25 Years of JavaScript

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Why History Matters and What We Can Learn From It

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25 Years of JavaScript

The Web is For Everyone

The Birth of JavaScript

Initial Response

Renaissance & Rebirth

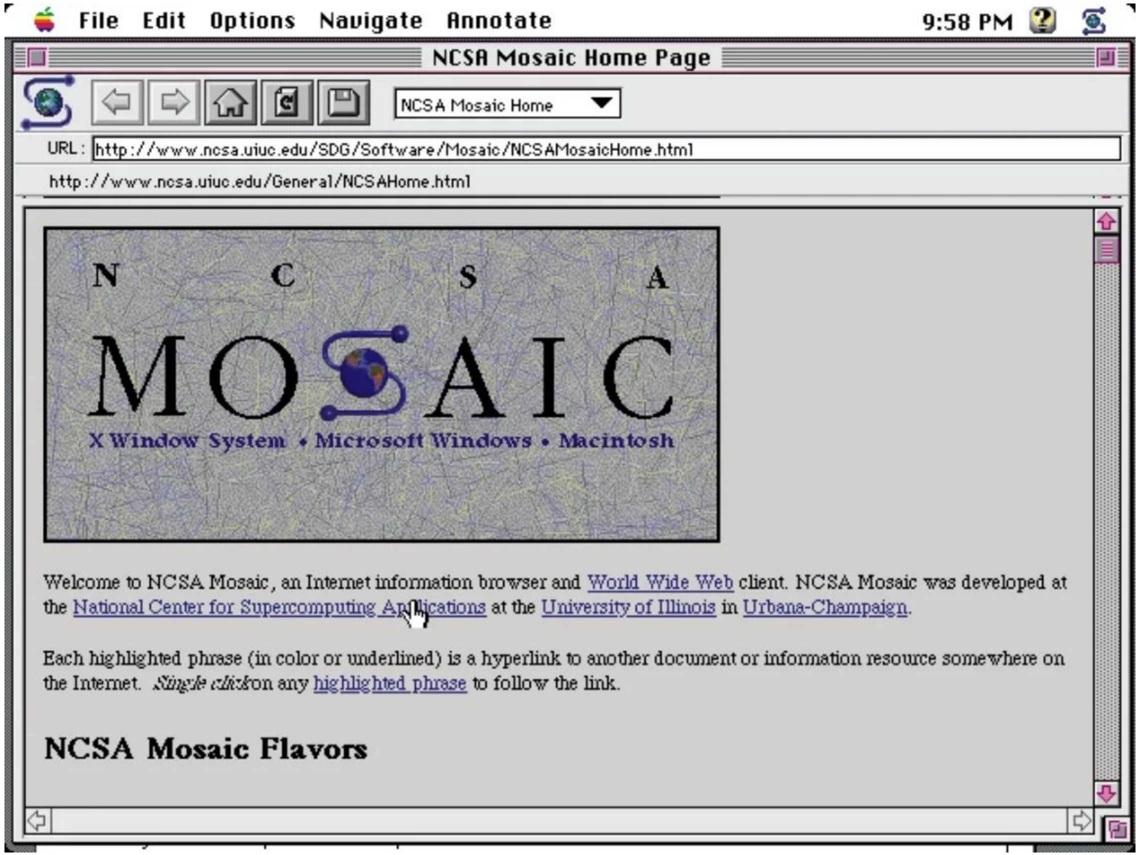
ES6 & Modern Javascript

The Future & What We Can Learn From the Past

“The Web is for Everyone”

NCSA - MOSAIC (1993)

Mosaic Communications Corporation - Netscape (1994)



http://www.ncsa.uiuc.edu/SDG/Software/Mosaic/NCSAMosaicHome.html

http://www.ncsa.uiuc.edu/General/NCSAHome.html

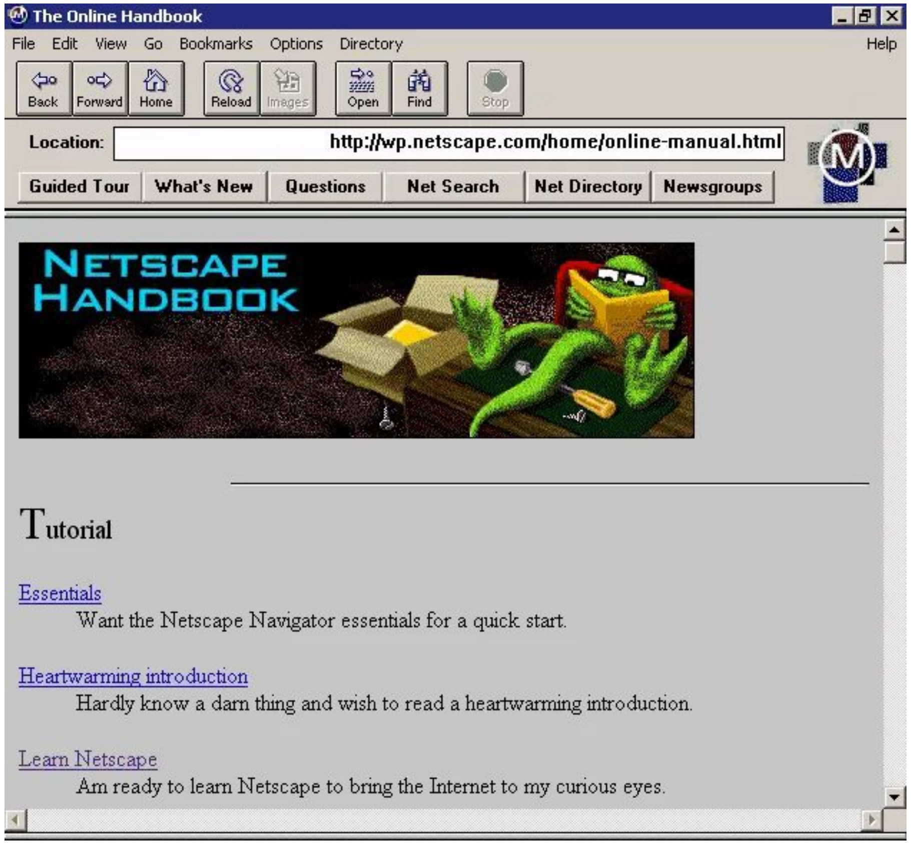
Welcome to NCSA Mosaic, an Internet information browser and World Wide Web client. NCSA Mosaic was developed at the National Center for Supercomputing Applications at the University of Illinois in Urbana-Champaign.

Each highlighted phrase (in color or underlined) is a hyperlink to another document or information resource somewhere on the Internet. *Single click* on any highlighted phrase to follow the link.

NCSA Mosaic Flavors

NCSA Mosaic for Macintosh (1993)

Source: columbia.edu


The Online Handbook
File Edit View Go Bookmarks Options Directory Help
Back Forward Home Reload Images Open Find Stop
Location: http://wp.netscape.com/home/online-manual.html
Guided Tour What's New Questions Net Search Net Directory Newsgroups
NETSCAPE HANDBOOK

Tutorial

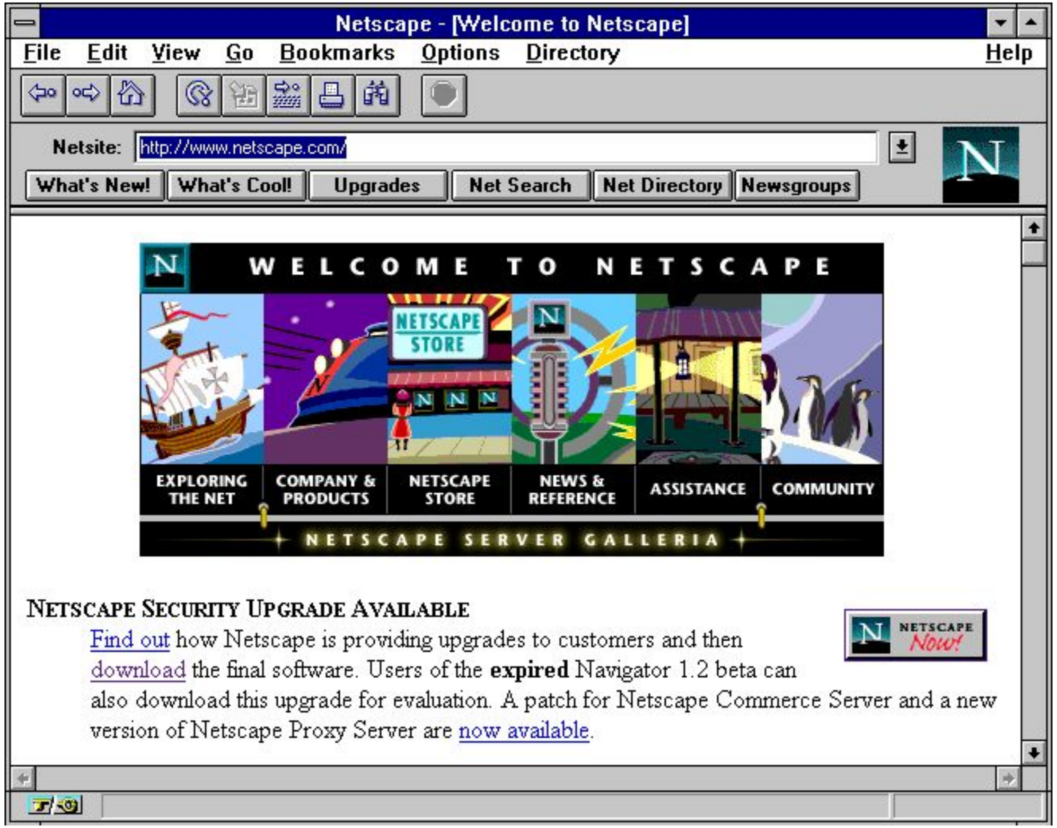
Essentials
Want the Netscape Navigator essentials for a quick start.

Heartwarming introduction
Hardly know a darn thing and wish to read a heartwarming introduction.

Learn Netscape
Am ready to learn Netscape to bring the Internet to my curious eyes.

Mosaic Netscape 0.9 Beta for Windows (1994)

Source: wikipedia.org/netscape_navigator, wikipedia.org/netscape


Netscape - [Welcome to Netscape]

File Edit View Go Bookmarks Options Directory Help

Netsite: http://www.netscape.com/

What's New! What's Cool! Upgrades Net Search Net Directory Newsgroups

NETSCAPE SECURITY UPGRADE AVAILABLE

Find out how Netscape is providing upgrades to customers and then download the final software. Users of the **expired** Navigator 1.2 beta can also download this upgrade for evaluation. A patch for Netscape Commerce Server and a new version of Netscape Proxy Server are now available.

Netscape Navigator 1.2 Browser for Windows 3.1 (1995)

Netscape Navigator
(1994 - 1998)

Source: wikipedia.org

```
console.log(“hello world”);
```

JavaScript is Born

Collaboration with Sun Microsystems (Java)

Brendan Eich, Father of JavaScript

JAVA™
Java™
Java™
Java™

Brendan Eich

“I’m to blame for JavaScript … It was supposed to be a sidekick language to Sun’s Java language, but times have changed… and Javascript had enough good in it that the sidekick became the superhero.”

Source: TEDxVienna

Java

Self

Object oriented language based on the concept of prototypes

λ

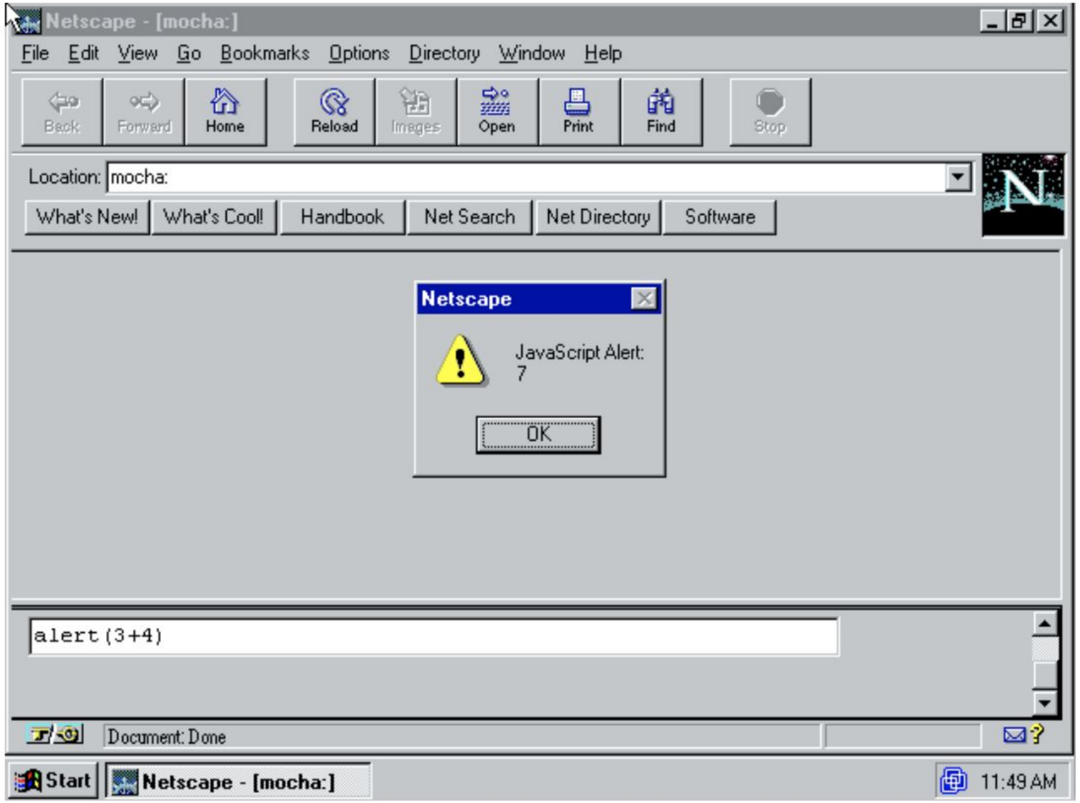
Scheme
First Dialect of Lisp to use lexical scope and support functional programming

1995

May
Eich invents Mocha

September
Mocha renamed LiveScript

December
LiveScript renamed JavaScript


Netscape - [mocha:]
File Edit View Go Bookmarks Options Directory Window Help
Back Forward Home Reload Images Open Print Find Stop
Location: mocha:
What's New! What's Cool! Handbook Net Search Net Directory Software
Netscape
OK
Document: Done
Start Netscape - [mocha:]
11:49 AM

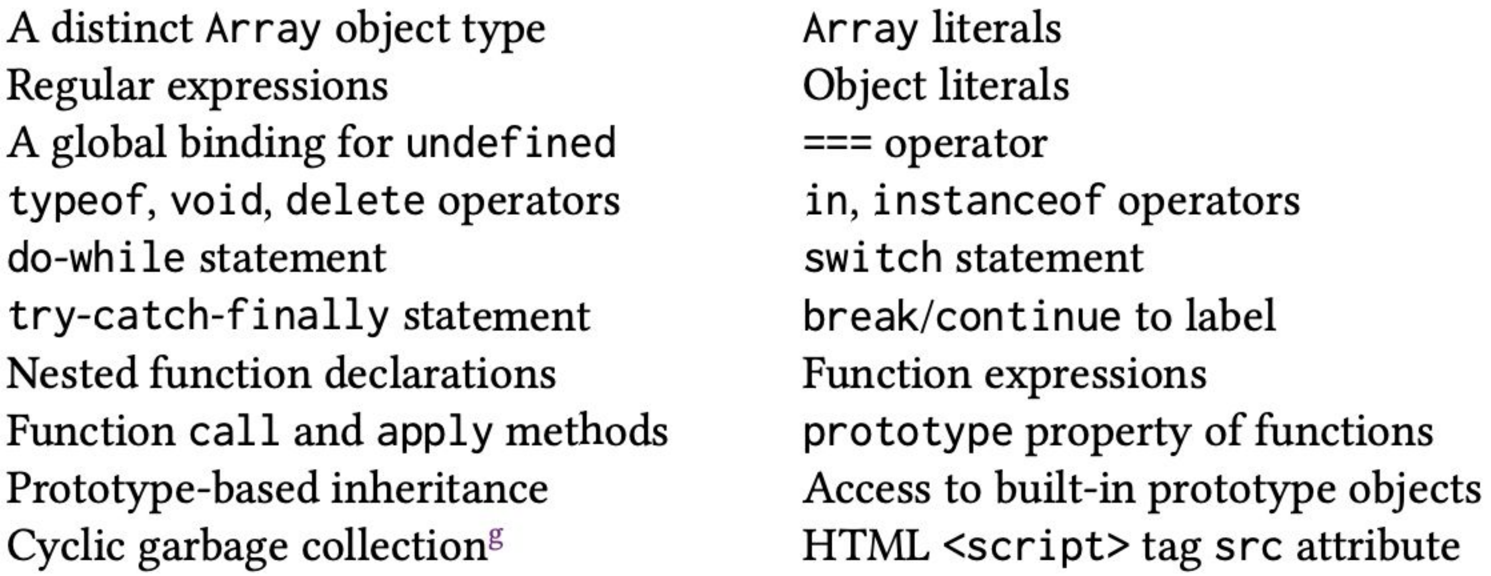
JavaScript Alert:
7

```
alert(3+4)
```

Netscape 2.02 on Windows 95

Source: JavaScript: The First 20 Years

JavaScript 1.0 Missing Features

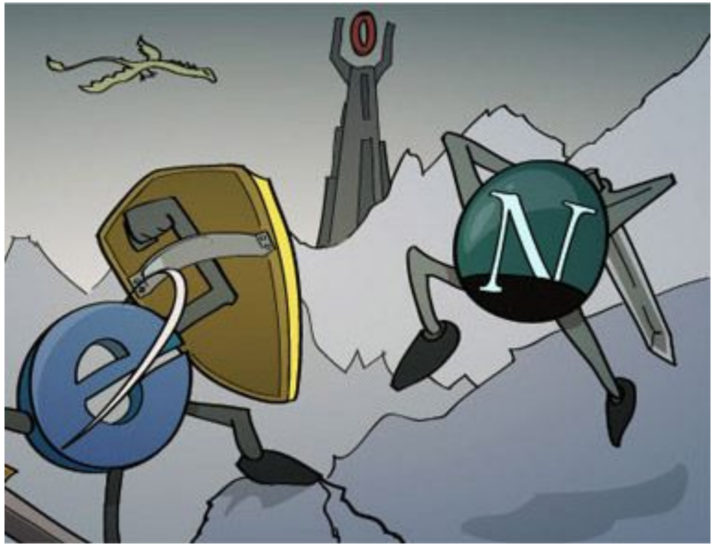


A distinct `Array` object type
Regular expressions
A global binding for `undefined`
`typeof`, `void`, `delete` operators
`do-while` statement
`try-catch-finally` statement
Nested function declarations
Function `call` and `apply` methods
Prototype-based inheritance
Cyclic garbage collection[g]

`Array` literals
Object literals
=== operator
`in`, `instanceof` operators
`switch` statement
`break`/`continue` to label
Function expressions
`prototype` property of functions
Access to built-in prototype objects
HTML `<script>` tag `src` attribute

Source: JavaScript: The First 20 Years

ECMAScript



Initial Response

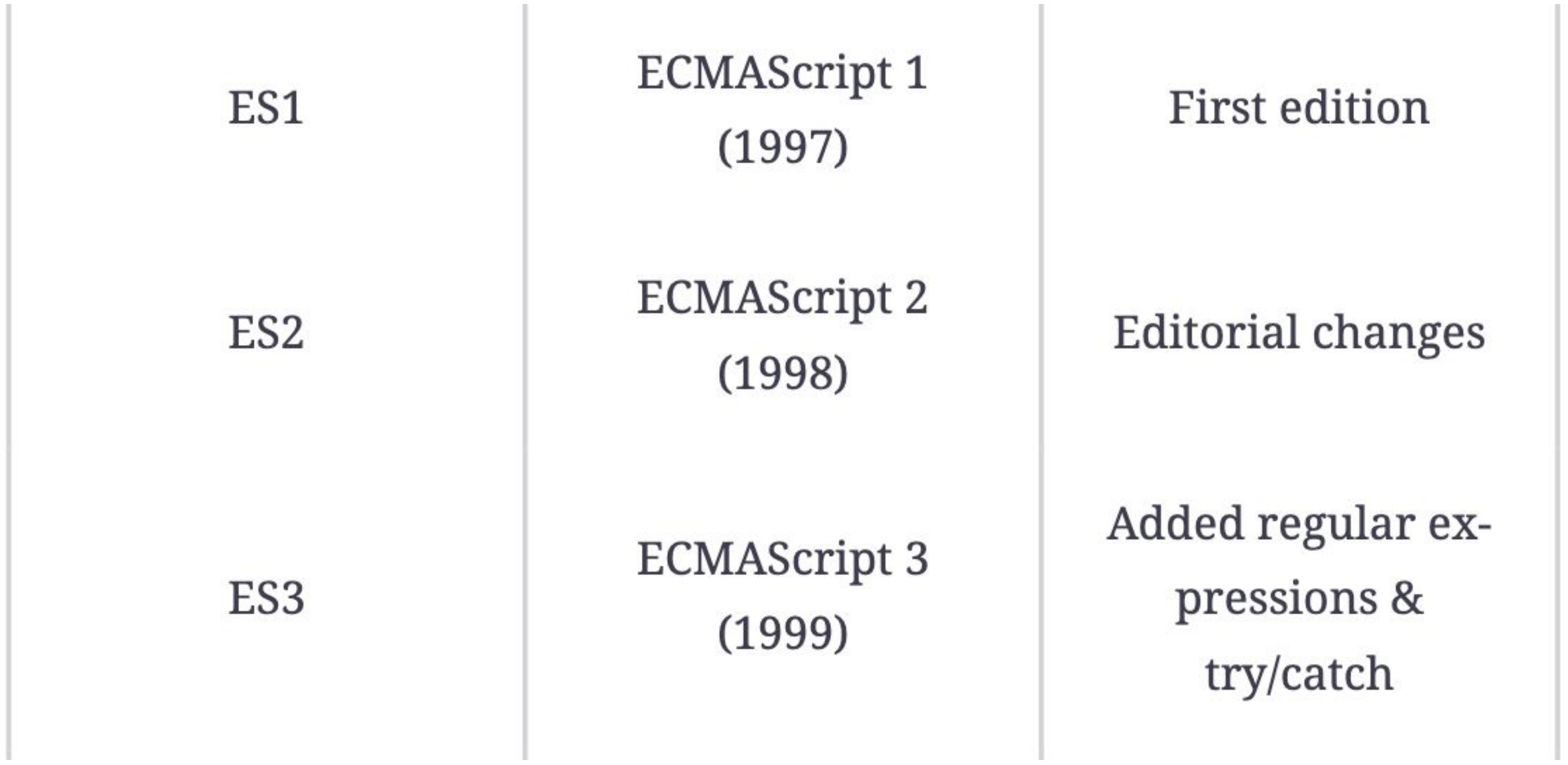
Competition & Standardization

The First Browser War

Source: Holy Browser Wars!

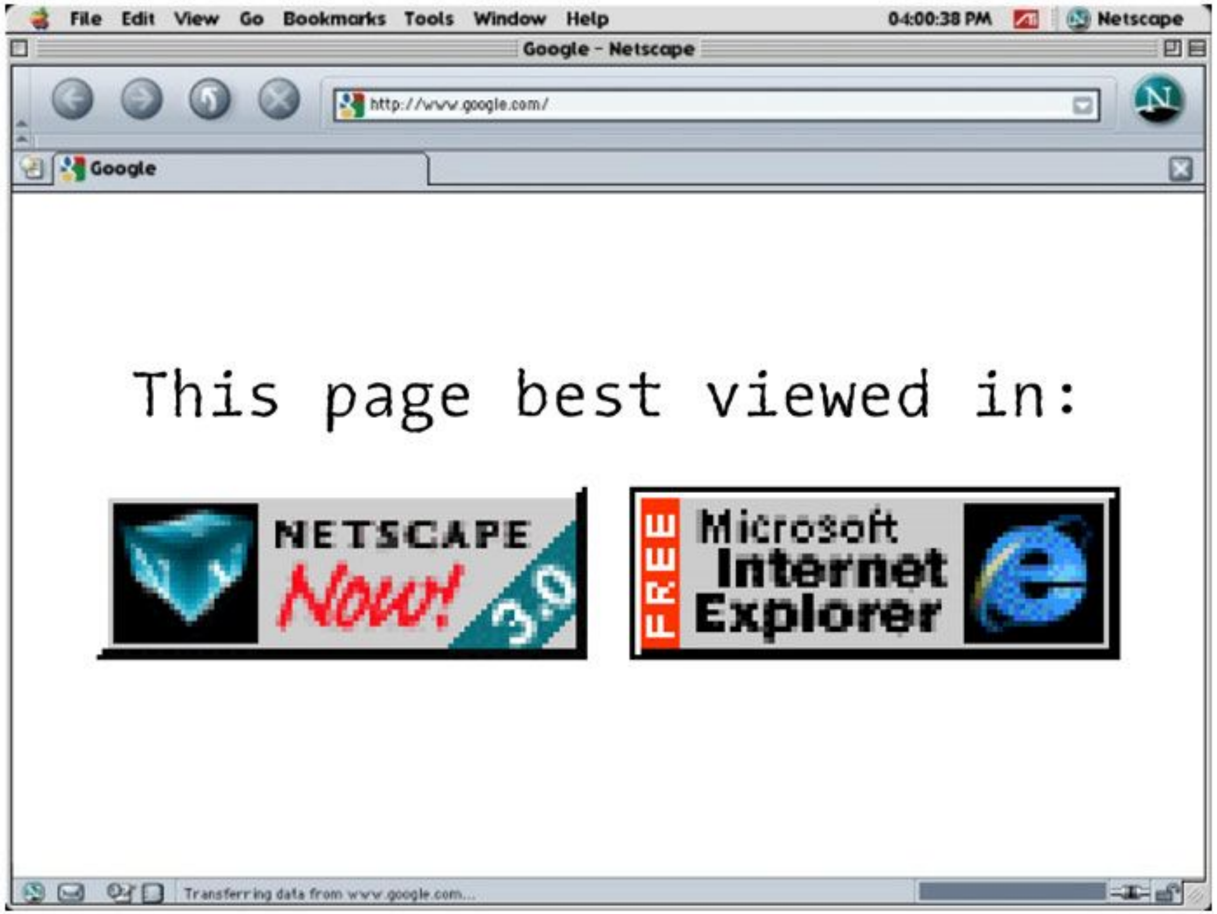
Competition & Standardization

$$\begin{tikzcd}
\text{Microsoft Internet Explorer} \arrow[r] & \text{JScript} \\
\text{ecma INTERNATIONAL} \arrow[r] & \text{TC 39} \arrow[r] & \text{ECMAScript}
\end{tikzcd}$$



ES1	ECMAScript 1 (1997)	First edition
ES2	ECMAScript 2 (1998)	Editorial changes
ES3	ECMAScript 3 (1999)	Added regular ex-pressions & try/catch

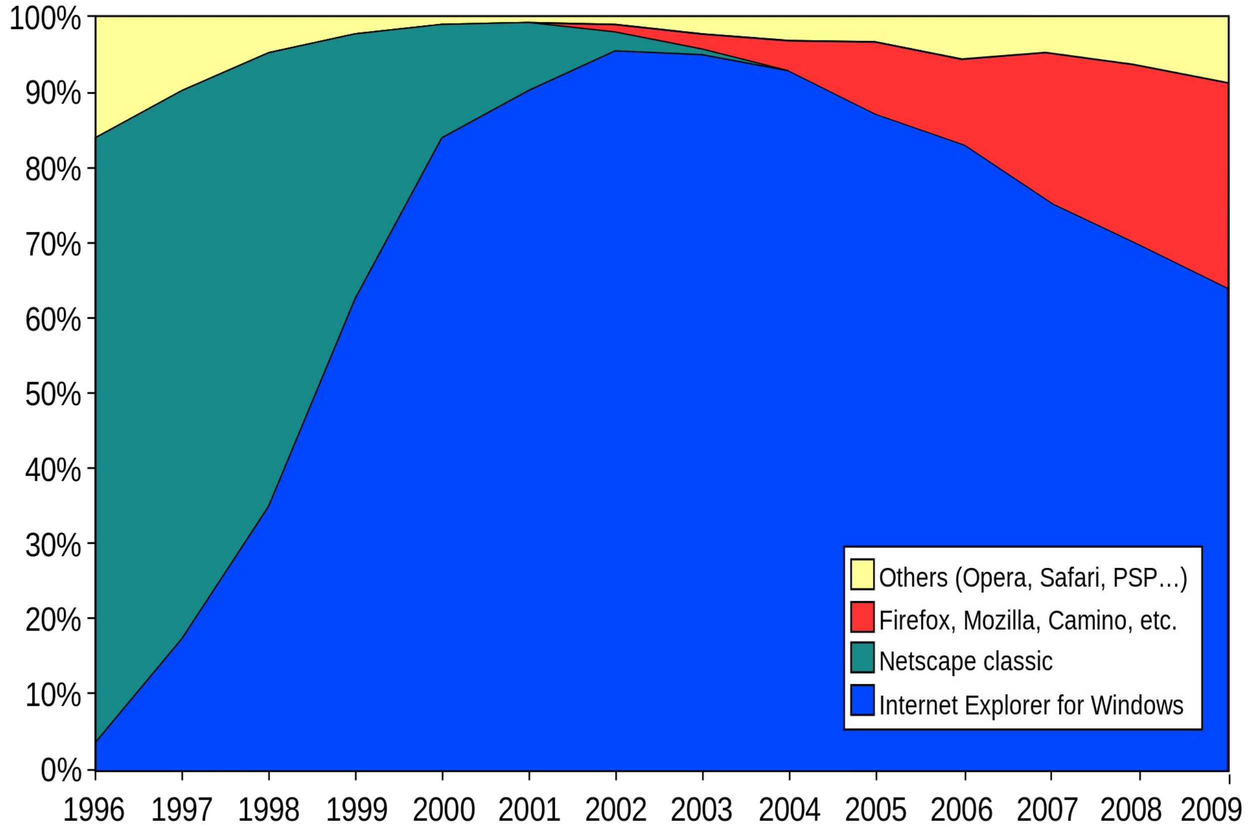
Source: JavaScript Versions


This page best viewed in:

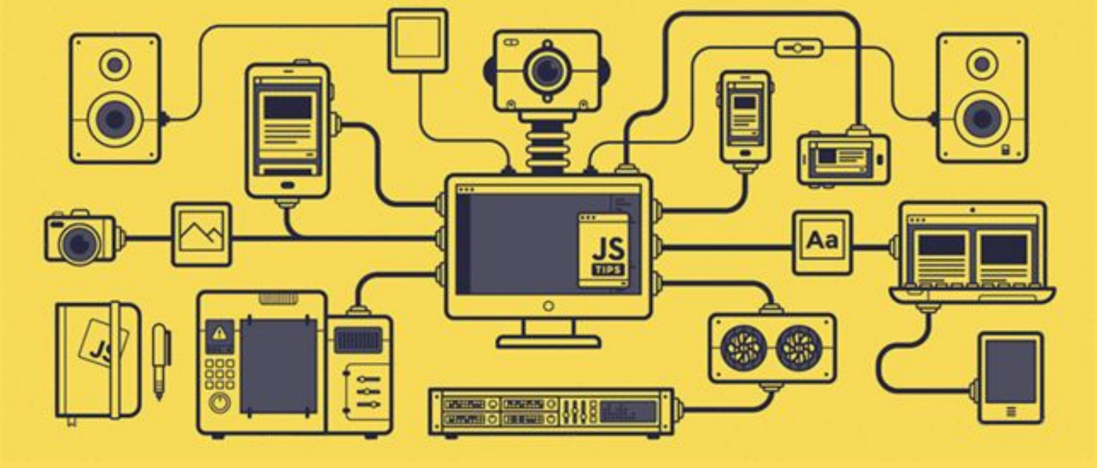
File Edit View Go Bookmarks Tools Window Help
04:00:38 PM
Netscape
Google - Netscape
http://www.google.com/
Google
NETSCAPE Now! 3.0
FREE Microsoft Internet Explorer
Transferring data from www.google.com...

Source: eyeres.com

Browser Wars



Source: wikipedia.org



JavaScript Doesn’t Need Java

Douglas Crockford (JSON, JSMin, JSLint)

AJAX Programming Concept

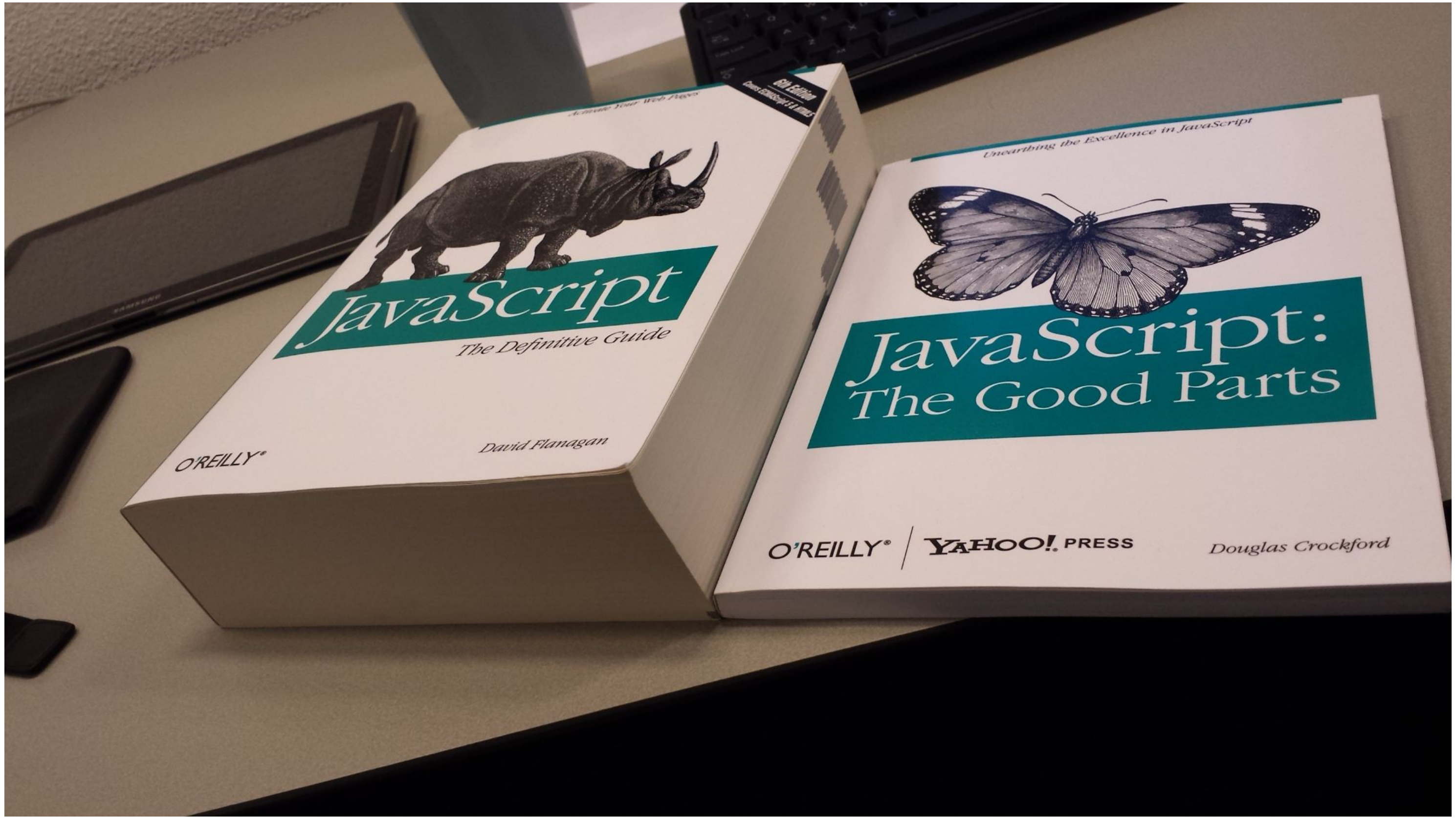
Innovation & Conflict

Source: Dries Buytaert

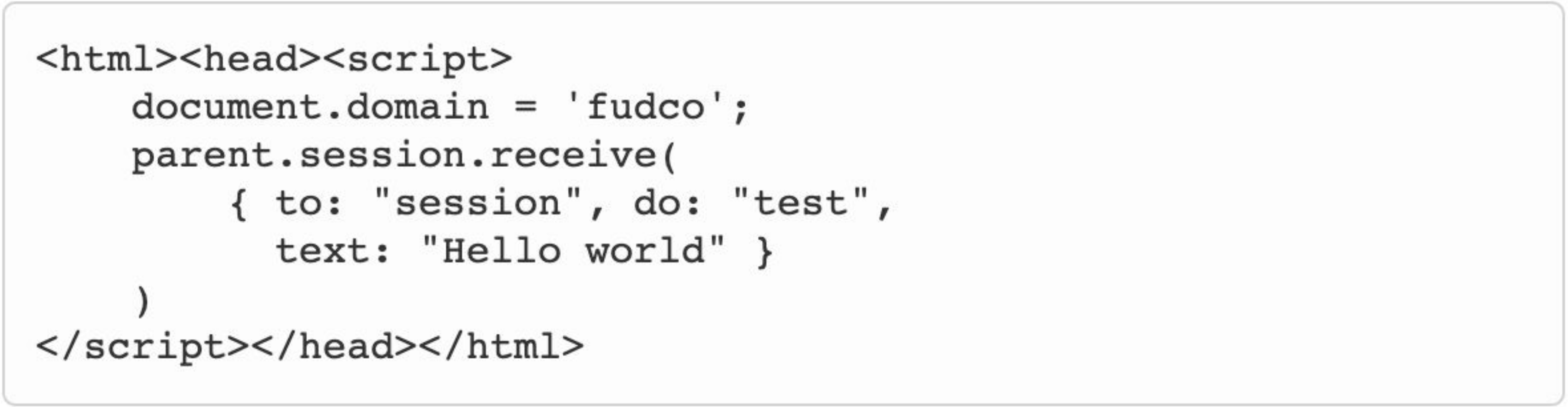
Douglas Crockford

“I was the first person to recognize that JavaScript had good parts … And when I announced my results they were met with wild skepticism. No way, there cannot possibly be any good parts in JavaScript.”

Source: frontendmasters

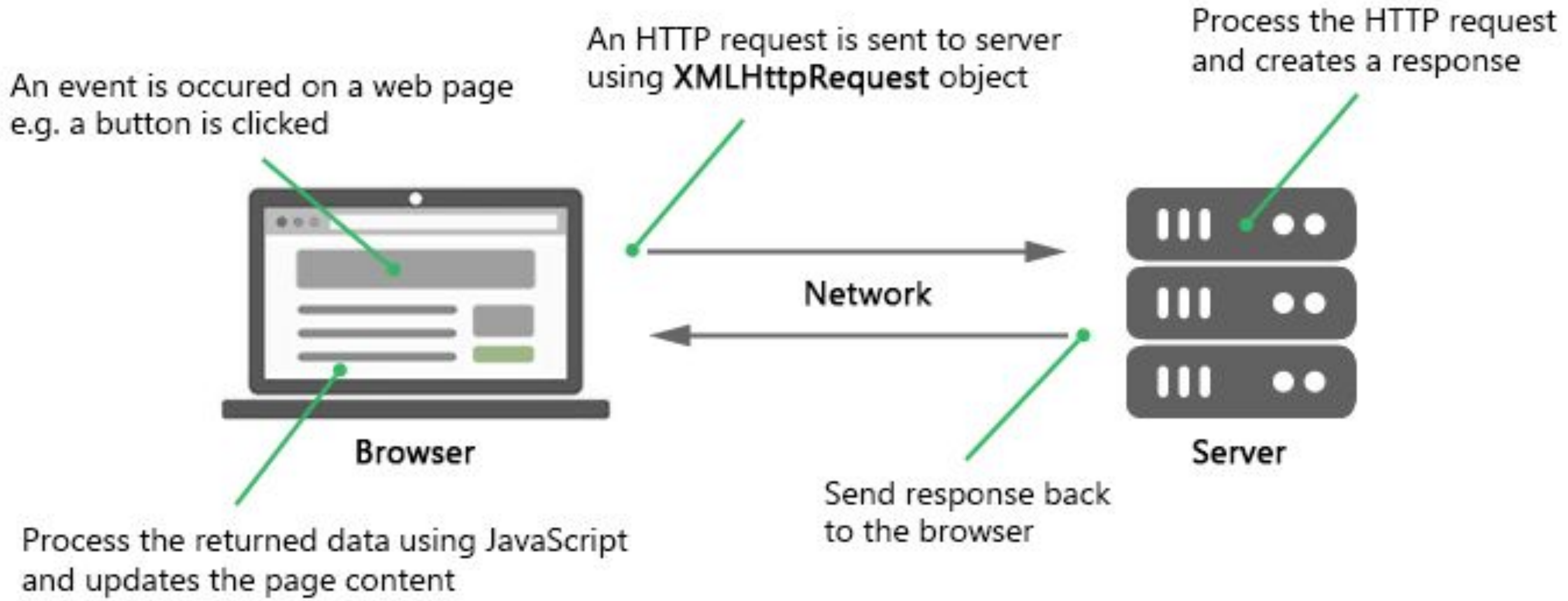


Source: reddit



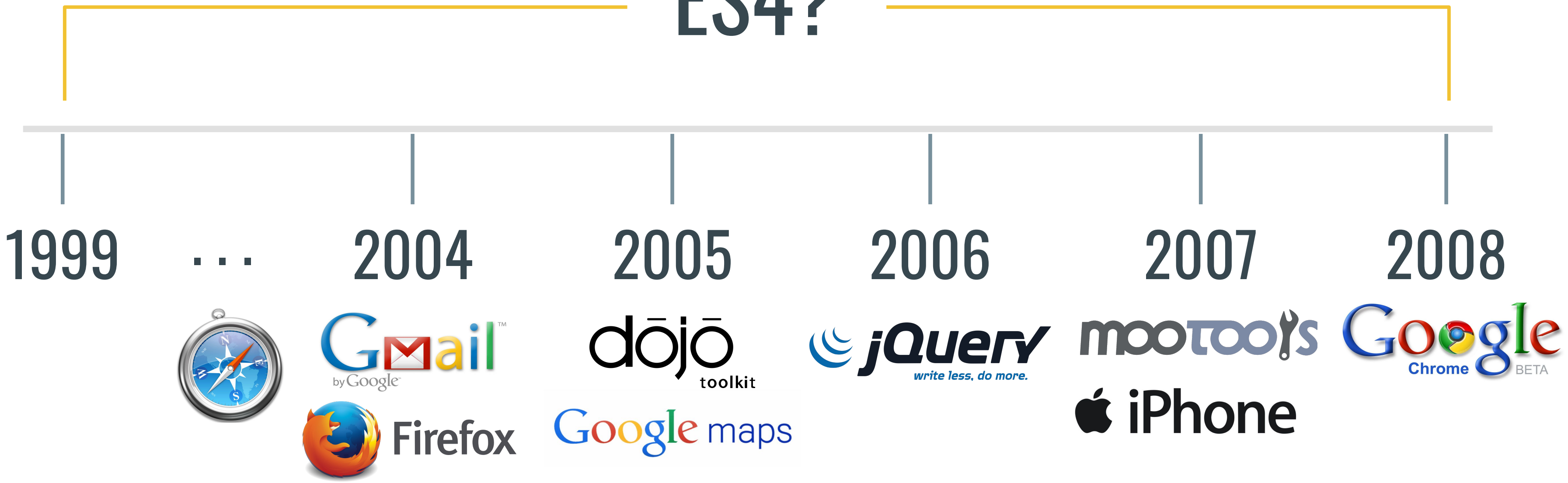
```
<html><head><script>
    document.domain = 'fudco';
    parent.session.receive(
        { to: "session", do: "test",
          text: "Hello world" }
    )
</script></head></html>
```

Source: twobithistory


An event is occured on a web page
e.g. a button is clicked
An HTTP request is sent to server
using **XMLHttpRequest** object
Process the HTTP request
and creates a response
Network
Browser
Server
Process the returned data using JavaScript
and updates the page content
Send response back
to the browser

Source: tutorialrepublic.com

ES4?


1999
...
2004
2005
2006
2007
2008
Gmail by Google
Firefox
dojo toolkit
Google maps
jQuery write less, do more.
mootools
iPhone
Google Chrome BETA

jQuery

write less, do more.

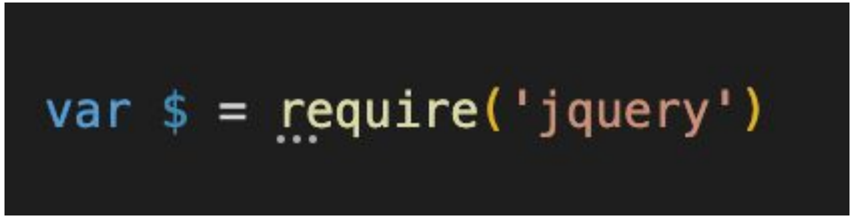
Renaissance & Rebirth

JavaScript Everywhere with CommonJS & Node.js

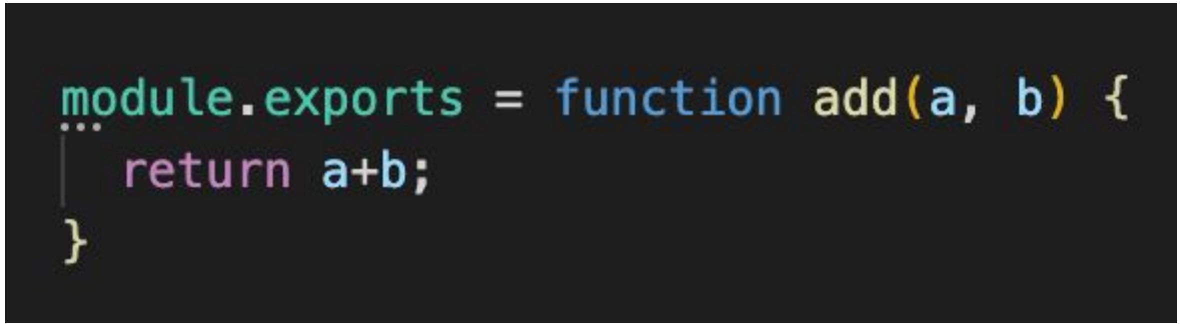
ES3.1 → ES5

Single Page Applications

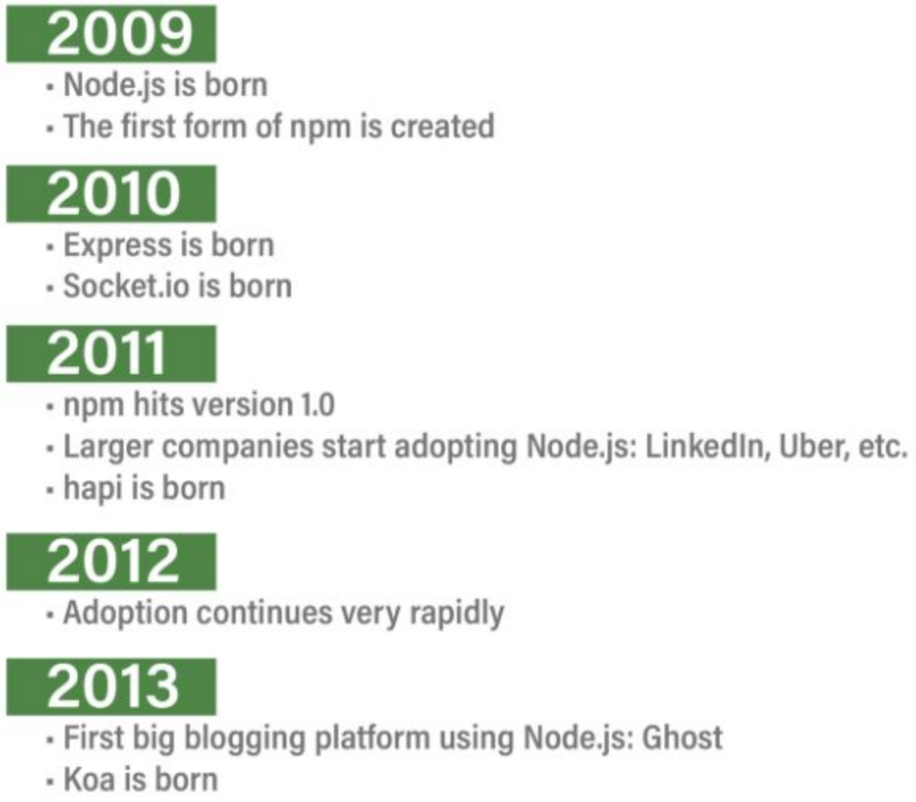
CommonJS



```javascript
var $ = require('jquery')
```



```javascript
module.exports = function add(a, b) {
  return a+b;
}
```



2009

- Node.js is born
- The first form of npm is created

2010

- Express is born
- Socket.io is born

2011

- npm hits version 1.0
- Larger companies start adopting Node.js: LinkedIn, Uber, etc.
- hapi is born

2012

- Adoption continues very rapidly

2013

- First big blogging platform using Node.js: Ghost
- Koa is born

Source: arslanalidev

ES5

"use strict"

`String[number]`

Multiline strings

`String.trim()`

`Array.isArray()`

`Array.forEach()`

`Array.map()`

`Array.filter()`

`Array.reduce()`

`Array.reduceRight()`

`Array.every()`

`Array.some()`

`Array.indexOf()`

`Array.lastIndexOf()`

`JSON.parse()`

`JSON.stringify()`

`Date.now()`

`Date.toISOString()`

`Date.toJSON()`

Property getters and setters

Reserved words as property names

Object methods

Object `defineProperty()`

`Function.bind()`

Trailing commas

Source: w3schools

Knockout.

BACKBONE.JS

ember®

ANGULARJS
by Google

Jeremy Ashkenas

“ The way you invent the future of JavaScript is to compile the JavaScript of the future into the JavaScript of today ”

Source: CODE GENIUS

Harmony & Modern JavaScript

ES6 (2015) Harmony & Beyond

Transpilers - Babel / TypeScript

More New SPA Frameworks - React / Vue / Angular 2

Bundlers - Browserify / Webpack

ES6 Harmony

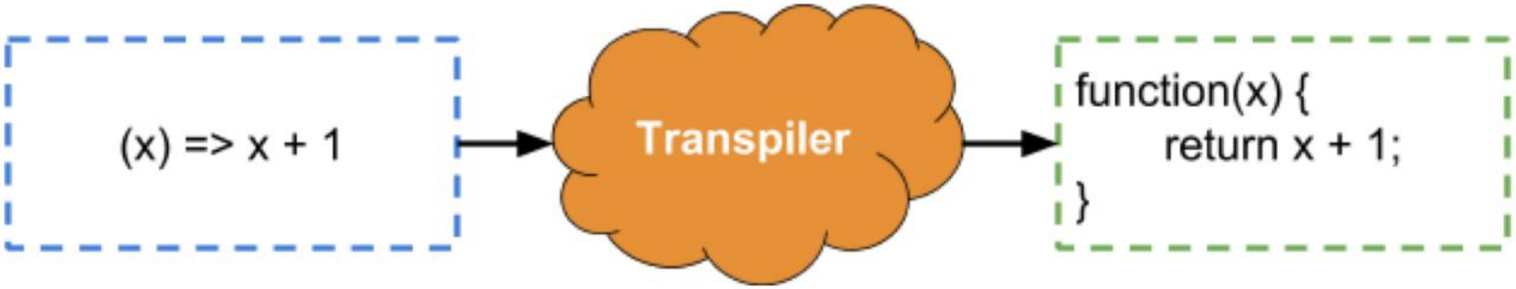
- The `let` keyword
- The `const` keyword
- Arrow Functions
- For/of
- Map Objects
- Set Objects
- Classes
- Promises
- Symbol
- Default Parameters
- Function Rest Parameter
- `String.includes()`
- `String.startsWith()`
- `String.endsWith()`
- `Array.from()`
- `Array.keys()`
- `Array.find()`
- `Array.findIndex()`
- New Math Methods
- New Number Properties
- New Number Methods
- New Global Methods
- Iterables `Object.entries`
- JavaScript Modules

Source: w3schools

2016	Exponentiation (`**`), Exponentiation assignment (`**=`) `Array.prototype.includes`
2017	String padding, `Object.entries`, `Object.values`, `async` functions, shared memory
2018	Asynchronous Iteration, Promise Finally, Object Rest Properties, New `RegExp` Features
2019	`Array.prototype.flat`, `Array.prototype.flatMap`, changes to `Array.sort` and `Object.fromEntries`
2020	Optional Chaining, `BigInt`, Nullish Coalescing, `Promise.allSettled()`, `MatchAll()`
2021	`replaceAll()`, `Promise.any()`, `AggregateError`, logical assignment operators (`??=`, `&&=`, `||=`), `WeakRef`, `FinalizationRegistry`

Source: w3schools, wikipedia.org, techaffinity

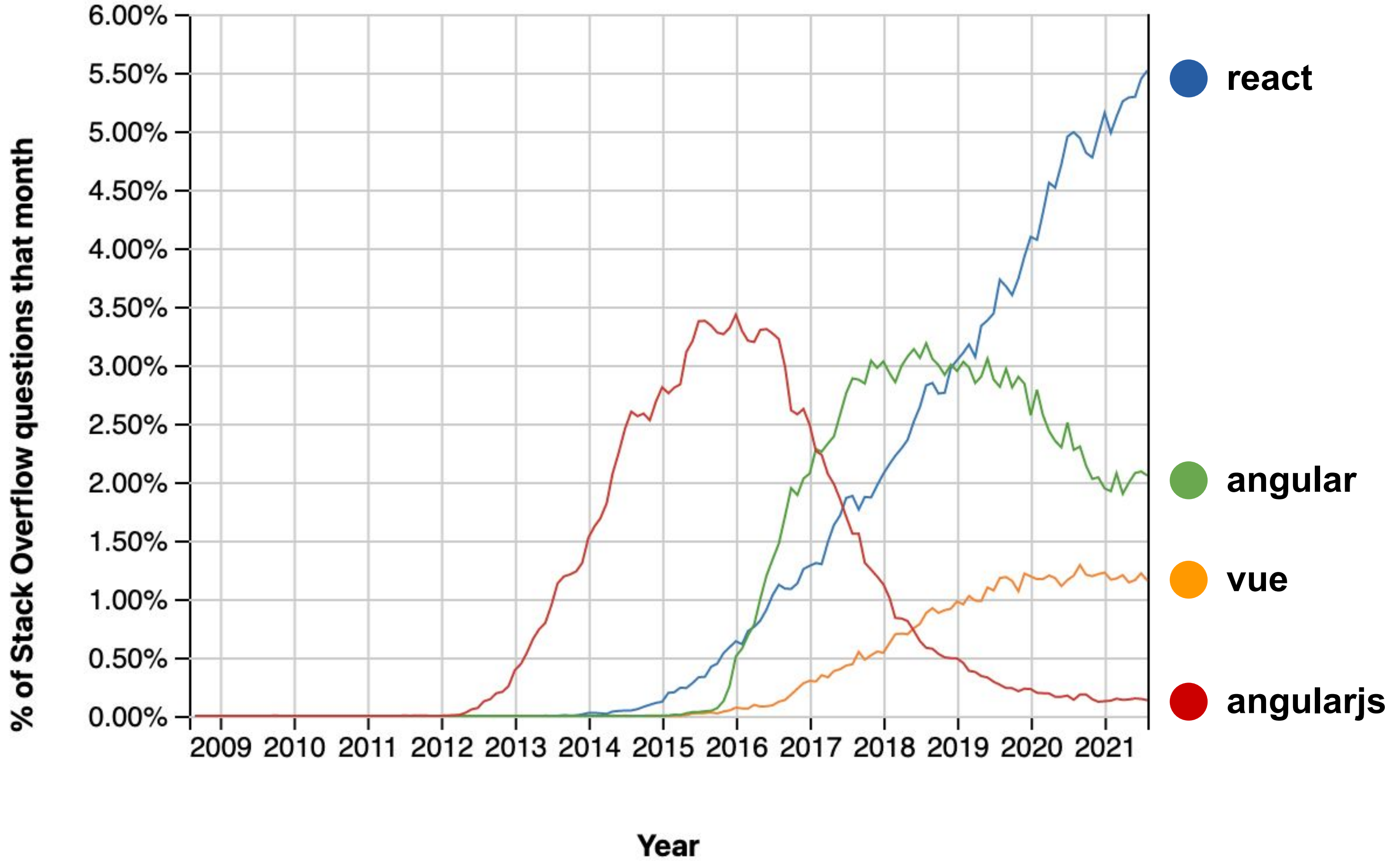
BABEL



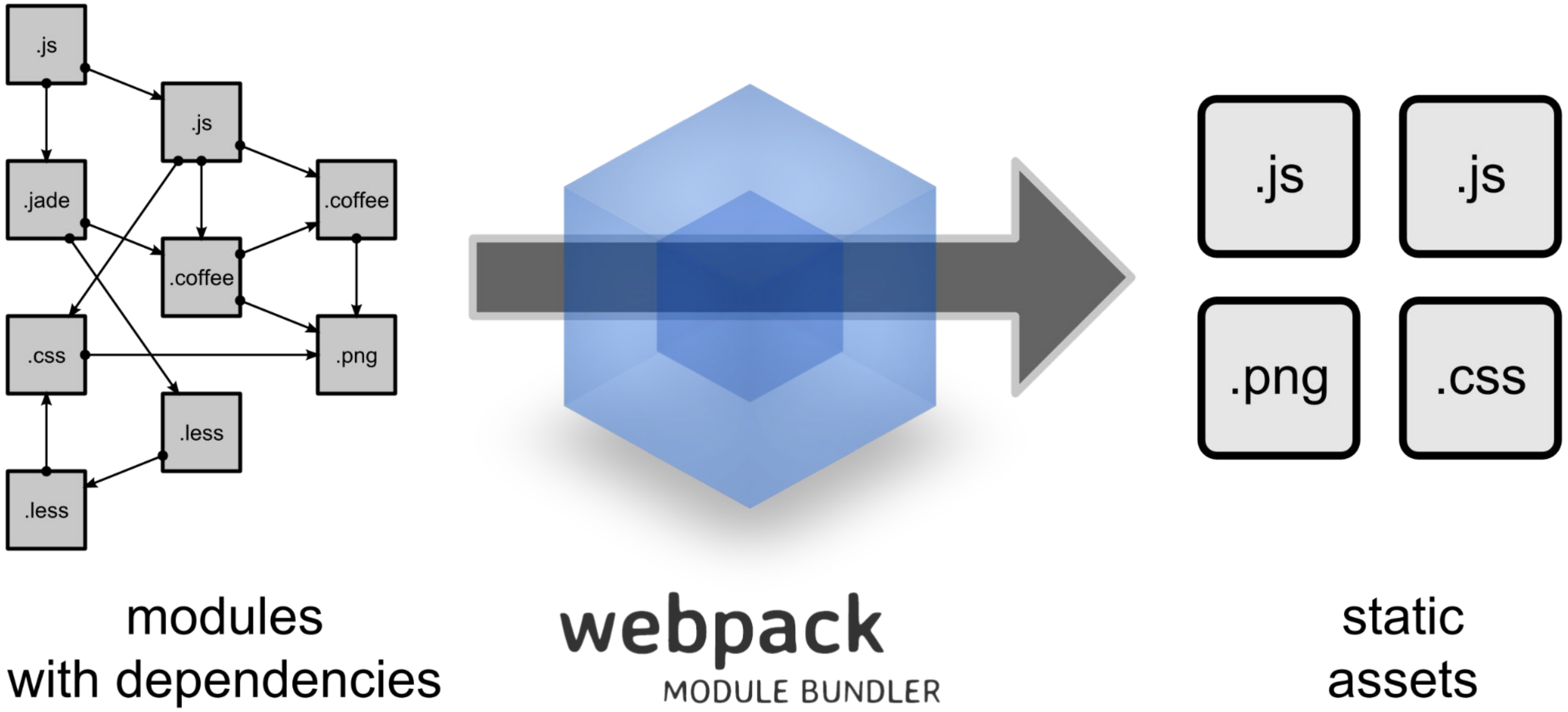
```
(x) => x + 1
```

```
function(x) {
        return x + 1;
}
```

Source: sessionstack



Source: stackoverflow



Source: webpack

The Future & What We Can Learn From The Past

ES.Next / New Tech

Why does this matter to me?

ES.Next - The Process

Stage 0 / Proposal	A new possible feature that is planned to be presented to TC39
Stage 1 / Proposal	Still primitive, but TC39 is willing to spend time solving the proposals potential challenges
Stage 2 / Draft	TC39 expects the proposal to be included in the standard, critical aspects and issues are resolved
Stage 3 / Candidate	The proposal is meticulously reviewed, the final stage before being included in the standard
Stage 4 / Finished	This addition is ready for inclusion in the next ECMA version

Source: TC39 Process

ES.Next - Current Proposals

Stage 0 / Proposal	new operator `::` for `this` binding, nested `import` declarations, object shorthand improvements
Stage 1 / Proposal	`async do` expressions, array deduplication, array equality, new `slice` notation `[x:x]`
Stage 2 / Draft	New `Array.prototype` methods that create a copy of the array, `throw` expressions
Stage 3 / Candidate	`.findLast()` and `.findLastIndex()`, common `JSON` imports
Stage 4 / Finished	Top level `await`, `.at()` method, `Object.hasOwn()` method to make `Object.prototype.hasOwnProperty` more accessible

Source: TC39 Proposals

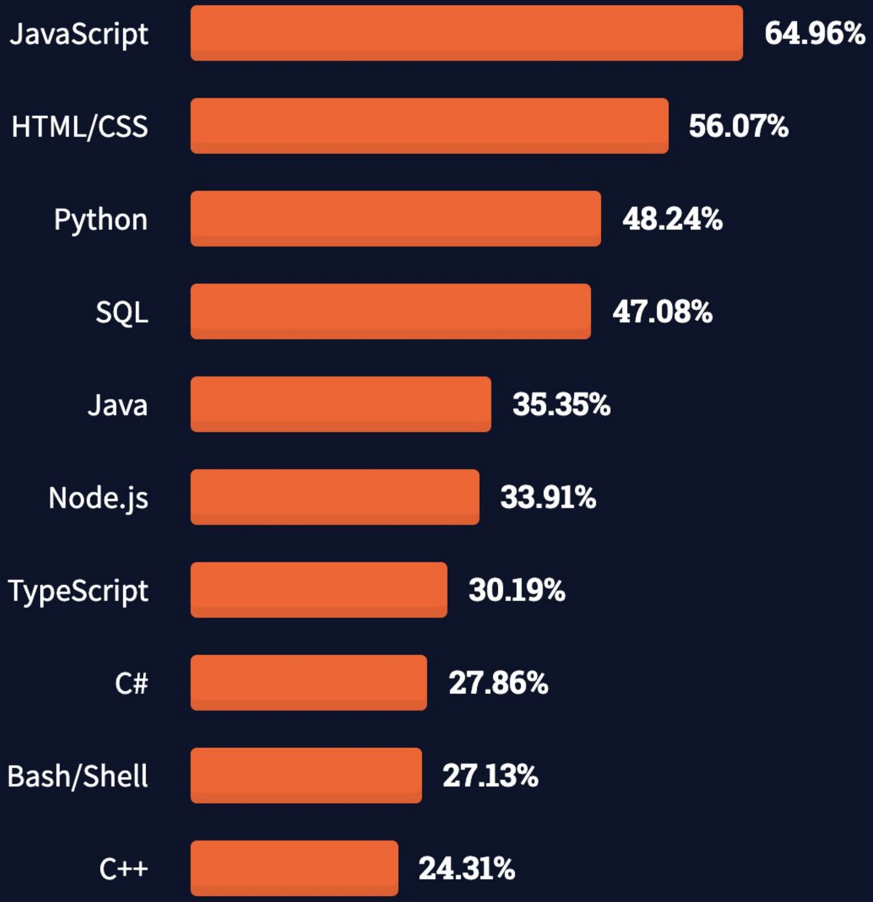
The Future Is Now

JS
WA

SVELTE

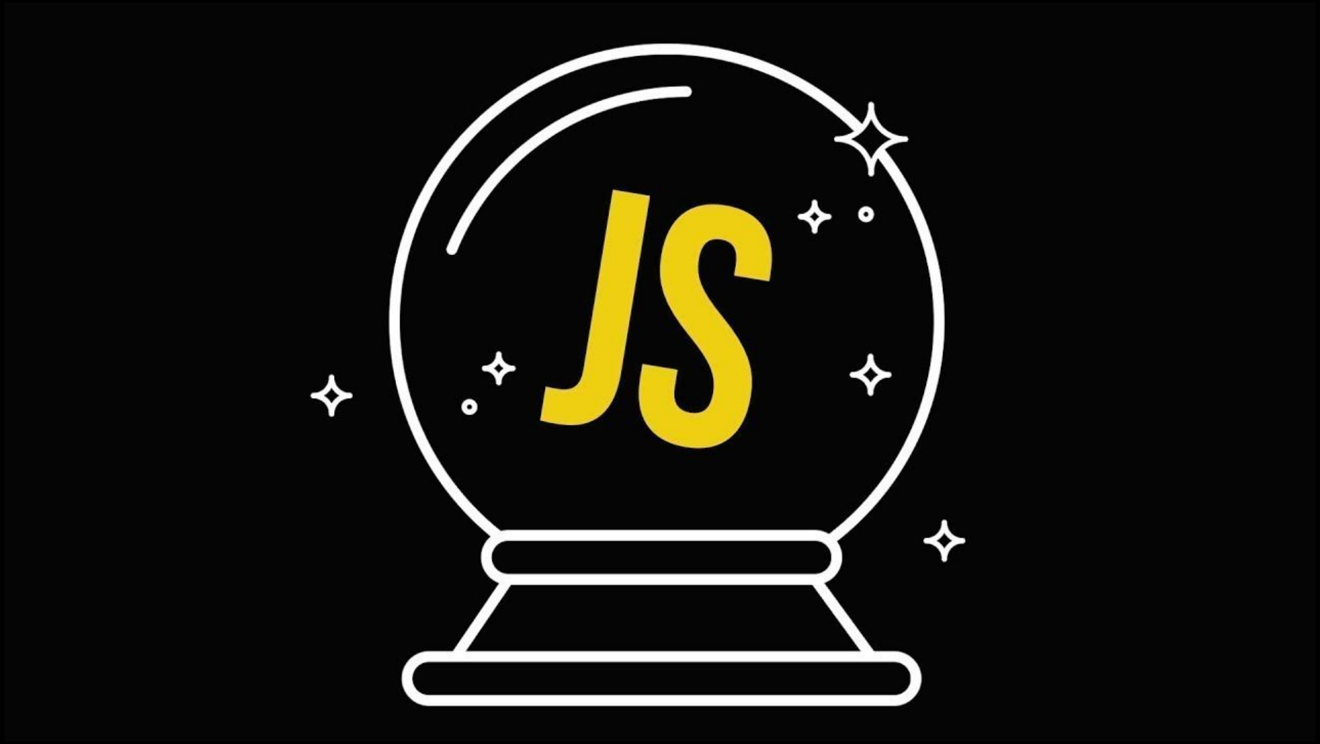
Jamstack

TensorFlow



Source: stackoverflow

The Far Future



Why Do I Care?

Resources

laurasprauer.com/momentum-2021

ample.co/blog/javascript-history

JavaScript: The First 20 Years by Allen Wirfs-Brock & Brendan Eich

TC39/proposals - github

Questions?

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