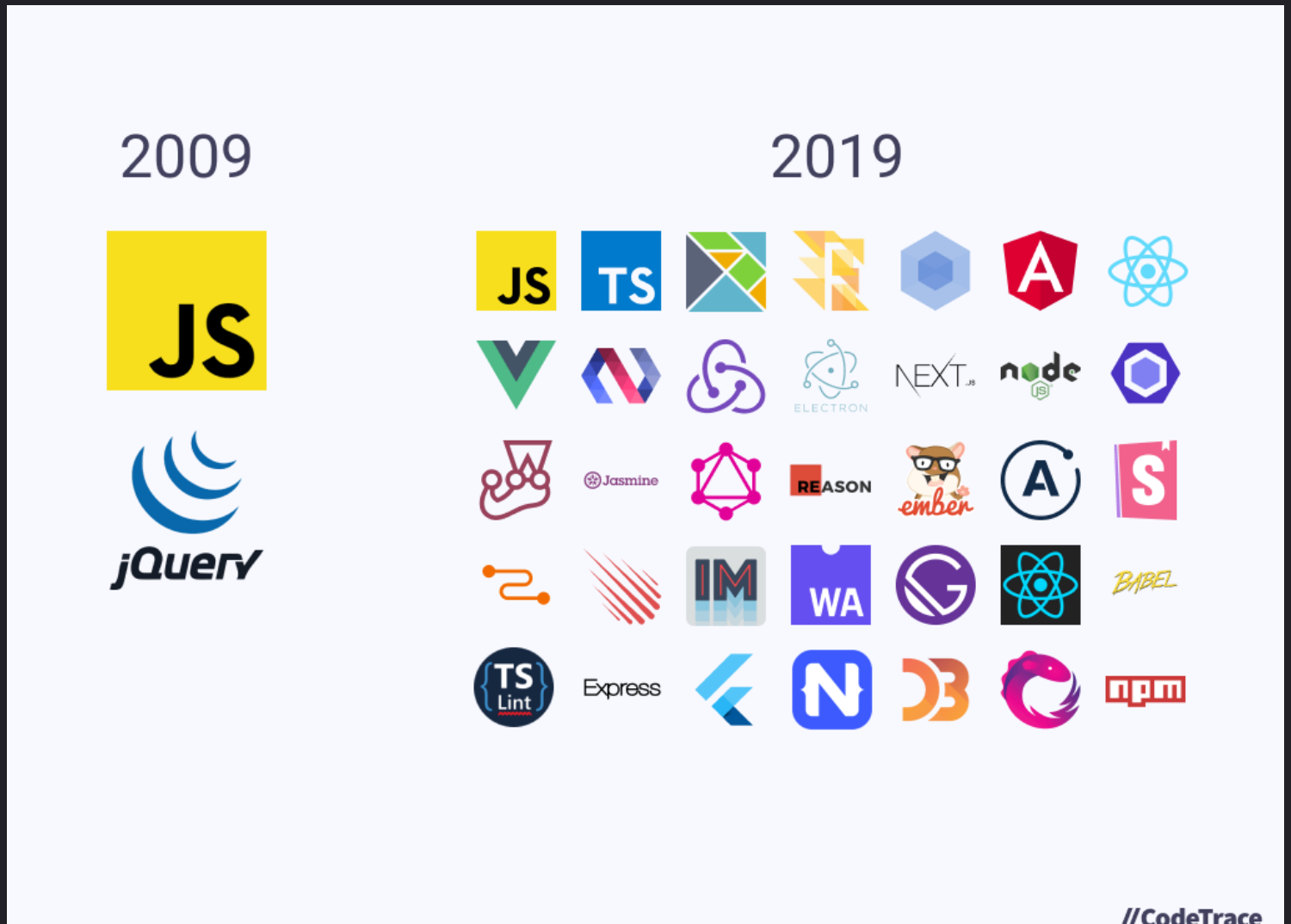
JavaScript #10YearsChallenge



Just what is JavaScript?

JS

"Java is to JavaScript what Car is to Carpet"

- Chris Heilmann

JavaScript as a programming language

Weakly typed

```
let anything = 'doh!';
anything = 3.14;
anything = true;

anything = {
    name: 'Tony Stark',
    isRich: true
};

anything = ['garbage', true, null];

anything = function(arg) {
    return arg;
}
```

~~Asynchronous~~

Synchronous
&
Single-threaded

Object Oriented?

```
function Character() {
  let name = '';
  let health = 5;

  this.getName = function() { return name; };
  this.setName = function(newName) { name = newName; };
  this.getHealth = function() { return health; };
  this.setHealth = function(newHealth) { health = ne health; };

  return this;
}

const spiderMan = new Character('Peter Parker', 0);   // initialize object
spiderMan.setName('Miles Morales');                   // setting field
spiderMan.powers = ['WALL CRAWLING'];                 // still valid...
```

Functional?

```
// immutability
let spiderMan = {
  name: 'Peter Parker',
  health: 0
};
let spiderManClone = {};

spiderManClone = spiderMan;                    // mutable
spiderManClone = Object.assign({}, spiderMan);  // immutable
spiderManClone = { ...spiderMan };              // immutable

// lambdas
const fullyHeal = (hero) => hero.health = 100;

// higher order functions
const heroes = [
  { name: 'Iron Man', health: 60 },
```

Multi-paradigm language
APPROVED

JavaScript (R)evolution

ES9

Before 2009

"Controlling the behavior of HTML elements."

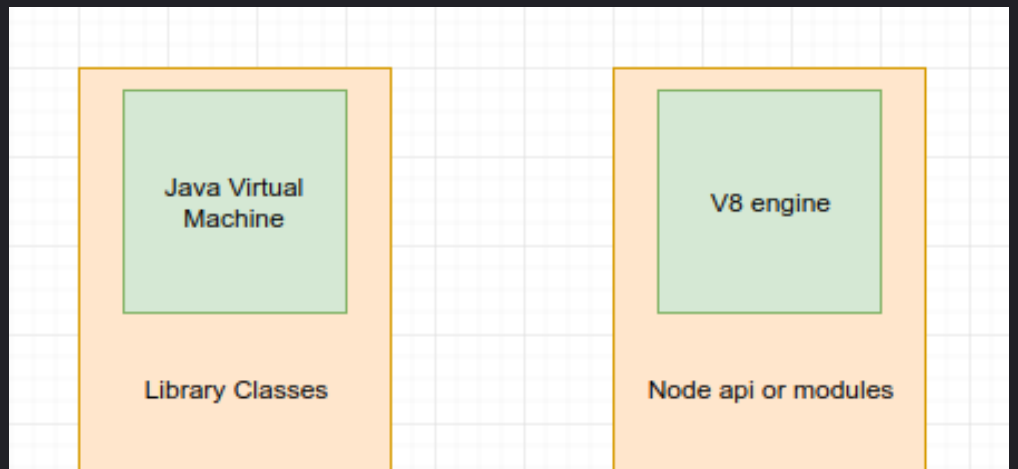
- Changing HTML content
- Animations
- AJAX

Example

CLICK ME

2009

"Node.js is a JS runtime environment built on Chrome's V8 JavaScript engine."



NodeJS Package Manager

- Registry of 800.000 packages (03/2019)
- Available for everyone, for free
- Everyone can contribute
- Ready-to-use solutions

TURNIP 2000
WELCOME TO FUNKTOWN, BROTHER
DEFINE CRUNK PARAMTERS: SUPER CRUNKY
WORKING.....
CRUNKYNESS SET TO SETTING: SUPER(SUPER CRUNKY)
C:/LOVE_THE_WAY_YOU_MOVE.MP3 -LOAD TO EXT. DEVICE
WRITTEN SUCCESSFULLY TO EXT. DEVICE
C:/DROP_DA_BEAT.EXE -P(LOVE_THE_WAY_YOU_MOVE.MP3)
BEAT DROPPING.....
BEAT SUCCESSFULLY DROPPED. IS IT FRESH? Y/N
Y
TIGHT. INITIATE FLY SOVIET DANCE KICKS TESTING
PHASE? Y/N
Y
INITIATING....PLEASE WAIT.....
SUCCESSFULLY INITIATED
C:/BASH
BASH 3.20 LS -LRT
FUNK DROPS MAD_BEATS FLY_KICKS
DANCE POPS LOCKS CRUNK
BASH 3.20 CD DANCE
BASH 3.20 UPLOAD DANCE_ROUTINE_3.02
WORKING.....

What is the use
for JavaScript
today?

Back-end

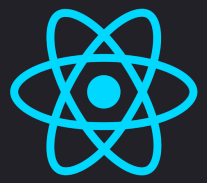
express nest marble

```
const express = require('express');
const app = express();

app.get('/', function(req, res) {
  res.send("I'm Marry Poppins, y'all!");
});

app.listen(3000, function() {
  console.log('Hero app listening on port 3000!');
});
```

Front-end



```
@Component({
  selector: 'app-hero-list',
  template: `
    <ul>
      <li *ngFor="let hero of heroes">{{ hero.name }}</li>
    </ul>
  `
})
export class HeroListComponent {
  heroes: Hero[] = [
    { name: 'Starlord', health: 80 },
    { name: 'Rocket Racoon', health: 34 },
    { name: 'Groot', health: 120 }
  ];
```

Testing

cypress.io

```
describe('Avengers Enrollment Form', () => {
  beforeEach(() => {
    cy.visit('http://localhost:8080/avengers/enroll');
  });

  it('should submit a form', () => {
    cy.get('.enroll-form')
      .find('.hero-name')
      .type('Deadpool');
      .submit()
      .next()
      .should('contain', 'Your form has been submitted!');
  });
});
```

Building tools

Desktop and mobile

Machine learning

Cryptocurrency

Having fun!

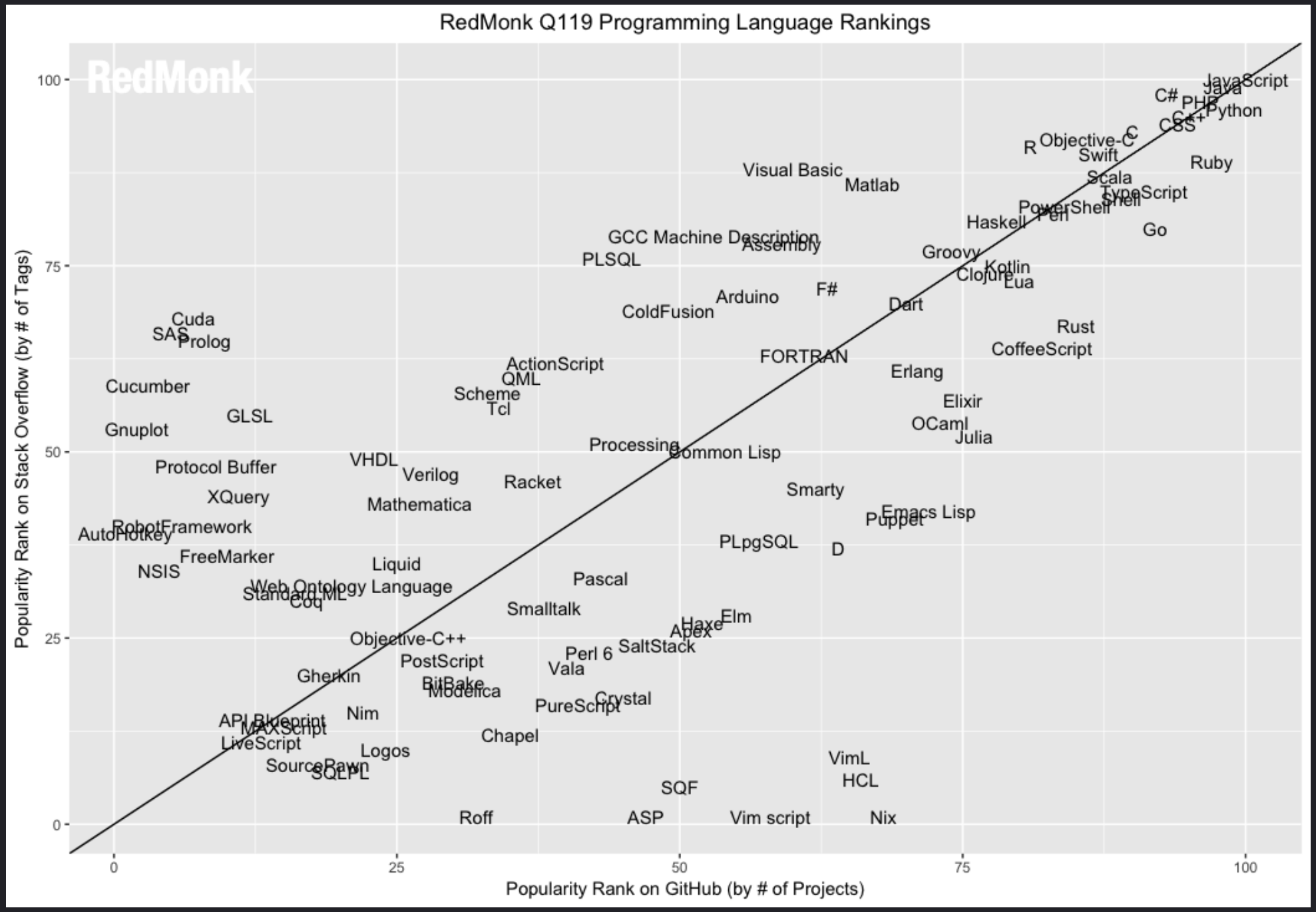
Ecma International Technical Committee 39 ECMAScript

TC 39

- Everyone can submit a proposal
- New ECMAScript standard every year
- Fast progressing browser co[illegible]lity

So... Why to choose JavaScript anyway?

- Easy to learn, common syntax
- Many possibilities
- Executable just everywhere
- Growing popularity
- Community


RedMonk Q119 Programming Language Rankings
RedMonk
Popularity Rank on Stack Overflow (by # of Tags)
Popularity Rank on GitHub (by # of Projects)
0
25
50
75
100
JavaScript
Java
C#
PHP
Python
C++
CSS
C
R
Objective-C
Swift
Ruby
Visual Basic
Matlab
Scala
TypeScript
Shell
PowerShell
Perl
Haskell
Go
GCC Machine Description
Assembly
Groovy
PLSQL
Kotlin
Clojure
Lua
F#
Arduino
Dart
ColdFusion
Cuda
SAS
Prolog
Rust
CoffeeScript
FORTRAN
ActionScript
QML
Erlang
Cucumber
Scheme
Tcl
Elixir
GLSL
OCaml
Gnuplot
Julia
Processing
Common Lisp
VHDL
Protocol Buffer
Verilog
Racket
Smarty
XQuery
Mathematica
Emacs Lisp
Puppet
RobotFramework
AutoHotkey
PLpgSQL
D
FreeMarker
Liquid
NSIS
Pascal
Web Ontology Language
StandardML
Coq
Smalltalk
Elm
Haxe
Apex
Objective-C++
SaltStack
Perl 6
PostScript
Vala
Gherkin
BitBake
Modelica
Crystal
PureScript
Nim
API Blueprint
MAXScript
Chapel
LiveScript
Logos
VimL
SourceRawn
SQLPL
HCL
SQF
Roff
ASP
Vim script
Nix

References

- Is JS really interpreted or compiled?
- Is JS synchronous or asynchronous?
- Is JS object-oriented?
- Into the Web Workers
- Understanding Prototypes and Inheritance in JS
- JavaScript "new" keyword
- What exactly is NodeJS?
- GitHub repository of TC 39
- ECMAScript browser compatibility table

Begin your journey!

(Also via communities! 😊)

Thank you! 😊

dev-self-start.blogspot.com

@KajetanSw