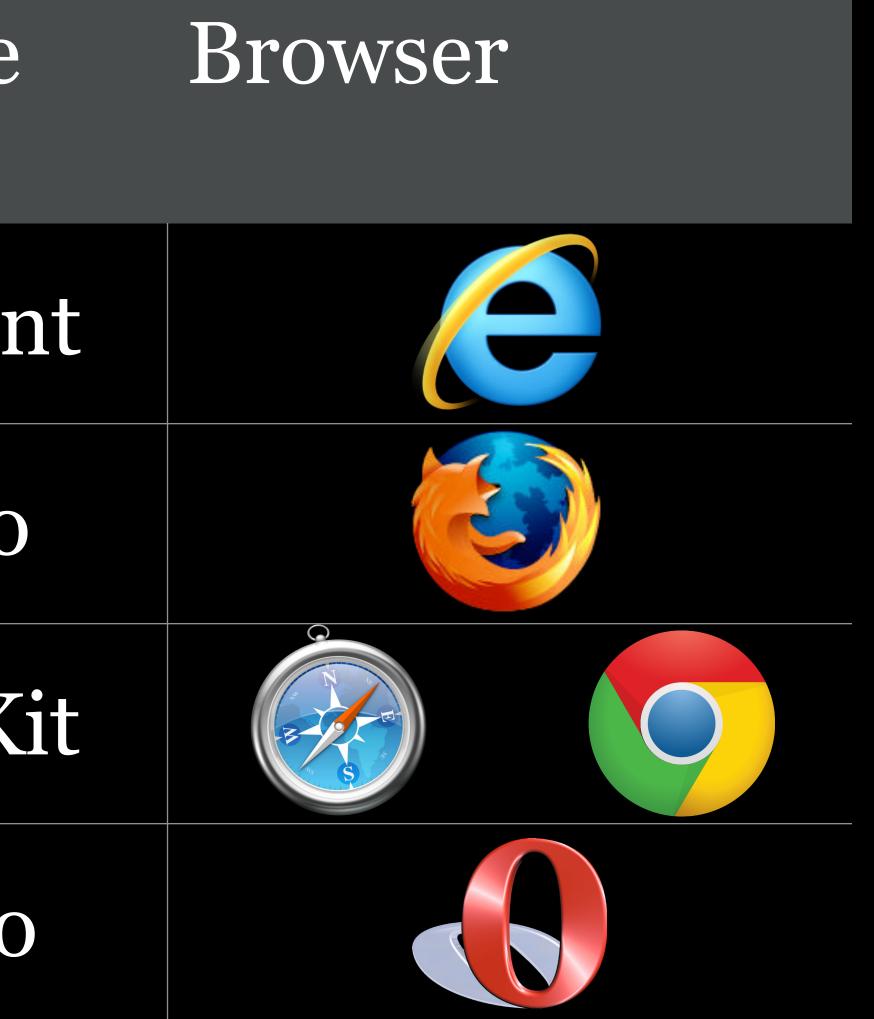
Rendering Engines

Rendering Engine (AKA *Layout Engine* or *Web Browser Engine*)

Combines HTML & CSS into formatted webpages in the viewport of a web browser (or other programs, like email)

Pre-April 2013
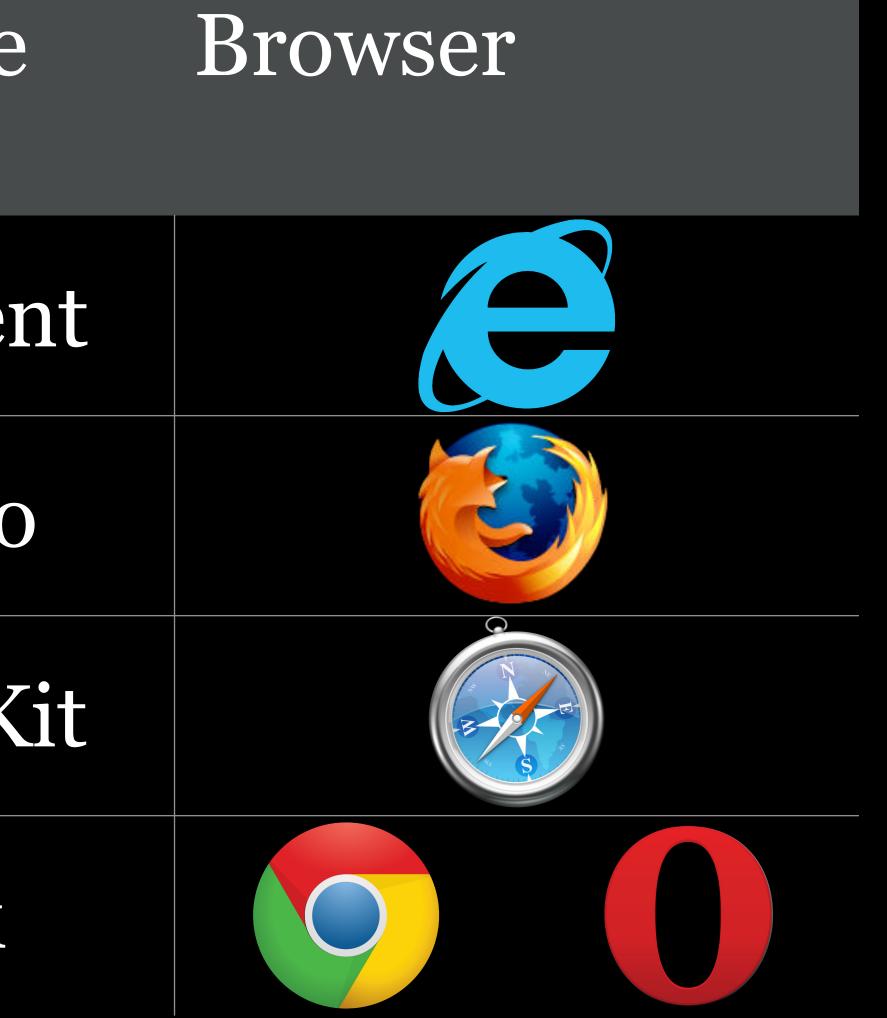
Rendering Engine	Name	Browser
	Trident	
	Gecko	
	WebKit	
	Presto	
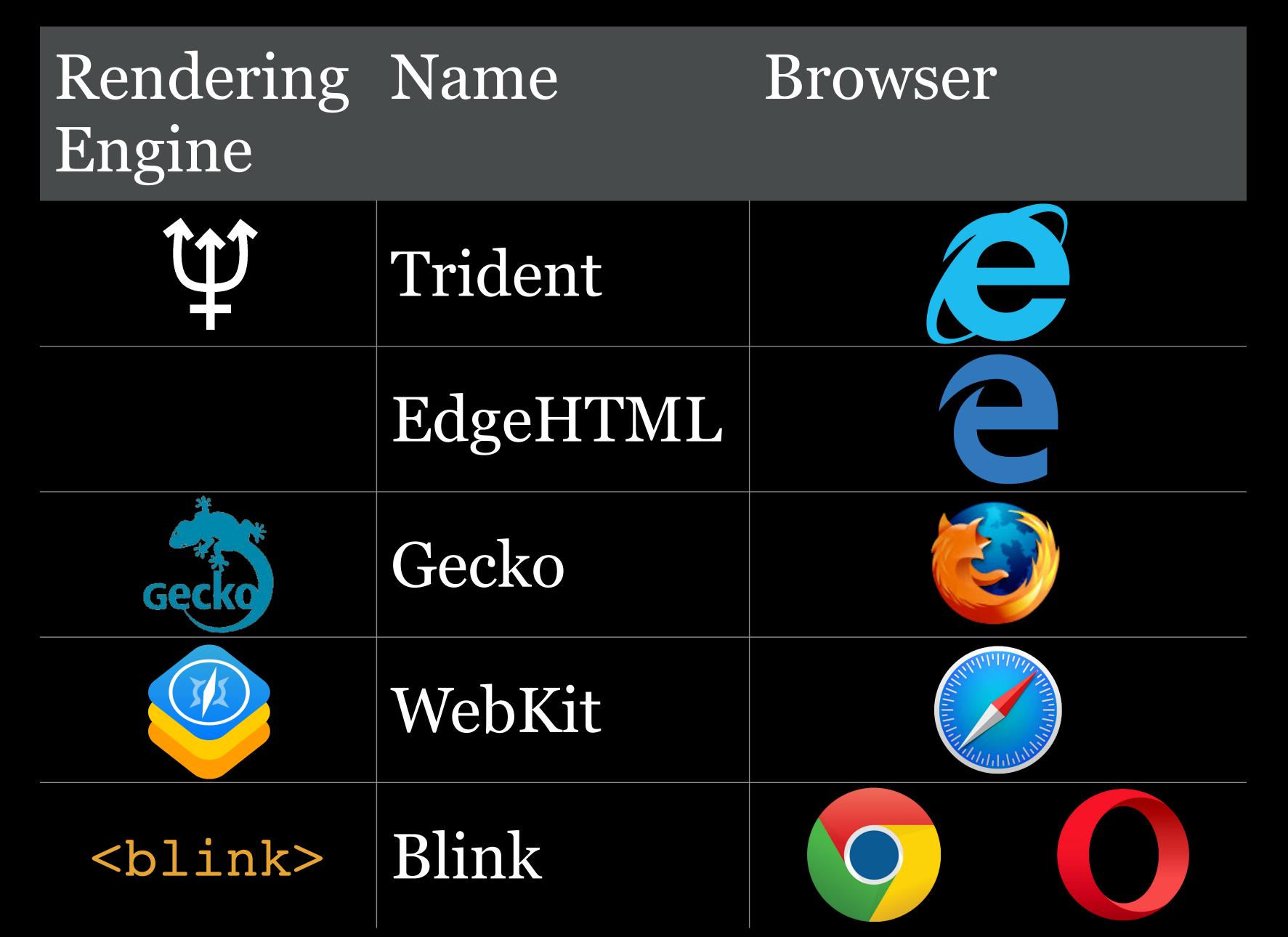
April 2013–August 2015

Rendering Engine	Name	Browser
⯰	Trident	
	Gecko	
	WebKit	
`<blink>`	Blink	

After August 2015

Rendering Engine	Name	Browser
♆	Trident	
	EdgeHTML	
Gecko	Gecko	
	WebKit	
`<blink>`	Blink	
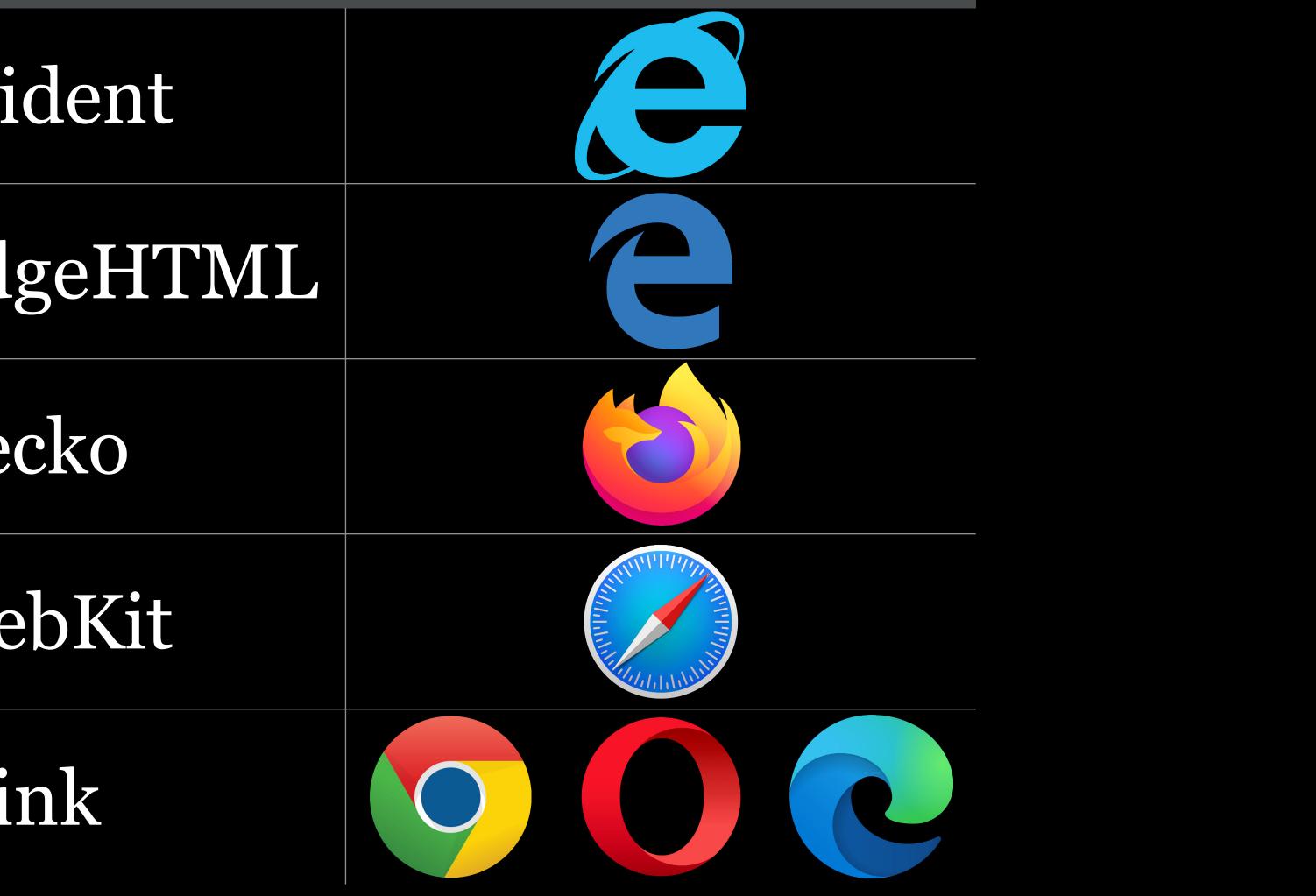
After January 2020

Rendering Engine	Name	Browser
♆	Trident	
	EdgeHTML	
Gecko	Gecko	
	WebKit	
`<blink>`	Blink	

On August 17, 2020, Microsoft published a blog post, "Microsoft 365 apps say farewell to Internet Explorer 11 and Windows 10 sunsets Microsoft Edge Legacy"

» November 30, 2020: Microsoft Teams web app no longer supports IE 11
» March 9, 2021: Edge Legacy no longer receives security updates
» August 17, 2021: Microsoft 365 apps & services no longer supports IE 11

Chromium is an open source browser, overseen by Google, that uses the Blink rendering engine

About every 6 weeks, Google takes Chromium, adds Google (spying) stuff to it, & releases it as Chrome
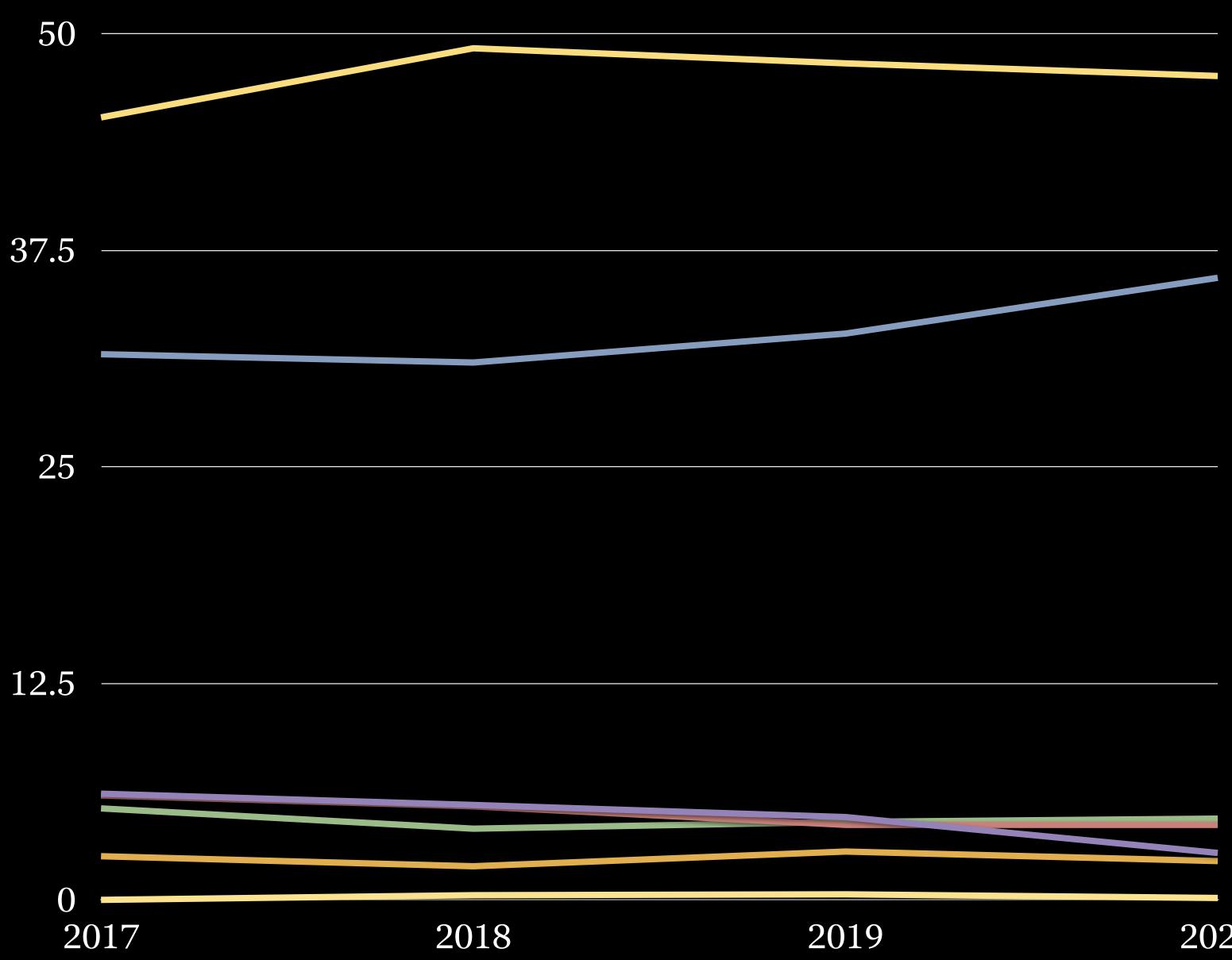
Browsers based on Chromium besides Chrome, Opera, & Edge

Amazon Silk • Blisk • *Brave* • Comodo Dragon • Cốc Cốc • Epic • Falkon • Qihoo 360 Secure Browser • SalamWeb • Samsung Internet • Sleipnir • Slimjet • Torch • UC Browser • *Vivaldi* • Yandex

	USA %	Worldwide %
Chrome	47.56	63.93
Safari	35.91	18.19
Edge (old + new)	4.69	2.71
Firefox	4.33	4.38
IE	2.71	1.4
Samsung Internet	2.24	3.28
UC Browser (China)	0.11	2

Data from May 2020

Browser market
share, USA

50

37.5

25

12.5

0

2017   2018   2019   2020
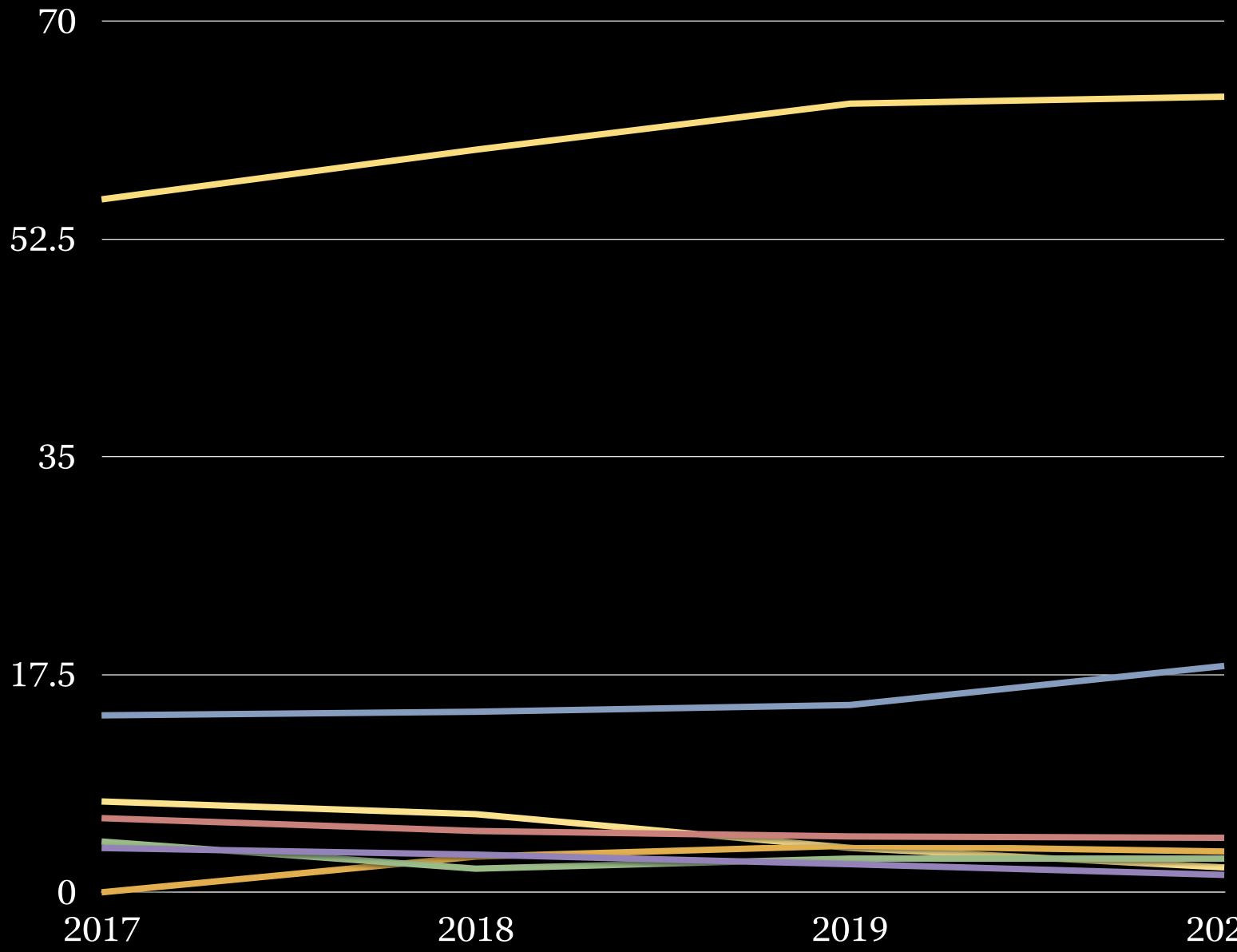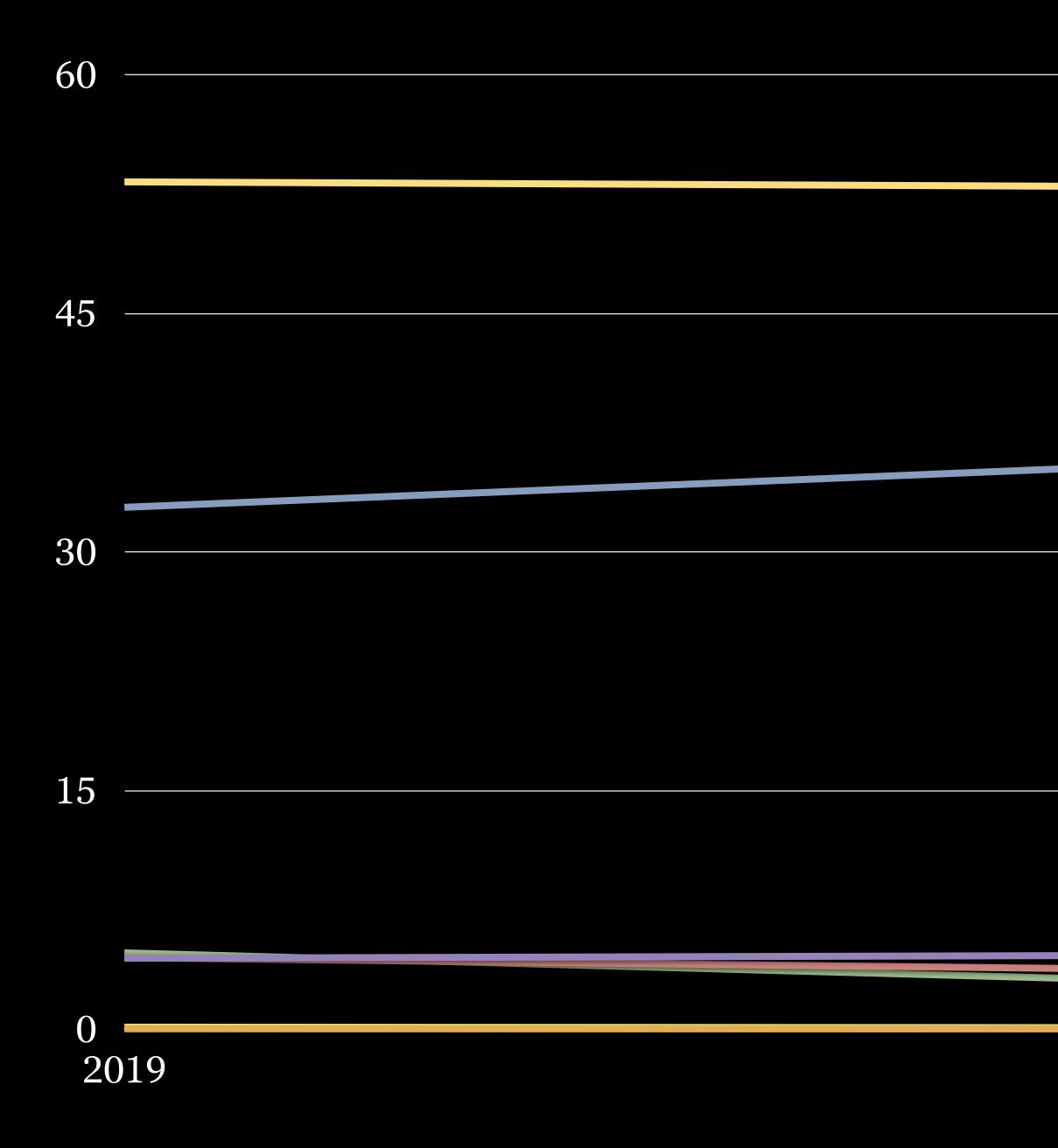
Chrome
Safari
IE
Firefox
Edge
Samsung Internet
UC Browser (China)

Browser market
share, worldwide

70

52.5

35

17.5

0

2017   2018   2019   2020

Chrome
Safari
IE
Firefox
Edge
Samsung Internet
UC Browser (China)

Rendering engine market share, USA

60

45

30

15

0

2019   2020

- Blink
- WebKit
- Gecko
- EdgeHTML
- Trident
- WebKit + Trident
- Unknown

Rendering engine market share, worldwide

✏️ SIDE NOTE

A *JavaScript engine* (or *interpreter*) executes JavaScript code in the web browser

📝 SIDE NOTE

Before early 2019
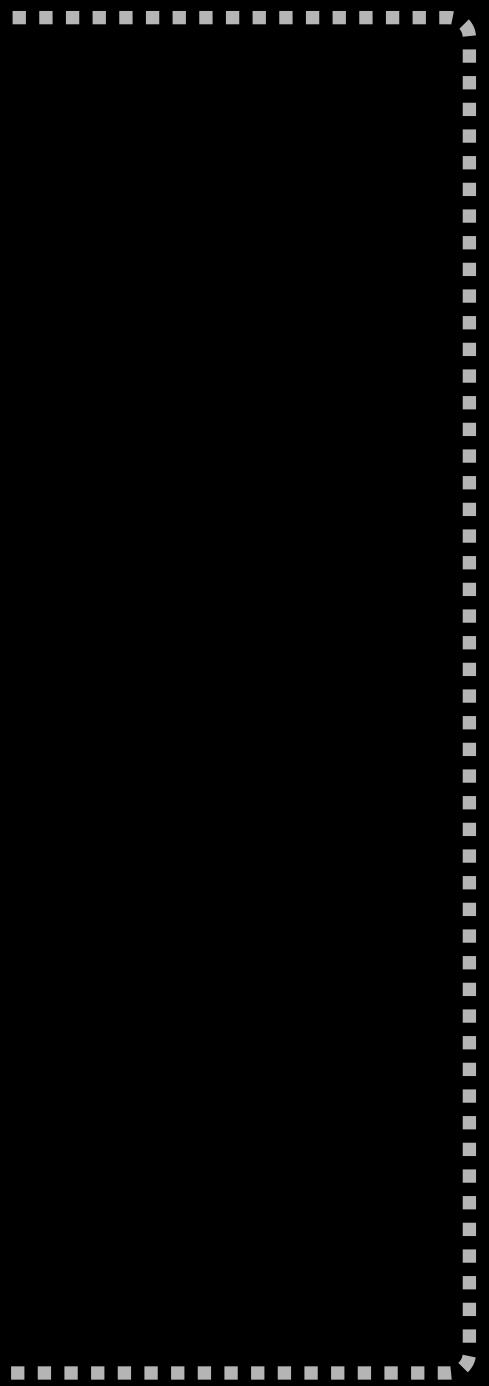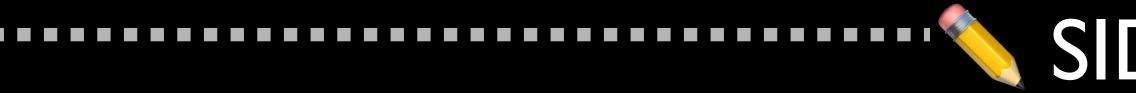
JavaScript Engine	Browser
Chakra	
Chakra	
Spider Monkey	
Nitro	
V8	

📝 SIDE NOTE
After early 2019

JavaScript Engine	Browser
Spider Monkey	
Nitro	
V8	

Choices
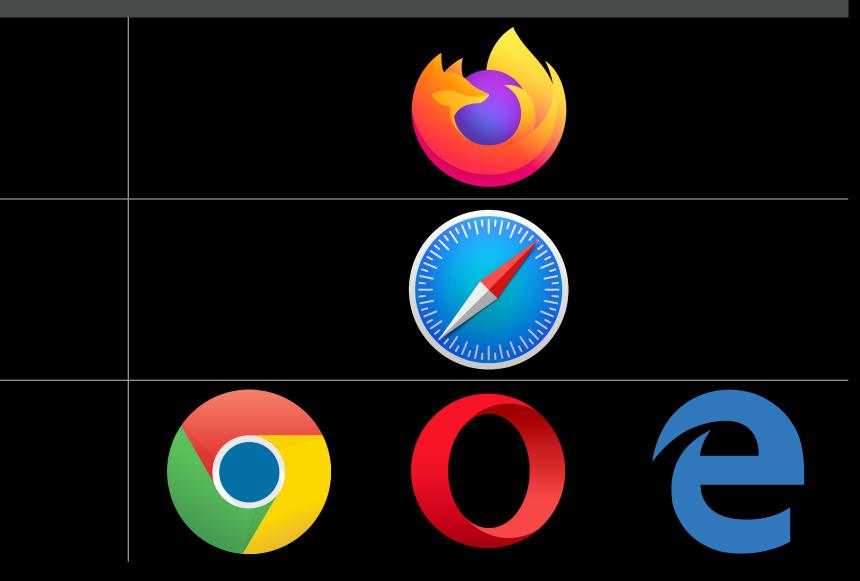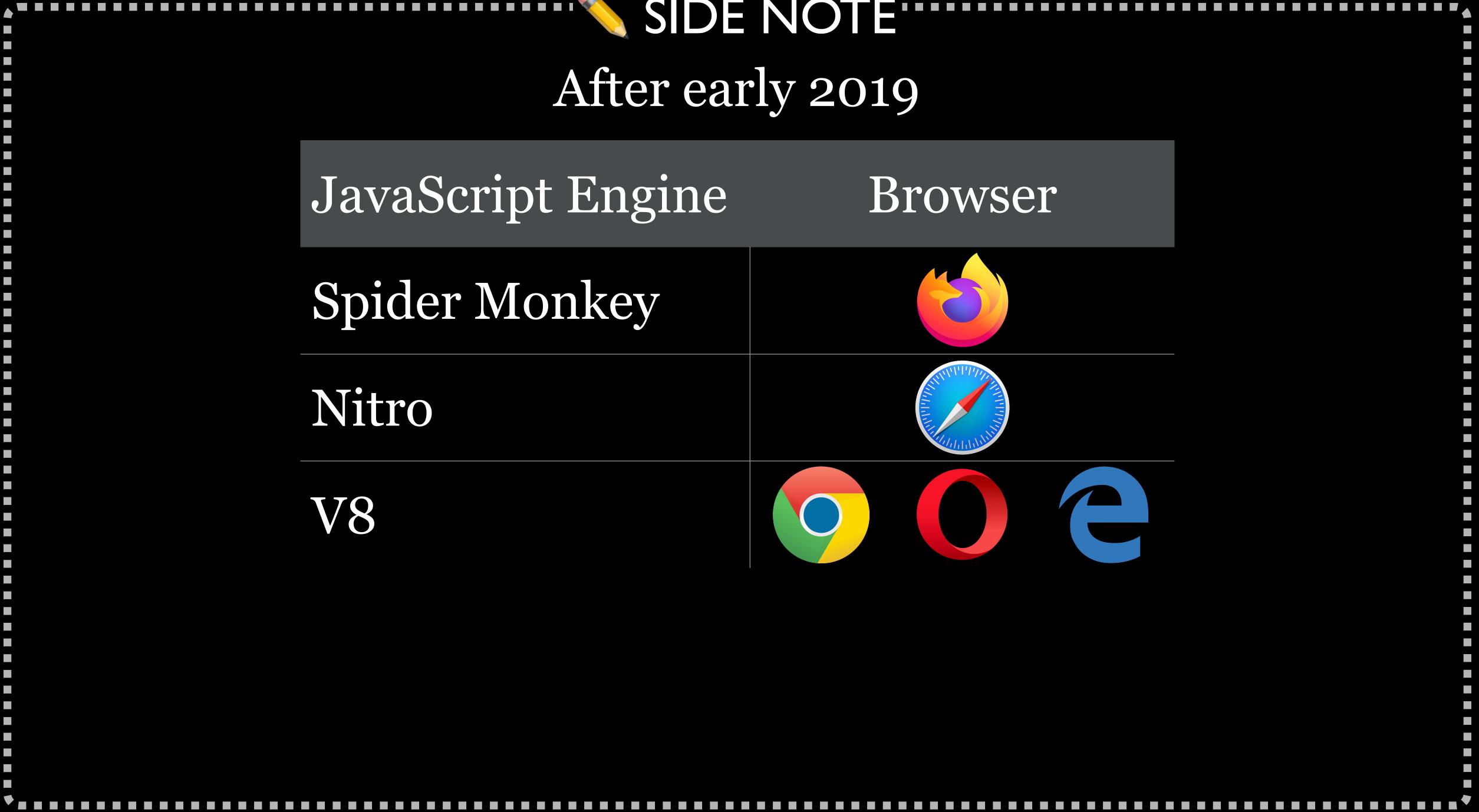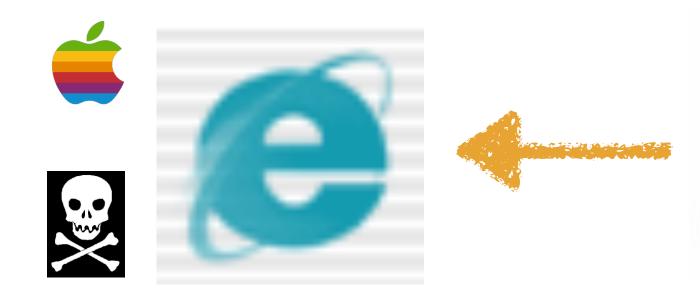
Internet Explorer/Edge
Family Tree
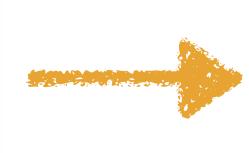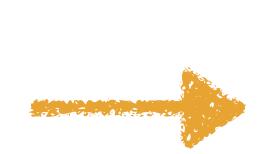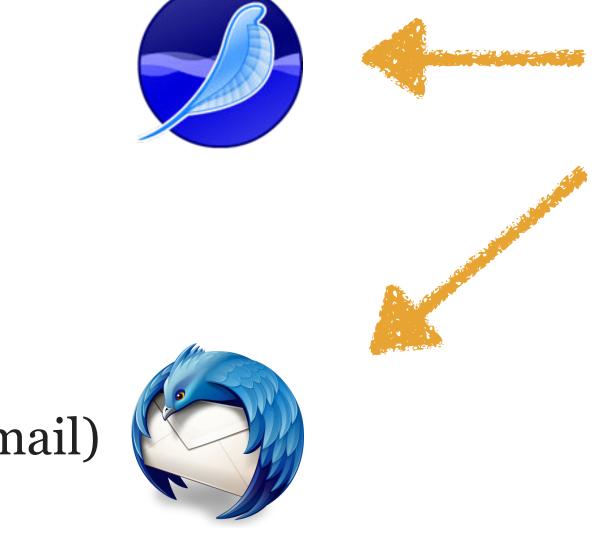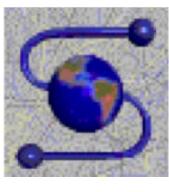
Netscape/Mozilla/Firefox Family Tree

Mosaic

Thunderbird (email)

Safari/Chromium Family Tree
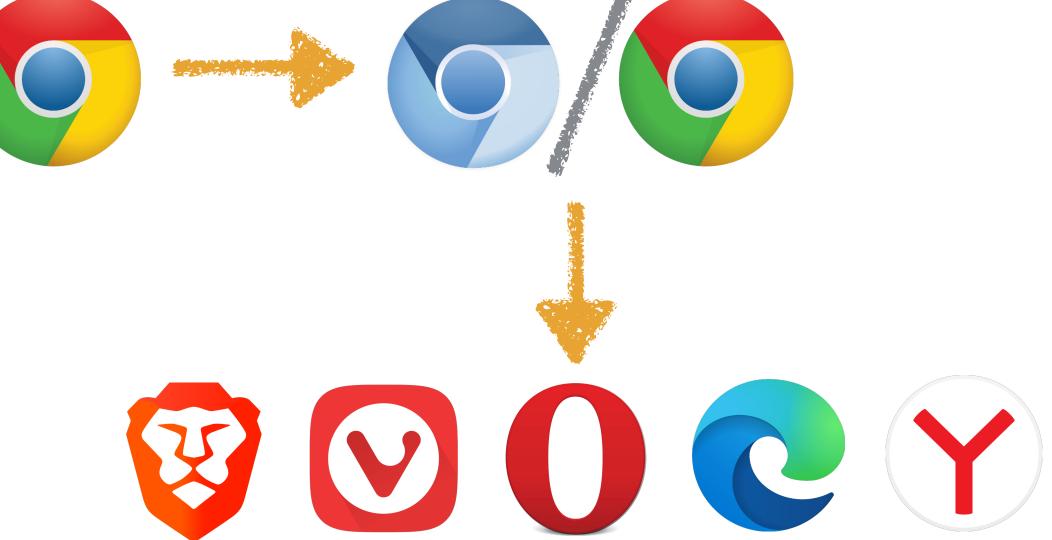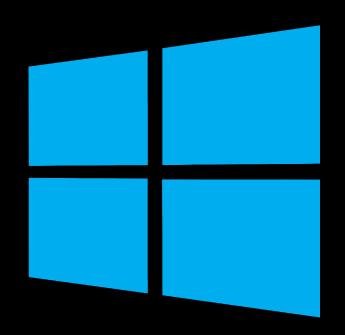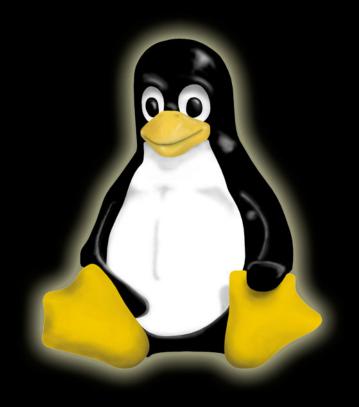
Internet Explorer
Edge
Edge (Chromium)

Chrome/Vivaldi/Brave
Firefox

Safari

Chrome/Vivaldi/Brave/Edge (Chromium)
Firefox

Chrome/Vivaldi/Brave/Edge (Chromium)
Firefox
Konqueror
GNOME Web

Web Servers

You type `https://www.granneman.com/writing` into your browser & press Enter

Your web browser sends a request to the web server

The web server responds
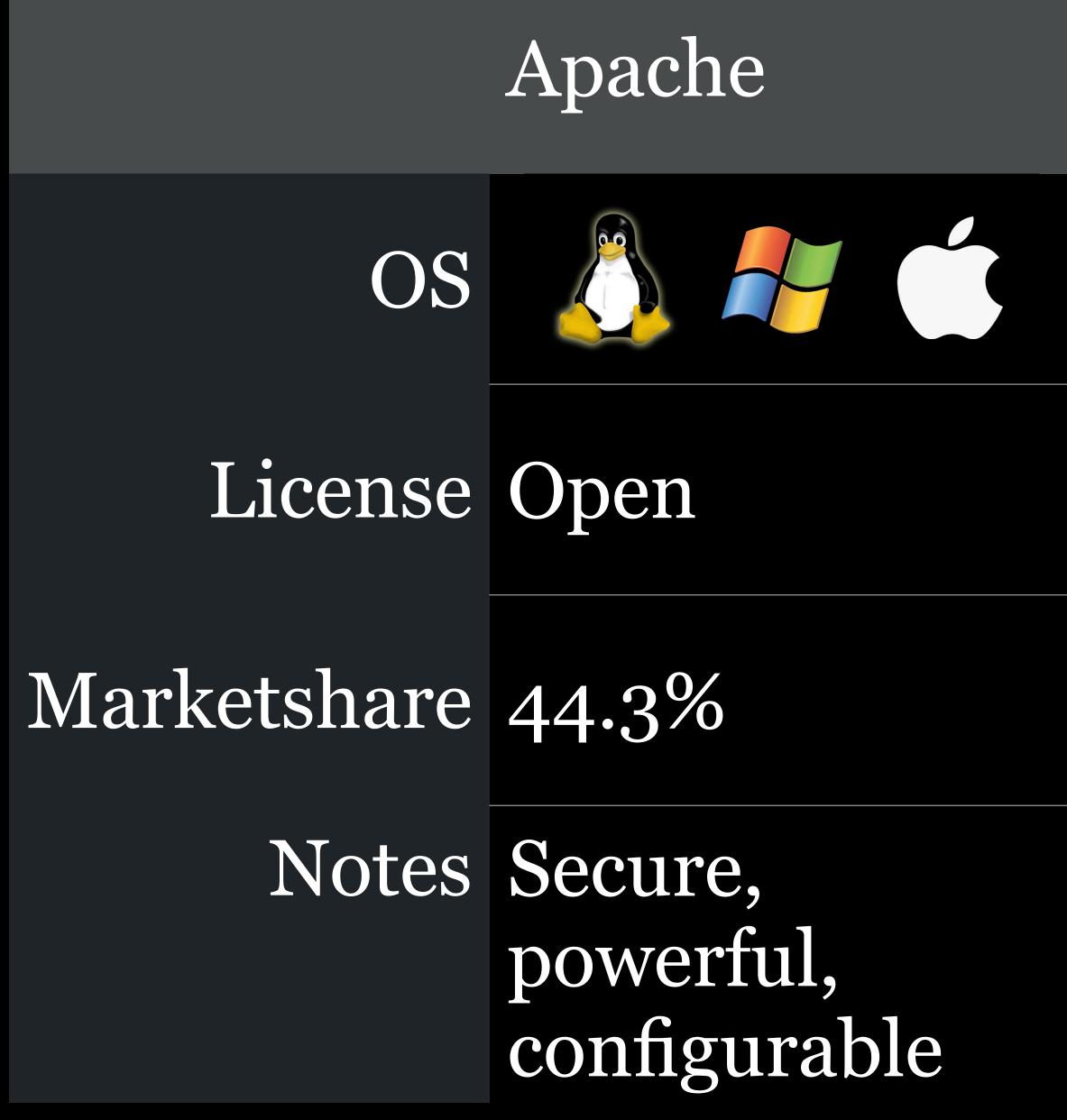
Web servers are computers that run web server software

Web servers are pretty simple: they get requests, & they respond
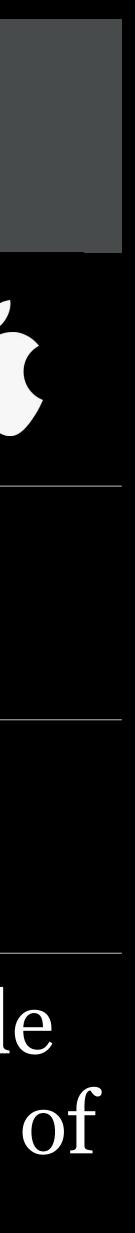
3 most important web servers

» Apache
» IIS (Internet Information Services)
» Nginx

	Apache	IIS	Nginx
OS			
License	Open	Closed	Open
Marketshare	44.3%	8.9%	41%
Notes	Secure, powerful, configurable	If you live in Microsoft-land…	Fast, req. little memory, lots of connections

Marketshare as of February 2019

HTTP
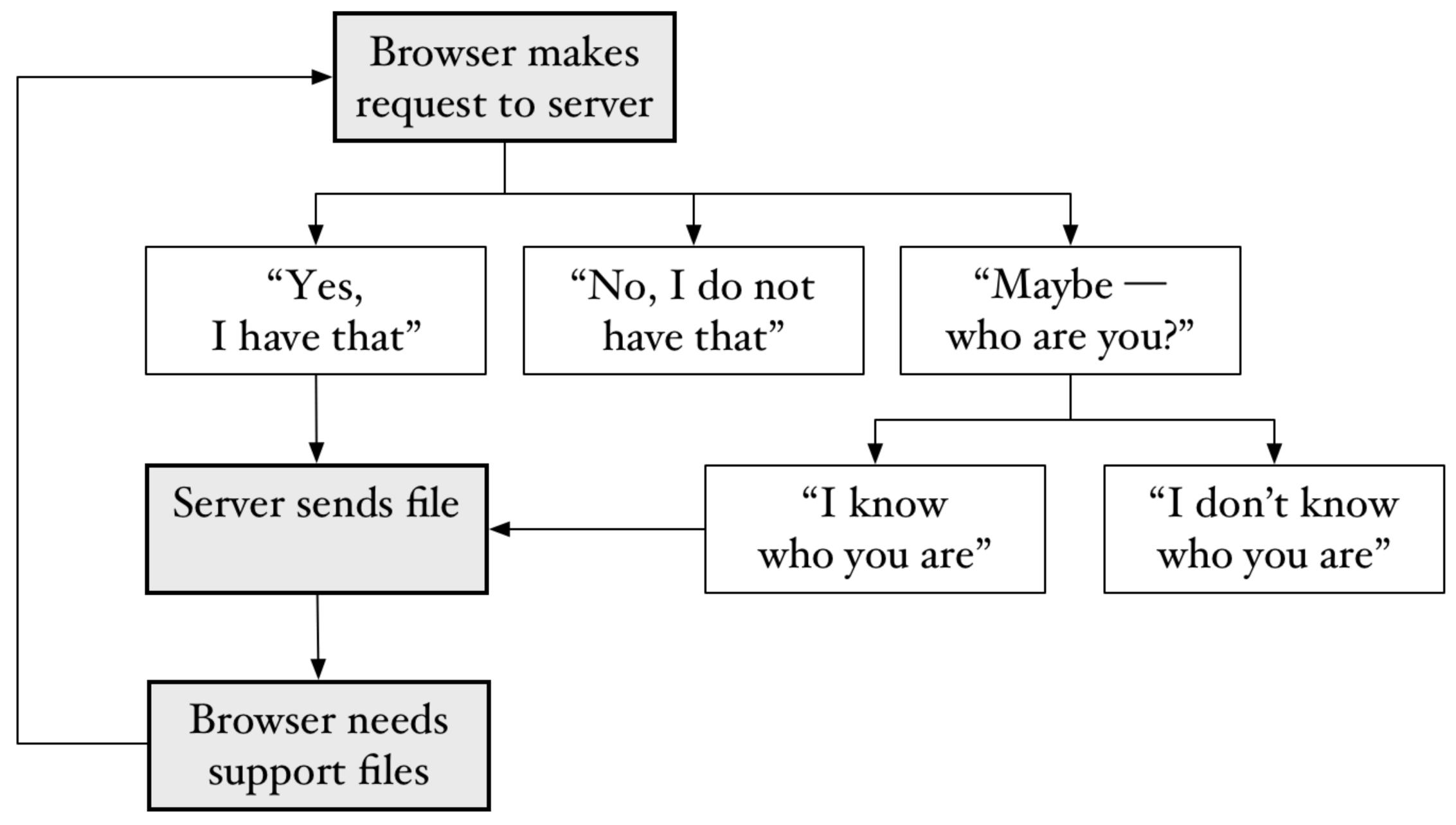
A *protocol* is "a defined set of rules and regulations that determine how data is transmitted in … computer networking"
—Wikipedia
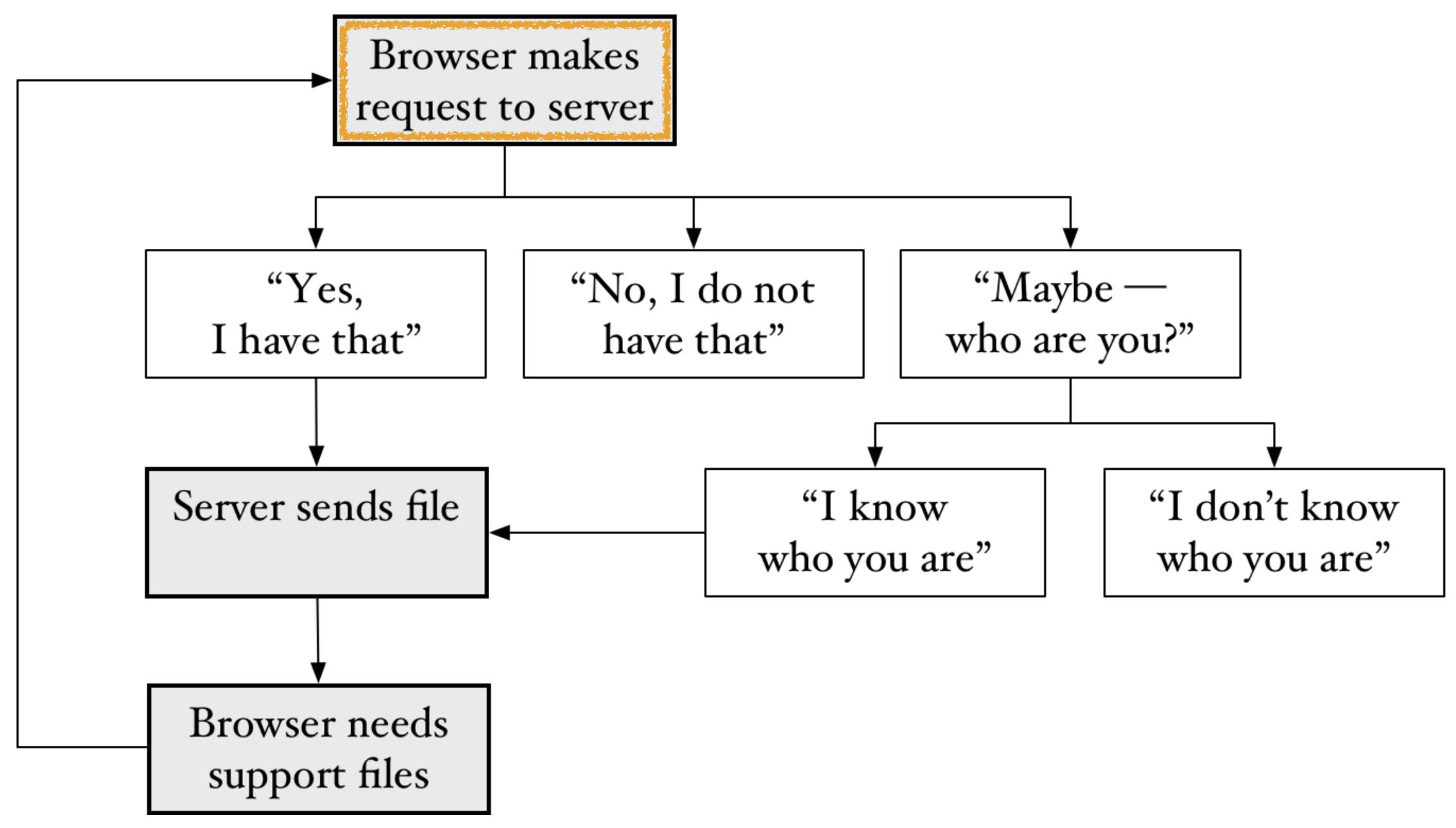
"*HTTP* [the Hypertext Transfer Protocol] is the foundation of data communication for the World Wide Web. … HTTP is the protocol to exchange or transfer hypertext." —Wikipedia

An HTTP *session* consists of a series of "hidden" network request-response transactions between the browser & web server

```
                    ┌─────────────────┐
                    │  Browser makes  │
              ┌────▶│ request to server│
              │     └─────────────────┘
              │              │
              │      ┌───────┼───────────────┐
              │      ▼       ▼               ▼
       ┌──────────┐  ┌──────────┐    ┌──────────────┐
       │  "Yes,   │  │ "No, I do not│  │  "Maybe —    │
       │ I have that"│  │ have that"  │  │ who are you?" │
       └──────────┘  └──────────┘    └──────────────┘
              │                              │
              ▼                     ┌────────┼────────┐
       ┌──────────────┐            ▼                 ▼
       │ Server sends file│◀──┌──────────────┐  ┌──────────────┐
       └──────────────┘   │   "I know     │  │ "I don't know │
              │           │ who you are"  │  │ who you are"  │
              ▼           └──────────────┘  └──────────────┘
       ┌──────────────┐
       │ Browser needs │
       │ support files │
       └──────────────┘
```

You type `https://www.granneman.com/writing` into your browser & press Enter

Your web browser sends a request to the web server
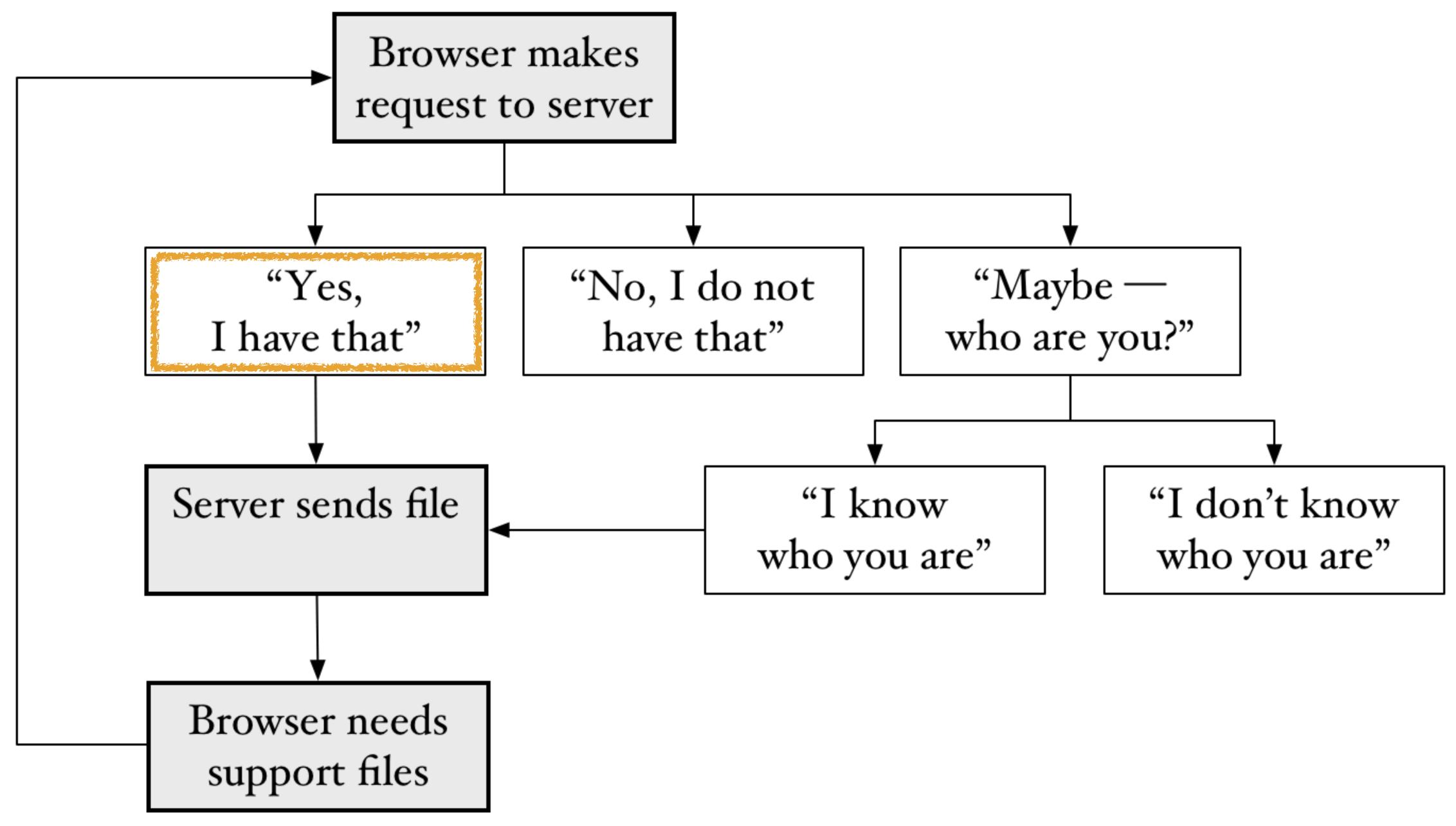
```
GET /writing/ HTTP/1.1
Host: www.granneman.com
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS
X 10.11; rv:45.0) Gecko/20100101 Firefox/45.0
Accept: text/html,application/
xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
DNT: 1
Cookie: CONCRETE5=6h8714bfr5m4g33p4mawxple93
Connection: keep-alive
Cache-Control: max-age=0
```
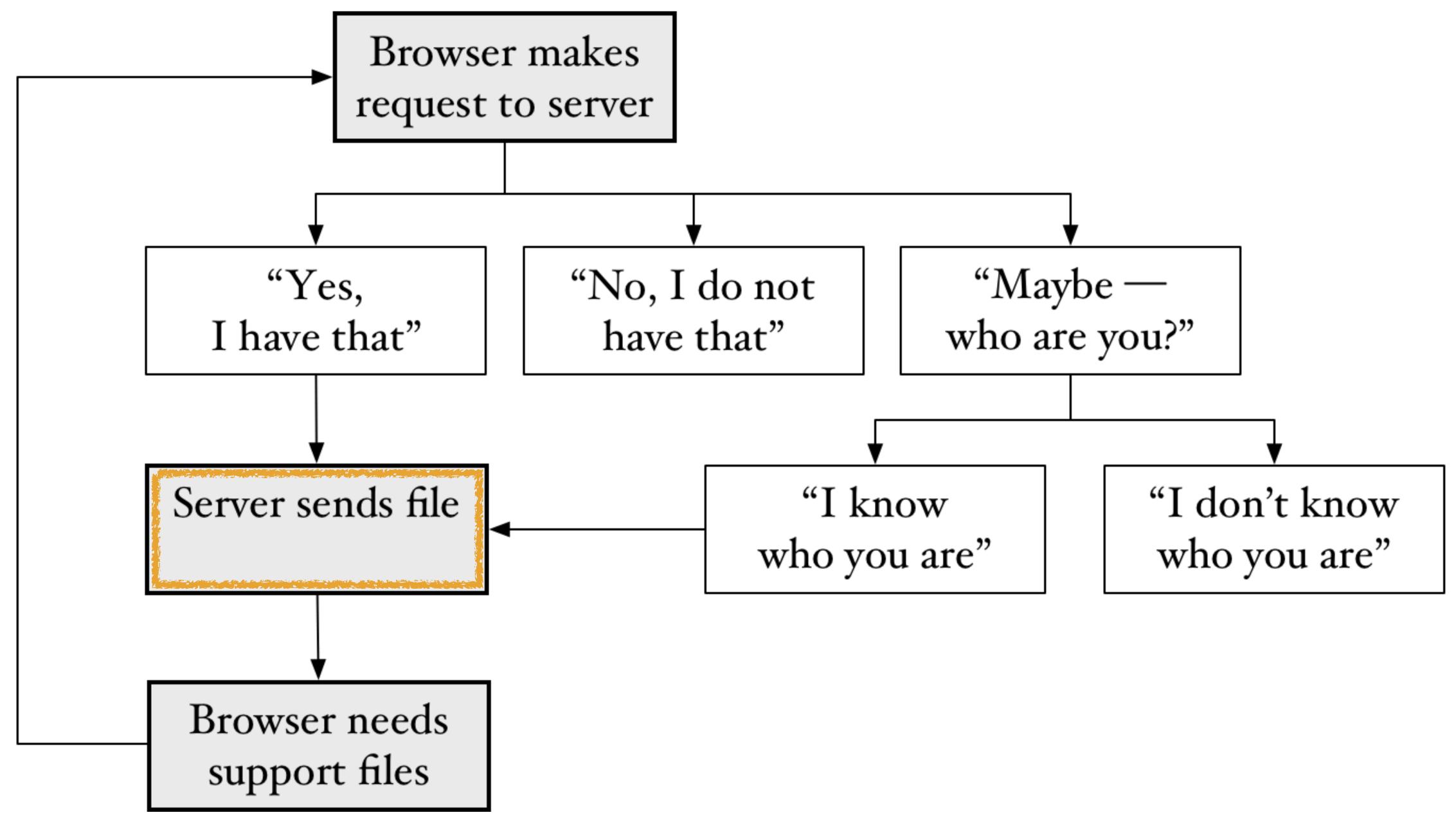
The web server responds with a *Yes*, *No*, or *Maybe*

```
                    ┌─────────────────────┐
                    │   Browser makes     │
          ┌────────▶│  request to server  │
          │         └─────────────────────┘
          │                    │
          │         ┌──────────┼──────────────────┐
          │         ▼          ▼                  ▼
          │   ┌───────────┐ ┌──────────┐  ┌──────────────┐
          │   │  "Yes,    │ │ "No, I do│  │  "Maybe —    │
          │   │ I have    │ │ not have │  │ who are you?"│
          │   │  that"    │ │  that"   │  └──────────────┘
          │   └───────────┘ └──────────┘         │
          │         │                     ┌───────┴────────┐
          │         ▼                     ▼                ▼
          │   ┌───────────┐        ┌──────────┐    ┌──────────────┐
          │   │  Server   │◀───────│ "I know  │    │ "I don't know│
          │   │ sends file│        │who you   │    │ who you are" │
          │   └───────────┘        │  are"    │    └──────────────┘
          │         │              └──────────┘
          │         ▼
          │   ┌───────────┐
          │   │  Browser  │
          └───│  needs    │
              │ support   │
              │  files    │
              └───────────┘
```

```
HTTP/1.1 200 OK
Date: Wed, 20 Apr 2016 17:02:26 GMT
Server: Apache
X-Frame-Options: SAMEORIGIN
Vary: User-Agent,Accept-Encoding
Expires: Thu, 19 Nov 1981 08:52:00 GMT
Cache-Control: no-store, no-cache, must-revalidate,
post-check=0, pre-check=0
Pragma: no-cache
Content-Encoding: gzip
Content-Length: 4031
Keep-Alive: timeout=2, max=100
Connection: Keep-Alive
Content-Type: text/html; charset=UTF-8
```
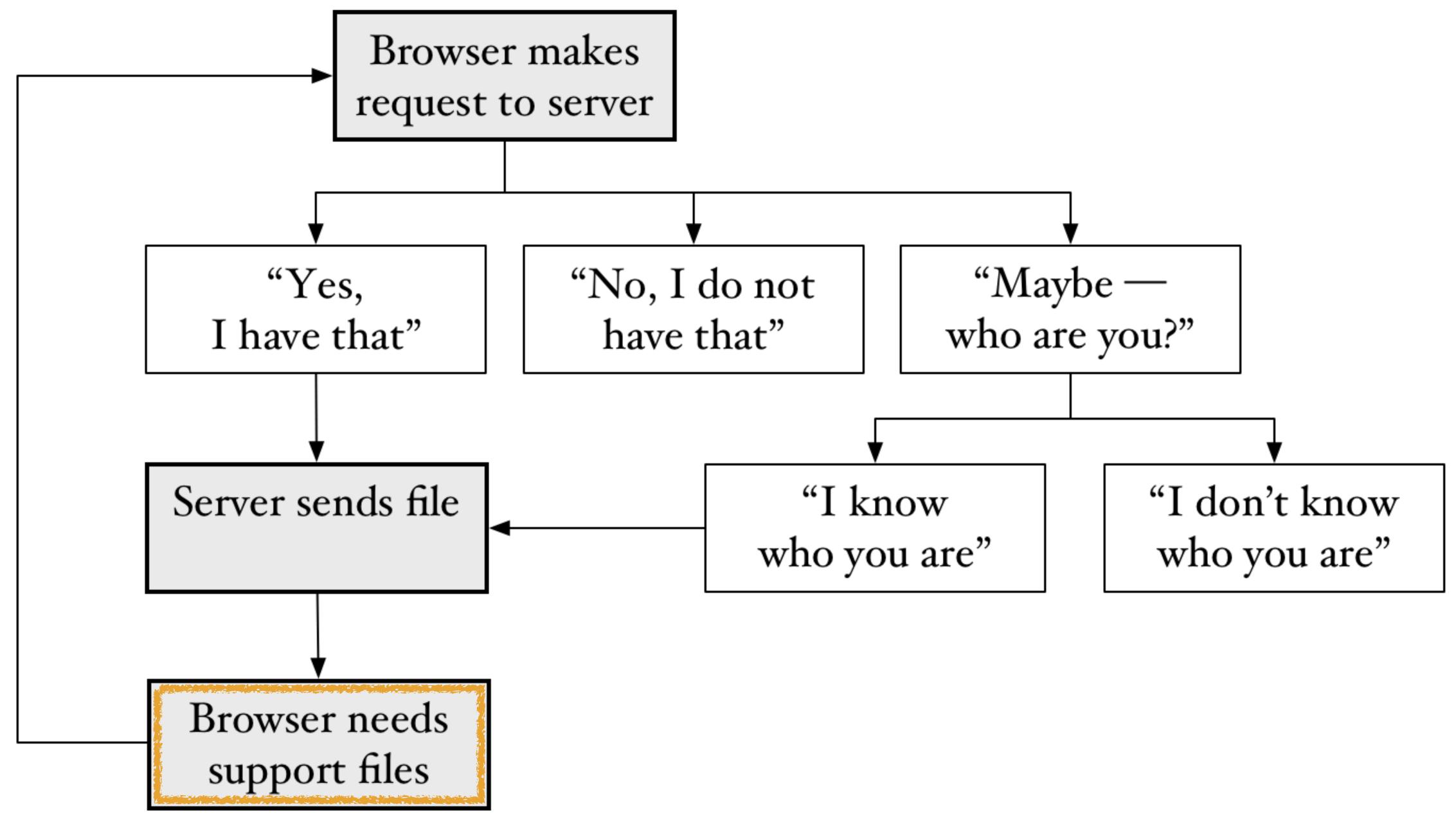
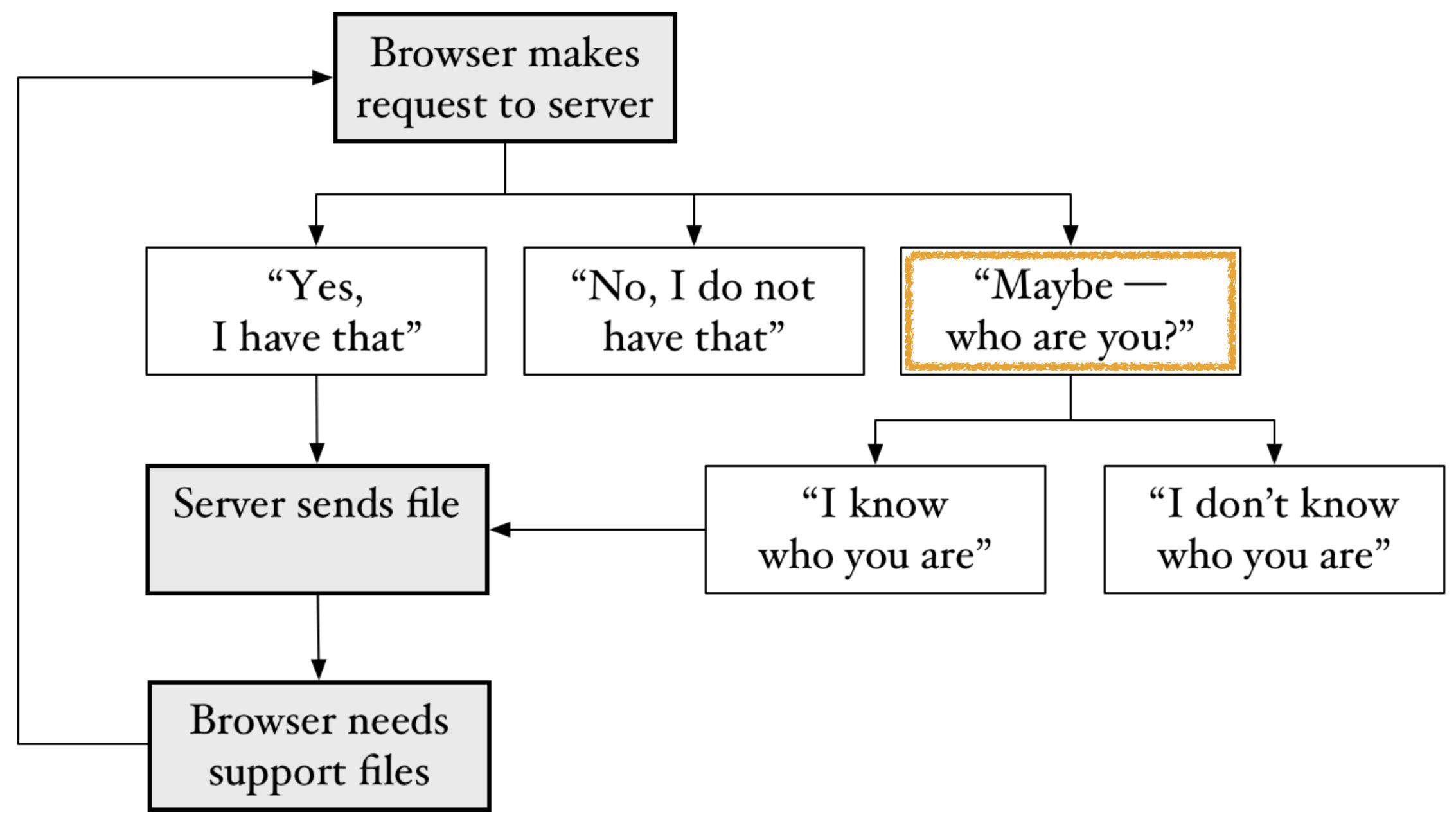The web server sends the webpage HTML to your web browser

```
                    ┌─────────────────┐
          ┌────────▶│  Browser makes  │
          │         │ request to server│
          │         └─────────────────┘
          │                  │
          │      ┌───────────┼───────────────┐
          │      ▼           ▼               ▼
          │  ┌─────────┐ ┌──────────┐  ┌──────────────┐
          │  │ "Yes,   │ │"No, I do │  │ "Maybe —     │
          │  │ I have  │ │ not      │  │ who are you?"│
          │  │ that"   │ │ have that"│  └──────────────┘
          │  └─────────┘ └──────────┘        │
          │      │                     ┌──────┴───────┐
          │      ▼                     ▼              ▼
          │  ┌─────────────┐  ┌──────────────┐ ┌──────────────┐
          │  │Server sends │◀─│  "I know     │ │ "I don't know│
          │  │    file     │  │ who you are" │ │ who you are" │
          │  └─────────────┘  └──────────────┘ └──────────────┘
          │      │
          │      ▼
          │  ┌──────────────┐
          └──│ Browser needs│
             │ support files│
             └──────────────┘
```

```
<!DOCTYPE html>
<html lang="en" class="cID-95">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Writing :: Scott Granneman</title>
  <meta name="description" content="Scott Granneman's work as a professional writer.">
  <link rel="stylesheet" href="/themes/bootstrap/css/main.css">
…
```

```
                    ┌─────────────────┐
        ┌──────────▶│  Browser makes  │
        │           │ request to server│
        │           └─────────────────┘
        │              │     │     │
        │        ┌─────┘     │     └─────────┐
        │        ▼           ▼               ▼
        │  ┌───────────┐ ┌───────────┐ ┌───────────┐
        │  │  "Yes,    │ │ "No, I do not│ │ "Maybe —  │
        │  │ I have that"│ │ have that" │ │who are you?"│
        │  └───────────┘ └───────────┘ └───────────┘
        │        │                        │     │
        │        ▼                   ┌─────┘     └─────┐
        │  ┌───────────┐             ▼                 ▼
        │  │           │       ┌───────────┐    ┌───────────┐
        │  │Server sends file│◀─│  "I know  │    │ "I don't know│
        │  │           │       │ who you are"│    │ who you are"│
        │  └───────────┘       └───────────┘    └───────────┘
        │        │
        │        ▼
        │  ┌───────────┐
        │  │Browser needs│
        └──│support files│
           └───────────┘
```

Your web browser asks the web server for the 1st linked content (e.g., JavaScript or CSS) it sees in the webpage's HTML

Header info about the 1st linked content is sent by the web server to the browser
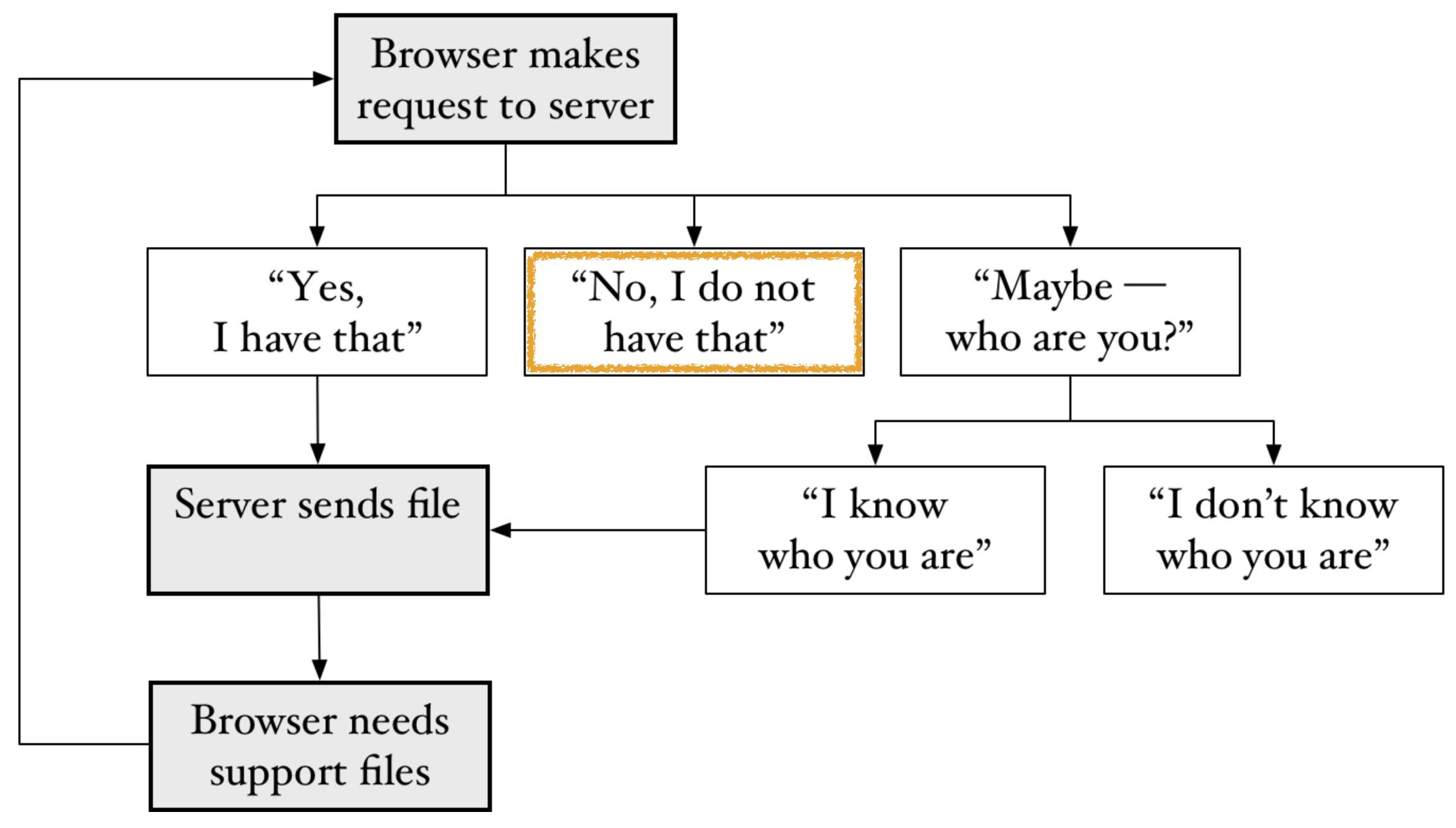
The web server sends the 1st linked content to your web browser

Repeat the above for each linked content item (including images & videos) until complete

```
GET /themes/bootstrap/css/main.css HTTP/1.1
Host: www.granneman.com
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X
10.11; rv:45.0) Gecko/20100101 Firefox/45.0
Accept: text/css,*/*;q=0.1
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
DNT: 1
Referer: http://www.granneman.com/writing/
Cookie: CONCRETE5=6h8714bfr5m4g33p4mawxple93
Connection: keep-alive
If-Modified-Since: Sat, 16 Apr 2016 21:11:23 GMT
If-None-Match: "3434-530a091d50037-gzip"
Cache-Control: max-age=0
```

```
HTTP/1.1 200 OK
Date: Wed, 20 Apr 2016 17:02:27 GMT
Server: Apache
X-Frame-Options: SAMEORIGIN
Vary: User-Agent,Accept-Encoding
Last-Modified: Sat, 16 Apr 2016 21:11:23 GMT
Etag: "3434-530a091d50037-gzip"
Accept-Ranges: bytes
Content-Encoding: gzip
Content-Length: 3253
Keep-Alive: timeout=2, max=100
Connection: Keep-Alive
Content-Type: text/css
```

Browser makes request to server

"Yes, I have that"

"No, I do not have that"

"Maybe — who are you?"

Server sends file

"I know who you are"

"I don't know who you are"

Browser needs support files

```
GET /writings/ HTTP/1.1
Host: www.granneman.com
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS
X 10.11; rv:45.0) Gecko/20100101 Firefox/45.0
Accept: text/html,application/
xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
DNT: 1
Cookie: CONCRETE5=6h8714bfr5m4g33p4mawxple93
Connection: keep-alive
Cache-Control: max-age=0
```
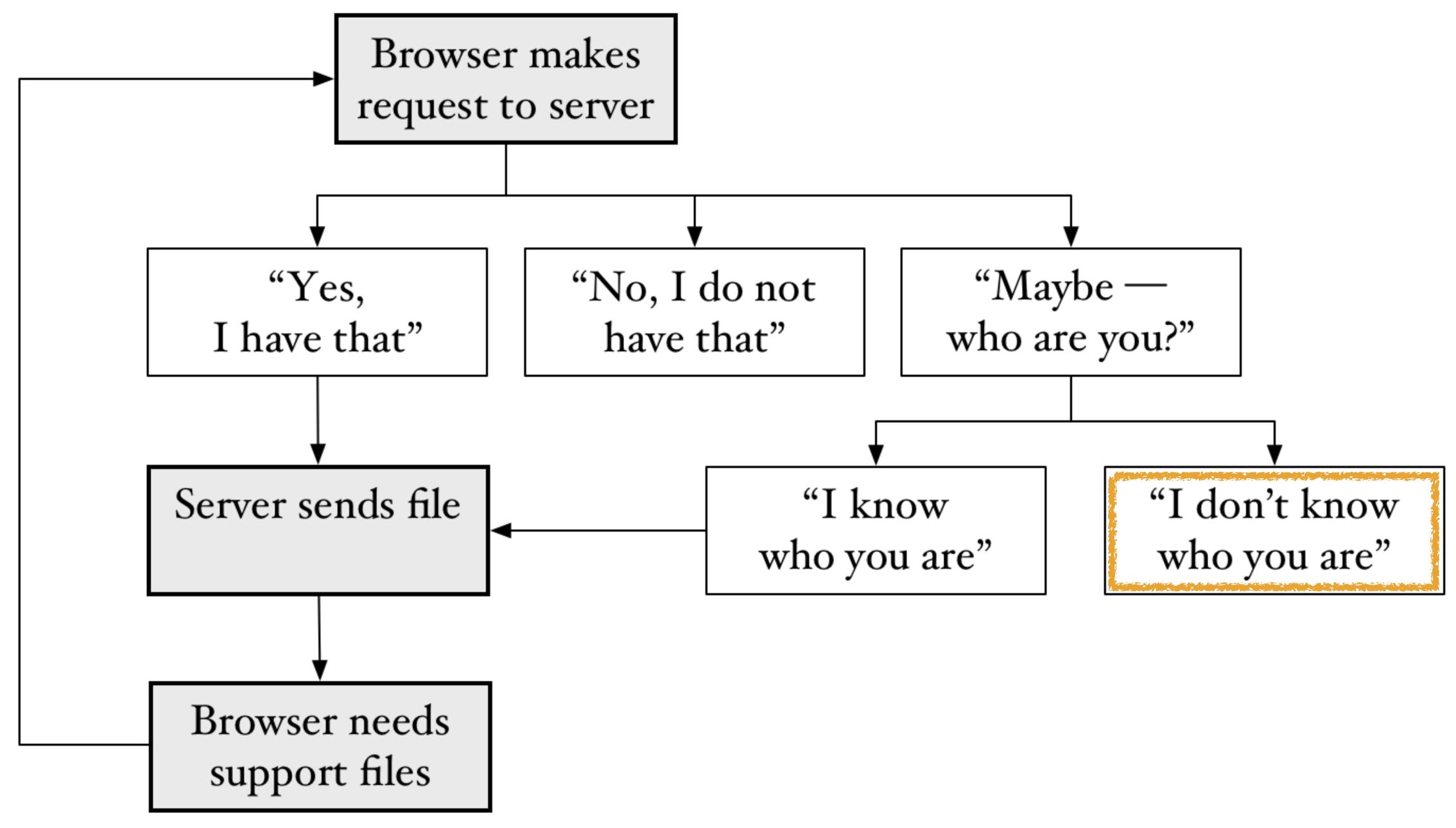
```
HTTP/1.0 404 Not Found
Date: Wed, 20 Apr 2016 17:46:03 GMT
Server: Apache
X-Frame-Options: SAMEORIGIN
Vary: User-Agent
Expires: Thu, 19 Nov 1981 08:52:00 GMT
Cache-Control: no-store, no-cache, must-
revalidate, post-check=0, pre-check=0
Pragma: no-cache
Connection: close
Content-Type: text/html; charset=UTF-8
```

```
                    ┌─────────────────┐
                    │  Browser makes  │
         ┌─────────▶│ request to server│
         │          └────────┬────────┘
         │         ┌─────────┼─────────────────┐
         │         ▼         ▼                 ▼
         │  ┌────────────┐ ┌────────────┐ ┌────────────┐
         │  │  "Yes,     │ │ "No, I do not│ │  "Maybe —  │
         │  │ I have that"│ │  have that" │ │ who are you?"│
         │  └──────┬─────┘ └────────────┘ └──────┬─────┘
         │         │                      ┌──────┼──────┐
         │         ▼                      ▼             ▼
         │  ┌────────────┐         ┌────────────┐ ┌────────────┐
         │  │Server sends file│◀────│  "I know   │ │ "I don't know│
         │  └──────┬─────┘         │ who you are"│ │ who you are" │
         │         │               └────────────┘ └────────────┘
         │         ▼
         │  ┌────────────┐
         └──│Browser needs│
            │support files│
            └────────────┘
```

```
GET / HTTP/1.1
Host: secret.granneman.com
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS
X 10.11; rv:45.0) Gecko/20100101 Firefox/45.0
Accept: text/html,application/
xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate, br
DNT: 1
Cookie:
admin=h=698765b7653426q22110079g2b476ba9&id=scott
@granneman.com
Connection: keep-alive
```
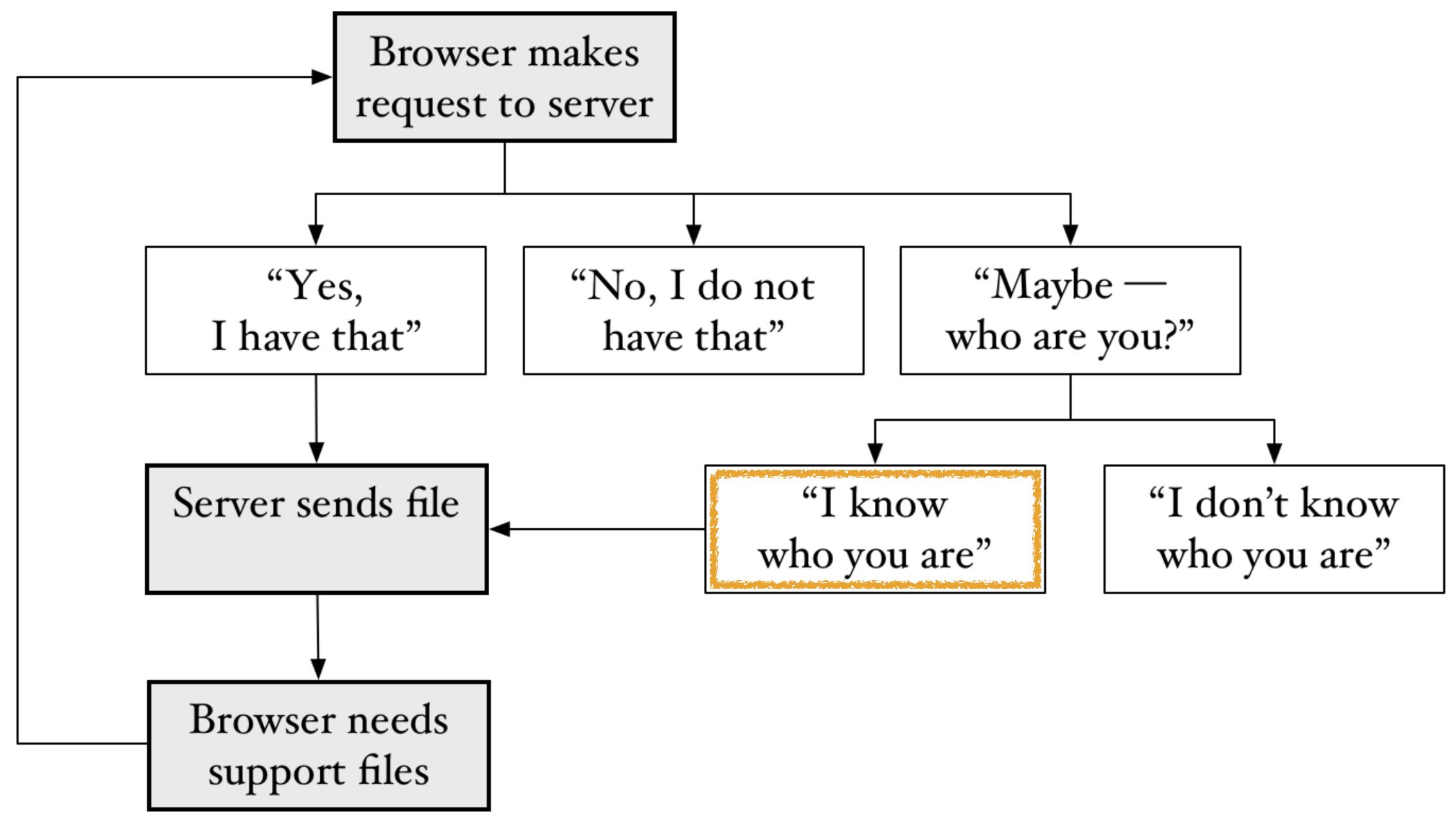
```
HTTP/1.1 401 Unauthorized
Date: Wed, 20 Apr 2016 17:49:28 GMT
Server: Apache
X-Frame-Options: SAMEORIGIN
WWW-Authenticate: Basic realm="Scott Only"
Content-Length: 381
Keep-Alive: timeout=2, max=100
Connection: Keep-Alive
Content-Type: text/html; charset=iso-8859-1
```

```
                    ┌─────────────────────┐
                    │   Browser makes     │
              ┌────▶│  request to server  │
              │     └─────────────────────┘
              │                │
              │      ┌─────────┼─────────────┐
              │      ▼         ▼             ▼
     ┌───────────────┐ ┌───────────────┐ ┌───────────────┐
     │    "Yes,      │ │ "No, I do not │ │   "Maybe —    │
     │  I have that" │ │  have that"   │ │ who are you?" │
     └───────────────┘ └───────────────┘ └───────────────┘
              │                                  │
              ▼                          ┌───────┴───────┐
     ┌───────────────┐                   ▼               ▼
     │               │          ┌───────────────┐ ┌───────────────┐
     │ Server sends  │◀─────────│   "I know     │ │ "I don't know │
     │     file      │          │ who you are"  │ │ who you are"  │
     └───────────────┘          └───────────────┘ └───────────────┘
              │
              ▼
     ┌───────────────┐
     │ Browser needs │
     │ support files │
     └───────────────┘
```

```
HTTP/1.1 401 Unauthorized
Date: Wed, 20 Apr 2016 17:52:58 GMT
Server: Apache
X-Frame-Options: SAMEORIGIN
WWW-Authenticate: Basic realm="Scott Only"
Content-Length: 381
Keep-Alive: timeout=2, max=100
Connection: Keep-Alive
Content-Type: text/html; charset=iso-8859-1
```

```
HTTP/1.1 200 OK
Date: Wed, 20 Apr 2016 17:54:08 GMT
Server: Apache
X-Frame-Options: SAMEORIGIN
Vary: User-Agent,Accept-Encoding
Last-Modified: Sun, 27 Jul 2014 03:01:36 GMT
Etag: "242-4ff73294e061a-gzip"
Accept-Ranges: bytes
Content-Encoding: gzip
Strict-Transport-Security: max-age=15768000
Content-Length: 360
Keep-Alive: timeout=2, max=100
Connection: Keep-Alive
Content-Type: text/html
```

3 Languages

Web browsers support only 3 languages

HTML provides structure & meaning for the webpage
document

CSS defines style rules for presentation & layout

JavaScript is a programming language that alters the
document & styles when an *event* (e.g., page loads,
clicks, scrolls, form submission) occurs

HTML (1993) existed before JavaScript (1995) & CSS (1996)

HTML is *required* to make a webpage, while the others provide enhancements (though almost every webpage uses CSS & most use JavaScript)
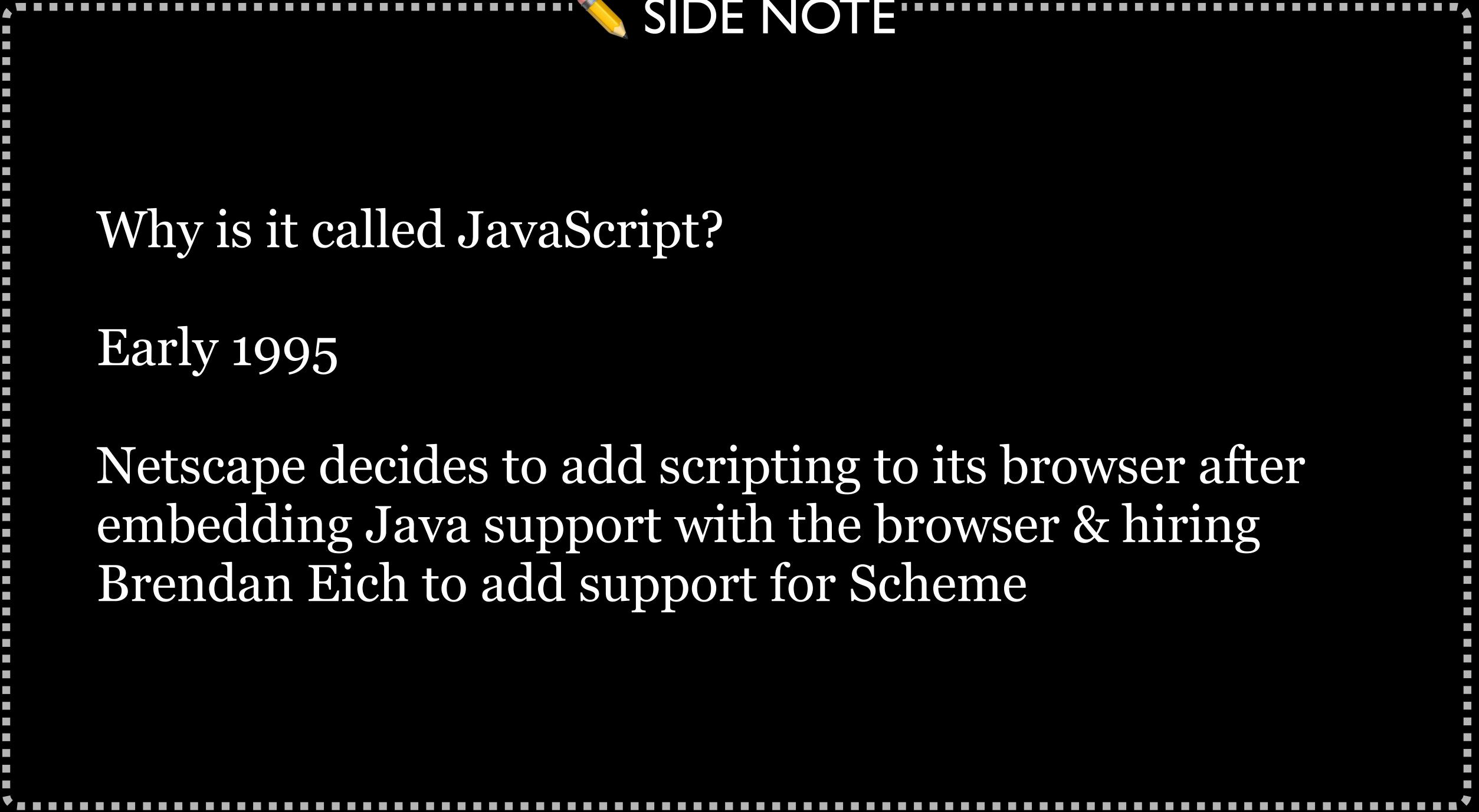
Why is it called JavaScript?

Early 1995

Netscape decides to add scripting to its browser after embedding Java support with the browser & hiring Brendan Eich to add support for Scheme

✏️ SIDE NOTE
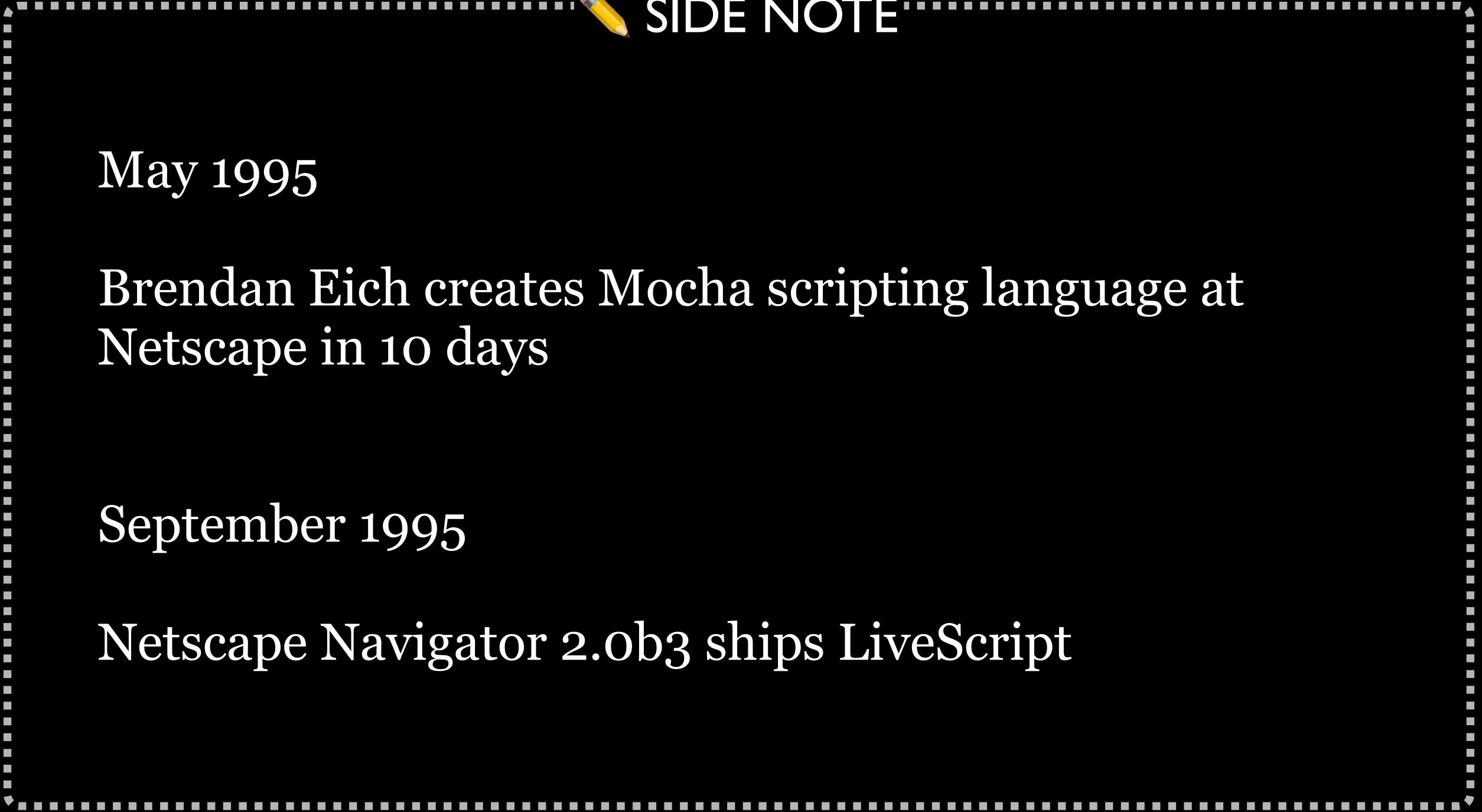
May 1995

Brendan Eich creates Mocha scripting language at Netscape in 10 days

September 1995

Netscape Navigator 2.0b3 ships LiveScript
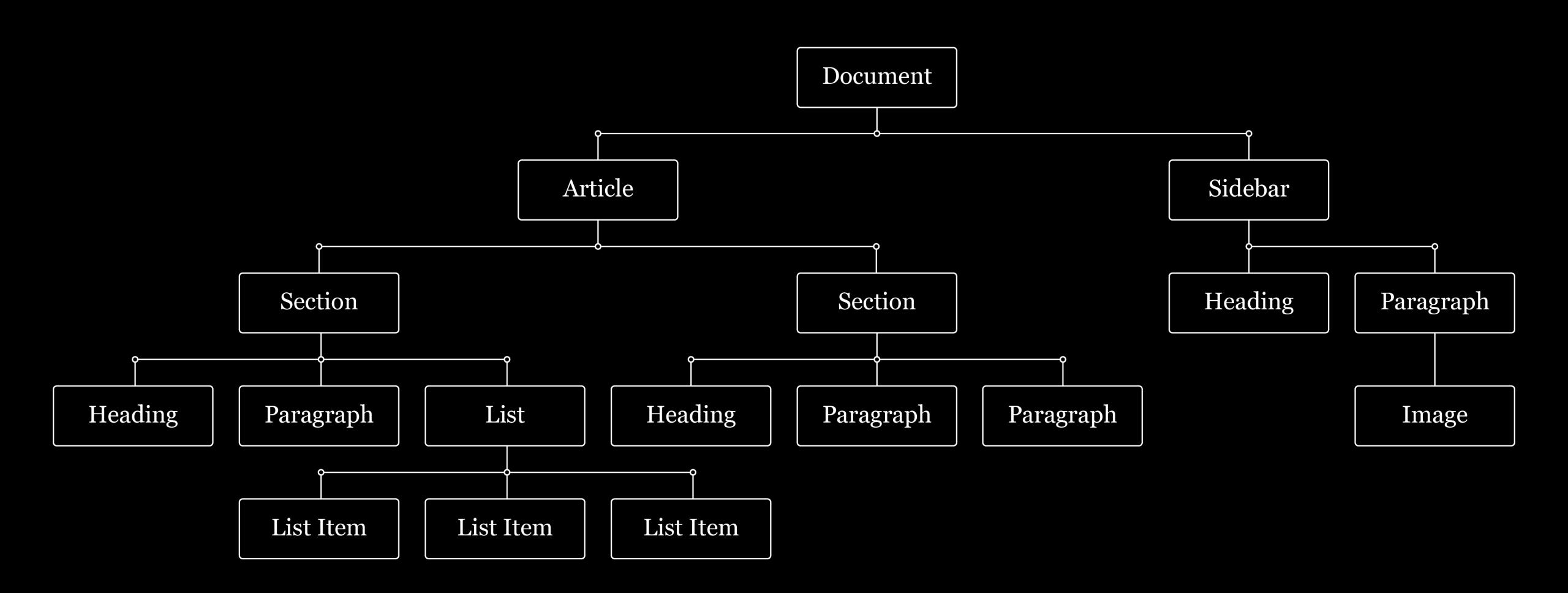
December 4, 1995

Netscape & Sun announce JavaScript: "The JavaScript language complements Java ... While Java is used by programmers to create new objects and applets, JavaScript is designed for use by HTML page authors and enterprise application developers to dynamically script the behavior of objects running on either the client or the server."
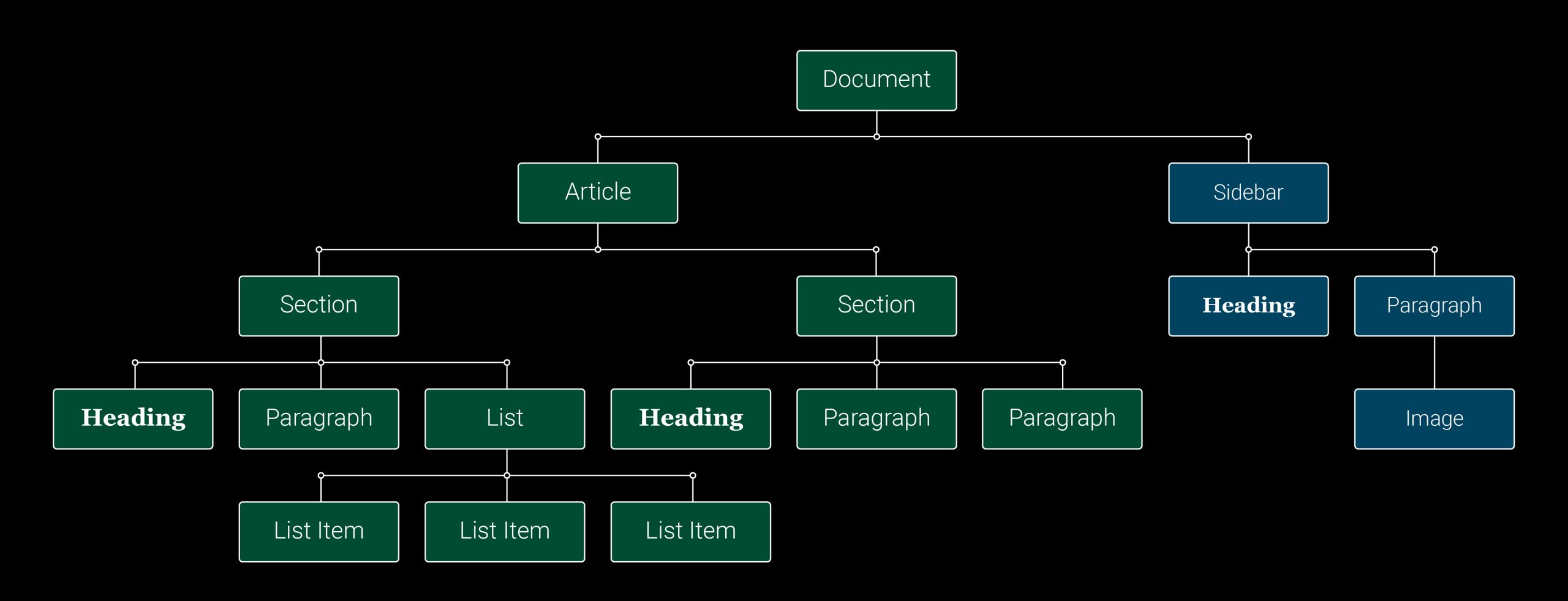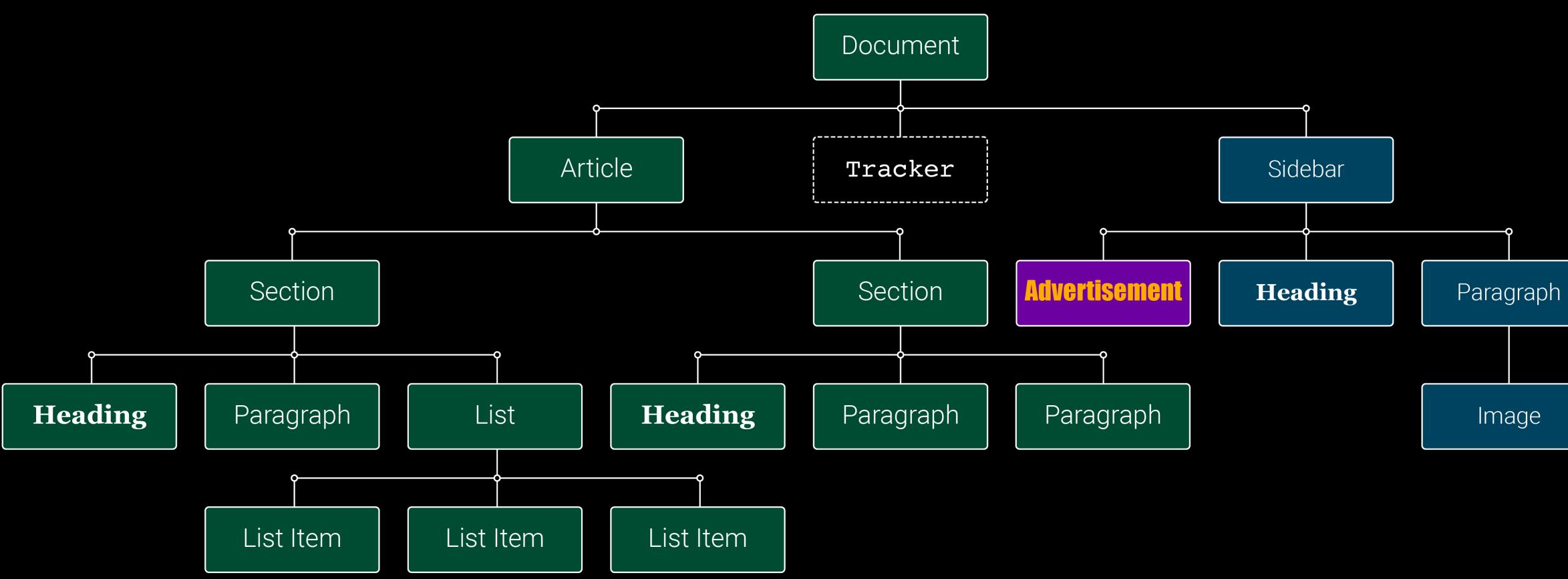
HTML creates a tree structure that defines what's in the document & how it's organized

CSS defines the styles for the nodes in the tree structure

JavaScript alters the tree & the styles when events happen, e.g., a tracker & an ad are added on the fly

Document
tree

Style
rules
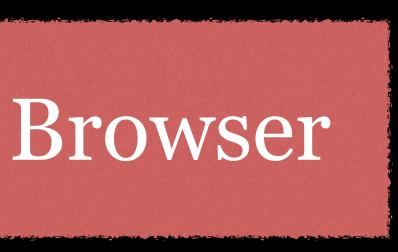
Programmatic
changes

Parse
& paint

HTML → CSS → JavaScript → Browser

Events

The browser processing pipeline (simplified)

Separation of Concerns

Divide computer program into separate *concerns*, each focusing on a specific resource

Structure & meaning: HTML

Presentation: CSS

Behavior: JavaScript

Note: there are exceptions to each of these!

The Simplest Webpage Ever

What is a webpage?

Just a text (`.txt`) file that ends with `.htm` or `.html`

Nowadays, `.html` is the usual extension

Never use spaces in webpage folder or file names!

This is wrong: `contact info.html`

These are right:
» `contactinfo.html`
» `contactInfo.html`
» `contact_info.html`
» `contact-info.html` ← what most developers use

💡 PRO TIP

Never capitalize webpage folder or file names!

Don't do this: `About-Us/Contact-Info.html`

Do this instead: `about-us/contact-info.html`

Why?

» You won't have to remember when you capitalized & when you didn't
» Consistency

The Web was designed from the beginning so that you can inspect the HTML of any webpage

In the mid-1990s, I learned how to code by viewing the HTML of webpages

You can't do this now — webpages are much too complex!

SEARCH   GO

ENGLISH   ESPAÑOL   中文

GIVE THE TIMES   Account ⌄

The New York Times

Saturday, July 27, 2019

Today's Paper

World U.S. Politics N.Y. Business Opinion Tech Science Health Sports Arts Books Style Food Travel Magazine T Magazine Real Estate Video

The Weekly
'The Weekly,' Our TV Show
Watch Episode 7 on FX and Hulu.
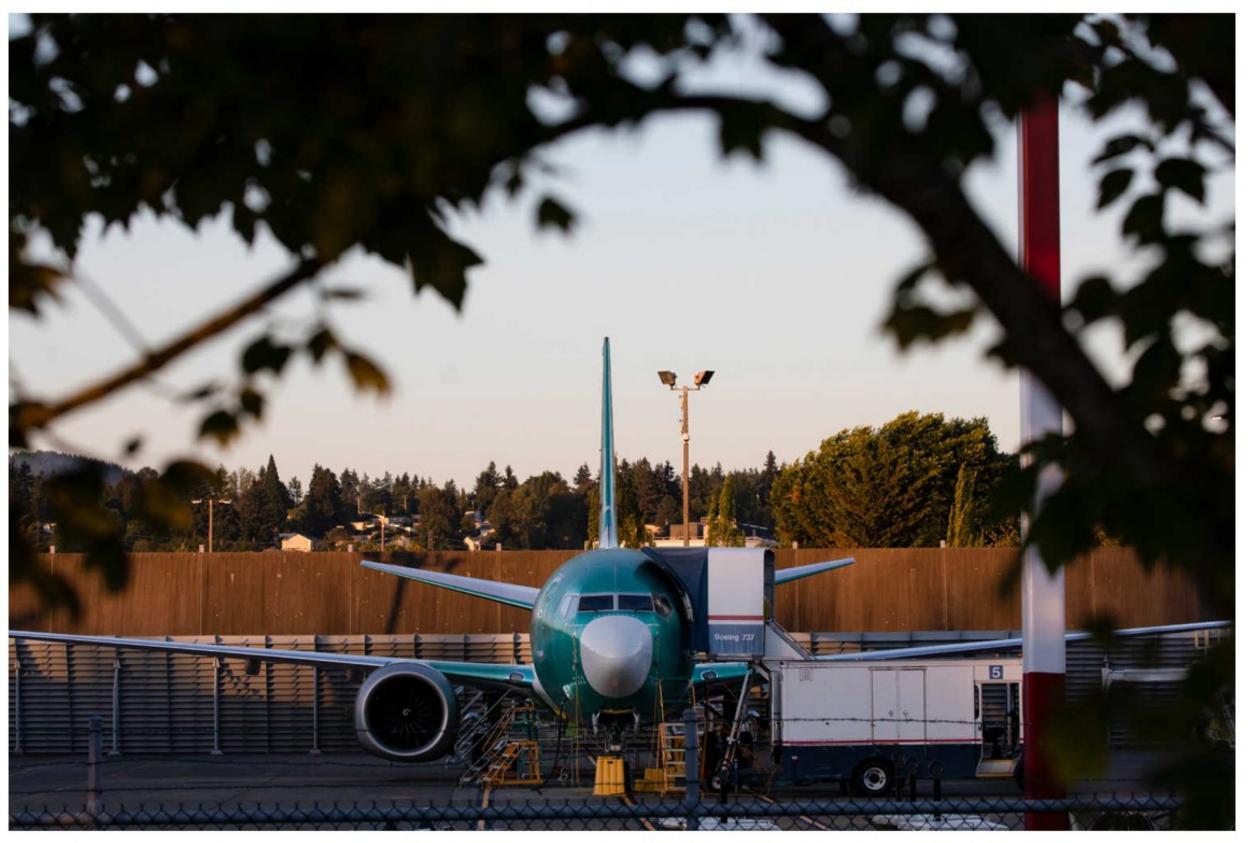
Listen: 'Modern Love' Podcast
Amanda Seyfried reads an essay about a lost first love.

Got a confidential news tip?
Do you have the next big story? Share it with our journalists.

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The Roots of Boeing's 737 Max Crisis: A Regulator Relaxes Its Oversight

- The safety of the jet was seriously compromised by flawed supervision from the Federal Aviation Administration, a Times investigation found.

- Regulators came to a troubling realization after the first 737 Max crash killed 189 people: They barely understood the control system that helped cause it.

5h ago   687 comments

The Boeing 737 Max certification was the culmination of a decades-long effort shifting

Opinion ›

Sarah Vowell

This Guy Got Republicans to Vote for a Democrat

Steve Bullock may not be the most charismatic candidate, but he can teach his party how to get conservatives to do liberal things.

Elements   Network   Debugger   Resources   Timelines   Storage   Canvas   Console

www.nytimes.com

```
1   <!DOCTYPE html>
2   <html lang="en" xmlns:og="http://opengraphprotocol.org/schema/">
3     <head>
4       <title data-rh="true">The New York Times – Breaking News, World News & Multimedia</title>
5       <meta data-rh="true" itemprop="inLanguage" content="en-US"/><meta data-rh="true" name="robots" content="noarchive,noodp,noydir"/><meta data-rh="
6       <meta charset="utf-8" />
7   <meta http-equiv="X-UA-Compatible" content="IE=edge" />
8   <meta name="viewport" content="width=device-width, initial-scale=1, maximum-scale=1" />
9   <link rel="shortcut icon" href="/vi-assets/static-assets/favicon-4bf96cb6a1093748bf5b3c429accb9b4.ico" />
10  <link rel="apple-touch-icon" href="/vi-assets/static-assets/apple-touch-icon-319373aaf4524d94d38aa599c56b8655.png" />
11  <link rel="apple-touch-icon-precomposed" sizes="144×144" href="/vi-assets/static-assets/ios-ipad-144x144-319373aaf4524d94d38aa599c56b8655.png" />
12  <link rel="apple-touch-icon-precomposed" sizes="114×114" href="/vi-assets/static-assets/ios-iphone-114x144-61d373c43aa8365d3940c5f1135f4597.png" />
13  <link rel="apple-touch-icon-precomposed" href="/vi-assets/static-assets/ios-default-homescreen-57x57-7cccbfb151c7db793e92ea58c30b9e72.png" />
14  <meta property="fb:app_id" content="9869919170" />
15  <meta name="twitter:site" value="@nytimes" />
16
17
18      <script type="text/javascript">
19        // 19.836000000000002kB
20        window.viHeadScriptSize = 19.836000000000002;
21        (function () { var _f=function(e){window.vi=window.vi||{},window.vi.env=Object.freeze(e)};;_f.apply(null, [{"JKIDD_PATH":"https://a.nytimes.co
22      !function(){if('PerformanceLongTaskTiming' in window){var g=window.__tti={e:[]};
23      g.o=new PerformanceObserver(function(l){g.e=g.e.concat(l.getEntries())});
24      g.o.observe({entryTypes:['longtask']})}}();
25  ;
26    !function(n,e){var t,o,i,c=[],f={passive:!0,capture:!0},r=new Date,a="pointerup",u="pointercancel";function p(n,c){t||(t=c,o=n,i=new Date,w(e),s()
27  ;try {
28    var observer = new window.PerformanceObserver(function (list) {
29      var entries = list.getEntries();
30
31      for (var i = 0; i < entries.length; i += 1) {
32        var entry = entries[i];
33        var performance = {};
34
```

41 19 8 0 Search

Elements Network Debugger Resources Timelines Storage Canvas Console

www.nytimes.com

```
128
129    </head>
130    <body>
131      <div id="app"><div class="css-rpp6l6 e12j3pa50"><div class="css-1nc6slq e12j3pa51"><div class="css-142l3g4"><div><div class="ad dfp-ad-top-wrapp
132      <script>window.__preloadedData = {"initialState":{"Program_Beta:UHJvZ3JhbV9CZXRhOmhvbWU=":{"id":"UHJvZ3JhbV9CZXRhOmhvbWU=","spotlightA":{"type":
133      <script>!function(e){function r(r){for(var n,i,a=r[0],f=r[1],l=r[2],p=0,s=[];p<a.length;p++)i=a[p],o[i]&&s.push(o[i][0]),o[i]=0;for(n in f)Object
134 //# sourceMappingURL=runtime~adslot-220267782b714f467faf.js.map</script>
135      <script async src="/vi-assets/static-assets/adslot-c166ae2f982bbe19644d.js"></script>
136      <script>!function(e){function r(r){for(var a,n,c=r[0],i=r[1],s=r[2],l=0,b=[];l<c.length;l++)n=c[l],o[n]&&b.push(o[n][0]),o[n]=0;for(a in i)Object
137 //# sourceMappingURL=runtime~main-4b5e96d28dacba4a78d0.js.map</script>
138      <script defer src="/vi-assets/static-assets/vendor-39bd10fa3c10e9c0c4c2.js"></script>
139      <script defer src="/vi-assets/static-assets/home-e23d114b510b8575c8a1.js"></script>
140      <script defer src="/vi-assets/static-assets/main-938cc94dca9cb0e1b59b.js"></script>
141      <script>
142 (function(w, l) {
143   w[l] = w[l] || [];
144   w[l].push({
145     'gtm.start': new Date().getTime(),
146     event: 'gtm.js'
147   });
148 })(window, 'dataLayer');
149 (function(){
150   var url = 'https://et.nytimes.com/pixel' +
151     '?url=' + window.location.href +
152     '&referrer=' + document.referrer +
153     '&subject=module-interactions' +
154     '&moduleData=%7B%22module%22%3A%22nyt-vi-page-pixel%22%2C%22pgType%22%3A%22Homepage%22%2C%22eventName%22%3A%22Impression%22%2C%22action%22%3A%22
155     '&sourceApp=nyt-vi&instant=1' +
156     '&_=' + Date.now();
157   var img = document.createElement('img');
158   img.src = url;
159   img.alt = "";
160   img.style.cssText = 'position: absolute; z-index: -999999; left: -1000px; top: -1000px;';
161   document.body.appendChild(img);
```

Page

⊞: Alt > Tools > Web Developer > Page Source	⊞: ^+U
: Tools > Web Developer > Page Source	: ⌘U
Alt > View > Source	⊞: ^+U
… > F12 Developer Tools	⊞: ^+U
⊞: ⋮ > More Tools > Developer Tools	⊞: ^+U
: View > Developer > View Source	: ⌥⌘U
Develop > Show Page Source	: ⌥⌘U

```
1▾ <html>
2▾   <head>
3▾     <title>Simple Web Page</title>
4    </head>
5▾   <body>
6▾     <h1 align="center">
7        From H. P. Lovecraft's
8        <br>"The Whisperer in Darkness"
9      </h1>
10▾    <p>
11        I cannot do better than transcribe in
      full, so far as is possible, the long
      letter in which Akeley introduced himself,
      and which formed such an important landmark
      in my own intellectual history. It is no
      longer in my possession, but my memory
      holds almost every word of its portentous
      message…
12      </p>
13    </body>
14 </html>
```
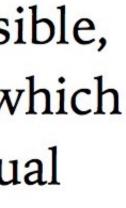
From H. P. Lovecraft's "The Whisperer in Darkness"

I cannot do better than transcribe in full, so far as is possible, the long letter in which Akeley introduced himself, and which formed such an important landmark in my own intellectual history. It is no longer in my possession, but my memory holds almost every word of its portentous message…
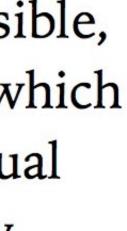
HTML

```html
1  <html>
2    <head>
3      <title>Simple Web Page</title>
4    </head>
5    <body>
6      <h1 align="center">
7        From H. P. Lovecraft's
8        <br>"The Whisperer in Darkness"
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   letter in which Akeley introduced himself,
   and which formed such an important landmark
   in my own intellectual history. It is no
   longer in my possession, but my memory
   holds almost every word of its portentous
   message...
12     </p>
13   </body>
14 </html>
```
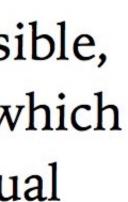
CSS

JS

From H. P. Lovecraft's "The Whisperer in Darkness"

I cannot do better than transcribe in full, so far as is possible, the long letter in which Akeley introduced himself, and which formed such an important landmark in my own intellectual history. It is no longer in my possession, but my memory holds almost every word of its portentous message...

`<html> ... </html>`

Root of the HTML document that tells browsers where HTML starts & ends

```html
<html>
  <head>
    <title>Simple Web Page</title>
  </head>
  <body>
    <h1 align="center">
      From H. P. Lovecraft's
      <br>"The Whisperer in Darkness"
    </h1>
    <p>
      I cannot do better than transcribe in full, so far as is possible, the long letter in which Akeley introduced himself, and which formed such an important landmark in my own intellectual history. It is no longer in my possession, but my memory holds almost every word of its portentous message…
    </p>
  </body>
</html>
```
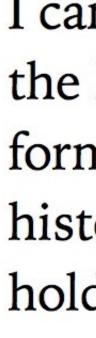
From H. P. Lovecraft's "The Whisperer in Darkness"

I cannot do better than transcribe in full, so far as is possible, the long letter in which Akeley introduced himself, and which formed such an important landmark in my own intellectual history. It is no longer in my possession, but my memory holds almost every word of its portentous message…

<head> … </head>

Information & metadata primarily for browsers, computers, & bots, including links to CSS & JavaScript

HTML

```
1  <html>
2    <head>
3      <title>Simple Web Page</title>
4    </head>
5    <body>
6      <h1 align="center">
7        From H. P. Lovecraft's
8        <br>"The Whisperer in Darkness"
9      </h1>
10     <p>
11       I cannot do better than transcribe in
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letter in which Akeley introduced himself,
and which formed such an important landmark
in my own intellectual history. It is no
longer in my possession, but my memory
holds almost every word of its portentous
message...
12     </p>
13   </body>
14 </html>
```
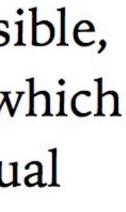
CSS

JS

From H. P. Lovecraft's "The Whisperer in Darkness"

I cannot do better than transcribe in full, so far as is possible, the long letter in which Akeley introduced himself, and which formed such an important landmark in my own intellectual history. It is no longer in my possession, but my memory holds almost every word of its portentous message...

<title> ... </title>

Title of the webpage for browsers, computers, & bots, although humans see that title on tabs

```html
1  <html>
2    <head>
3      <title>Simple Web Page</title>
4    </head>
5    <body>
6      <h1 align="center">
7        From H. P. Lovecraft's
8        <br>"The Whisperer in Darkness"
9      </h1>
10     <p>
11       I cannot do better than transcribe in
full, so far as is possible, the long
letter in which Akeley introduced himself,
and which formed such an important landmark
in my own intellectual history. It is no
longer in my possession, but my memory
holds almost every word of its portentous
message...
12     </p>
13   </body>
14 </html>
```
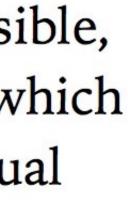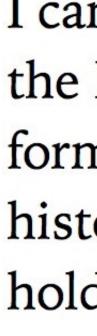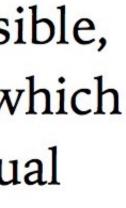
From H. P. Lovecraft's "The Whisperer in Darkness"

I cannot do better than transcribe in full, so far as is possible, the long letter in which Akeley introduced himself, and which formed such an important landmark in my own intellectual history. It is no longer in my possession, but my memory holds almost every word of its portentous message...

<body> ... </body>

Content that appears in the viewport for humans to see & use

If you need help remembering...

HTML

```
1  <html>
2    <head>
3      <title>Simple Web Page</title>
4    </head>
5    <body>
6      <h1 align="center">
7        From H. P. Lovecraft's
8        <br>"The Whisperer in Darkness"
9      </h1>
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11       I cannot do better than transcribe in
   full, so far as is possible, the long
   letter in which Akeley introduced himself,
   and which formed such an important landmark
   in my own intellectual history. It is no
   longer in my possession, but my memory
   holds almost every word of its portentous
   message…
12     </p>
13   </body>
14 </html>
```
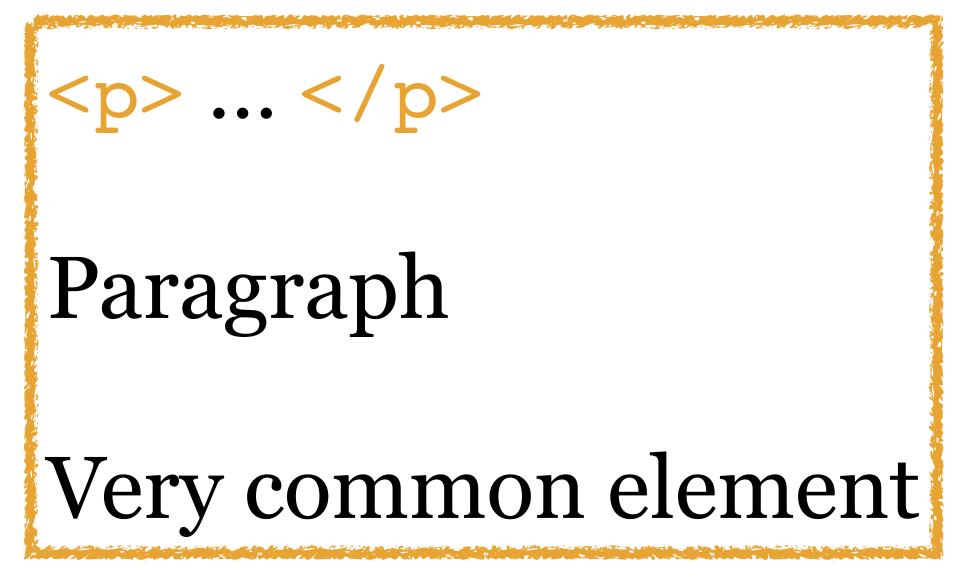
CSS

JS

From H. P. Lovecraft's "The Whisperer in Darkness"

I cannot do better than transcribe in full, so far as is possible, the long letter in which Akeley introduced himself, and which formed such an important landmark in my own intellectual history. It is no longer in my possession, but my memory holds almost every word of its portentous message…

`<h1> … </h1>`

Heading level 1, which acts as the title of the webpage for humans to see

HTML

```
1  <html>
2    <head>
3      <title>Simple Web Page</title>
4    </head>
5    <body>
6      <h1 align="center">
7        From H. P. Lovecraft's
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14 </html>
```
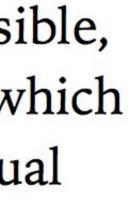
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JS

From H. P. Lovecraft's "The Whisperer in Darkness"

I cannot do better than transcribe in full, so far as is possible, the long letter in which Akeley introduced himself, and which formed such an important landmark in my own intellectual history. It is no longer in my possession, but my memory holds almost every word of its portentous message...
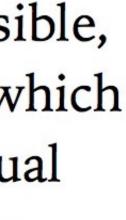
<p> ... </p>

Paragraph

Very common element

HTML

```
1  <html>
2    <head>
3      <title>Simple Web Page</title>
4    </head>
5    <body>
6      <h1 align="center">
7        From H. P. Lovecraft's
8        <br>"The Whisperer in Darkness"
9      </h1>
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full, so far as is possible, the long
letter in which Akeley introduced himself,
and which formed such an important landmark
in my own intellectual history. It is no
longer in my possession, but my memory
holds almost every word of its portentous
message...
12     </p>
13   </body>
14 </html>
```

CSS

JS

From H. P. Lovecraft's "The Whisperer in Darkness"

I cannot do better than transcribe in full, so far as is possible, the long letter in which Akeley introduced himself, and which formed such an important landmark in my own intellectual history. It is no longer in my possession, but my memory holds almost every word of its portentous message...

`<br>`

Line break that looks like single spacing, with very limited uses

Elements, Attributes, Values

```
<h1 align="center">
  Ph'nglui mglw'nafh Cthulhu R'lyeh
</h1>
```

`<h1 align="center">` is an *opening* or *start tag*

`</h1>` is a *closing* or *end tag*

```
<h1 align="center">
  Ph'nglui mglw'nafh Cthulhu R'lyeh:
  <br>Cultists in <i>The Call of Cthulhu</i>
</h1>
```

`<br>` does not have an end tag, because it is *self-closing*

There are 14 of these *void elements*, including `<hr>`, `<img>`, & `<meta>`

```
<h1 align="center">
  Ph'nglui mglw'nafh Cthulhu R'lyeh
</h1>
```

Ph'nglui mglw'nafh Cthulhu R'lyeh is the *content*

Strictly speaking, all of it, from the 1st < to the last >, is an *element*

`<h1 align="center">` ... `</h1>`

`h1` is an *tag name* (but most people call it an *element*)

`align` is an *attribute*

`center` is a *value*

`align="center"` is an *attribute-value pair*

You can have more than 1 attribute-value pair in an opening tag

```
<h1 align="center" title="Page title">
```

How many?

As many as the specification allows for!

4.7.1 The `img` element

Categories:

Flow content.

Phrasing content.

Embedded content.

Form-associated element.

If the element has a `usemap` attribute: Interactive content.

Palpable content.

Contexts in which this element can be used:

Where embedded content is expected.

Content model:

Empty.

Content attributes:

Global attributes

`alt` - Replacement text for use when images are not available

`src` - Address of the resource

`crossorigin` - How the element handles crossorigin requests

`usemap` - Name of image map to use

`ismap` - Whether the image is a server-side image map
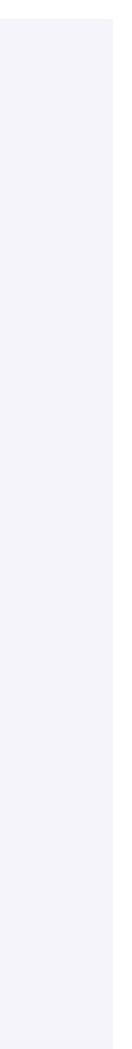
`width` - Horizontal dimension

`height` - Vertical dimension

`<img>`

Tag omission in text/html:

No end tag.

4.5 Text-level semantics

4.5.1 The `a` element

Categories:

> [Flow content](#).
> [Phrasing content](#).
> [Interactive content](#).
> [Palpable content](#).

Contexts in which this element can be used:

> Where [phrasing content](#) is expected.

Content model:

> [Transparent](#), but there must be no [interactive content](#) descendant.

Content attributes:

> [Global attributes](#)
> `href` - Address of the [hyperlink](#)
> `target` - Default [browsing context](#) for [hyperlink](#) [navigation](#) and [form submission](#)
> `download` - Whether to download the resource instead of navigating to it, and its file name if so
> `rel` - Relationship between the document containing the hyperlink and the destination resource
> `hreflang` - Language of the linked resource
> `type` - Hint for the type of the referenced resource
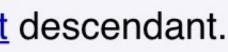
`<a>`

Tag omission in text/html:

> Neither tag is omissible

Allowed [ARIA role attribute](#) values:

> `link` (default - *do not set*), `button`, `checkbox`, `menuitem`, `menuitemcheckbox`, `menuitemradio`, `tab` or `treeitem`

4.10.5 The `input` element

<u>**Categories**</u>:

<u>Flow content</u>.

<u>Phrasing content</u>.

If the `type` attribute is *not* in the <u>Hidden</u> state: <u>Interactive content</u>.

If the `type` attribute is *not* in the <u>Hidden</u> state: <u>Listed</u>, <u>labelable</u>, <u>submittable</u>, <u>resettable</u>, and <u>reassociateable</u> <u>form-associated element</u>.

If the `type` attribute is in the <u>Hidden</u> state: <u>Listed</u>, <u>submittable</u>, <u>resettable</u>, and <u>reassociateable</u> <u>form-associated element</u>.

If the `type` attribute is *not* in the <u>Hidden</u> state: <u>Palpable content</u>.

<u>**Contexts in which this element can be used**</u>:

Where <u>phrasing content</u> is expected.

<u>**Content model**</u>:

Empty.

<u>**Content attributes**</u>:

<u>Global attributes</u>

`accept` - Hint for expected file type in <u>file upload controls</u>

`alt` - Replacement text for use when images are not available

`autocomplete` - Hint for form autofill feature

`autofocus` - Automatically focus the form control when the page is loaded

`checked` - Whether the command or control is checked

`dirname` - Name of form field to use for sending the element's <u>directionality</u> in <u>form submission</u>

`disabled` - Whether the form control is disabled

`form` - Associates the control with a `form` element

`formaction` - URL to use for <u>form submission</u>

`formenctype` - Form data set encoding type to use for <u>form submission</u>

`<input>`

`form` - Associates the control with a `form` element

`formaction` - URL to use for [form submission](#)

`formenctype` - Form data set encoding type to use for [form submission](#)

`formmethod` - HTTP method to use for [form submission](#)

`formnovalidate` - Bypass form control validation for [form submission](#)

`formtarget` - [Browsing context](#) for [form submission](#)

`height` - Vertical dimension

`inputmode` - Hint for selecting an input modality

`list` - List of autocomplete options

`max` - Maximum value

`maxlength` - Maximum length of value

`min` - Minimum value

`minlength` - Minimum length of value

`multiple` - Whether to allow multiple values

`name` - Name of form control to use for [form submission](#) and in the `form.elements` API

`pattern` - Pattern to be matched by the form control's value

`placeholder` - User-visible label to be placed within the form control

`readonly` - Whether to allow the value to be edited by the user

`required` - Whether the control is required for [form submission](#)

`size` - Size of the control

`src` - Address of the resource

`step` - Granularity to be matched by the form control's value

`type` - Type of form control
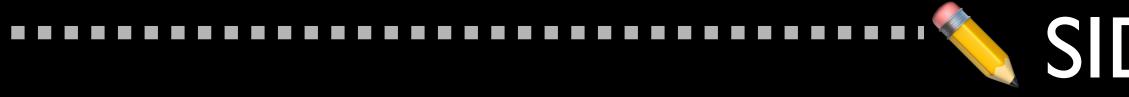
`value` - Value of the form control

`width` - Horizontal dimension

Also, the `title` attribute has special semantics on this element when used in conjunction with the `pattern` attribute.

You cannot repeat attributes in a tag

```
<p class="foo" class="bar">
```
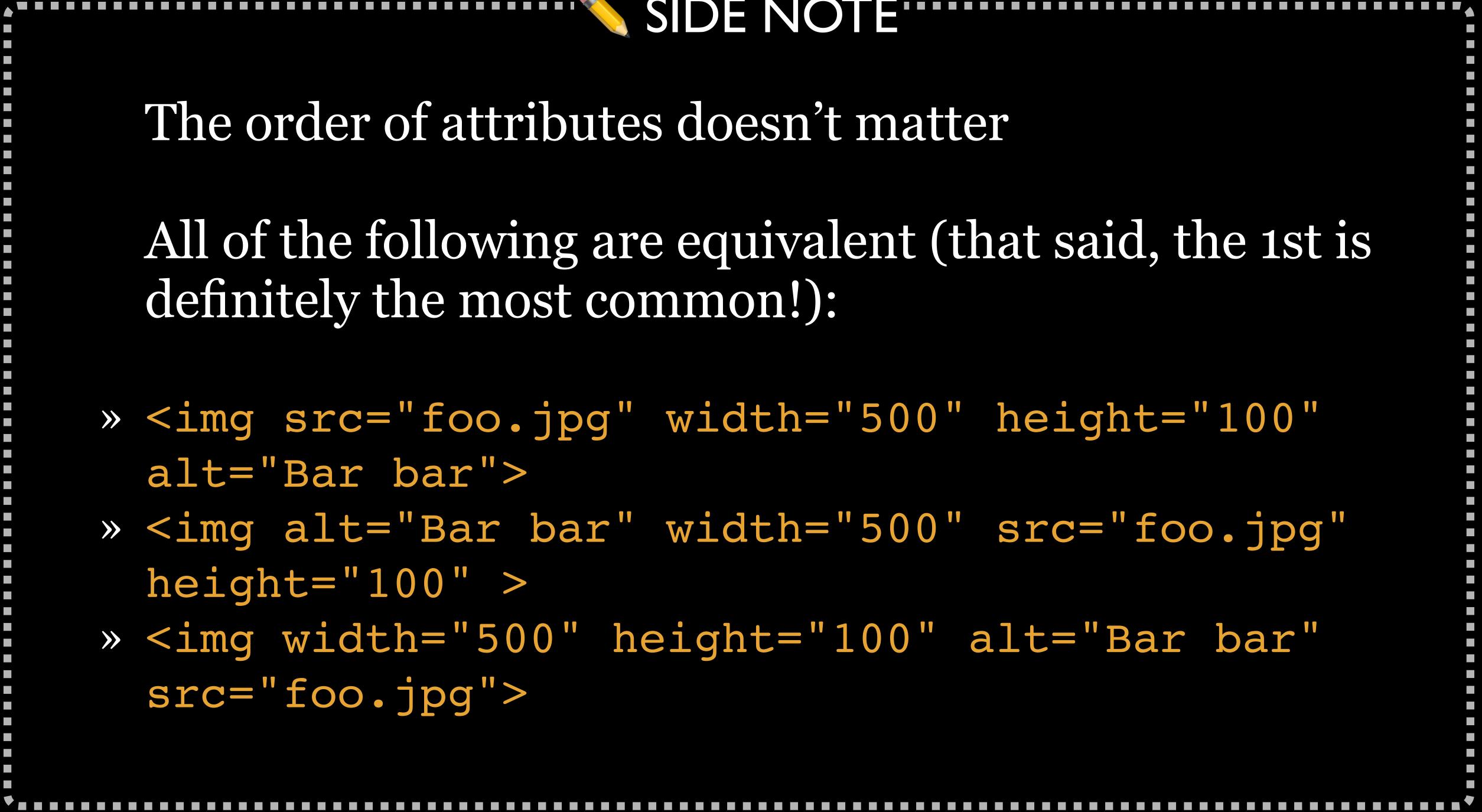
The order of attributes doesn't matter

All of the following are equivalent (that said, the 1st is definitely the most common!):

» `<img src="foo.jpg" width="500" height="100" alt="Bar bar">`
» `<img alt="Bar bar" width="500" src="foo.jpg" height="100" >`
» `<img width="500" height="100" alt="Bar bar" src="foo.jpg">`

✏️ SIDE NOTE

I just used `align="center"` as an example

Never use that!
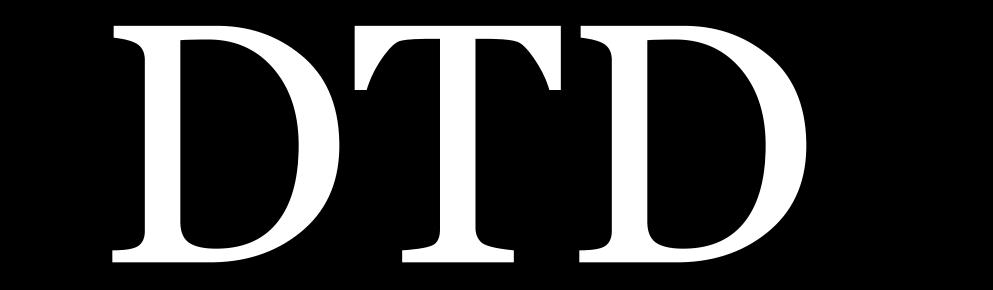
The `align` attribute was deprecated in HTML 4.01

Deprecated means that developers shouldn't use a feature because support for it will be removed in future versions of HTML

Sure enough, `align` is gone from HTML5

DTD

When we looked at `<html>`, I said that it's "Always the very 1st thing in a webpage"

I lied 😈

The 1st thing is always a *DTD*: a *Document Type Definition*

The DTD is vitally important to a webpage

Required at the beginning of every HTML document

Tells rendering engines & validators…
» that HTML is being used, not XML, MathML, SVG, or another SGML
» which version of HTML to use
» whether to render in *quirks* or *standards mode*

Quirks mode?!

If you use a really old, or an incorrect, DTD, then all modern browsers go into quirks mode

In quirks mode, modern browsers render HTML like browsers from a decade or more (back to 2000!)

You do *not* want quirks mode

There's also an *almost quirks mode*, but you can look that one up on your own

HTML 4.01 Transitional DTD

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01
Transitional//EN" "http://www.w3.org/TR/html4/
loose.dtd">
```

HTML5 DTD

`<!DOCTYPE html>`

OR

`<!doctype html>`

Actually, this DTD triggers standards mode in every browser back to IE 6!

For more info, see "Everything You Need to Know About DTDs" at www.granneman.com/webdev/coding/dtds/

Character Encoding

Character encoding tells rendering engines what language, writing system, & characters you're using in the document

Google™ Custom Search   Search   Clear

Mojibake

From Wikipedia, the free encyclopedia

This article **needs additional citations for verification**. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed. *(May 2009)*
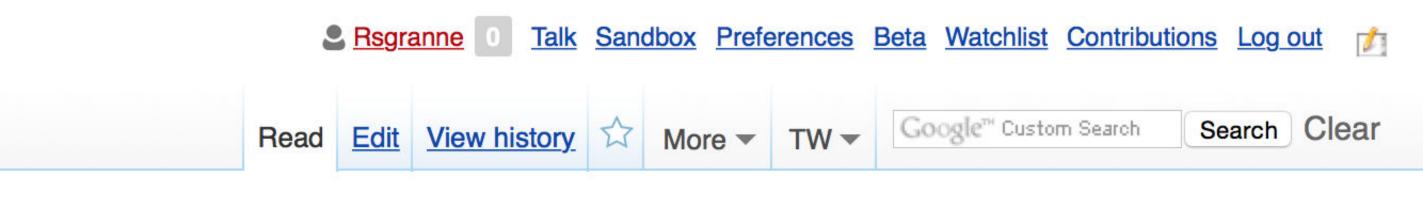
Mojibake (文字化け[?]) (IPA: [modʑibake]; lit. "character transformation"), from the Japanese 文字 (moji) "character" + 化け (bake) "transform", is the garbled text that is the result of text being decoding using an unintended character encoding.[1] The result is a systematic replacement of symbols with completely unrelated ones, often from a different writing system. This display may include the generic replacement character � in places where the binary representation is considered invalid. A replacement can also involve multiple consecutive symbols, as viewed in one encoding, when the same binary code constitutes one symbol in the other encoding. This is either because of differing constant length encoding (as in Asian 16-bit encodings vs European 8-bit encodings), or the use of variable length encodings (notably UTF-8 and UTF-16).

The rendering of glyphs, which often fails because of missing fonts, is a different issue that is not to be confused with mojibake. Symptoms include blocks with the codepoint displayed in hexadecimal, or even the generic replacement character �. Importantly, these replacements are *valid*, and the result of correct error handling by the software.

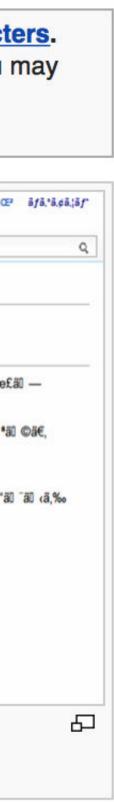**This article contains special characters.** Without proper rendering support, you may see question marks, boxes, or other symbols.

The UTF-8-encoded Japanese Wikipedia article for *mojibake*, as displayed in the Windows-1252 encoding.

Contents [hide]

Wikipedia — The Free Encyclopedia

Communication

Definition

- [Wikipedia on Communication](#)
  The collaborative encyclopedia defines Communication. â† Only read if you want a basic overview

Characteristics

- [â€œHuman Communication: What and Whyâ€ from Understanding Human Communication](#)
  Some fundamentals of communication.

History

- [As We May Think](#)
  Note the date this was written. Think about how prescient the author was. Notice also what he missed. (If you donâ€™t have time to read Bushâ€™s famous essay, read a summary at [As We May Think: A 1945 Essay on Information Overload, â€˜Curation,â€™ and Open-Access Science](#))
- [Alan Kay: Transforming the Computer into a Communication Medium](#)
  Alan Kayâ€™s ideas contributed to the transformation of the computer from a calculating machine to a communication medium.

Technology

- [Wikipedia on Technology](#)
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- [Wikipedia on Communication](#)
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  Alan Kayâ€™s ideas contributed to the transformation of the computer from a calculating machine to a communication medium.

Technology

- [Wikipedia on Technology](#)
  The Internet encyclopedia defines Technology. â† Only read if you want a basic overview

Characteristics

4 character encodings to know

» `ASCII`
» `ISO-8859-1`
» `Windows-1252`
» `UTF-8`

ASCII

American Standard Code for Information Interchange

1960

128 characters

» 94 printable characters (A, a, 1, +)
» 33 non-printing control characters (mostly obsolete)
» 1 space
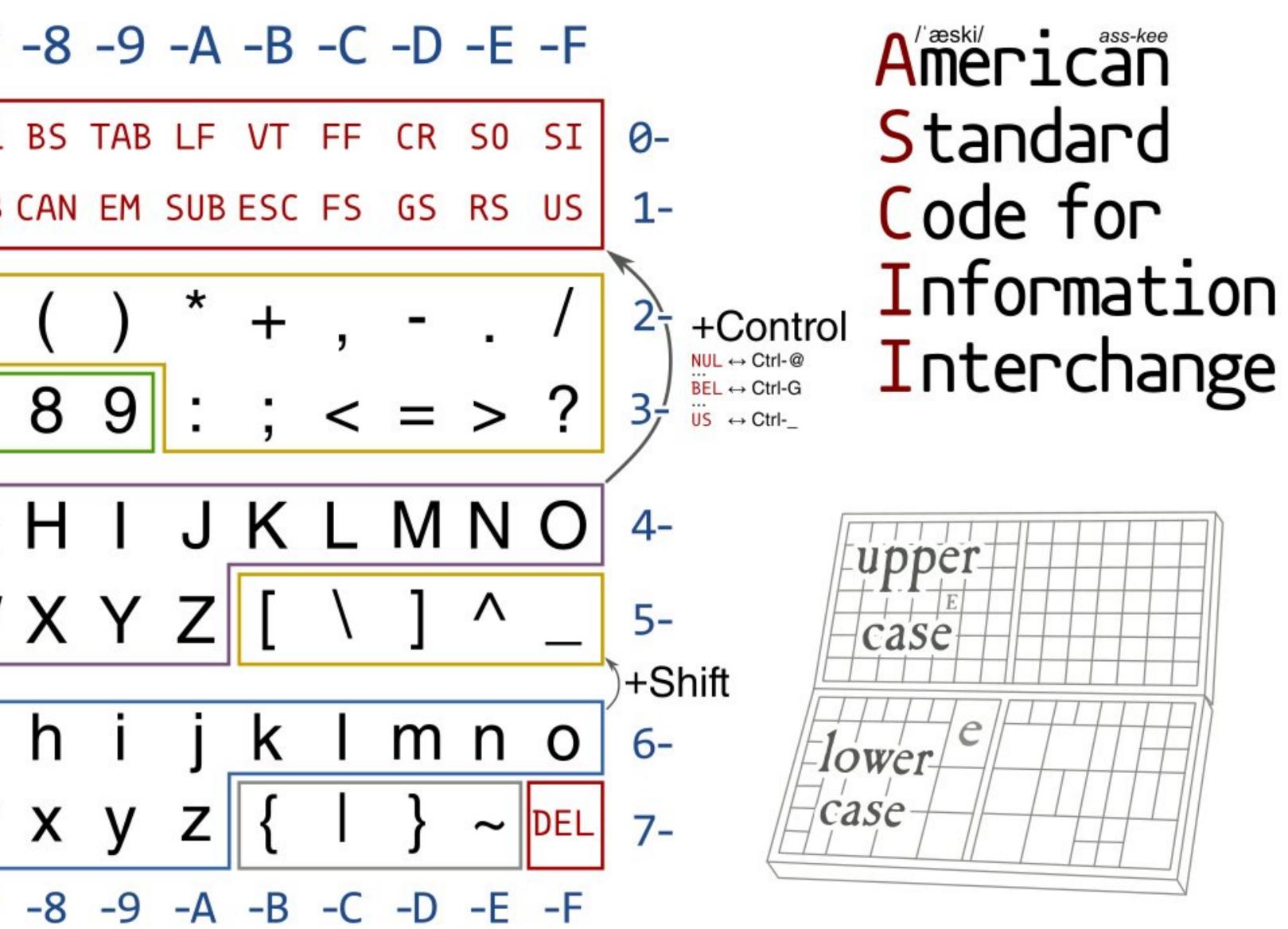
ASCII Code Chart

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	SOH	STX	ETX	EOT	ENQ	ACK	BEL	BS	HT	LF	VT	FF	CR	SO	SI
1	DLE	DC1	DC2	DC3	DC4	NAK	SYN	ETB	CAN	EM	SUB	ESC	FS	GS	RS	US
2		!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	DEL

ASCII: **A**merican **S**tandard **C**ode for **I**nformation **I**nterchange

	-0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-A	-B	-C	-D	-E	-F
0-	NUL	SOH	STX	ETX	EOT	ENQ	ACK	BEL	BS	TAB	LF	VT	FF	CR	SO	SI
1-	DLE	DC1	DC2	DC3	DC4	NAK	SYN	ETB	CAN	EM	SUB	ESC	FS	GS	RS	US
2-	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
3-	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4-	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5-	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6-	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7-	p	q	r	s	t	u	v	w	x	y	z	{			}	~	DEL

+Control
NUL ↔ Ctrl-@
...
BEL ↔ Ctrl-G
...
US ↔ Ctrl-_
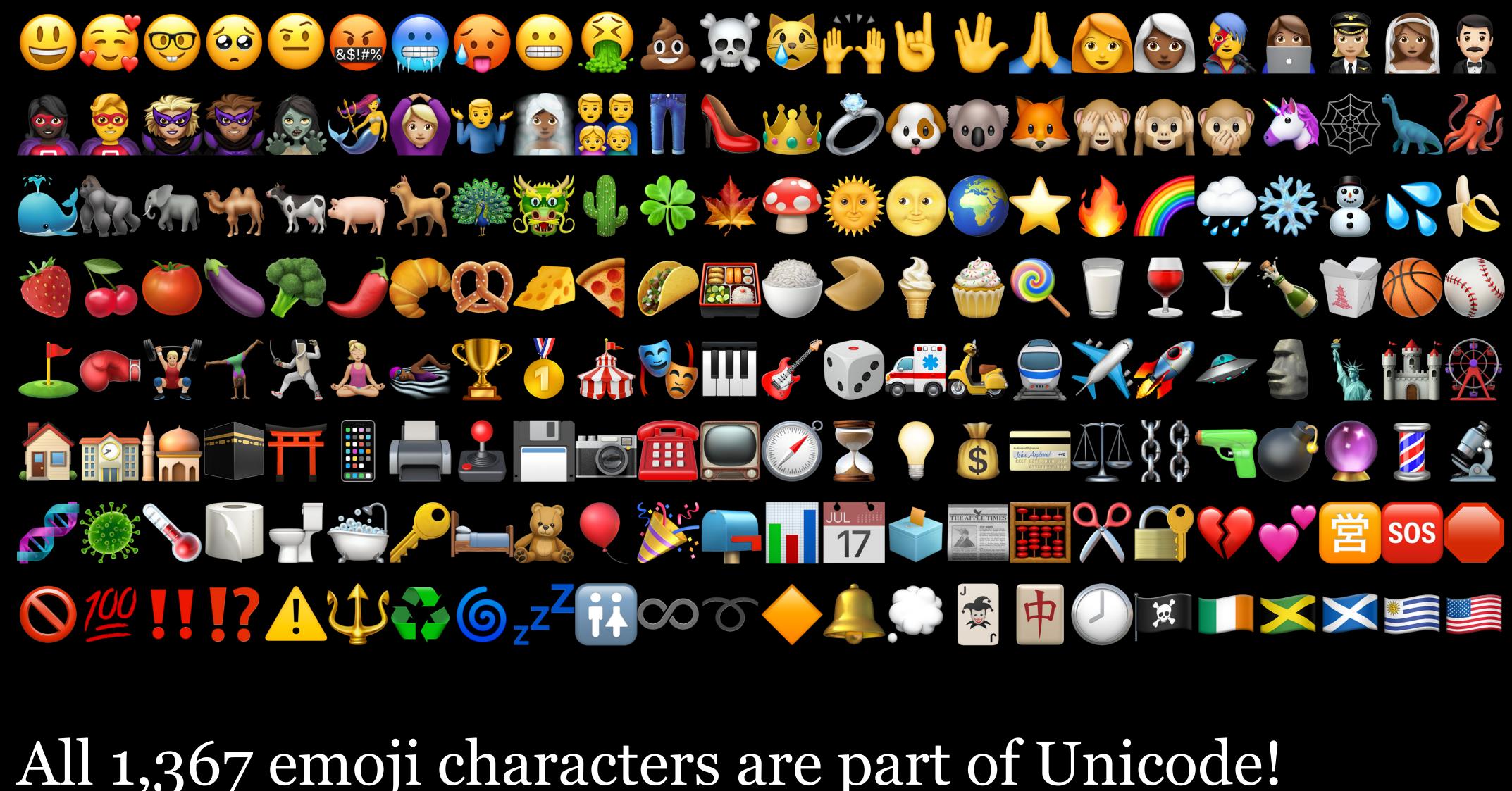
+Shift

upper case

lower case

@angealbertini

UTF-8

8-bit Unicode Transformation Format

Original standard dates back to October 1991

Encompasses every character in every language in the world: version 13 includes 143,859 characters found in 154 modern & historic writing systems, plus symbols & formatting characters
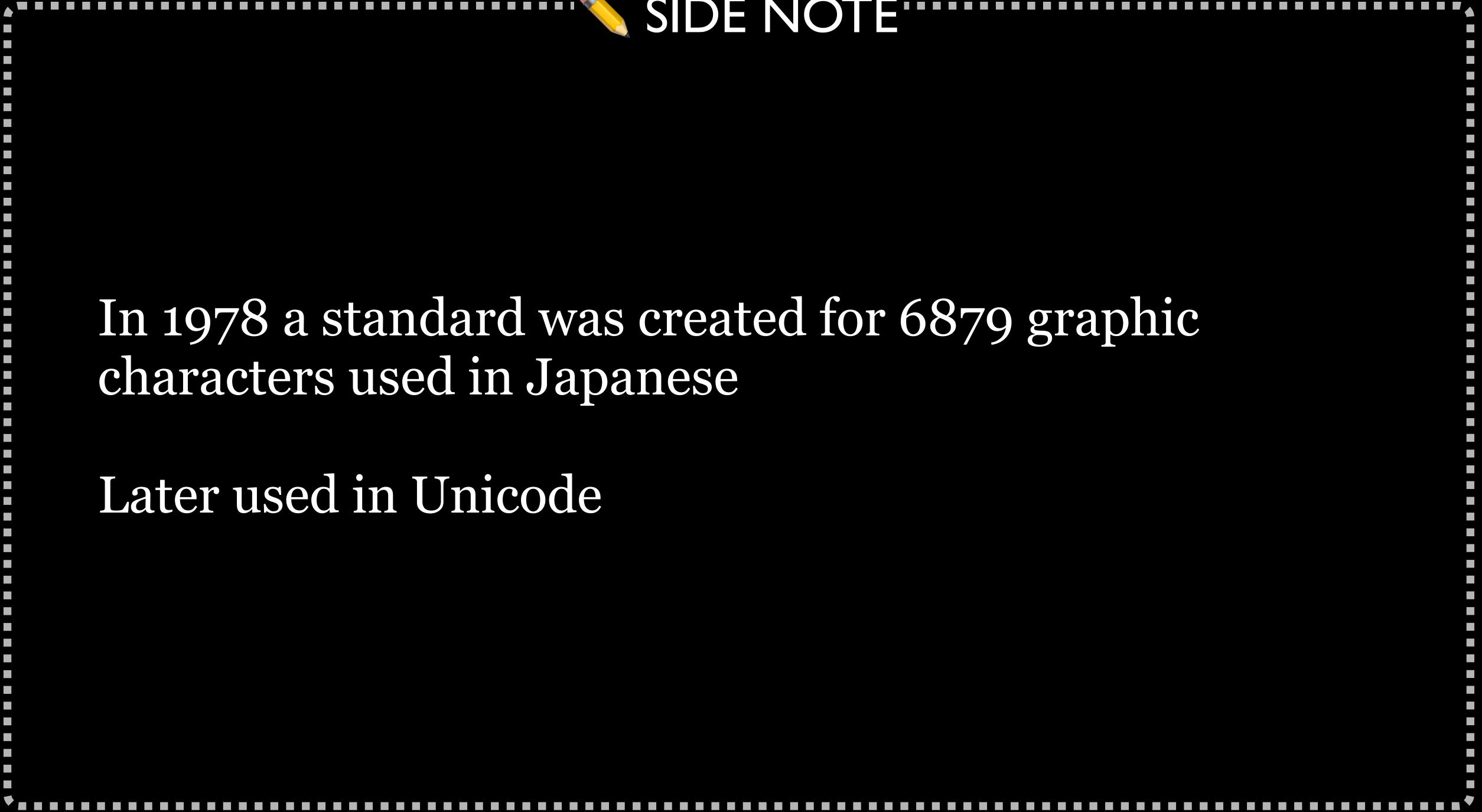
UTF-8 can support up to 1,112,064 characters!

All 1,367 emoji characters are part of Unicode!

Unicode consists of *blocks*, groups of related characters, such as

Basic Latin • Latin-1 Supplement • Hebrew • Arabic • Currency Symbols • Arrows • Braille Patterns • Bopomofo • CJK Strokes • Phoenician • Cuneiform • Playing Cards • Alchemical Symbols • 308 in all!

✏️ SIDE NOTE

In 1978 a standard was created for 6879 graphic characters used in Japanese

Later used in Unicode

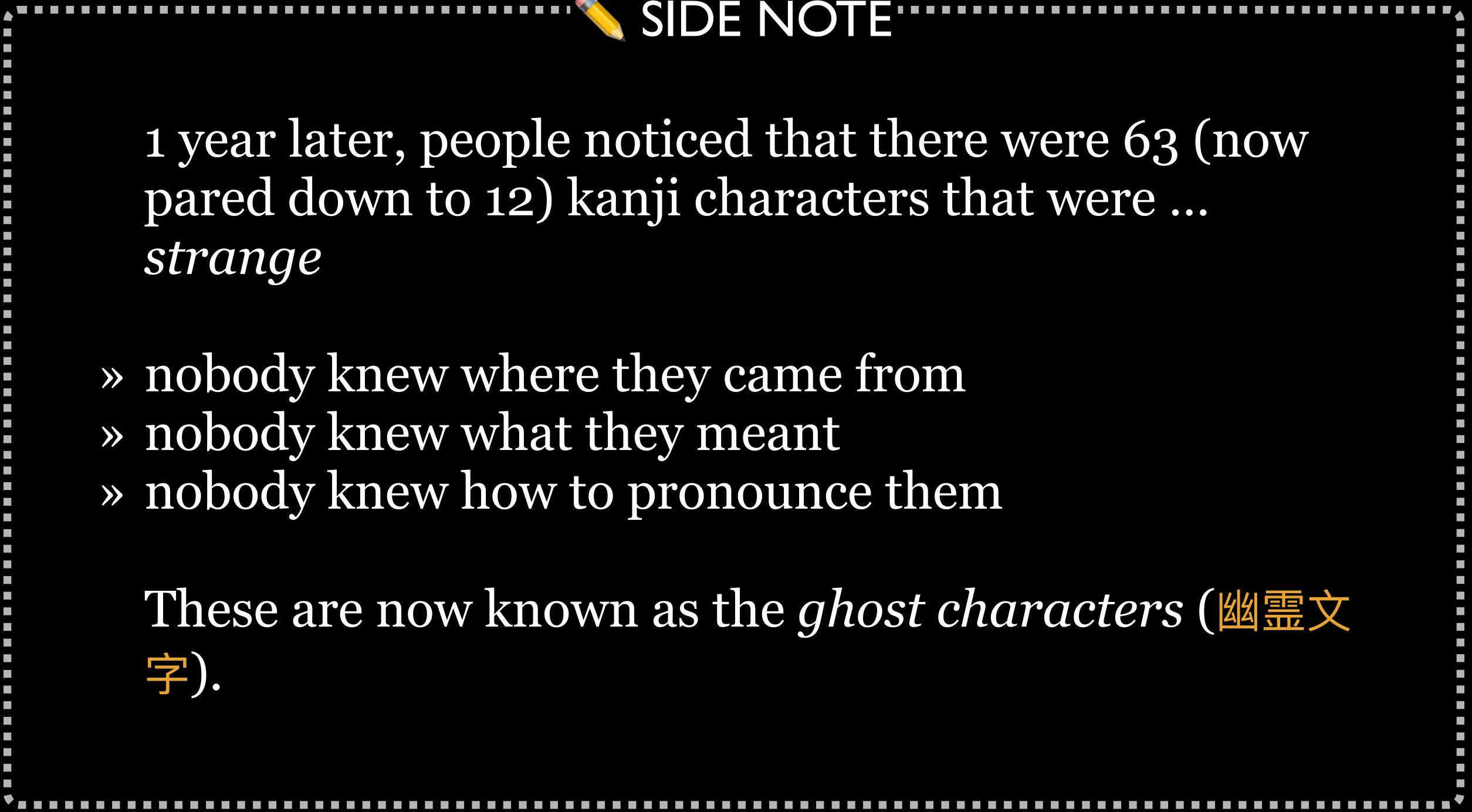1 year later, people noticed that there were 63 (now pared down to 12) kanji characters that were ... *strange*
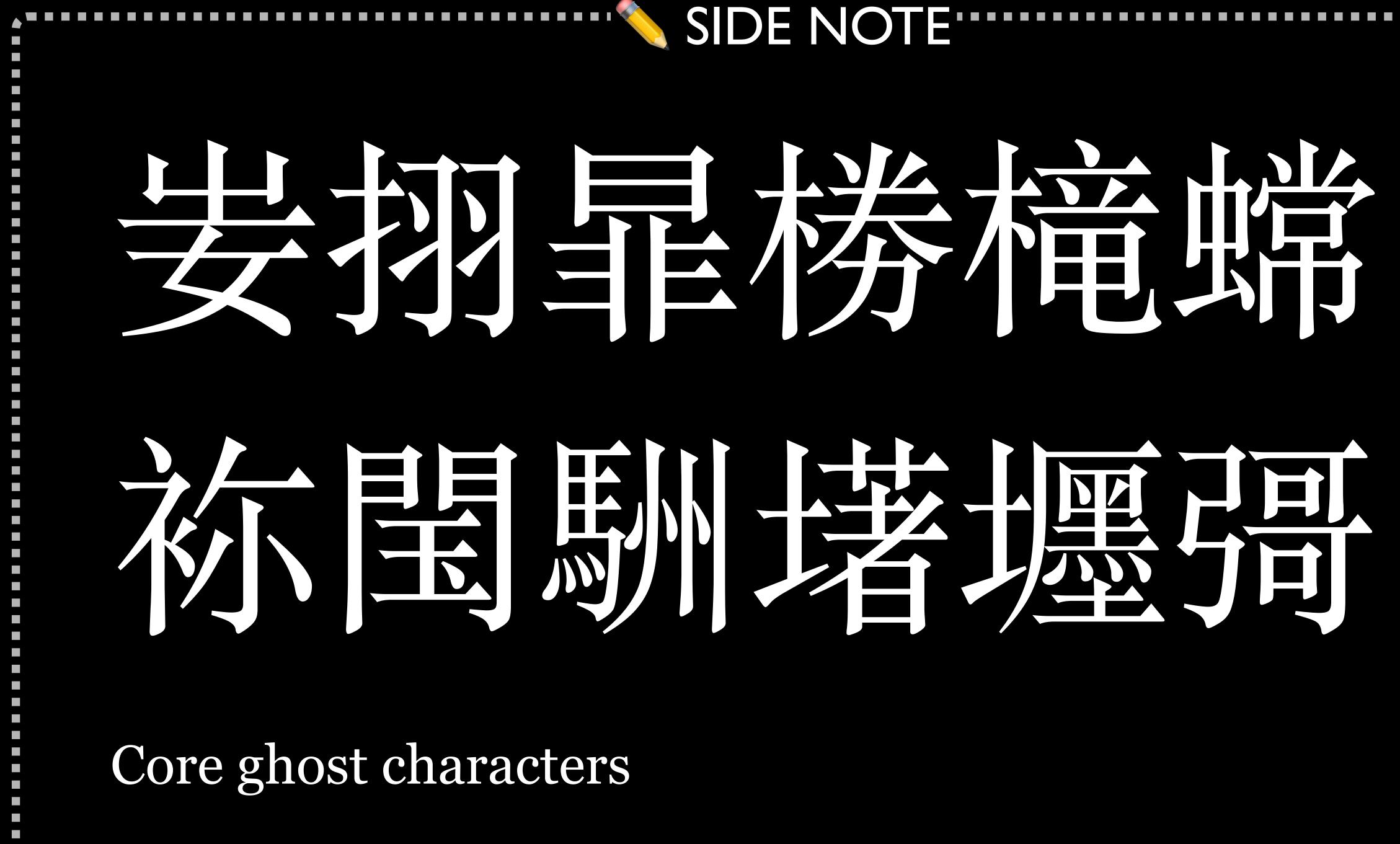
» nobody knew where they came from
» nobody knew what they meant
» nobody knew how to pronounce them

These are now known as the *ghost characters* (幽霊文字).
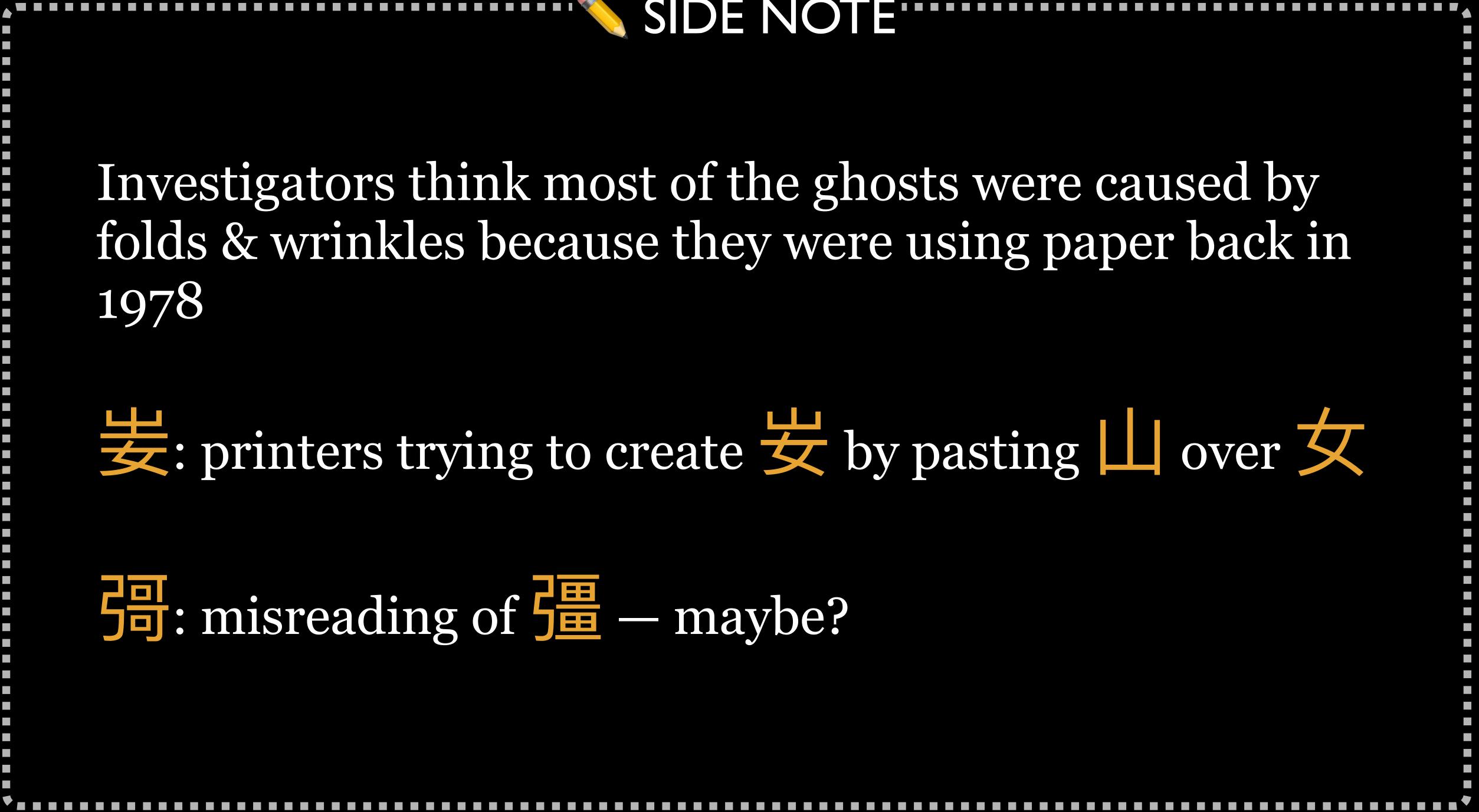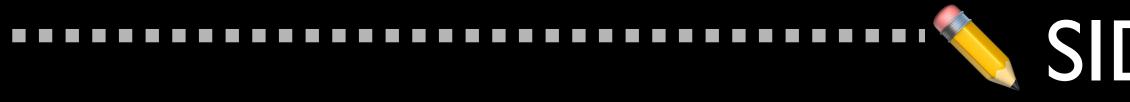
岽捔皐椦榳蟷
祢闬馴堵壥弱

Core ghost characters

Investigators think most of the ghosts were caused by folds & wrinkles because they were using paper back in 1978
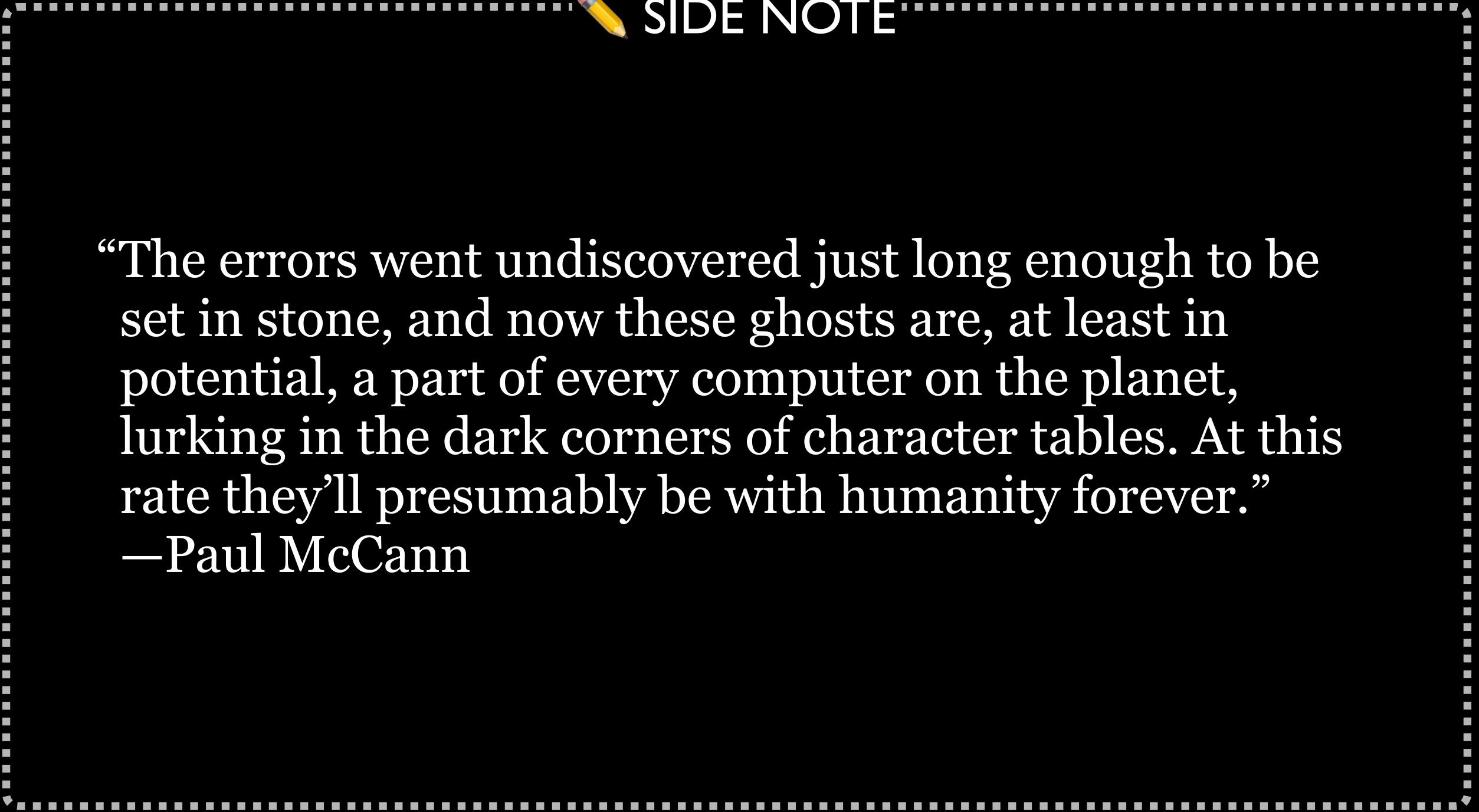
岽: printers trying to create 岽 by pasting 山 over 女

弨: misreading of 彊 — maybe?

"The errors went undiscovered just long enough to be set in stone, and now these ghosts are, at least in potential, a part of every computer on the planet, lurking in the dark corners of character tables. At this rate they'll presumably be with humanity forever."
—Paul McCann

Since 2009, the most common encoding for HTML files

95% of all webpages are encoded with UTF-8 as of 2020

Also the standard way to represent text in files, email, & software

Use UTF-8!

Everywhere!

In everything!

Webpages, text editors, IDEs, web browsers, email programs, programming, APIs, operating systems...

"Noto is a font family designed to cover all the scripts encoded in the Unicode standard" — Wikipedia

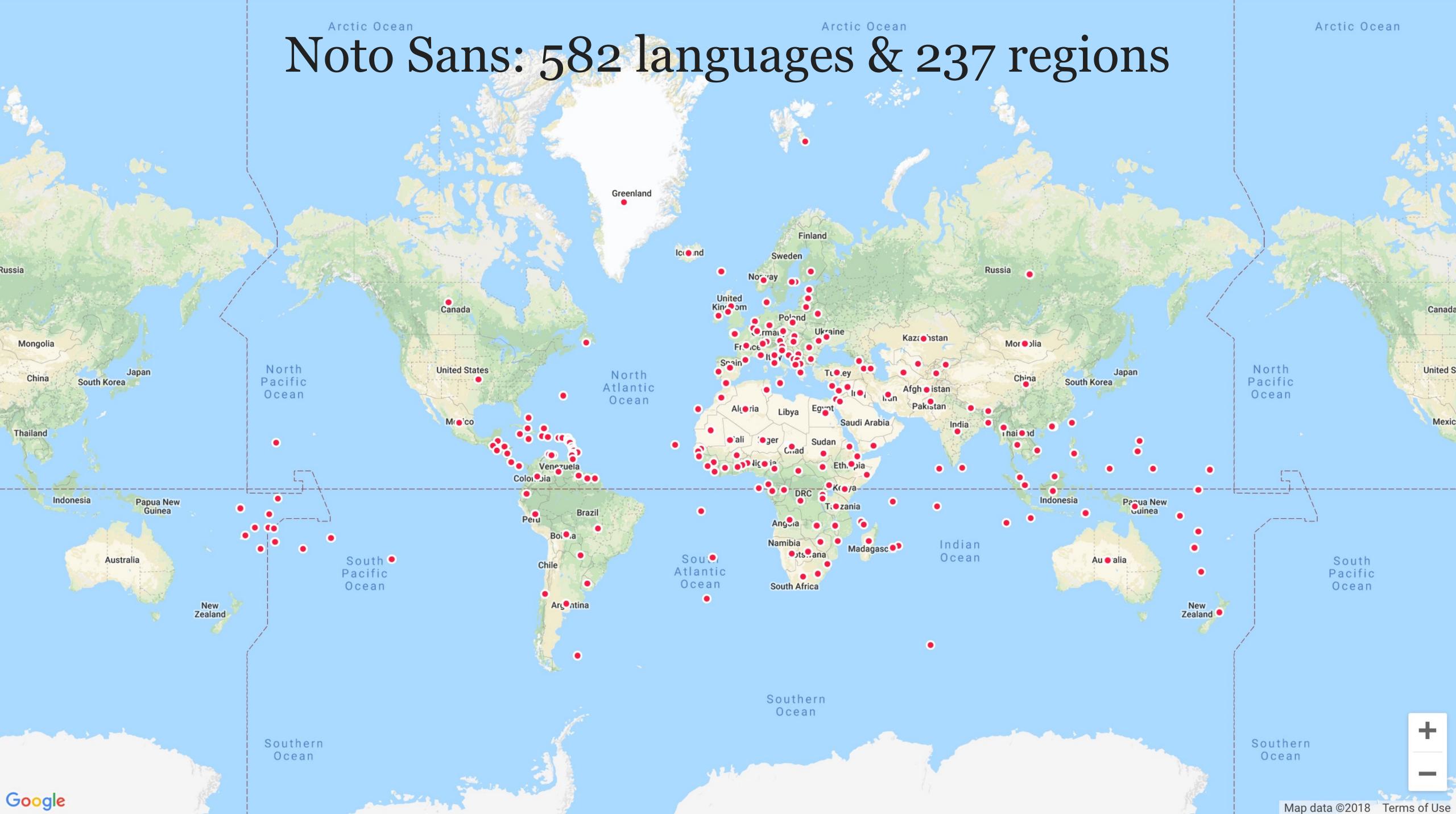Currently 64,000 out of 137,000

Noto is short for *no tofu*

Huh?

Tofu: empty white boxes that appear when a character isn't supported in a typeface

All Fonts
Computer
User

Smart Collection

English
Fixed Width

Collection

Fun
iOS Fantasy
iOS Handwriting
iOS Monospace
iOS Sans Serif
iOS Serif
Logos
Modern
PDF
Traditional
Web

Search

▶ Anonymous Pro
▶ Artisan12
▶ Audiowide
▶ Caxton Light Italic
▼ Caxton Roman Bold
    Plain
▶ Caxton Roman Book
▶ Caxton Roman Light
▶ CCExtraExtra
▶ CCExtraExtraEngraved
▶ CMU Classical Serif
▼ CMU Serif
    Roman
    Italic
    Bold
    BoldItalic
▶ Courier Prime
▶ Creepster
▶ DejaVu Sans
▶ DejaVu Sans Mono
▶ DejaVu Serif
▼ devicons
    Regular
▶ Fira Mono
▶ Fira Sans
▶ Frutiger LT Std
▶ Futura Std
▼ Georgia Pro
    Regular
    Italic
    Bold
▼ GLYPHICONS Halflings
    Regular
▶ Iconic

Caxton Roman Bold Plain

Size: 36

n o p q r s t
u v w x y z
i ¢ £ /
¥ f ' " «
‹ › fi fl —
· • " » »
… ‰ ¿ ` ´ ^ ~

Noto Sans: 582 languages & 237 regions

Setting Character Encoding

Two methods

1. Web server provides `HTTP Content-Type` header

2. `<meta>` element in the `<head>`

Ideally, your web server admins take care of by correctly setting the `HTTP Content-Type` *header* (hidden information transferred back & forth between a web browser & a web server)

`Content-Type: text/html; charset=UTF-8`

Only works if your web server is configured correctly

This always works: insert a `<meta>` element inside the `<head>` element

HTML 4.01

```
<meta http-equiv="Content-Type" content="text/html; charset=utf-8">
```

HTML 5

```
<meta charset="utf-8">
```

Actually, `<meta charset="utf-8">` works in all browsers back to IE 6!

The `<meta>` for character encoding must be the 1st thing after `<head>`
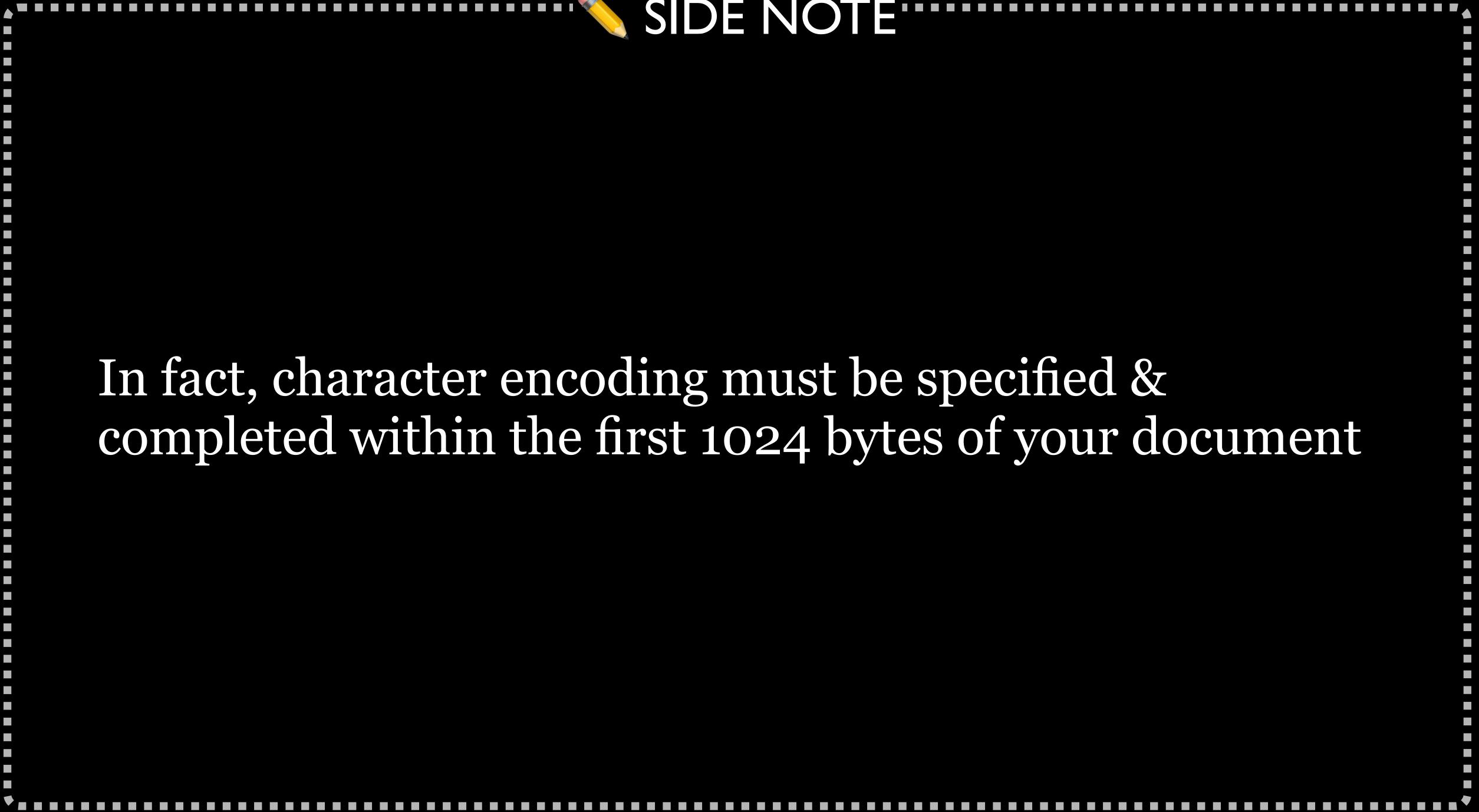
Why? Because all text after it needs to have character encoding set

📝 SIDE NOTE

In fact, character encoding must be specified & completed within the first 1024 bytes of your document

HTML 4.01

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//
EN" "http://www.w3.org/TR/html4/strict.dtd">
<html>
<head>
  <meta http-equiv="Content-Type"
    content="text/html; charset=UTF-8">
  <title>Test</title>
</head>
<body>
  …
```

HTML5

```
<!DOCTYPE html>
<html>
<head>
  <meta charset="UTF-8">
  <title>Test</title>
</head>
<body>
  …
```

For more info, see "Everything You Need to Know About Character Encoding" at www.granneman.com/webdev/coding/characterencoding/

The Simplest Webpage Ever, Corrected

HTML

```html
1  <html>
2    <head>
3      <title>Simple Web Page</title>
4    </head>
5    <body>
6      <h1 align="center">
7        From H. P. Lovecraft's
8        <br>"The Whisperer in Darkness"
9      </h1>
10     <p>
11       I cannot do better than transcribe in
     full, so far as is possible, the long
     letter in which Akeley introduced himself,
     and which formed such an important landmark
     in my own intellectual history. It is no
     longer in my possession, but my memory
     holds almost every word of its portentous
     message…
12     </p>
13   </body>
14 </html>
```

From H. P. Lovecraft's "The Whisperer in Darkness"

I cannot do better than transcribe in full, so far as is possible, the long letter in which Akeley introduced himself, and which formed such an important landmark in my own intellectual history. It is no longer in my possession, but my memory holds almost every word of its portentous message…

CSS

JS

Let's add the DTD & character encoding...

HTML

```html
<!doctype html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>Simple Web Page</title>
  </head>
  <body>
    <h1 align="center">
      From H. P. Lovecraft's
      <br>"The Whisperer in Darkness"
    </h1>
    <p>
      I cannot do better than transcribe in full, so far as is possible, the long letter in which Akeley introduced himself, and which formed such an important landmark in my own intellectual history. It is no longer in my possession, but my memory holds almost every word of its portentous message...
    </p>
  </body>
```
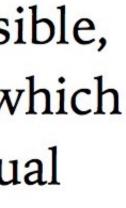
CSS

JS

From H. P. Lovecraft's "The Whisperer in Darkness"

I cannot do better than transcribe in full, so far as is possible, the long letter in which Akeley introduced himself, and which formed such an important landmark in my own intellectual history. It is no longer in my possession, but my memory holds almost every word of its portentous message...

```html
1 <html>
2   <head>
3     <title>Simple Web Page</title>
4   </head>
5   <body>
6     <h1 align="center">
7       From H. P. Lovecraft's
8       <br>"The Whisperer in Darkness"
9     </h1>
10    <p>
11      I cannot do better than transcribe in
full, so far as is possible, the long
letter in which Akeley introduced himself,
and which formed such an important landmark
in my own intellectual history. It is no
longer in my possession, but my memory
holds almost every word of its portentous
message…
12    </p>
13  </body>
14 </html>
```
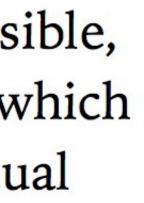
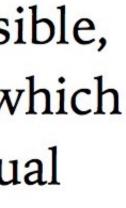# From H. P. Lovecraft's "The Whisperer in Darkness"

I cannot do better than transcribe in full, so far as is possible, the long letter in which Akeley introduced himself, and which formed such an important landmark in my own intellectual history. It is no longer in my possession, but my memory holds almost every word of its portentous message…

It looked the same, even when the code was "wrong"

Why? Because rendering engines "fix" your errors as best they can

Is that a license to be sloppy or careless? No!

Comments

Comments tell the rendering engine to ignore the *commented out* code & text

HTML comments on a single line

`<!-- … -->`

Can also be multi-line

```
<!--
…
…
…
  -->
```

```
1  <p>
2    Cthulhu
3  </p>
4  <!--<p>
5    Yog-Sothoth
6  </p>
7  <p>
8    Shub-Niggurath
9  </p>-->
10 <p>
11   Nyarlathotep
12 </p>
```

Cthulhu

Nyarlathotep

Purposes of comments

» Notes for you & your co-workers
» ~~Debugging~~ (use your browser's built-in developer tools instead)

Notes for you & your co-workers

```html
<!-- Solution found at http://www.
granneman.com/webdev/coding/dtds/ -->

<!-- Do not edit below here -->

<!-- Google Analytics -->
```

Do not be cute & leave "funny" comments in your code

```
<!-- Stupid solution to satisfy the client's
stupid request for a stupid feature -->
```

You *will* forget to remove them before your work goes live

Editing

Remember, a webpage is just a text file that ends with `.htm` or `.html`

You can create & edit webpages using a variety of tools

Ways to create & edit websites

» Text editor
» WYSIWYG (*What You See Is What You Get*)
» Template-based Content Management Systems

Text editor

Create & edit HTML (& CSS, & JavaScript) by hand

```html
1   <!DOCTYPE html>
2   <html>
3
4   <head>
5     <meta charset="utf-8">
6     <meta http-equiv="X-UA-Compatible" content="IE=edge">
7     <title>WebSanity's Terms &amp; Conditions</title>
8     <meta name="viewport" content="width=device-width">
9     <meta name="description" content="WebSanity standard contract terms and conditions for
      website development, CMS hosting services, and any related services that WebSanity
      provides.">
10    <link rel="canonical" href="http://legal.websanity.com/">
11    <!-- Custom CSS -->
12    <link rel="stylesheet" href="/css/main.css">
13  </head>
14
15  <body>
16    <header class="site-header">
17      <div class="wrap">
18        <a class="site-title" href="/">WebSanity's Terms &amp; Conditions</a>
19        <nav class="site-nav">
20          <a href="#" class="menu-icon">▭
29          </a>
30          <div class="trigger">
31            <a class="page-link" href="/feed.xml"></a>
32            <a class="page-link" href="/changes/">Changes</a>
```

OPEN FILES
✳ Snowden Revelations Timeline.html
● index.html

Allows for the most control, but can be tedious & error-prone

These products can be somewhat mitigated by *code snippets* & automation, but not fully

Normally, you indent your code

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>The Call of Cthulhu</title>
  </head>
  <body>
    <h1>A Story by H.P. Lovecraft</h1>
  </body>
</html>
```

📦 FORMATTING GUIDE

Normally, you indent your code

Easy to read!

Easy to parse!

Collaborators ❤️ you!

```html
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>The Call of Cthulhu</title>
  </head>
  <body>
    <h1>A Story by H.P. Lovecraft</h1>
  </body>
</html>
```
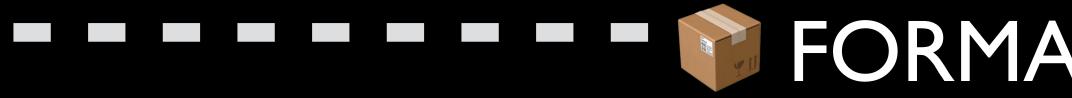
📦 FORMATTING GUIDE

You could put your code on one line

```
<!DOCTYPE html><html><head><meta
charset="utf-8"><title>The Call of Cthulhu</
title></head><body><h1>A Story by H.P.
Lovecraft</h1></body></html>
```

🤖: Rendering engines wouldn't care

🙍🙍‍♂️: Hard to read! Hard to parse! Collaborators 😠 you!

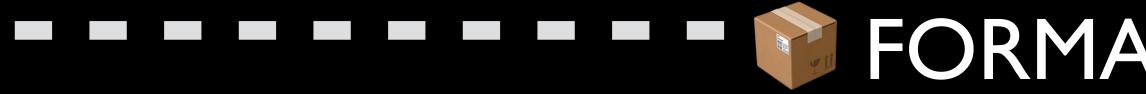# 📦 FORMATTING GUIDE

You could break things up randomly

```
<!DOCTYPE html><html><head><meta
charset="utf-8"><title>The
Call of
Cthulhu
</title></head><body><h1>A Story
by H.P. Lovecraft</h1>
</body></html>
```

🤖: Rendering engines wouldn't care

🙍🙍‍♂️: Hard to read! Hard to parse! Collaborators 😠 you!

Always *nest* (indent) your code!

You will learn the details as we go through the course

WYSIWYG

What You See Is What You Get

"...a system in which content (text and graphics) onscreen during editing appears in a form closely corresponding to its appearance when printed or displayed as a finished product" —Wikipedia

F1 Help. Push■JustOff. 99% Free.   0% Thru. Edit "work.doc"

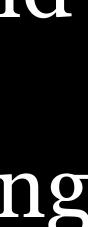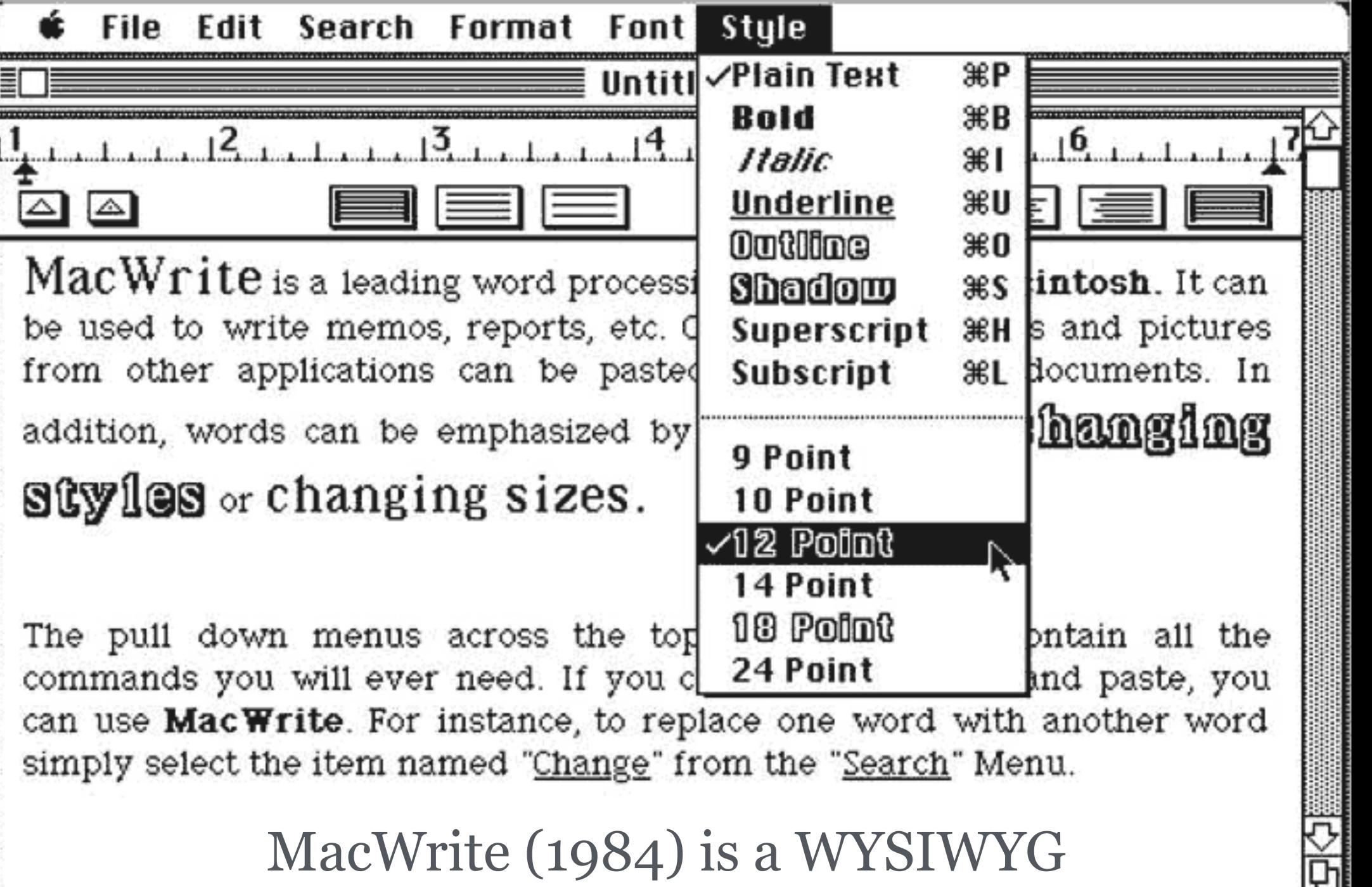The Quick Brown Fox Jumps Over The Lazy Dog

■This is some bold text■
§This is some underlined text§

PC-Write (1985) is not a
WYSIWYG

`Ctrl+B` or `Alt+B` toggles Bold

`.R:letter` sets font to setting
coded by `Alt+letter`
(e.g., `.R:B` for bold)

MacWrite is a leading word processi... ...intosh. It can be used to write memos, reports, etc. ... s and pictures from other applications can be pasted ... documents. In addition, words can be emphasized by ... **changing** **styles** or changing sizes.

The pull down menus across the top ... ontain all the commands you will ever need. If you c... ...nd paste, you can use **MacWrite**. For instance, to replace one word with another word simply select the item named "Change" from the "Search" Menu.

MacWrite (1984) is a WYSIWYG

Menu bar: **File   Edit   Search   Format   Font   Style**

Style menu:
- ✓Plain Text   ⌘P
- **Bold**   ⌘B
- *Italic*   ⌘I
- Underline   ⌘U
- Outline   ⌘O
- Shadow   ⌘S
- Superscript   ⌘H
- Subscript   ⌘L
- 9 Point
- 10 Point
- ✓12 Point
- 14 Point
- 18 Point
- 24 Point

WYSIWYG webpage editors use a GUI (*Graphical User Interface*) to automatically generate HTML (often incorrect) that is hidden from user

Main WYSIWYG editors
» Adobe Dreamweaver
» Microsoft ~~FrontPage~~ Expression
» ~~Nvu Kompozer~~ BlueGriffon

The following are WebSanity standard contract terms and conditions for website development, CMS hosting services, and any related services that WebSanity provides. They are an integral part of any development proposal.

CMS Site Characteristics and Capabilities

The WebSanity content management system (CMS) features in-context editing, making it more "editor friendly" than many systems. It is open source, which delivers many benefits to clients, and utilizes the LAMP (Linux, Apache, MySQL, PHP) technology stack, which makes it standards-compliant and portable. It is browser-based and database-driven; it uses templates, HTML, XML, Cascading Style Sheets, and JavaScript. It provides managerial control of content, including copy, photos, and other site elements, and control of site structure, the site's navigation system.
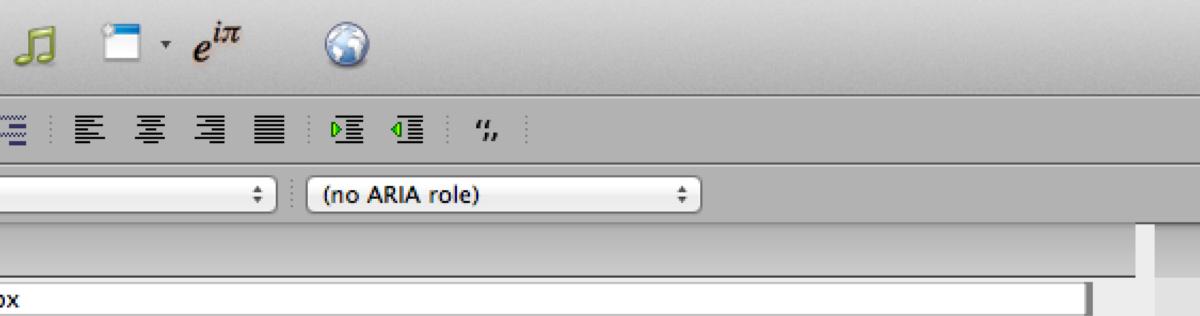
Requirements for Using the CMS

The CMS enables site editing over the Internet, using a browser-based content editor. Editors need a browser that is compliant with current web standards, and cookies and JavaScript must be enabled.

Data Center Environment

WebSanity hosts websites in a small-group curated environment; we select, maintain, and monitor all CMS add-ons and support software, in contrast to a bulk hosting environment where you are responsible for everything. Client sites are hosted with the CMS, for ready access to upgrades and modifications. We host via Amazon's Website Services division and Linode, both of which are highly regarded for security and stability. In this manner WebSanity seeks to minimize service

```html
33    <div class="page-content">
34      <div class="wrap">
35        <p> The following are <a href="http://www.websanity.com">WebSanity</a>
36          standard contract terms and conditions for website development, CMS
37          hosting services, and any related services that WebSanity provides.
38          They are an integral part of any development proposal. </p>
39        <h2 id="cms-site-characteristics-and-capabilities">CMS Site
40          Characteristics and Capabilities</h2>
41        <p> The WebSanity content management system (CMS) features in-context
42          editing, making it more "editor friendly" than many systems. It is
43          open source, which delivers many benefits to clients, and utilizes the
44          LAMP (Linux, Apache, MySQL, PHP) technology stack, which makes it
45          standards-compliant and portable. It is browser-based and
46          database-driven; it uses templates, HTML, XML, Cascading Style Sheets,
47          and JavaScript. It provides managerial control of content, including
48          copy, photos, and other site elements, and control of site structure,
49          the site's navigation system. </p>
50        <h2 id="requirements-for-using-the-cms">Requirements for Using the CMS</h2>
51        <p> The CMS enables site editing over the Internet, using a
52          browser-based content editor. Editors need a browser that is compliant
53          with current web standards, and cookies and JavaScript must be
54          enabled. </p>
55        <h2 id="data-center-environment">Data Center Environment</h2>
56        <p> WebSanity hosts websites in a small-group curated environment; we
57          select, maintain, and monitor all CMS add-ons and support software, in
58          contrast to a bulk hosting environment where you are responsible for
59          everything. Client sites are hosted with the CMS, for ready access to
60          upgrades and modifications. We host via Amazon's Website Services
61          division and Linode, both of which are highly regarded for security
62          and stability. In this manner WebSanity seeks to minimize service
```
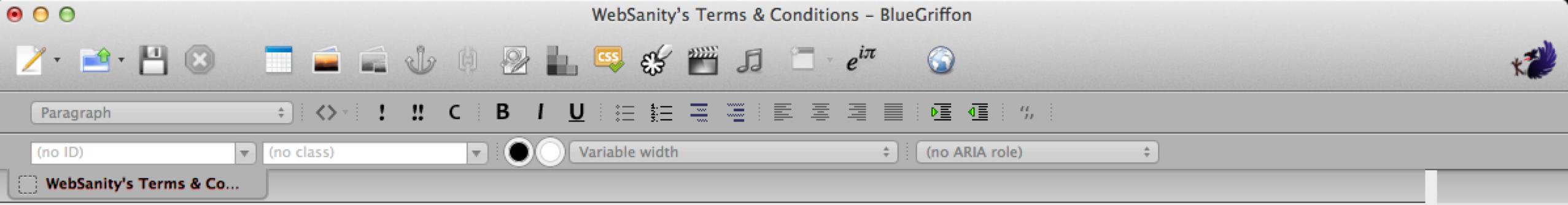
Wysiwyg Source

Get add-ons!   100%

Creating & editing websites using both text editors & WYSIWYGs share similar problems

» Scalability
» Maintainability

Scalability

With both solutions, a website of 1000 pages is just that: 1000 HTML pages

Change the logo's location? Change the background color? Alter the footer's text?

You have to change 1000 pages

Maintainability

Specialized technical knowledge is required to edit & maintain the website

A template-based Content Management System solves both scalability & maintainability

With a CMS, all content—templates, text, images, scripts—is stored & managed in a database

Need to make a change?

Do it once, to the item in the database, & it's fixed for the entire site

A good CMS also makes it easy for non-technical users to edit the website by incorporating a WYSIWYG editor into the website
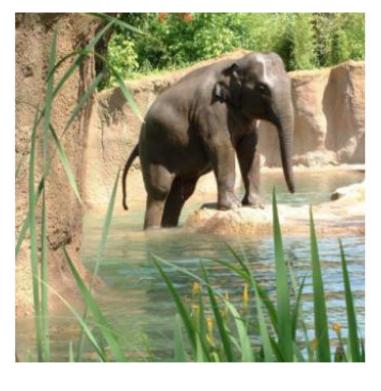
Asian Elephant

ANIMALS

Geographical Range	India, Sri Lanka, Southeast Asia
Habitat	Scrub forests, adjoining grasslands, jungles where remaining
Scientific Name	Elephas maximus
Conservation Status	Endangered

Elephants and Us

Asian elephants have long been important to humans. Whether it's their key role in the Hindu religion and culture, their longstanding use as beasts of burden, their slaughter for the ivory trade, or their current conflicts with the exploding human population -- elephants have always fascinated us.

Elephants have been domesticated in Asia for centuries, bred to move people and cargo. In the past, wealthy Indians and royalty owned elephants, riding on

World Elephant Day

Tuesday, August 12, 2014
Activities at River's Edge
10 a.m. to 3 p.m.

World Elephant Day is celebrated across the globe every year and is designed to bring attention to the plight of elephants in the wild.

Stop by the elephant habitats at River's Edge to meet the Zoo's three-generation family of Asian elephants, talk with keepers, see and touch elephant biofacts, learn about elephants through family activities and take home a souvenir.

Saint Louis Zoo
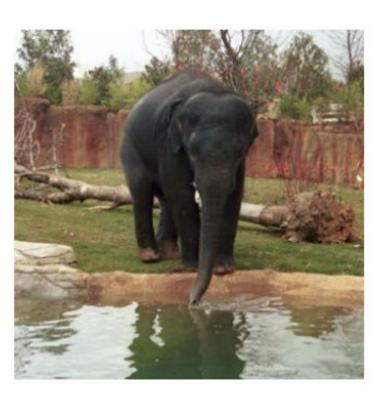## Animals Always®

Asian Elephant

ANIMALS

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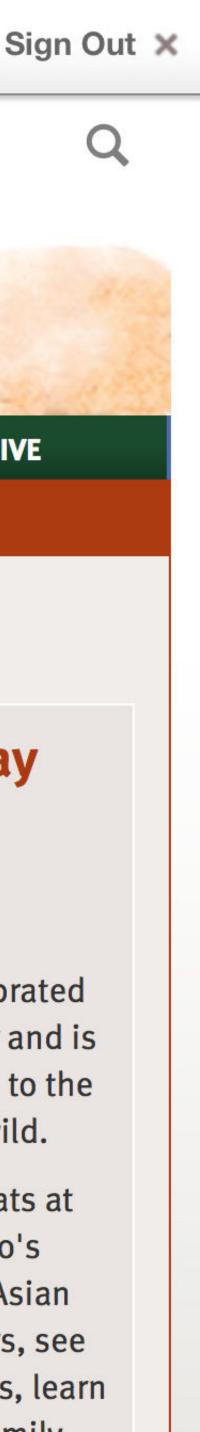
World Elephant Day

Tuesday, August 12, 2014
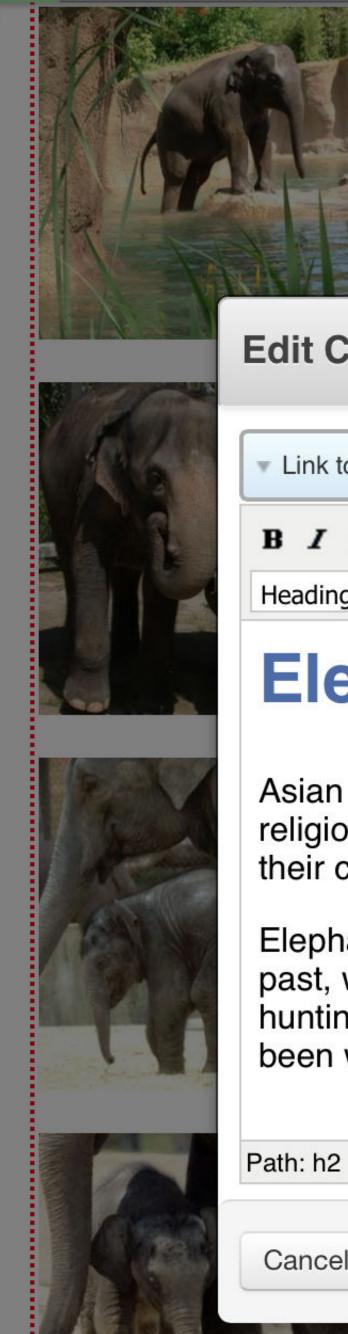**Activities at River's Edge**
10 a.m. to 3 p.m.

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the plight of elephants in the wild.

Stop by the elephant habitats at River's Edge to meet the Zoo's three-generation family of Asian elephants, talk with keepers, see ...uch elephant biofacts, ...bout elephants through ...activities and take home a ...ir.

Elephants and Us

Asian elephants have long been important to humans. Whether it's their key role in the Hindu religion and culture, their longstanding use as beasts of

Edit Content   ? ✕

▾ Link to File   ▾ Link to Page   Use the **Image Block** to insert images!

B *I* x² x₂ Styles   HTML

Heading 2

Elephants and Us

Asian elephants have long been important to humans. Whether it's their key role in the Hindu religion and culture, their longstanding use as beasts of burden, their slaughter for the ivory trade, or their current conflicts with the exploding human population -- elephants have always fascinated us.

Elephants have been domesticated in Asia for centuries, bred to move people and cargo. In the past, wealthy Indians and royalty owned elephants, riding on their elaborately decorated backs on hunting trips into the bush. Because they are intelligent and docile (when well treated), they have been widely used in the lumber industry to haul heavy items such as teak logs.

Path: h2
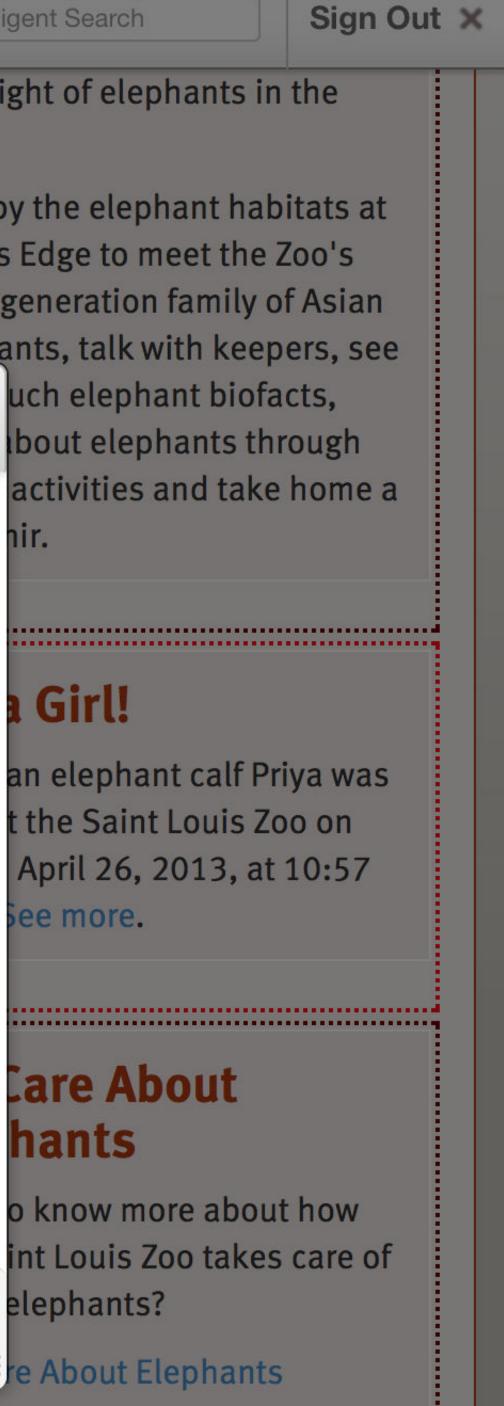
Cancel   Save ✓

a Girl!

...an elephant calf Priya was ...t the Saint Louis Zoo on ...April 26, 2013, at 10:57 ...See more.

...Care About ...hants

...o know more about how ...int Louis Zoo takes care of ...elephants?
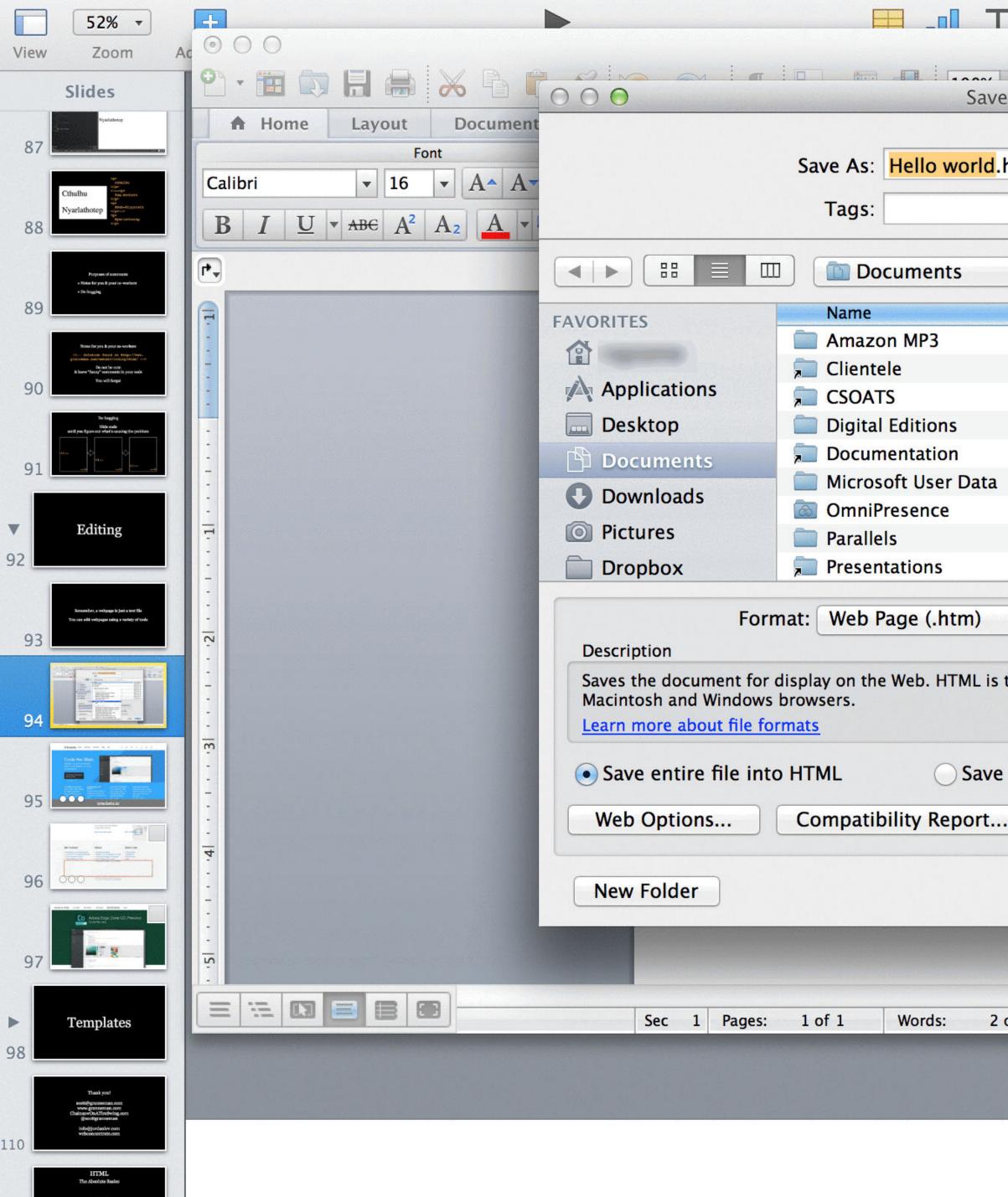
...re About Elephants

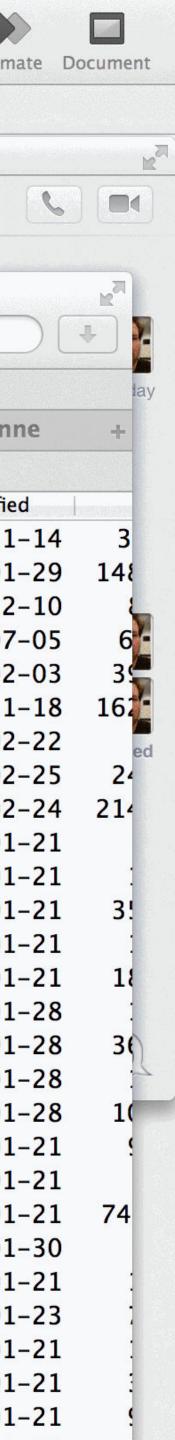So what do professionals use to develop webpages?
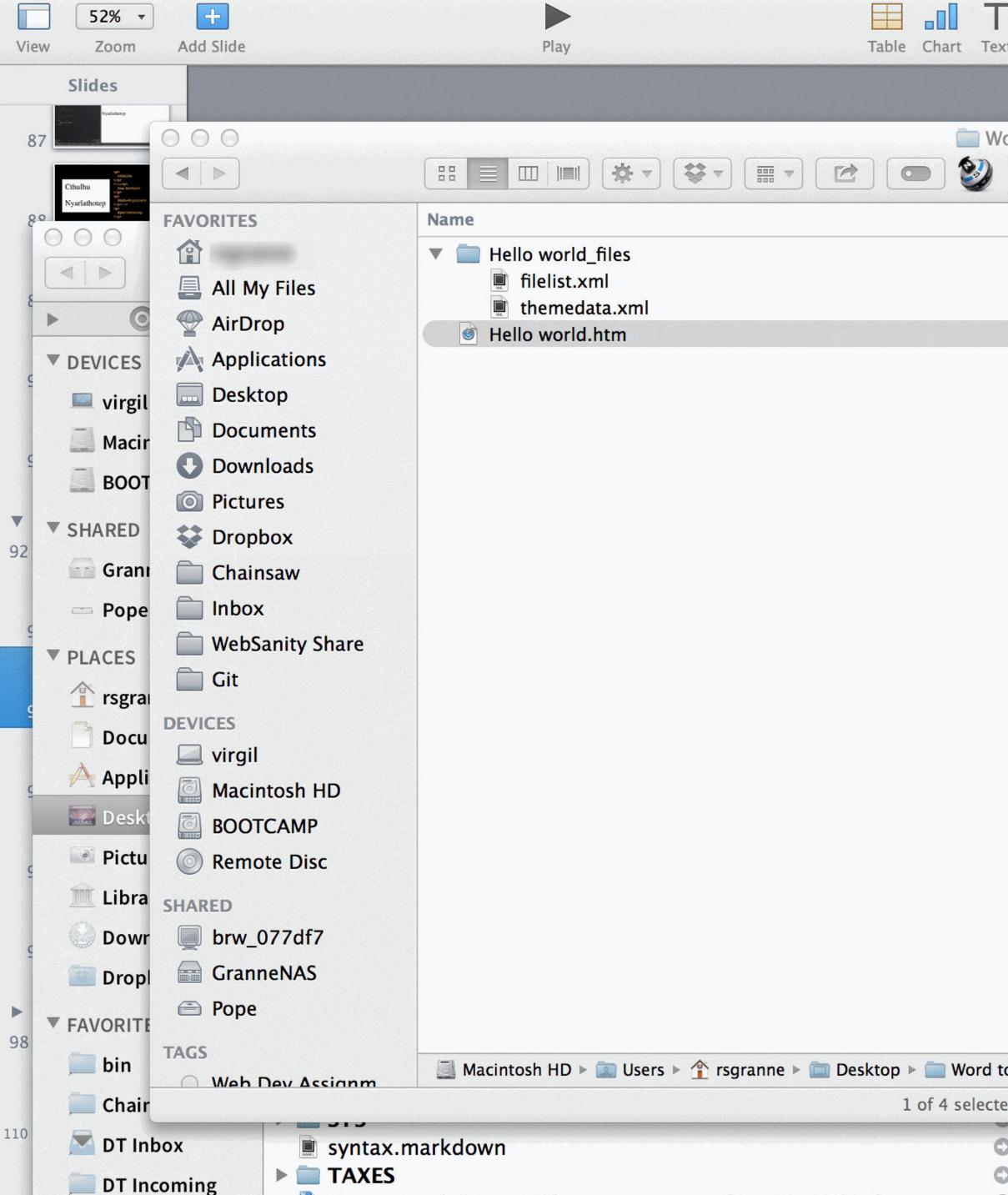
Do *not* use Word

```
 1 ▽<html xmlns:o="urn:schemas-microsoft-com:office:office"
 2   xmlns:w="urn:schemas-microsoft-com:office:word"
 3   xmlns:m="http://schemas.microsoft.com/office/2004/12/omml"
 4   xmlns="http://www.w3.org/TR/REC-html40">
 5
 6 ▽<head>
 7  <meta name=Title content="">
 8  <meta name=Keywords content="">
 9  <meta http-equiv=Content-Type content="text/html; charset=macintosh">
10  <meta name=ProgId content=Word.Document>
11  <meta name=Generator content="Microsoft Word 14">
12  <meta name=Originator content="Microsoft Word 14">
13  <link rel=File-List href="Hello%20world_files/filelist.xml">
14 ▽<!--[if gte mso 9]><xml>
15   <o:DocumentProperties>
16    <o:Author>Scott Granneman</o:Author>
17    <o:LastAuthor>Scott Granneman</o:LastAuthor>
18    <o:Revision>1</o:Revision>
19    <o:TotalTime>3</o:TotalTime>
20    <o:Created>2014-04-17T14:34:00Z</o:Created>
21    <o:LastSaved>2014-04-17T14:48:00Z</o:LastSaved>
22    <o:Pages>1</o:Pages>
23    <o:Words>1</o:Words>
24    <o:Characters>12</o:Characters>
25    <o:Company>Washington University in St. Louis</o:Company>
26    <o:Lines>1</o:Lines>
27    <o:Paragraphs>1</o:Paragraphs>
28    <o:CharactersWithSpaces>12</o:CharactersWithSpaces>
```

Working Files

Hello world.htm

Word to HTML ▾

▾ Hello world_files
  filelist.xml
  themedata.xml
Hello world.htm

Line 12, Column 51 — 462 Lines

INS   HTML   ⚠   Spaces: 4

```
             mso style priority.99,
435          mso-style-parent:"";
436          mso-padding-alt:0in 5.4pt 0in 5.4pt;
437          mso-para-margin:0in;
438          mso-para-margin-bottom:.0001pt;
439          mso-pagination:widow-orphan;
440          font-size:12.0pt;
441          font-family:Cambria;
442          mso-ascii-font-family:Cambria;
443          mso-ascii-theme-font:minor-latin;
444          mso-hansi-font-family:Cambria;
445          mso-hansi-theme-font:minor-latin;}
446     </style>
447     <![endif]-->
448     </head>
449
450   ▼<body bgcolor=white lang=EN-US style='tab-interval:.5in'>
451
452   ▼<div class=WordSection1>
453
454   ▼<p class=MsoNormal><span style='font-size:16.0pt;font-family:Calibri'>Hello
455     world!<o:p></o:p></span></p>
456
457     </div>
458
459     </body>
460
461     </html>
462
```
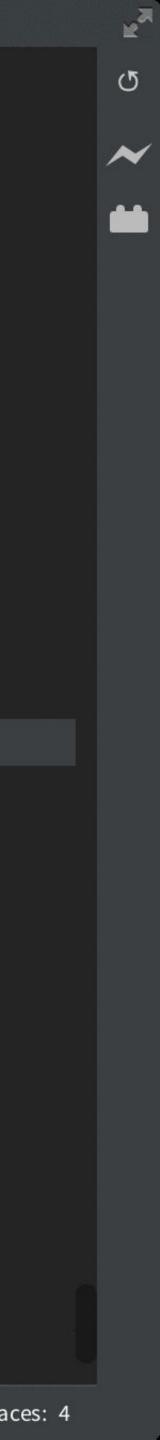
Untitled - Notepad
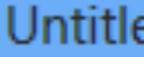
File　Edit　Format　View　Help

Sample document

Do not use Notepad on Windows

There are lots better options
(& it just sucks in general)

🍎	⊞	🐧
BBEdit	Notepad++	Kate
Sublime Text	Sublime Text	Sublime Text
TextMate	UltraEdit	gedit
Coda	Visual Studio	Bluefish
Eclipse	Eclipse	Eclipse
MacVim	Vim	vim
Brackets	Brackets	Brackets
Visual Studio Code	Visual Studio Code	Visual Studio Code
...	...	...
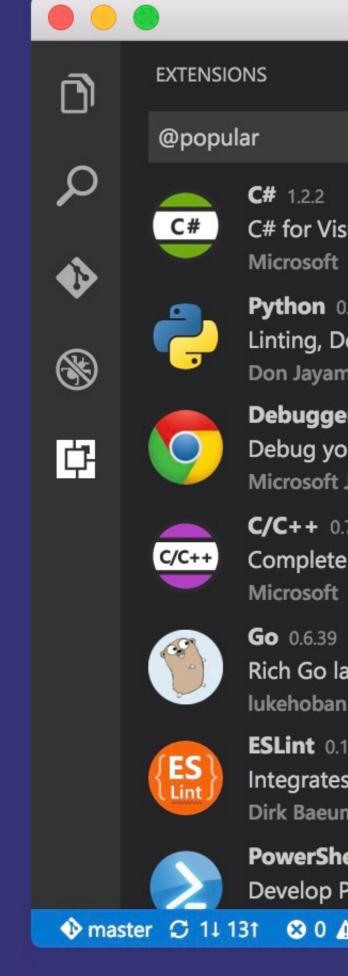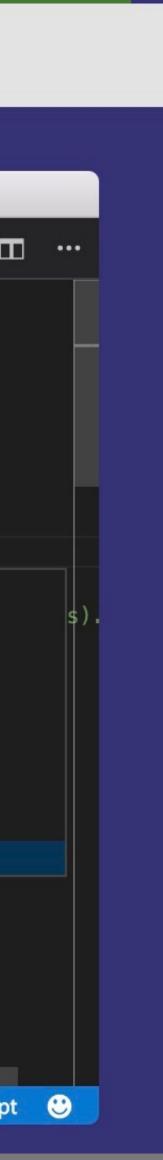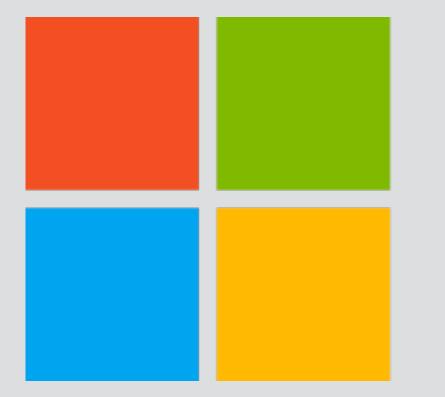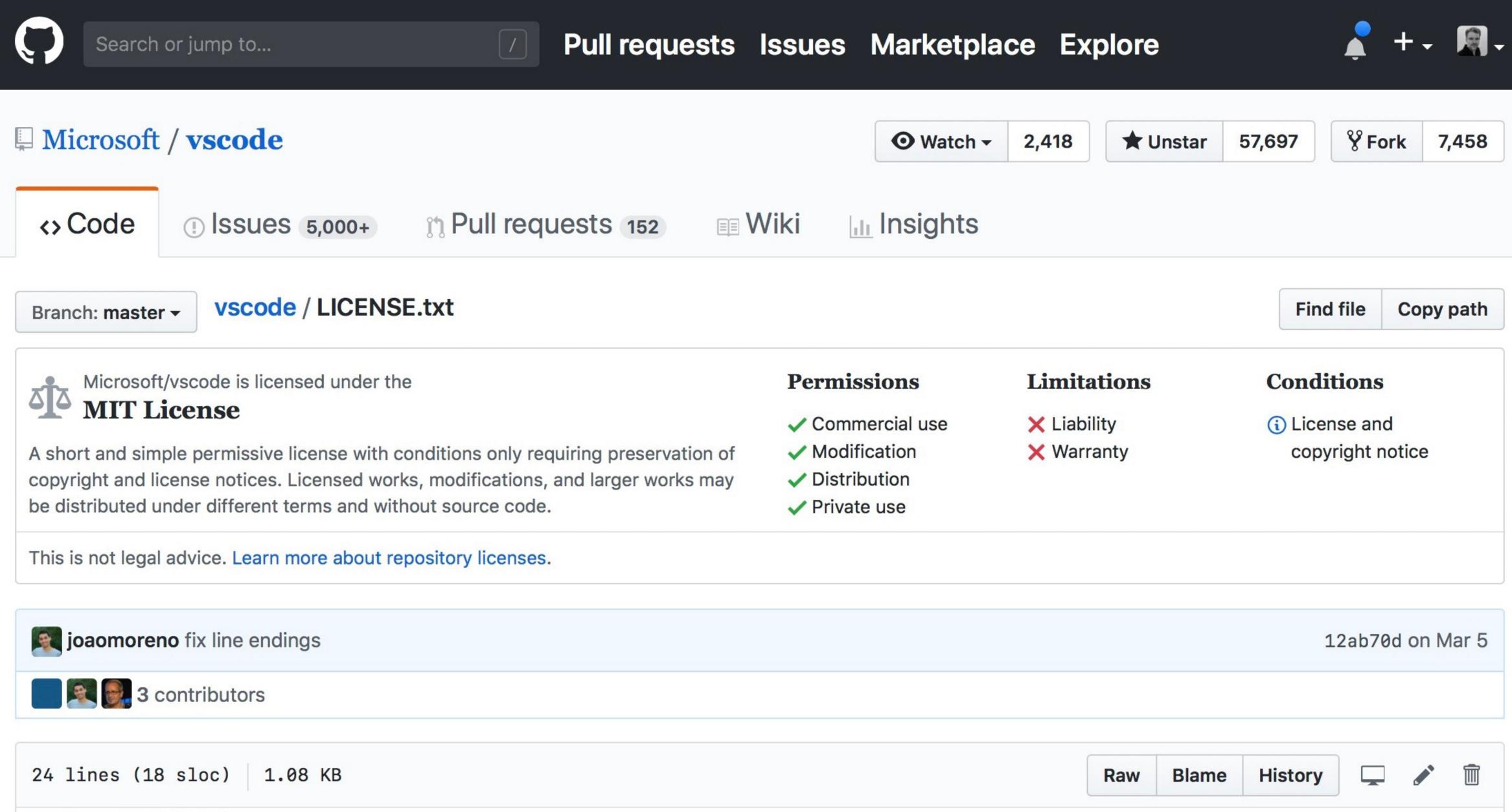
www.ts - node-express-ts

EXTENSIONS   ⊗   ⋯   app.ts   www.ts   ✕   package.json   README.md

@popular

```
1    import app from './app';
2    import debugModule = require('debug');
3    import http = require('http');
4
5    const debug = debugModule('node-express-typescript:server');
6
7    // Get port from environment and store in Express.
8    const port = normalizePort(process.env.PORT || '3000');
9    app.set('port', port);
10
11   // create
12   const ser
13   server.li
14   server.on
15   server.on
16
17   /**
18    * Normal
19    */
20   function normalizePort(val: any): number|string|boolean {
21       let port = parseInt(val, 10);
22
23       if (isNaN(port)) {
24           // named pipe
25           return val;
```

CSSImportRule
CSSSupportsRule
export
exports
import
importScripts
MessagePort
normalizePort
port   const port: number | string | boolean

C# 1.2.2   356K ★★★★★
C# for Visual Studio Code (po...
Microsoft   Install

Python 0.3... 211K ★★★★★
Linting, Debugging (multi-thr...
Don Jayamanne   Install

Debugger for Chrome 148K ★★★★★
Debug your JavaScript code i...
Microsoft JS Diagnost...   Install

C/C++ 0.7.1 143K ★★★★★
Complete C/C++ language su...
Microsoft   Install

Go 0.6.39 99K ★★★★★
Rich Go language support for...
lukehoban   Install

ESLint 0.10.18 88K ★★★★★
Integrates ESLint into VS Code.
Dirk Baeumer   Uninstall

PowerShell ...85K ★★★★★
Develop PowerShell scripts in...

◇ master   ↻ 1↓ 13↑   ⊗ 0 ⚠ 0   Ln 9, Col 21   Spaces: 2   UTF-8   LF   TypeScript   🙂

code.visualstudio.com

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🧑 **joaomoreno** fix line endings   12ab70d on Mar 5

🟦🧑🧑 **3 contributors**

24 lines (18 sloc)   1.08 KB   Raw   Blame   History   🖥 ✏ 🗑

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2

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Branch: **master** ▾

d file   Copy path

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Common features found in VS Code

» Cross-platform
» Project-based
» Syntax highlighting
» Robust find & replace, with regex
» Linting & debugging
» Autocompletion
» LESS & SCSS (CSS preprocessor) support
» Multiple cursors & selections
» Inline help

If VS Code doesn't do something you want it to do, you can probably find it in an *extension*—an add-on that extends the capability of VS Code

EXTENSIONS

Search Extensions in Marketplace

⊿ ENABLED   57

Atom One Light Theme 2.1.0
One Light Theme based on Atom
Mahmoud Ali   ⚙

Auto Close Tag 0.5.6
Automatically add HTML/XML close tag, ...
Jun Han   ⚙

Auto Complete Tag 0.1.0
Extension Packs to add close tag and ren...
Jun Han   ⚙

Auto Rename Tag 0.0.15
Auto rename paired HTML/XML tag
Jun Han   ⚙

Autoprefixer 2.1.2
Parse CSS and add vendor prefixes auto...
mrmlnc   ⚙

Bash Beautify 0.1.1
Format / Beautify bash and shell scripts
Ahmed Hamdy   ⚙

Beautify css/sass/scss/less 2.1.0
Beautify css, sass and less code (extensi...

▷ RECOMMENDED   0

▷ DISABLED   3

`<>` grid-content.html | ⑂ grid-content.scss | # grid-content.css

`<>` grid-content.html ▸ ◈ html

```html
1   <!doctype html>
2   <html lang="en">
3
4     <head>
5       <meta charset="UTF-8">
6       <title>Grid Practice</title>
7       <link rel="stylesheet" href="/css/grid-content.css">
8     </head>
9
10    <body>
11
12      <div class="grid-container">
13        <div class="grid-item">1</div>
14        <div class="grid-item">2</div>
15        <div class="grid-item">3</div>
16        <div class="grid-item">4</div>
17        <div class="grid-item">5</div>
18        <div class="grid-item">6</div>
19      </div>
20
```

⊗ 0 ⚠ 0   GIST [github]   ⚡   🗀 test   ◉ Watch Sass   ⊛ Go Live   Ln 22, Col 1   Spaces: 2   UTF-8   LF   HTML   Rsync: ⓘ
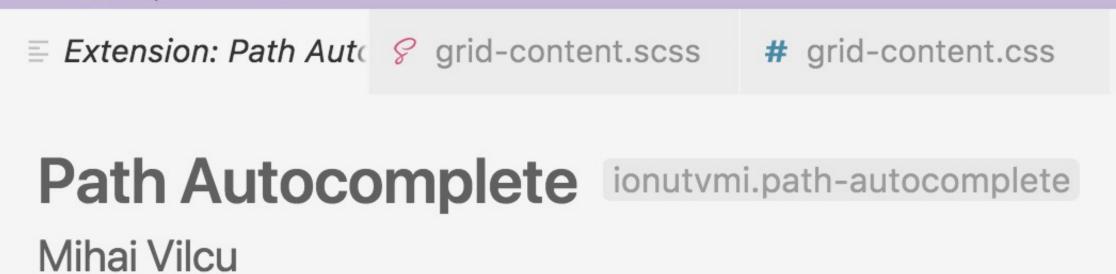
EXTENSIONS

Search Extensions in Marketplace

▲ ENABLED   57

Open in Transmit 1.2.6
Adds a few commands for opening the c…
Fabio Spampinato

Path Autocomplete 1.12.0
Provides path completion for visual studi…
Mihai Vilcu

Placeholder Images 0.1.0
Generate and insert placeholder images i…
Jake Wilson

Preview 1.4.4
A Markdown, ReStructured Text, HTML, …
Haixin Chen

Projects+ 1.18.0
An extension for managing projects. Feat…
Fabio Spampinato

Rewrap 1.9.1
Re-wraps comments and other text to a …
stkb

Settings Sync 3.0.0
Synchronize Settings, Snippets, Themes,…

▶ RECOMMENDED   0

▶ DISABLED   3

⟨⟩ grid-content.html   Extension: Path Auto   § grid-content.scss   # grid-content.css

Path Autocomplete   ionutvmi.path-autocomplete

Mihai Vilcu

Provides path completion for visual studio code.

Disable ▾   **Uninstall**

Details   **Contributions**

Path Autocomplete for Visual Studio Code

Provides path completion for visual studio code.

```
import {window, TextDocument, Position, Range} from 'vscode';
import {TextObject} from './TextObject';
import {} from '/out/test/extension.test.js';


export class TextObjectQuotedString extends TextObject {


····private static escapeCharacter = '\\';


····private quoteCharacter: string;
····private adjustedAnchor: Position;
```

⊗ 0 ⚠ 0   GIST [github]   ⚡   ▣ test   👁 Watch Sass   📡 Go Live   Rsync: ⓘ   🙂 🔔

grid-content.html   Extension: JS & CSS   grid-content.scss   # grid-content.css

css

Pranay Prakash

CSS Formatter 1.0.1
Formatter for CSS
Martin Aeschlimann   Install

CSS Modules 0.2.3
Visual Studio Code extension for CSS Mo...
clinyong   Install

JS-CSS-HTML Formatter 0.2.3
Format ,prettify and beautify JS, CSS, H...
lonefy   Install

VS Code CSS Comments 1.0.5
Visual Studio CSS Comment Snippets
Ash Hitchcock   Install

CSS Compressor 0.0.2
Minify or Compact your CSS files
bestvow   Install

VS Code Idiomatic CSS Comments 0.1.2
CSS and Sass style comments for Visual ...
Ryan Belisle   Install

JS & CSS Minifier 2.0.3
Easily Minify ES5/ES6/ES7/ES8 and CSS
olback   Install

css-triggers 0.7.0

JS & CSS Minifier olback.es6-css-minify

olback | ⬇ 15,590 | ★★★★★ | Repository | License

Easily Minify ES5/ES6/ES7/ES8 and CSS

Install

Details   **Contributions**   **Changelog**

JS & CSS Minifier

installs 15.59K   rating ★★★★★   Visual Studio Marketplace v2.0.3   Github (This branch) v2.0.3

build passing

A simple Javascript & CSS minifier.
A `Minify` button should appear in the status bar when opening a `.js` or a `.css` file. You can also run
`Minify document` by clicking `F1`.

Loading custom configs

By default the extension will look for `.uglifyrc` and `.cleancssrc`.
You can change the paths in settings. After changing settings in any of the config files, make sure to

⊗ 0 ⚠ 0   GIST [github]   ⚡   📁 test   👁 Watch Sass   Go Live   Rsync: ⓘ

CODEPEN

New Pen

16:20

Kai Waddington   0 💬   109 👁   3 ♥

9   3
15
3   11
10

Jack Rugile PRO   0 💬   408 👁   13 ♥

You may not believe i...   ...lling in straight lines.

Adam Doherty PRO   4 💬   757 👁   19 ♥

Alex Safayan   1 💬   994 👁   22 ♥

Muhan   0 💬   492 👁   4 ♥

Nate Wiley PRO   0 💬   815 👁   25 ♥

→

codepen.io

CodePen is like YouTube for developers

Developers publish their work so others can view &
learn

HTML

```html
    whether they danced often upon
    Lerion; but the farmer and his wile
    would only make the Elder Sign and
    tell him the way to Nir and Ulthar.
</p>
<img
src="https://upload.wikimedia.org/wikip
edia/commons/0/02/Elder_sign.jpg"
alt="Elder Sign">
<p>
    At noon he walked through the one
    broad high street of Nir, which he
    had once visited and which marked his
    farthest former travels in this
    direction; and soon afterward he came
```

CSS

```css
img {
  float: left;
}

/* Beautification (not part of lesson)*/

img {
  margin: .2em 1em .5em .5em;
}
```

JS

Carter detoured at the proper place, and heard behind him the frightened fluttering of some of the more timid Zoogs. He had known they would follow him, so he was not disturbed; for one grows accustomed to the anomalies of these prying creatures. It was twilight when he came to the edge of the wood, and the strengthening glow told him it was the twilight of morning. Over fertile plains rolling down to the Skai he saw the smoke of cottage chimneys, and on every hand were the hedges and ploughed fields and thatched roofs of a peaceful land. Once he stopped at a farmhouse well for a cup of water, and all the dogs barked affrightedly at the inconspicuous Zoogs that crept through the grass behind. At another house, where people were stirring, he asked questions about the gods, and whether they danced often upon Lerion; but the farmer and his wile would only make the Elder Sign and tell him the way to Nir and Ulthar.
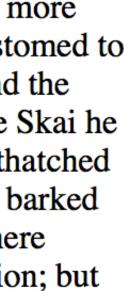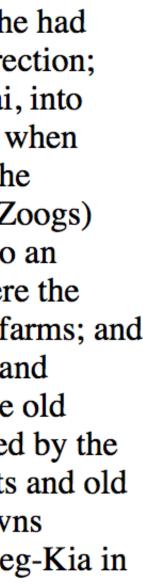

At noon he walked through the one broad high street of Nir, which he had once visited and which marked his farthest former travels in this direction; and soon afterward he came to the great stone bridge across the Skai, into whose central piece the masons had sealed a living human sacrifice when they built it thirteen-hundred years before. Once on the other side, the frequent presence of cats (who all arched their backs at the trailing Zoogs) revealed the near neighborhood of Ulthar; for in Ulthar, according to an ancient and significant law, no man may kill a cat. Very pleasant were the suburbs of Ulthar, with their little green cottages and neatly fenced farms; and still pleasanter was 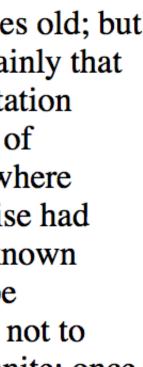the quaint town itself, with its old peaked roofs and overhanging upper stories and numberless chimney-pots and narrow hill streets where one can see old cobbles whenever the graceful cats afford space enough. Carter, the cats being somewhat dispersed by the half-seen Zoogs, picked his way directly to the modest Temple of the Elder Ones where the priests and old records were said to be; and once within that venerable circular tower of ivied stone—which crowns Ulthar's highest hill—he sought out the patriarch Atal, who had been up the forbidden peak Hatheg-Kla in the stony desert and had come down again alive.

Atal, seated on an ivory dais in a festooned shrine at the top of the temple, was fully three centuries old; but still very keen of mind and memory. From him Carter learned many things about the gods, but mainly that they are indeed only Earth's gods, ruling feebly our own dreamland and having no power or habitation elsewhere. They might, Atal said, heed a man's prayer if in good humour; but one must not think of climbing to their onyx stronghold atop Kadath in the cold waste. It was lucky that no man knew where Kadath towers, for the fruits of ascending it would be very grave. Atal's companion Banni the Wise had been drawn screaming into the sky for climbing merely the known peak of Hatheg-Kla. With unknown Kadath, if ever found, matters would be much worse; for although Earth's gods may sometimes be surpassed by a wise mortal, they are protected by the Other Gods from Outside, whom it is better not to discuss. At least twice in the world's history the Other Gods set their seal upon Earth's primal granite; once

⚙ HTML ⤧ ⤢

```
1  <canvas id=c></canvas>
2  <div id=stats><span
   id=score>0</span>/<span
   id=outOf>0</span></div>
3  <div id=rules>Click anywhere to make an
   explosion. If any of the squares will
   bump into your explosion they'll explode
```

⚙ CSS ⤧ ⤢

```
1  canvas{
2    position:absolute;
3    top:0px; left:0px;
4  }
5  #stats{
6    color:white;
7    background-color:rgba(255, 255, 255,
```

⚙ JS ⤧ ⤢

```
1  var w=window.innerWidth,
2      h=window.innerHeight,
3      amount=((w*h)/10000)|0;
4  outOf.textContent=amount+1;
5  c.width=w;
6  c.height=h;
7  var ctx=c.getContext('2d');
```

27/47

Thank you!

scott@granneman.com
www.granneman.com
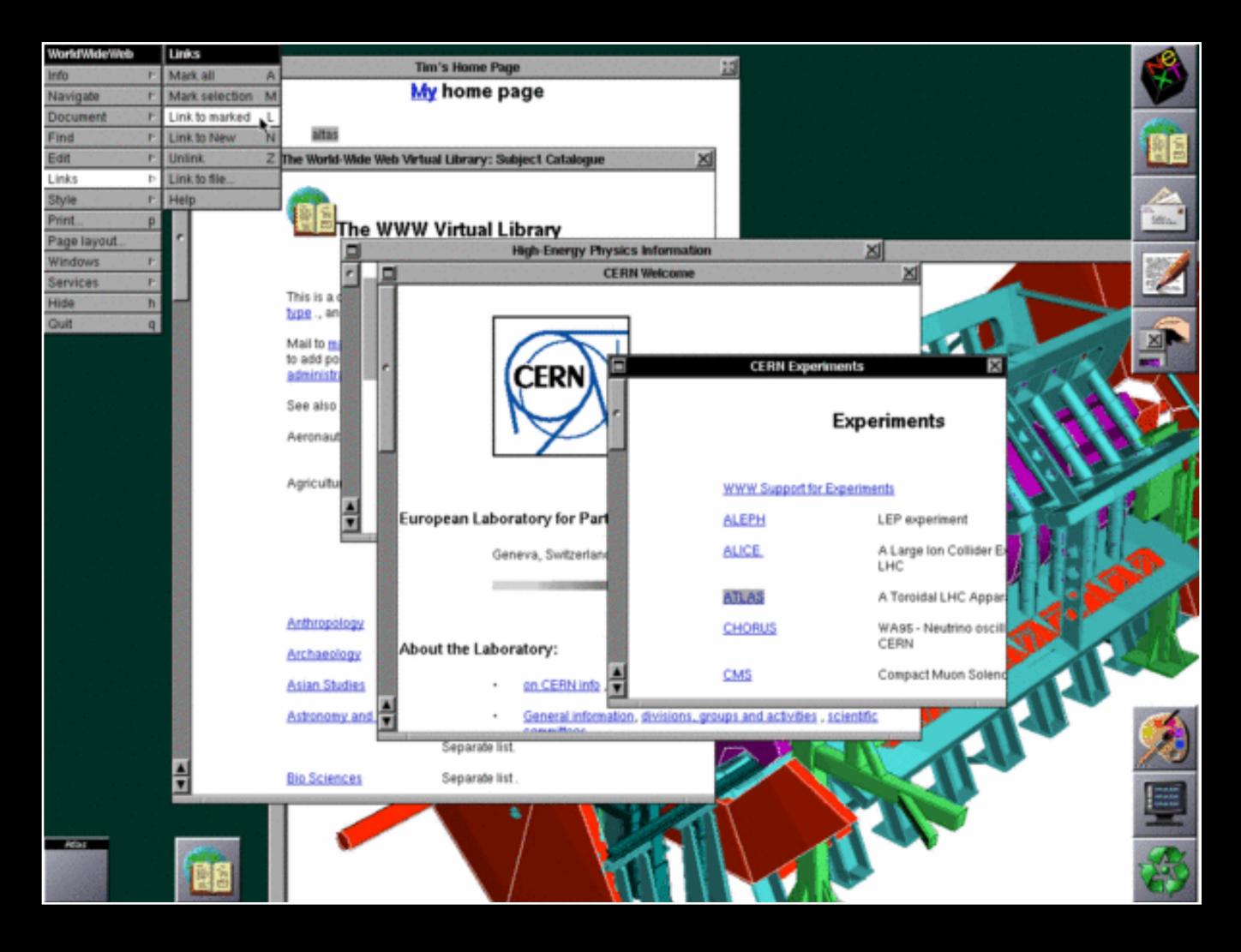ChainsawOnATireSwing.com
@scottgranneman

jans@websanity.com
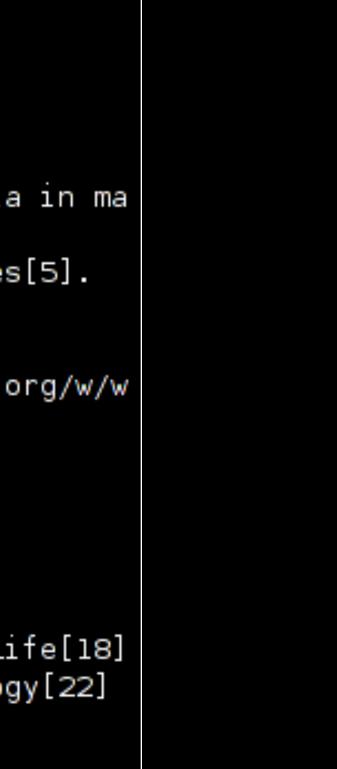websanity.com

Bonus

History

AOL Explorer • Arena • Arora • Avant • AWeb • BlackBerry Browser • Camino • Canary • Cello • Chrome • Chromium • Cruz • Dolphin • ELinks • Epiphany • Firebird • Firefox • Flock • Galeon • HotJava • iCab • Internet Explorer • K-Meleon • Konqueror • Links • Lunascape • Lynx • Maxthon • Mercury • Minimo • Miro • Mosaic • Navigator • Netscape • OmniWeb • Opera • Phoenix • PocketWeb • ReKonq • RockMelt • Safari • SeaMonkey • Shiira • Sleipner • Stainless • Sunrise • Teashark • Tor Browser • UdiWWW • Viola • WebExplorer • WebKit • WorldWideWeb • w3m

The 1st GUI Web browser: WorldWideWeb

The 1st text-only Web browser: CERN line-mode browser

1992: Lynx (oldest browser still in use & developed!)

1993
Tim Berners-Lee convinces CERN to release Web (idea & code) into public domain

1993: NCSA Mosaic makes the Web popular & introduces lots of still-common features
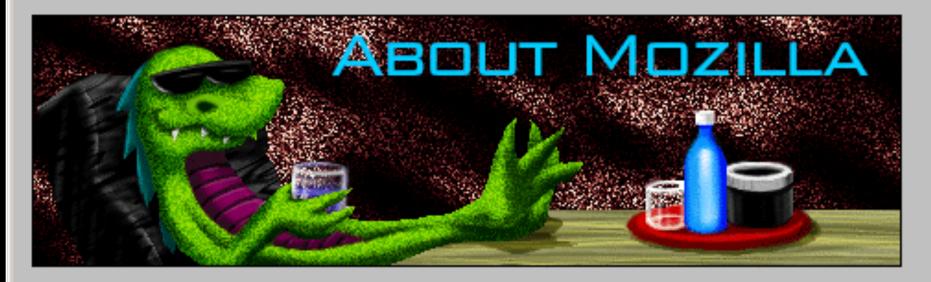
1994
Jim Clark & Marc Andreessen...
» found Mosaic Communications Corporation
» release 1st beta of Mosaic Netscape ($99 for businesses, free for individuals)
» rename company to Netscape Communications
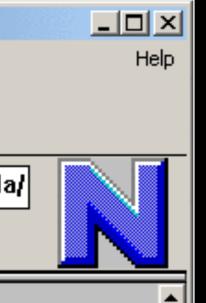
... & release Netscape Navigator 1.0 for Windows, Mac OS, Linux, OS/2, Solaris, BSD, IRIX, AIX, & HP-UX

August 1995
Netscape's IPO begins dot-com boom of the late 1990s

90% market share for Netscape Navigator

1994
Windows 95 still in development, with no web browser planned

Early 1995
Microsoft licenses Spyglass (which was acting as a licensor for NCSA Mosaic) & re-names it *Internet Explorer*

Microsoft was to pay Spyglass a quarterly fee + a % of revenues Microsoft received from selling IE

June 1995
Microsoft still plans to include IE separately from Windows 95, as part of "Microsoft Plus! for Windows 95"

Late June 1995
Microsoft sees Netscape as a threat & decides to give away IE for free & bundle IE with Windows

Since Microsoft gave IE away freely, Spyglass ended up making around $400,000

Spyglass sued in 1997 & Microsoft settled for $8 million

Microsoft changes license to PC OEMs

» Can't remove IE from desktop or Start menu
» Can't give consumers choice of 3rd party apps
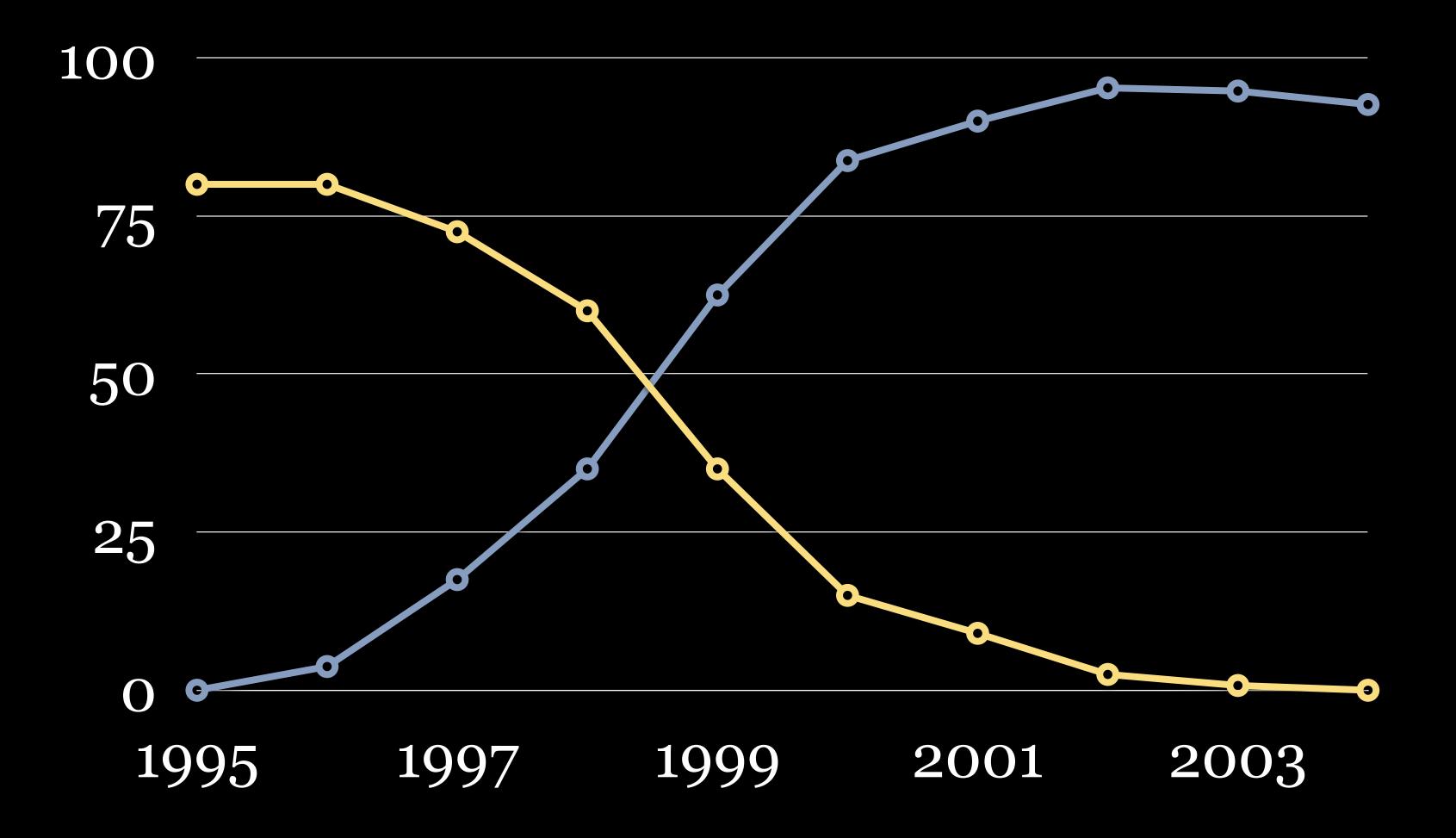
If they didn't obey Microsoft, it would revoke their Windows license

If they complained, Microsoft charged them more

August 1995
Windows 95 ships with Internet Explorer 1.0

January 1998
Netscape open sources its browser code as the *Mozilla Project*, inviting developers around the world to collaborate on a new & better browser

mozilla ⌄

We are mozilla

Doing good is part of our code

PROTECT **NET** NEUTRALITY

PROTECT NET NEUTRALITY »

FOOTBALL FANATIC? »

SEE THE NEW MDN »

LEARN THE WEB »

IE stagnated once Microsoft "won" the browser wars
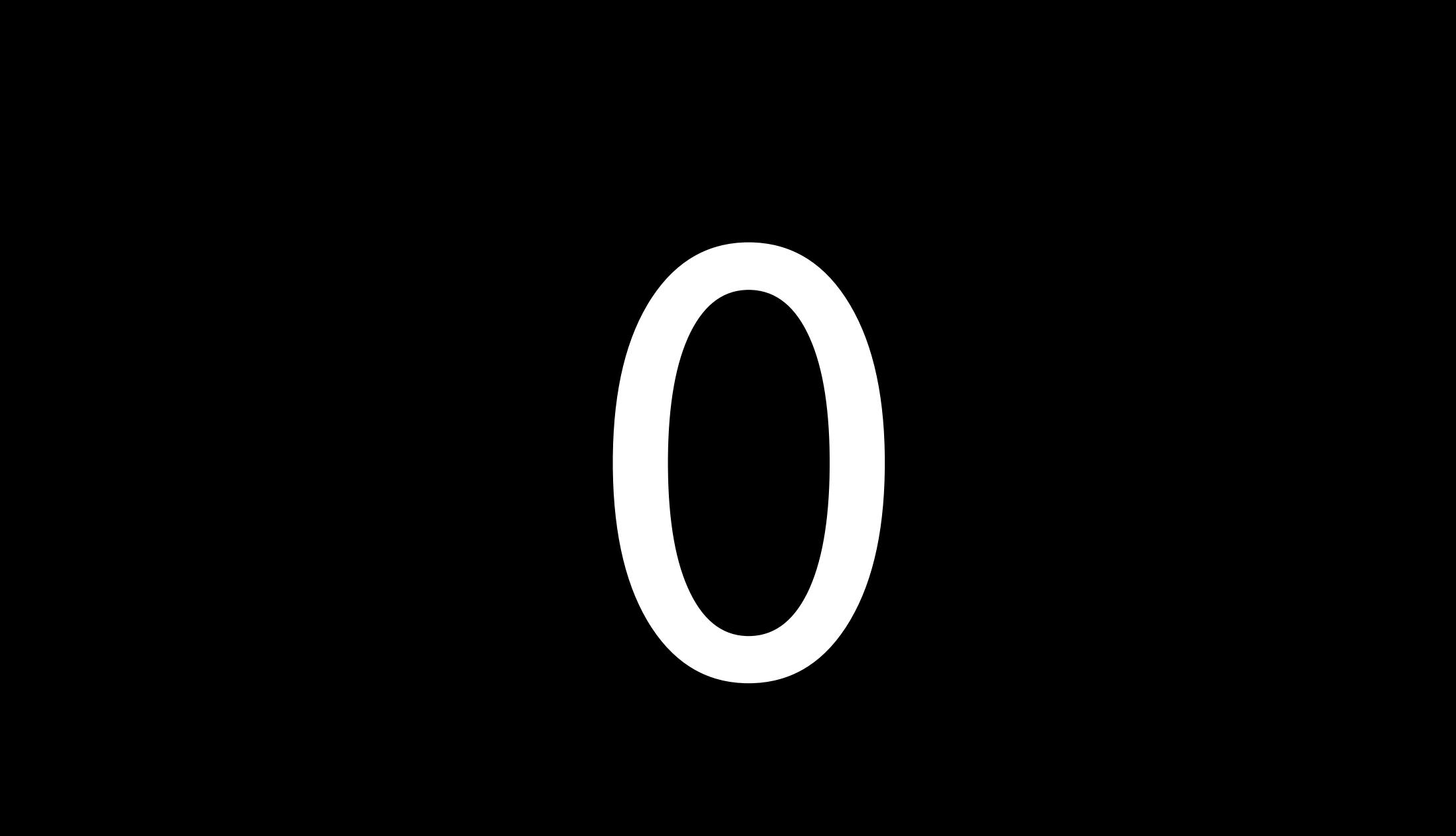
IE Version	Release Date
1	August 1995
2	November 1995
3	August 1996
4	October 1997
5	March 1999
5.5	July 2000
6	October 2001
7	October 2006

IE 1: 6 programmers at Microsoft

IE 3: 100 programmers

IE 5: 1,000 programmers

After IE 6 came out, what was the number of full-time programmers working on IE at Microsoft?

0

7 May 2003
Microsoft announces that "there will be no future standalone installations. IE6 SP1 is the final standalone installation."

In other words, to update IE, you'll need to buy the new version of Windows
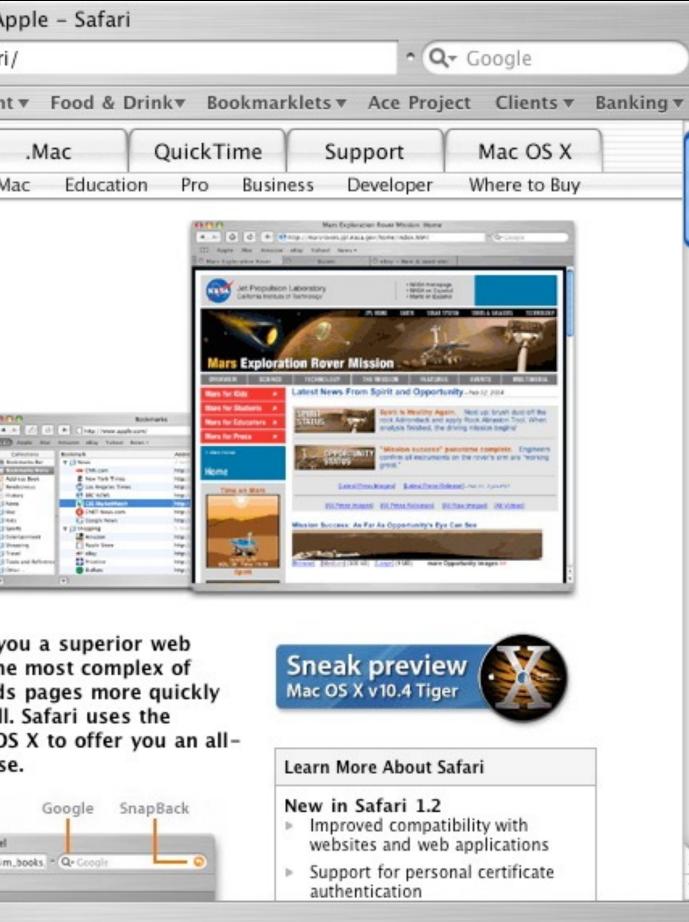
June 2003
Microsoft cancels IE for Mac

One week later, Steve Jobs announces & releases Safari for Mac OS X

1998
Mozilla Project developers realize that Netscape code is useless & decide to re-write from scratch

**2002
Mozilla 1.0 released**

Mozilla was based on Netscape Communicator, which is actually a suite of programs

» *Navigator*: Web browser
» *Mail*: Email
» *Composer*: webpage editor
» *Address Book*
» & several other programs

Slow! Bloated!

2002
Phoenix 0.1 released, Mozilla's web browser component

2003
Phoenix → Firebird 0.6

February 2004
Firebird → Firefox 0.8
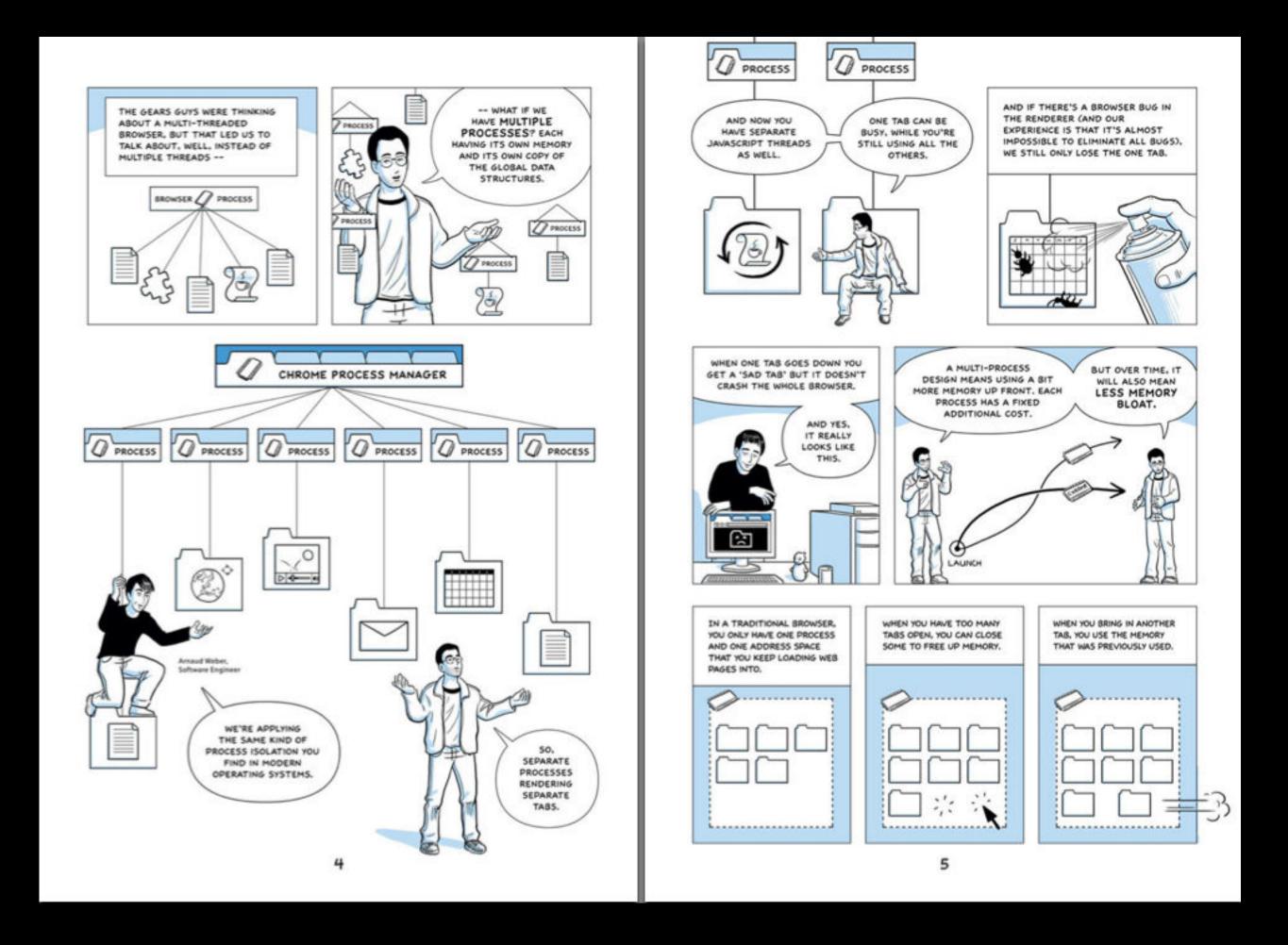
November 2004: Firefox 1.0 released

Microsoft changed its mind about browser upgrades requiring OS upgrades

Why? Firefox became popular

Result? IE 7 was available for download for XP SP 2 users & was in Vista

September 2008
Google announces Chrome with a 38-page comic book

webcomics   **print comics**   home   inventions   about   presentations   consulting

Zot! The Complete Black
and White Collection

Making Comics

Reinventing Comics

Understanding Comics
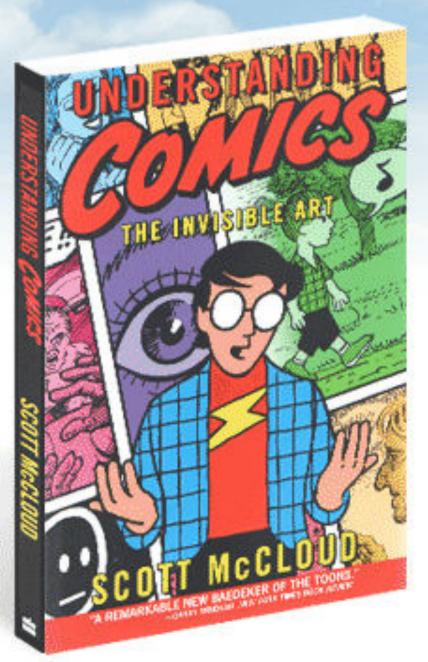
The Original Zot!

Destroy!!

Writing Superman

The New Adventures of
Abraham Lincoln

The Big List

Understanding Comics

1993

224 pages. Black and White with 8-page color
section.
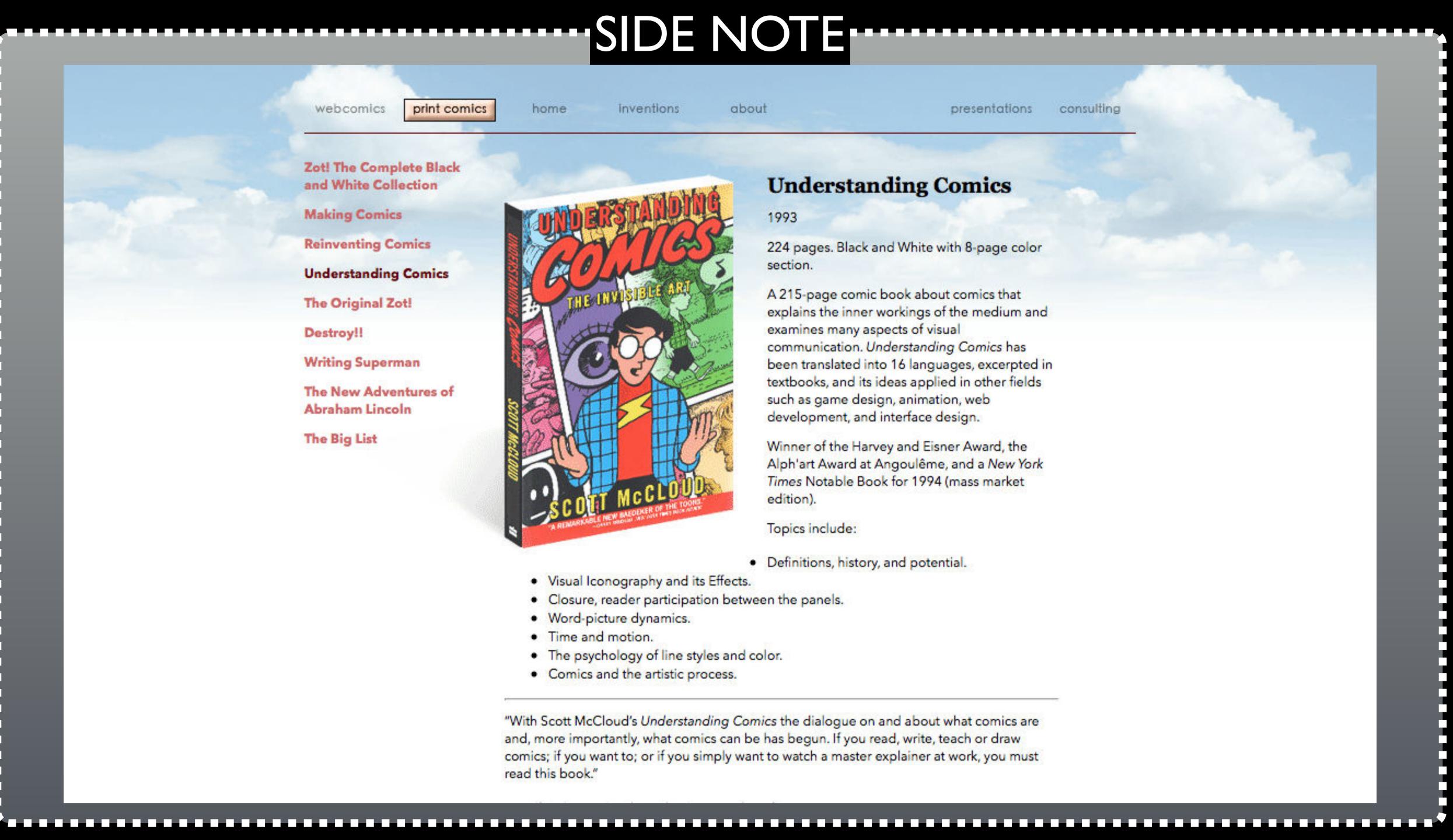
A 215-page comic book about comics that
explains the inner workings of the medium and
examines many aspects of visual
communication. *Understanding Comics* has
been translated into 16 languages, excerpted in
textbooks, and its ideas applied in other fields
such as game design, animation, web
development, and interface design.

Winner of the Harvey and Eisner Award, the
Alph'art Award at Angoulême, and a *New York
Times* Notable Book for 1994 (mass market
edition).
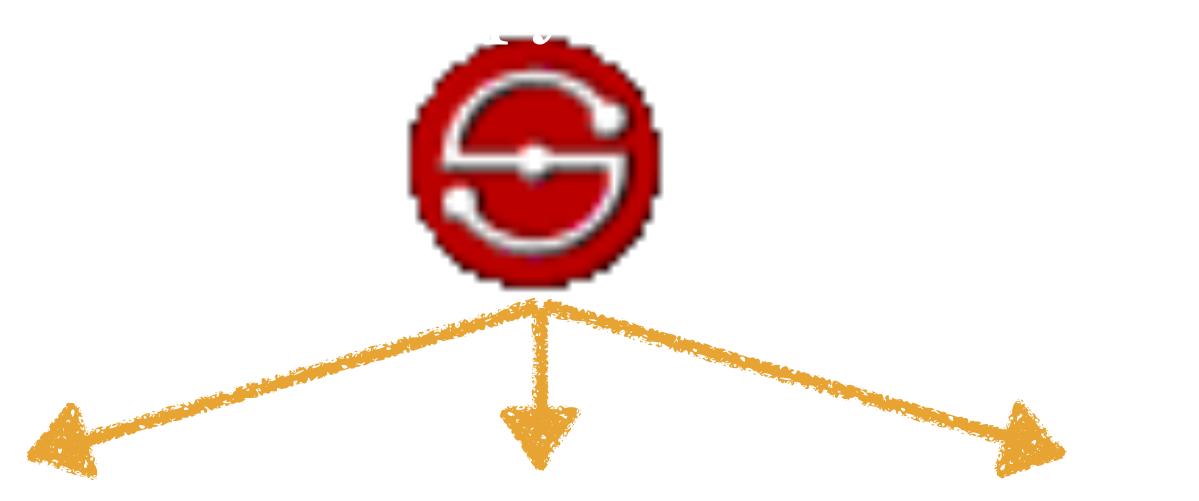
Topics include:

- Definitions, history, and potential.
- Visual Iconography and its Effects.
- Closure, reader participation between the panels.
- Word-picture dynamics.
- Time and motion.
- The psychology of line styles and color.
- Comics and the artistic process.

"With Scott McCloud's *Understanding Comics* the dialogue on and about what comics are
and, more importantly, what comics can be has begun. If you read, write, teach or draw
comics; if you want to; or if you simply want to watch a master explainer at work, you must
read this book."

Internet Explorer Family Tree
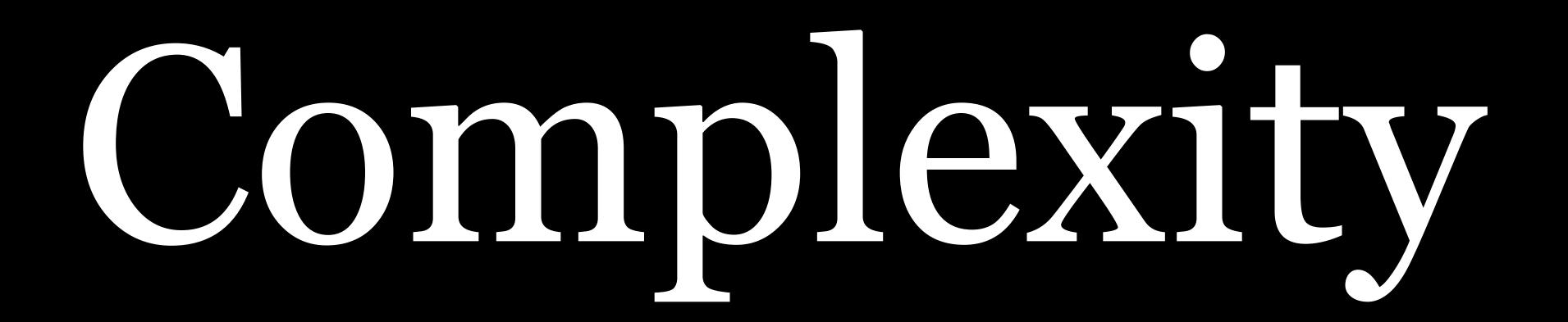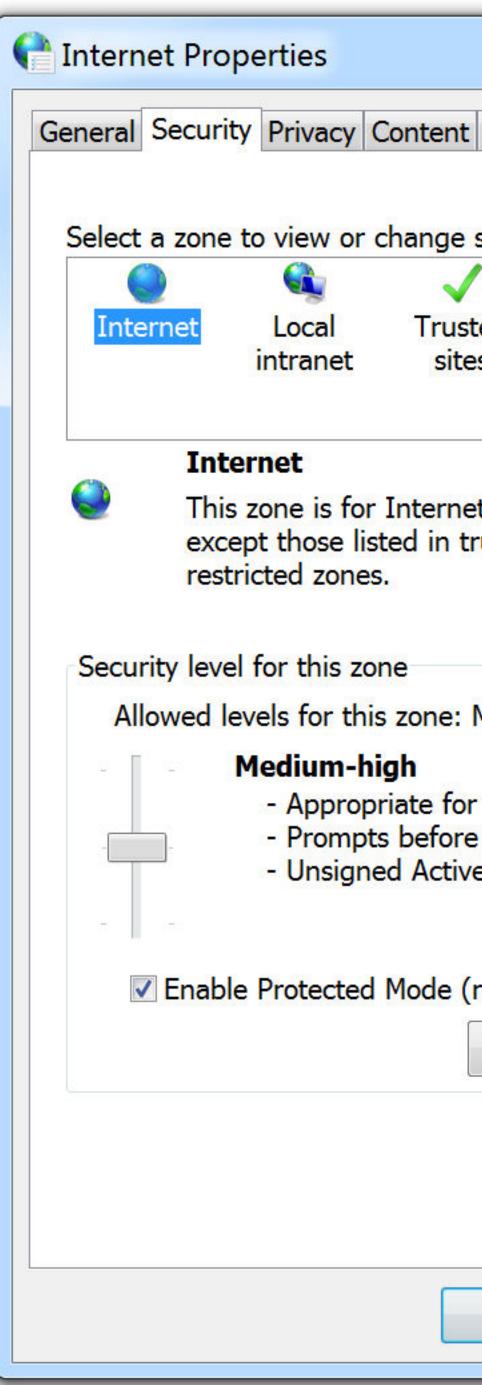
Problems with IE

» Security
» Ridiculously complex settings
» Poor support for Web standards
» Slowest in terms of overall performance

Complexity

Internet Properties

Security Settings - Internet Zone

Settings

- .NET Framework
  - Loose XAML
    - ◉ Disable
    - ○ Enable
    - ○ Prompt
  - XAML browser applications
    - ◉ Disable
    - ○ Enable
    - ○ Prompt
  - XPS documents
    - ○ Disable
    - ◉ Enable
    - ○ Prompt
- .NET Framework-reliant components
  - Permissions for components with manifests
    - ○ Disable
    - ◉ High Safety

*Takes effect after you restart your computer

Reset custom settings

Reset to: Medium-high (default) ▾   Reset...

OK   Cancel

Internet Properties

Security Settings - Internet Zone

Settings

- Run components not signed with Authenticode
  - ○ Disable
  - ● Enable
  - ○ Prompt
- Run components signed with Authenticode
  - ○ Disable
  - ● Enable
  - ○ Prompt
- ActiveX controls and plug-ins
- Allow ActiveX Filtering
  - ○ Disable
  - ● Enable
- Allow previously unused ActiveX controls to run without prompt
  - ● Disable
  - ○ Enable
- Allow Scriptlets
  - ● Disable

*Takes effect after you restart your computer

Reset custom settings

Reset to: Medium-high (default)   Reset...

OK   Cancel

Internet Properties

Security Settings - Internet Zone

Settings

- 🗹 Automatic prompting for ActiveX controls
  - 🔘 Disable
  - ⚪ Enable
- 🗹 Binary and script behaviors
  - ⚪ Administrator approved
  - ⚪ Disable
  - 🔘 Enable
- 🗹 Display video and animation on a webpage that does not use exter
  - 🔘 Disable
  - ⚪ Enable
- 🗹 Download signed ActiveX controls
  - ⚪ Disable
  - ⚪ Enable (not secure)
  - 🔘 Prompt (recommended)
- 🗹 Download unsigned ActiveX controls
  - 🔘 Disable (recommended)
  - ⚪ Enable (not secure)

*Takes effect after you restart your computer

Reset custom settings

Reset to: Medium-high (default)   Reset...

OK   Cancel

Internet Properties

Security Settings - Internet Zone

Settings

- ☑ Initialize and script ActiveX controls not marked as safe for scriptin
  - ● Disable (recommended)
  - ○ Enable (not secure)
  - ○ Prompt
- ☑ Only allow approved domains to use ActiveX without prompt
  - ○ Disable
  - ● Enable
- ☑ Run ActiveX controls and plug-ins
  - ○ Administrator approved
  - ○ Disable
  - ● Enable
  - ○ Prompt
- ☑ Run antimalware software on ActiveX controls
  - ○ Disable
  - ● Enable
- ☑ Script ActiveX controls marked safe for scripting*
  - ○ Disable

*Takes effect after you restart your computer

Reset custom settings

Reset to: | Medium-high (default) ▾ | [Reset...]

[OK] [Cancel]

Internet Properties

Security Settings - Internet Zone

Settings

- Downloads
  - File download
    - ○ Disable
    - ● Enable
  - Font download
    - ○ Disable
    - ● Enable
    - ○ Prompt
- Enable .NET Framework setup
  - ○ Disable
  - ● Enable
- Miscellaneous
  - Access data sources across domains
    - ● Disable
    - ○ Enable
    - ○ Prompt
  - Allow dragging of content between domains into separate windows

*Takes effect after you restart your computer

Reset custom settings

Reset to: Medium-high (default) ▾   Reset...

OK   Cancel

Internet Properties

Security Settings - Internet Zone ~~actions Programs Advanced~~

Settings

- ☐ Allow dragging of content between domains into the same window
  - ◉ Disable
  - ○ Enable
- ☐ Allow META REFRESH
  - ○ Disable
  - ◉ Enable
- ☐ Allow scripting of Microsoft web browser control
  - ◉ Disable
  - ○ Enable
- ☐ Allow script-initiated windows without size or position constraints
  - ◉ Disable
  - ○ Enable
- ☐ Allow webpages to use restricted protocols for active content
  - ○ Disable
  - ○ Enable
  - ◉ Prompt
- ☐ Allow websites to open windows without address or status bars

*Takes effect after you restart your computer

Reset custom settings

Reset to: | Medium-high (default) ▼ | Reset...

OK   Cancel

Internet Properties

Security Settings - Internet Zone

Settings

☐ Display mixed content
- ☐ Disable
- ☐ Enable
- ☉ Prompt

☐ Don't prompt for client certificate selection when only one certifica
- ☉ Disable
- ☐ Enable

☐ Drag and drop or copy and paste files
- ☐ Disable
- ☉ Enable
- ☐ Prompt

☐ Enable MIME Sniffing
- ☐ Disable
- ☉ Enable

☐ Include local directory path when uploading files to a server
- ☉ Disable
- ☐ Enable

*Takes effect after you restart your computer

Reset custom settings

Reset to: Medium-high (default) ▼   Reset...

OK   Cancel

Internet Properties

Security Settings - Internet Zone

Settings

- Launching applications and unsafe files
  - ○ Disable
  - ○ Enable (not secure)
  - ● Prompt (recommended)
- Launching programs and files in an IFRAME
  - ○ Disable
  - ○ Enable (not secure)
  - ● Prompt (recommended)
- Navigate windows and frames across different domains
  - ● Disable
  - ○ Enable
  - ○ Prompt
- Render legacy filters
  - ● Disable
  - ○ Enable
- Submit non-encrypted form data
  - ○ Disable

*Takes effect after you restart your computer

Reset custom settings

Reset to: Medium-high (default) ▾   Reset...

OK   Cancel

Internet Properties

Security Settings - Internet Zone

Settings

- ☐ Use Pop-up Blocker
  - ○ Disable
  - ● Enable
- ☐ Use SmartScreen Filter
  - ○ Disable
  - ● Enable
- ☐ Userdata persistence
  - ○ Disable
  - ● Enable
- ☐ Websites in less privileged web content zone can navigate into this
  - ○ Disable
  - ● Enable
  - ○ Prompt
- Scripting
  - Active scripting
    - ○ Disable
    - ● Enable

*Takes effect after you restart your computer

Reset custom settings

Reset to: Medium-high (default) ▼   Reset...

OK   Cancel

Internet Properties

Security Settings - Internet Zone

Settings

- Allow Programmatic clipboard access
  - ○ Disable
  - ○ Enable
  - ● Prompt
- Allow status bar updates via script
  - ● Disable
  - ○ Enable
- Allow websites to prompt for information using scripted windows
  - ● Disable
  - ○ Enable
- Enable XSS filter
  - ○ Disable
  - ● Enable
- Scripting of Java applets
  - ○ Disable
  - ● Enable
  - ○ Prompt

*Takes effect after you restart your computer

Reset custom settings

Reset to: Medium-high (default) ▾   Reset...

OK   Cancel

Internet Properties

? ✕

General | Security | **Privacy** | Content | Connections | Programs | Advanced

Settings

Select a setting for the Internet zone.

Medium

- Blocks third-party cookies that do not have a compact privacy policy
- Blocks third-party cookies that save information that can be used to contact you without your explicit consent
- Restricts first-party cookies that save information that can be used to contact you without your implicit consent

| Sites | Import | Advanced | Default |

Location

☐ Never allow websites to request your physical location

Clear Sites

Pop-up Blocker

☑ Turn on Pop-up Blocker

Settings

InPrivate

☑ Disable toolbars and extensions when InPrivate Browsing starts

| OK | Cancel | Apply |

Internet Properties

General | Security | Privacy | Content | Connections | **Programs** | Advanced

Default web browser

Internet Explorer is not currently the default web browser.

Make default

☑ Tell me if Internet Explorer is not the default web browser.

Manage add-ons

Enable or disable browser add-ons installed in your system.

Manage add-ons

HTML editing

Choose the program that you want Internet Explorer to use for editing HTML files.

HTML editor: ▼

Internet programs

Choose the programs you want to use for other Internet services, such as e-mail.

Set programs

OK | Cancel | Apply

Internet Properties

? X

General | Security | Privacy | Content | Connections | Programs | **Advanced**

Settings

- **Accelerated graphics**
  - ☐ Use software rendering instead of GPU rendering*
- ☻ Accessibility
  - ☐ Always expand ALT text for images
  - ☐ Enable Caret Browsing for new windows and tabs
  - ☐ Move system caret with focus/selection changes
  - ☐ Play system sounds
  - ☐ Reset text size to medium for new windows and tabs
  - ☐ Reset zoom level for new windows and tabs
- ☐ Browsing
  - ☐ Always record developer console messages
  - ☐ Close unused folders in History and Favorites*
  - ☑ Disable script debugging (Internet Explorer)
  - ☑ Disable script debugging (Other)
  - ☐ Display a notification about every script error

*Takes effect after you restart your computer

[Restore advanced settings]

Reset Internet Explorer settings

Resets Internet Explorer's settings to their default condition.

[Reset...]

You should only use this if your browser is in an unusable state.

[OK]   [Cancel]   [Apply]

Internet Properties

? ✕

General | Security | Privacy | Content | Connections | Programs | **Advanced**

Settings

- ☑ Enable automatic crash recovery*
- ☑ Enable FTP folder view (outside of Internet Explorer)
- ☐ Enable Suggested Sites
- ☑ Enable third-party browser extensions*
- ☑ Enable visual styles on buttons and controls in webpages
- ☐ Go to an intranet site for a single word entry in the Address bar
- ☑ Load sites and content in the background to optimize performan
- ☑ Notify when downloads complete
- ☑ Show friendly HTTP error messages
- ☐ Underline links
  - ◉ Always
  - ◯ Hover
  - ◯ Never
- ☐ Use inline AutoComplete in File Explorer and Run Dialog
- ☑ Use inline AutoComplete in the Internet Explorer Address Bar an

*Takes effect after you restart your computer

[Restore advanced settings]

Reset Internet Explorer settings

Resets Internet Explorer's settings to their default condition.

[Reset...]

You should only use this if your browser is in an unusable state.

[OK]   [Cancel]   [Apply]

Internet Properties

General | Security | Privacy | Content | Connections | Programs | **Advanced**

Settings

- ☐ Use most recent order when switching tabs with Ctrl+Tab
- ☑ Use Passive FTP (for firewall and DSL modem compatibility)
- ☑ Use smooth scrolling
- ☐ HTTP settings
  - ☑ Use HTTP 1.1
  - ☑ Use HTTP 1.1 through proxy connections
- ☐ International*
  - ☐ Always show encoded addresses
  - ☐ Send IDN server names for Intranet URLs
  - ☑ Send IDN server names for non-Intranet URLs
  - ☑ Send URL path as UTF-8
  - ☐ Send UTF-8 query strings for Intranet URLs
  - ☐ Send UTF-8 query strings for non-Intranet URLs
  - ☑ Show Notification bar for encoded addresses
- Multimedia

*Takes effect after you restart your computer

[Restore advanced settings]

Reset Internet Explorer settings

Resets Internet Explorer's settings to their default condition.

[Reset...]

You should only use this if your browser is in an unusable state.

[OK] [Cancel] [Apply]

Internet Properties

General | Security | Privacy | Content | Connections | Programs | **Advanced**

Settings

- ☑ Enable alternative codecs in HTML5 media elements*
- ☑ Enable automatic image resizing
- ☑ Play animations in webpages*
- ☑ Play sounds in webpages
- ☐ Show image download placeholders
- ☑ Show pictures
- 🔒 Security
  - ☐ Allow active content from CDs to run on My Computer*
  - ☐ Allow active content to run in files on My Computer*
  - ☐ Allow software to run or install even if the signature is invalid
  - ☐ Block unsecured images with other mixed content
  - ☑ Check for publisher's certificate revocation
  - ☑ Check for server certificate revocation*
  - ☑ Check for signatures on downloaded programs
  - ☐ Do not save encrypted pages to disk

*Takes effect after you restart your computer

Restore advanced settings

Reset Internet Explorer settings

Resets Internet Explorer's settings to their default condition.

Reset...

You should only use this if your browser is in an unusable state.

OK | **Cancel** | **Apply**

Internet Properties

? X

| General | Security | Privacy | Content | Connections | Programs | Advanced |

Settings

- ☐ Empty Temporary Internet Files folder when browser is closed
- ☑ Enable DOM Storage
- ☐ Enable Enhanced Protected Mode*
- ☑ Enable Integrated Windows Authentication*
- ☑ Enable native XMLHTTP support
- ☑ Enable SmartScreen Filter
- ☐ Enable Strict P3P Validation*
- ☑ Send Do Not Track requests to sites you visit in Internet Explore
- ☐ Use SSL 2.0
- ☑ Use SSL 3.0
- ☑ Use TLS 1.0
- ☑ Use TLS 1.1
- ☑ Use TLS 1.2
- ☑ Warn about certificate address mismatch*
- ☐ Warn if changing between secure and not secure mode

*Takes effect after you restart your computer

[Restore advanced settings]

Reset Internet Explorer settings

Resets Internet Explorer's settings to their default condition.

[Reset...]

You should only use this if your browser is in an unusable state.

[OK] [Cancel] [Apply]

Conversation Between Browsers

What are we?   Browsers!   ...   Browsers!   Browsers!
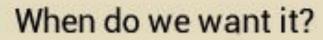
What do we want?   Faster!   ...   Faster!   Faster!

When do we want it?   Now!   ...   Now!   Now!

Browsers!

WeKnowMemes
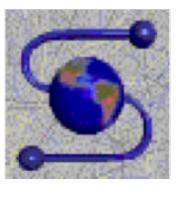
Firefox
Family Tree
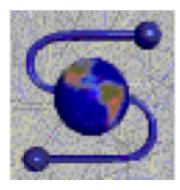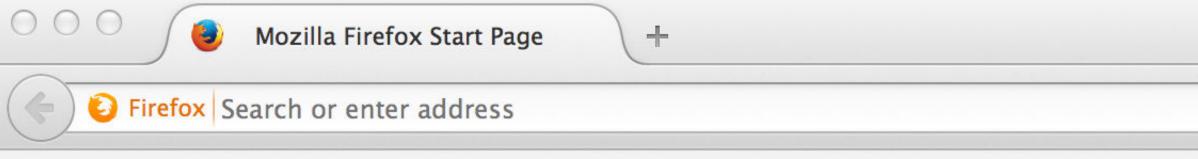
Session Restore

Firefox was the 1st major browser to support *session restore*: the browser remembers what you were doing if it closes or crashes, & re-opens windows & tabs

Now supported by Chrome, Safari, & Opera
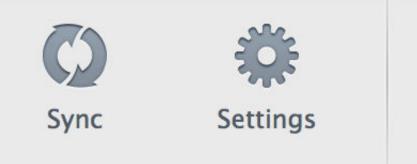
Profiles
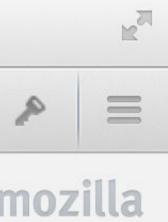
Firefox stores important settings & data in a *profile folder*

You can create as many profiles as you'd like

You can switch between profiles when you start Firefox
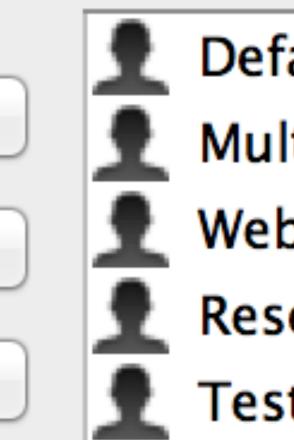
Firefox – Choose User Profile

Firefox stores information about your settings, preferences, and other user items in your user profile.

Create Profile…

Rename Profile…

Delete Profile…

- Default
- Multimedia
- WebDev
- Research
- Testing

☐ Work offline

☐ Use the selected profile without asking at startup

Exit   Start Firefox

Bookmarks	Cookies
Downloads	Security Certificate Settings
Browsing History	Security Device Settings
Passwords	Download Actions
Site-Specific Preferences	Plugin MIME Type
Search Engines	Stored Session
Personal Dictionary	Toolbar Customization
Autocomplete History	User Styles

Extensions & Themes

Hundreds of thousands of add-ons for Firefox

ADD-ONS

EXTENSIONS | **THEMES** | **COLLECTIONS** | **MORE...**

search for add-ons
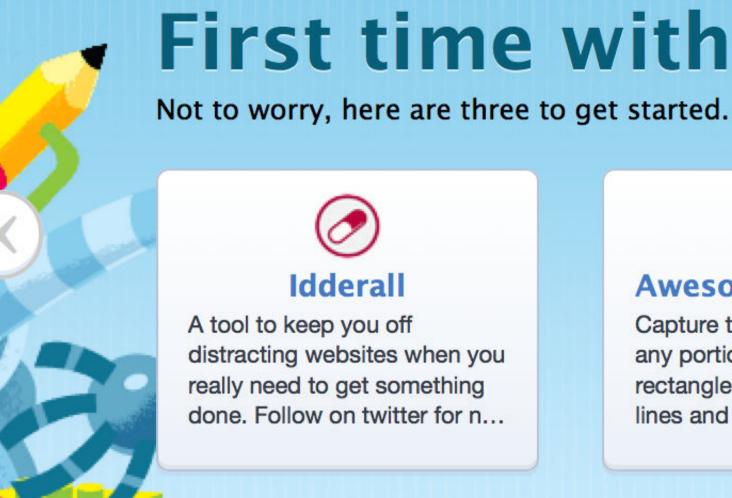
EXPLORE

Featured ›

Most Popular ›

Top Rated ›

CATEGORIES

Alerts & Updates ›

Appearance ›

Bookmarks ›

Download Management

Feeds, News & Blogging

Games & Entertainment ›

Language Support ›

Photos, Music & Videos

Privacy & Security

Search Tools ›

Shopping

Social & Communication ›

First time with Add-ons?

Not to worry, here are three to get started.

Idderall
A tool to keep you off distracting websites when you really need to get something done. Follow on twitter for n...

Awesome Screens...
Capture the whole page or any portion, annotate it with rectangles, circles, arrows, lines and text, blur sensitive...

Copy As Plain Text
Removes formatting from copied text.

Featured Extensions   See all »

« 1 2 3 4 »

YouTube Anywhere Player
Games & Entertainment
★★★★★ (45)

TinyURL Generator
Social & Communication
★★★★★ (62)

Converter
Shopping
★★★★★ (53)

Classic Toolbar Buttons
Appearance
★★★★★ (100)

WebRank SEO Toolbar
Alerts & Updates
★★★★☆ (56)

Google Translator, Web T...
Social & Communication
★★★★☆ (378)

MOST POPULAR   All »

1. **Adblock Plus**
   19,221,263 users

2. **Video DownloadHelper**
   5,926,179 users

3. **Firebug**
   2,939,471 users

4. **NoScript Security Suite**
   2,193,669 users

5. **Greasemonkey**
   1,621,873 users

6. **DownThemAll!**

ADD-ONS

EXTENSIONS | **THEMES** | **COLLECTIONS** | **MORE...**

search for add-ons

🏠 » **Extensions**

Featured Extensions

Sort by: Featured | Most Users | Top Rated | Newest   More ▾   📶 Subscribe

Stylish **FEATURED**

Restyle the web with Stylish, a user styles manager. Stylish lets you easily install themes and skins for Google, Facebook, YouTube, Orkut, and many, many other sites. You can even customize Firefox and other programs themselves.

★★★★☆ (614) · 700,154 users

CookieKeeper **NO RESTART** **FEATURED**

Extended Cookie Manager - Keep only wanted cookies.

★★★★☆ (12) · 8,658 users
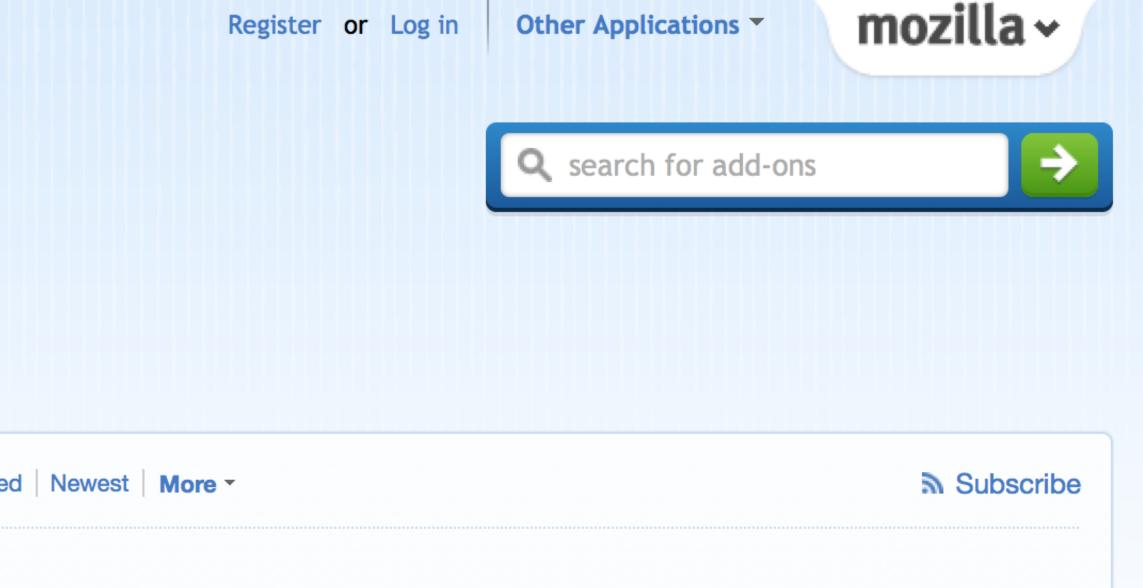
FireFTP **FEATURED**

FireFTP is a free, secure, cross-platform FTP/SFTP client for Mozilla Firefox which provides easy and intuitive access to FTP/SFTP servers.

Check out my new project, FireSSH!

★★★★☆ (839) · 707,677 users

Free Memory **NO RESTART** **FEATURED**

ADD-ONS

EXTENSIONS | **THEMES** | **COLLECTIONS** | **MORE...**

search for themes

Themes

Up & Coming
Most Popular
Top Rated
Recently Added

Abstract
Causes
Fashion
Film and TV
Firefox
Foxkeh
Holiday
Music
Nature
Other
Scenery
Seasonal
Solid
Sports
Websites

Create Your Own Theme

Your browser, your

Themes
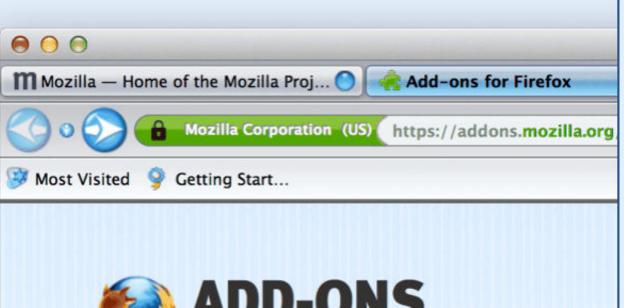
Over 300,000 designs to personalize your browser! Move your mouse over a Background Theme to try it on. **Start exploring** ▸

ons for Firefox

Google

Bookmarks

mozilla

Register or Log in   Other Applications ▾

search for add-ons
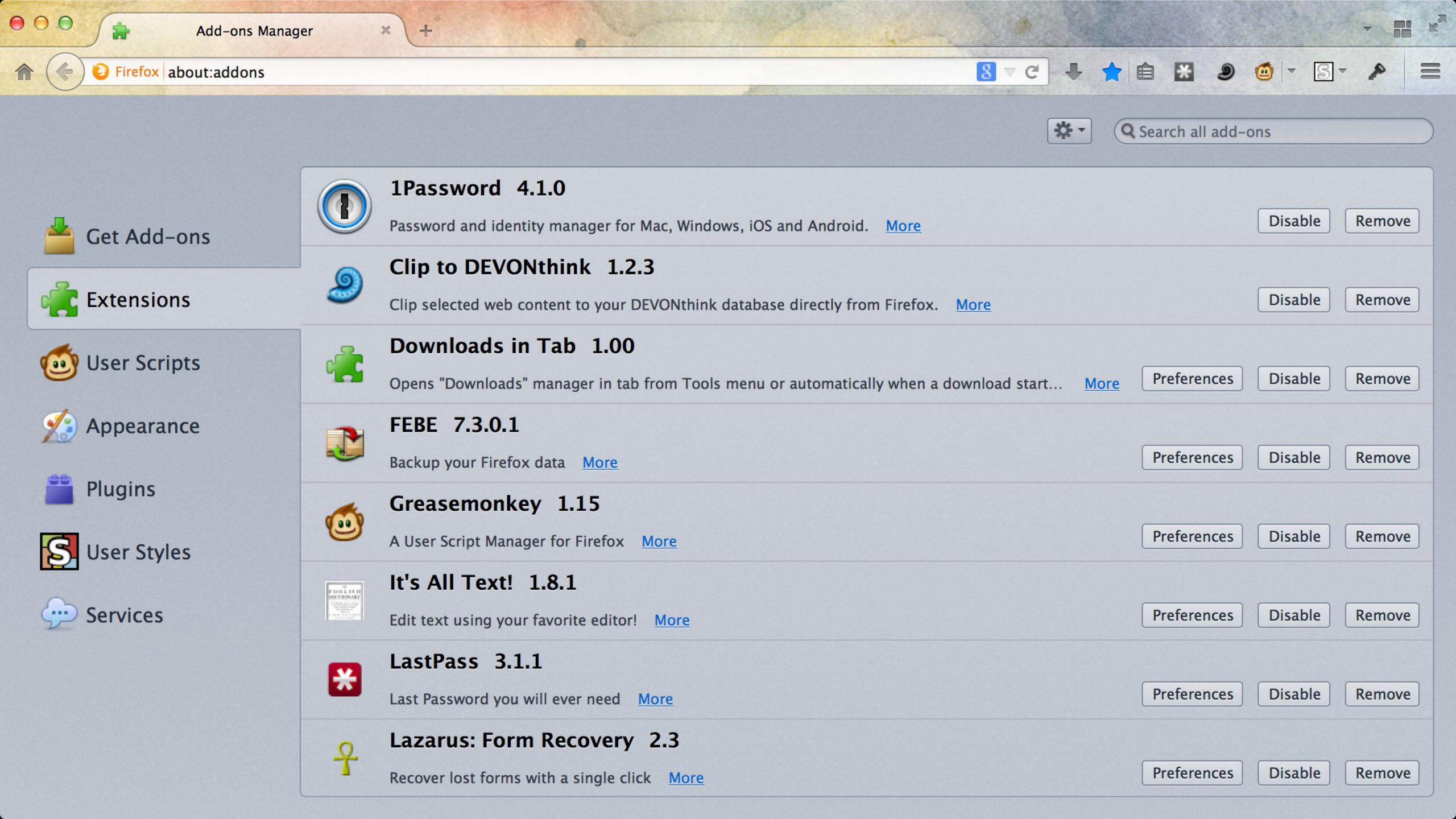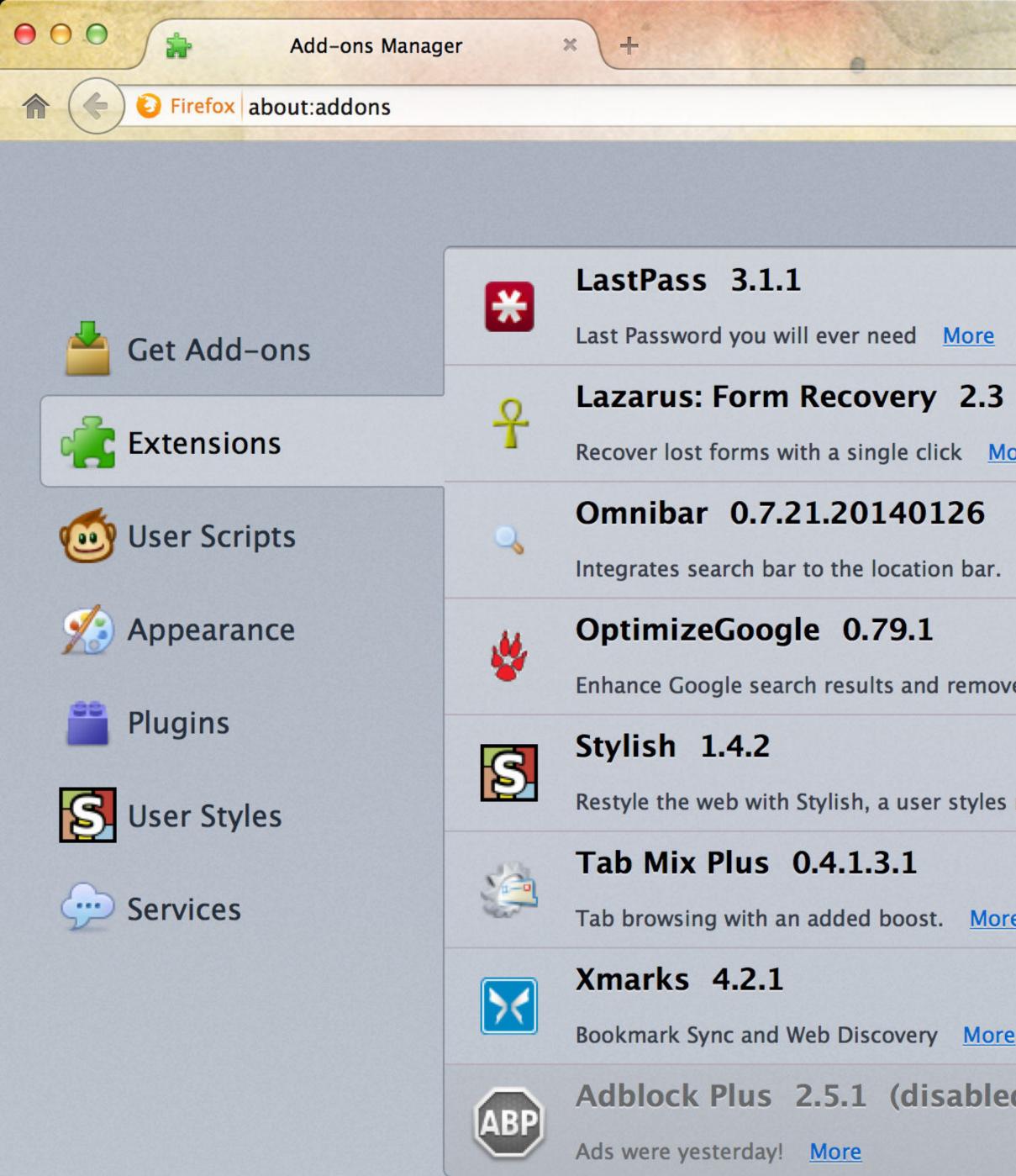
Want more personalization?

Complete Themes transform the look of your browser with styles for the window frame, address bar, buttons, tabs, and

Mozilla — Home of the Mozilla Proj... | Add-ons for Firefox

Mozilla Corporation (US) | https://addons.mozilla.org

Most Visited   Getting Start...

ADD-ONS

Firefox | about:addons

Search all add-ons

Get Add-ons

Extensions

User Scripts

Appearance

Plugins

User Styles

Services

1Password 4.1.0

Password and identity manager for Mac, Windows, iOS and Android. More

Disable Remove

Clip to DEVONthink 1.2.3

Clip selected web content to your DEVONthink database directly from Firefox. More

Disable Remove

Downloads in Tab 1.00

Opens "Downloads" manager in tab from Tools menu or automatically when a download start... More

Preferences Disable Remove

FEBE 7.3.0.1

Backup your Firefox data More

Preferences Disable Remove

Greasemonkey 1.15

A User Script Manager for Firefox More

Preferences Disable Remove

It's All Text! 1.8.1

Edit text using your favorite editor! More

Preferences Disable Remove

LastPass 3.1.1

Last Password you will ever need More

Preferences Disable Remove

Lazarus: Form Recovery 2.3

Recover lost forms with a single click More

Preferences Disable Remove

Firefox | about:addons

Get Add-ons

Extensions

User Scripts

Appearance

Plugins

User Styles

Services

LastPass 3.1.1

Last Password you will ever need   More

Preferences   Disable   Remove

Lazarus: Form Recovery 2.3

Recover lost forms with a single click   More

Preferences   Disable   Remove

Omnibar 0.7.21.20140126

Integrates search bar to the location bar.   More

Preferences   Disable   Remove

OptimizeGoogle 0.79.1

Enhance Google search results and remove ads and spam   More

Preferences   Disable   Remove

Stylish 1.4.2

Restyle the web with Stylish, a user styles manager.   More

Preferences   Disable   Remove

Tab Mix Plus 0.4.1.3.1

Tab browsing with an added boost.   More

Preferences   Disable   Remove

Xmarks 4.2.1

Bookmark Sync and Web Discovery   More

Preferences   Disable   Remove

Adblock Plus 2.5.1 (disabled)

Ads were yesterday!   More

Enable   Remove

about:addons

Google

Search all add-ons

Get Add-ons

Extensions

User Scripts

Appearance

Plugins

Services

1Password 4.1.0

Password and identity manager for Mac, Windows, iOS and Android.   More

Disable   Remove

Adblock Plus 2.4.1

Ads were yesterday!   More

Preferences   Disable   Remove

Comment Snob 4

Filters out undesirable comments from the Web.   More

Preferences   Disable   Remove

DownloadHelper 4.9.21

Download videos and images from many sites   More

Preferences   Disable   Remove

Downloads in Tab 1.00

Opens "Downloads" manager in tab from Tools menu or automatically when a download starts (default). ...   More

Preferences   Disable   Remove
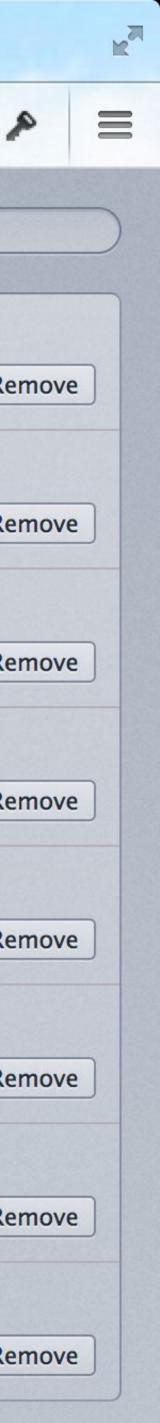
DownThemAll! 2.0.16

The mass downloader for Firefox.   More

Preferences   Disable   Remove

FEBE 7.3.0.1

Backup your Firefox data   More

Preferences   Disable   Remove

Firefogg 2.9.19

video encoding and uploading for Firefox   More

Disable   Remove

Google **g** ▾ ⟳

🔍 Search all add-ons

⚙ ▾

🏠 Get Add-ons

🧩 **Extensions**

🐵 User Scripts

🎨 Appearance

🧱 Plugins

💬 Services

Flashblock 1.5.17

Replaces Flash objects with a button you can click to view them. More

Preferences | Disable | Remove

FlashGot 1.5.5.96

Enables single and massive ("all" and "selection") downloads using the most popular external download ... More

Preferences | Disable | Remove

Greasemonkey 2014.01.30.nightly

A User Script Manager for Firefox More

Preferences | Disable | Remove

Lazarus: Form Recovery 2.3

Recover lost forms with a single click More

Preferences | Disable | Remove

Omnibar 0.7.20.20131218

Integrates search bar to the location bar. More

Preferences | Disable | Remove

Snagit Autoscroll Helper 1.9.6

Helps Snagit capture whole pages instantly More

Disable | Remove

Test Pilot 1.2.3

Help make Firefox better by running user studies. More

Disable | Remove

Xmarks 4.2.1

Bookmark Sync and Web Discovery More

Preferences | Disable | Remove
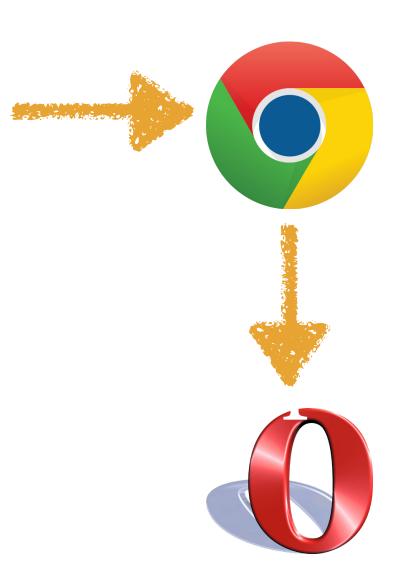
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cybernetnews.com | Search | RSS : [642 new] | : [435 new] | E-mail Notifier | Weather | cybernetnews | com

cybernetnews.com | Search | RSS Torrents [260 new] | Links | . [880 new] | E-mail Notifier | Weather | cybernetnews | com

en | Check | Random email | History | Temporary Forwarding | Help

Proxy: None | Apply | Edit | Remove | Add | Status: Using No Proxy | Preferences

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W | cybernetnews.com | Search | Google Pack | Featured [2 new] | Random | Links | Privacy | cybernetnews | com

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Scripts Partially Allowed [<script>: 6] [J+F+P: 0] | Options...

UK: Tue 23:06 | US Pacific: Tue 15:06 | Hong Kong: Wed 07:06 | GMT/UTC: Tue 23:06 | You are now Unmasked | Images: 117/117 | Loaded: 106 KB | 161.83 KB/s | Time: 0:00

Other reasons Firefox is cool

» Multi-platform support: Windows, OS X, Linux
» Excellent support for Web standards
» Best-of-breed developer tools
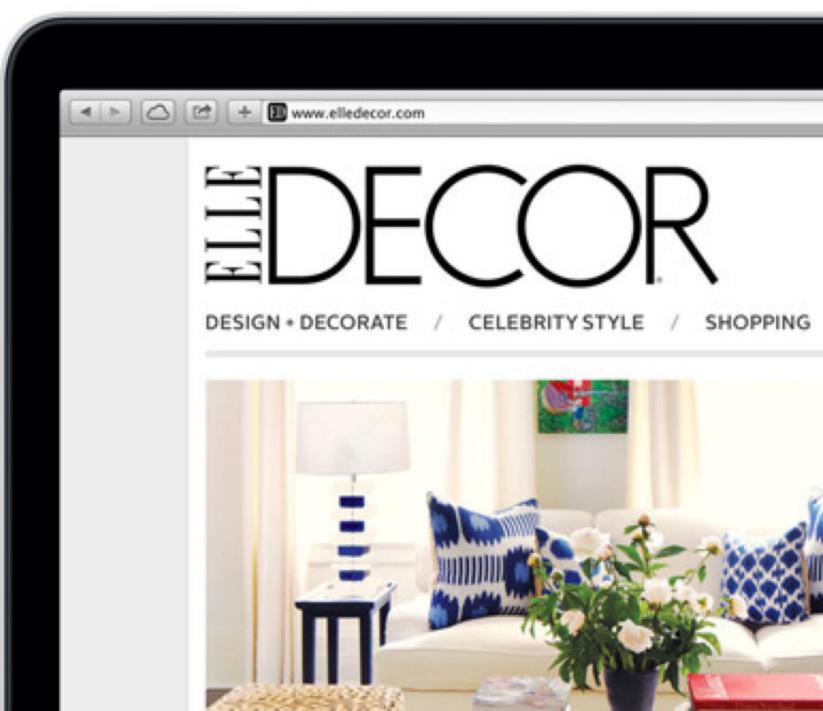
Safari/Chrome/Opera Family Tree

Safari

The smartest way to surf.

www.elledecor.com

ELLE DECOR
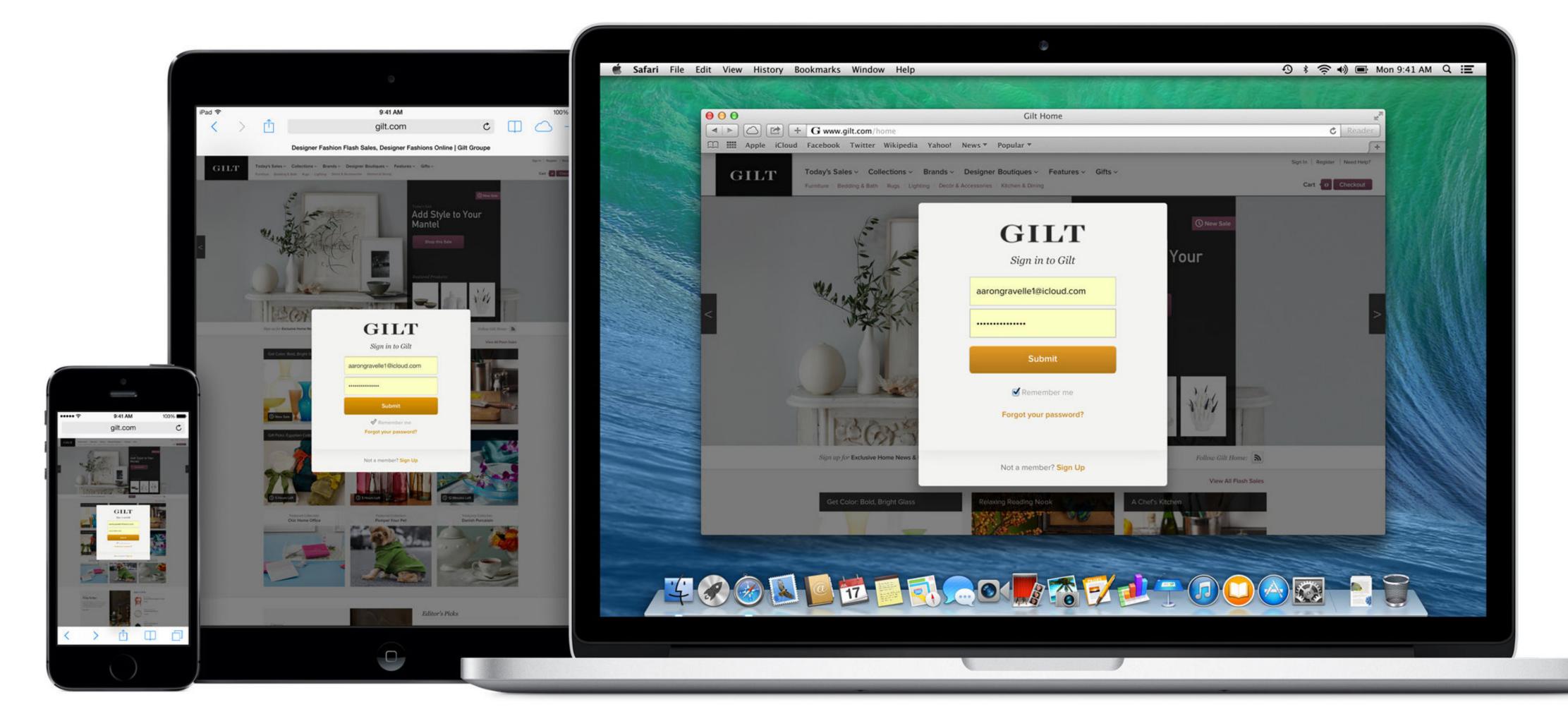
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SELECT A ROOM ⌄

SELECT A STYLE ⌄

iCloud Keychain syncs your user names, passwords, & credit card info between Safari on your Mac & Mobile Safari on your iOS devices

Everything is encrypted with 256-bit AES

iCloud Keychain securely stores your user names, passwords, and credit card numbers and keeps them up to date on your other approved devices. So you can easily sign in to your favorite websites and quickly make online purchases. And everything is protected with robust 256–bit AES encryption.

iCloud Bookmarks sync bookmarks between Safari on your Mac & Mobile Safari on your iOS devices

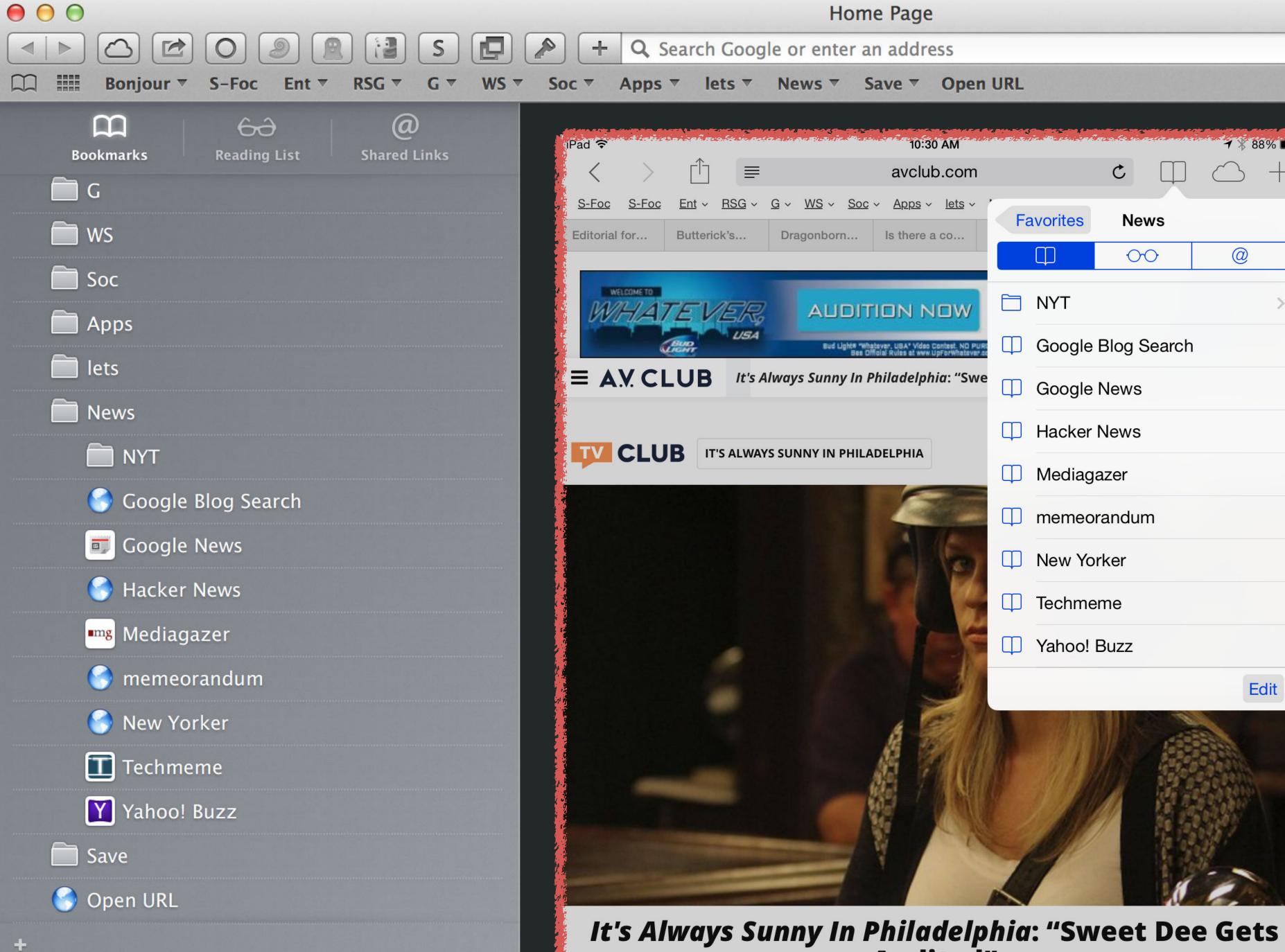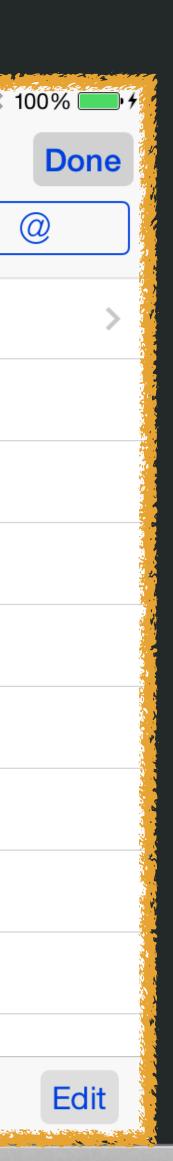Home Page

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Edit

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Bud Light "Whatever, USA" Video Contest. NO PUR...

A.V. CLUB

It's Always Sunny In Philadelphia: "Swe

TV CLUB   IT'S ALWAYS SUNNY IN PHILADELPHIA

It's Always Sunny In Philadelphia: "Sweet Dee Gets Audited"

-115 T-Mobile   10:37 AM   100%

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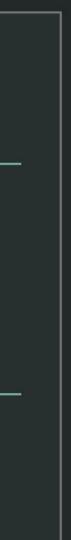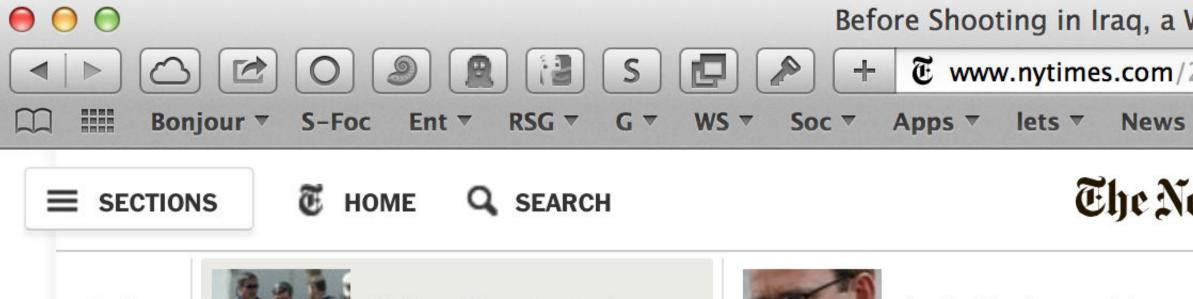
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🌐 Editorial for iPad: A Landmark in iOS Text Editors

🌐 Butterick's Practical Typography

🌐 Dragonborn:March of the Dead – UESPWiki

🌐 Is there a console command to restart a quest…

📄 Open Web Platform Daily Digest

📄 Open Web Platform Daily Digest

🌐 It's Always Sunny In Philadelphia: "Sweet Dee…

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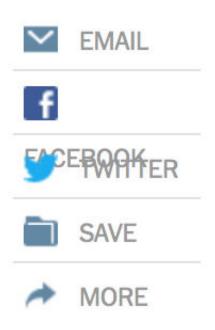
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Before Shooting in Iraq, a Warning on Blackwater

By JAMES RISEN   JUNE 29, 2014

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WASHINGTON — Just weeks before Blackwater guards fatally shot 17 civilians at Baghdad's Nisour Square in 2007, the State Department began investigating the security contractor's operations in Iraq. But the inquiry was abandoned after Blackwater's top manager there issued a threat: "that he could kill" the government's chief

A | A

Before Shooting in Iraq, a Warning on Blackwater

Photo

Blackwater personnel escorting Paul Bremer, an American civil administrator, upon his

WASHINGTON — Just weeks before Blackwater guards fatally shot 17 civilians at Baghdad's Nisour Square in 2007, the State Department began investigating the security contractor's operations in Iraq. But the inquiry was abandoned after Blackwater's top manager there issued a threat: "that he could kill" the government's chief investigator and "no one could or would do anything about it as we were in Iraq," according to department reports.

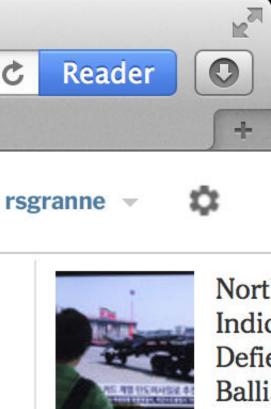American Embassy officials in Baghdad sided with Blackwater rather than the State Department investigators as a dispute over the probe escalated in August 2007, the previously undisclosed documents show. The officials told the investigators that they had disrupted the embassy's relationship with the security contractor and ordered them to leave the country, according to the reports.

After returning to Washington, the chief investigator wrote a scathing report to State Department officials documenting misconduct by Blackwater employees and warning that lax oversight of the company, which had a contract worth more than $1 billion to protect American diplomats, had created "an environment full of liability and negligence."

Continue reading the main story

"The management structures in place to manage and monitor our contracts in Iraq have become subservient to the contractors themselves," the investigator, Jean C.

I have 7 web browsers on my Mac—Safari, Chrome, Opera, Firefox, Canary (Chrome beta), TorBrowser, & IE (virtualized)—but I mostly use Safari

Why?

» Private: Apple isn't collecting data on my browsing
» Fast: always in the top 3
» Extensions: the ones I want
» Secure: good security record
» Scriptable: great for the automation tools I use
» Development: good Web developer tools
» Printing: excellent support for generating PDFs

Specific Safari features

» Reader
» iCloud Keychain
» iCloud Bookmarks
» iCloud Tabs

Google Chrome has lots of advantages

» Fast
» Advanced
» Gazillions of extensions
» Great security
» Syncing of data
» Built-in Flash & PDF support

Google Chrome disadvantages

» More info Google knows about you
» Strange UI decisions
» Extensions at Chrome Web Store often not policed
  well
» Built-in Flash & PDF support

Web Development
The Absolute Basics

R. Scott Granneman & Jans Carton

2.4

Changelog

2020-08-19 2.4: Added slide re Microsoft ending support for IE 11 & Edge Legacy

2020-08-06 2.3: Added number of emoji & a few details re UTF-8 in *Character Encoding*

2020-07-13 2.2: Added details re: ECMAScript (Java-Script) & ECMA; fixed caniuse.com screenshots; minor wording changes; added history of JavaScript

Changelog

2020-07-05 2.1: Added other specs overseen by WHATWG & that W3C still oversees CSS; minor fixes

2020-06-26 2.0: Combined *Browsers*, *Web Servers*, & *HTTP* into a new section: *How the Web Works*; added *3 Languages* section; reorganized sections to make more sense; added kick-ass diagrams to *3 Languages*; added details re: DTD & quirks mode; minor wording fixes; bumped up to version 2 because of the large changes & restructuring

Changelog

2020-06-10 1.29: Minor fixes & updates; hid tips from *Pragmatic Programmer*; added stats & tables to Rendering Engines; updated web server marketshare

2020-02-05 1.28: Added `</head><body>` tattoo photo; added details about Chromium-based browsers; added release date for new Edge; fixed all browser logos to be historically accurate; fixed family trees in Choices

Changelog

2019-09-14 1.27: Added info re: WHATWG hosting living HTML spec; moved Choices last under Browsers; added info re: Chromium; minor fixes

2019-08-28 1.26: Added info re: supporting browsers; added how the Web was designed to view source code; added *closing tags* & *void elements*; replaced Microsoft logo; added Formatting Guide pages re: nesting code under Text Editor; changed colors of Development Venn diagram; added *HTML Tags* to history of HTML

Changelog

2018-12-24 1.25: Updated UTF-8 & Noto info; added Emoji slide to *UTF-8*; added that CodePen is like YouTube; order of attributes doesn't matter; cannot repeat attributes; added note re: character encoding in 1st 1024 characters; added details on Noto; added rendering engine slides re: Edge moving to `<blink>`, added JavaScript engines; added *ghost characters* to UTF-8; added neat ASCII chart

2018-10-01 1.24: Minor formatting fixes; fixed images for Simplest Webpage; updated theme to Granneman 1.5

Changelog

2018-08-22 1.23: Added new Windows-1252 diagram; fixed ISO-8859-1 page; changed font in Markup Venn diagram; updated web server marketshare; added section on *Visual Studio Code* & hid *Brackets*; re-formatted table of editors; hid *Templates* section; several more slides on Can I Use; better image for Outlook rendering engines

Changelog

2018-05-07 1.22: Changed theme to Granneman 1.4; lots of formatting fixes; additional notes re: Notepad & TextEdit; added how to set character encoding in browsers; added instructions for setting Chrome's character encoding to UTF-8; moved tofu under Noto; changed wording on Notepad; updated HTML Templates; updated installation screenshots

Changelog

2017-11-03 1.21: Added Visual Studio Code to list of editors; added *HTTP* & *Web Servers* sections

2017-10-23 1.20: In *Background*, better ordered slides, hid a few, added Can I Use, & improved HTML versions slide; added browser marketshare in Browsers; in *DTD*, hid older DTDs; added Noto to UTF-8 in *Character Encoding*; linked to my version of HTML Templates extension for Brackets; new link & examples for Brackets HTML Templates extension

Changelog

2017-09-15 1.19: Updated HTML Templates slides; hid Outlook's rendering engine; added tips from *Pragmatic Programmer*; added more attribute examples; updated View Source instructions; replaced HTML5 Taxonomy & Status image; hid Opera Mini; more detail on browser family trees; hid some browser parts to focus on chrome & viewport

2016-09-07 1.18: Many small changes & fixes; added slide showing status of W3C HTML5 & related techs; updated theme to Granneman 1.2

2016-08-23 1.17: Removed centering on W3C slide

Changelog

2016-01-10 1.16: Added slide re: feature phones

2016-01-10 1.15: Added slide re: capitalizing files & folders; updated info on browser support for *DTD* & *Character Encoding*

2015-08-31 1.14: Changed theme to Georgia Pro, so I had to fix a lot of things; made versions of DTD with versions of HTML clearer; clarified & cleaned up *Character Encoding*; clarified IE Edge Mode; minor edits to *Editing*; better explained WYSIWYGs; took out 1 CodePen slide

Changelog

2015-08-27 1.13: Removed 6-week release cycle for Brackets; shortened WebSanity CodePen URL; debugging not a good reason for comments; added EdgeHTML to rendering engines; improved deprecation slide; minor changes & fixes

2015-08-26 1.12: Removed slide showing Edge; put Opera on same line as Chrome; added browser family trees; updated *Browser Parts* from Safari to Chrome; updated Brackets features provided via extensions

Changelog

2015-06-13 1.11: Made the Tim Berners-Lee slides a lot cooler; added info about font tofu & Noto; changed name of Spartan to Edge

2015-02-02 1.10: Removed HTML5 REC; added info about Spartan & EdgeHTML; added info re: Outlook's rendering engine; added slide about original purpose of the Web (documents); added year of WHATWG's founding; added dates of HTML releases & Flash

2015-01-24 1.9: Added Mojibake term & example to *Character Encoding*

Changelog

2015-01-12 1.8: Removed ? after 2014 for HTML5; removed Adobe Edge Code; added preprocessing support to Brackets

2014-09-06 1.7: Removed Frameworks slide from *Templates*; rearranged W3C & WHATWG pages; moved side note about IE Edge Mode to *Character Encoding*; added examples to comments; various small tweaks & fixes

2014-09-02 1.6: Added slide on spaces in file names; strikethroughs on certain Brackets extensions because they were added to the program; added screenshots of CodePen

Changelog

2014-08-28 1.5: Changed "web browser" to "rendering engine" where appropriate; re-ordered a few slides; added Scott McCloud

2014-08-27 1.4: Moved *History* to *Bonus*

2014-08-26 1.3: Cleaned up *Browser History*

Changelog

2014-08-26 1.2: Minor fixes; added images for text editors & WYSIWYG; added *Browser History & Browser Choices* sections

2014-07-28 1.1.3: Added better WYSIWYG slides

2014-07-28 1.1.2: Added CodePen slides

2014-07-01 1.1.1: Added slides to *Rendering Engines* showing support for HTML5 & CSS

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