

# TYPESCRIPT

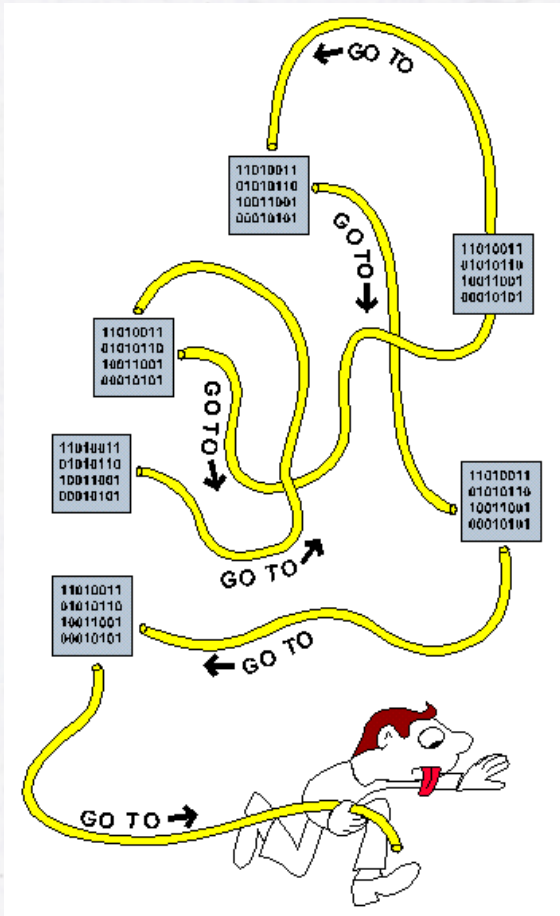
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## THE PROBLEMS WITH JAVASCRIPT

- JavaScript is great in the browser
- It's less great or very hard to do right in development environment
  - safety
  - intellisense
  - productivity

# THE WISHLIST FOR JAVASCRIPT CODEBASE



Easy to read and understand

Modular

Scalable

Clean JS output  
(exit strategy)

## THE BUZZWORDS AND ABBREVIATIONS - YOU KNOW THEM RIGHT?

- Transpiler is a source-to-source compiler
- In this presentation focus will be on
  - TypeScript to JavaScript compilation/transpilation

## THE BUZZWORDS AND ABBREVIATIONS - YOU KNOW THEM RIGHT?

- ES === ECMAScript or standardized specification of a scripting language by ECMA
- ES1 - published 1997
- ES2 - published 1998
- ES3 - published 1999
  
- ES5 - published 2009, we have used it for years for functional programming, supported by all modern browsers
  
- ES6/ES2015 - published 2015, a huge leap forward from ES5 that addressed some of the issues that were a big challenge in ES5

## TYPESCRIPT - WHAT IS IT?

- Typed superset of JavaScript that compiles to plain JavaScript
- Offers support for the latest and evolving JavaScript features
- Helps in large scale application development by identifying issues during the development phase
- Open source (available on github)

## TYPESCRIPT - WHAT IS IT?

- Always ends with clean ES5 JavaScript
- Zero cost, static types are optional and they disappear at run-time
- Runs on any browser, any host, any OS, or in any JavaScript engine that supports ECMAScript 3+



## TYPESCRIPT - WHAT IS IT?

- Can be applied on existing code base
  - rename existing JS files to TS
  - rewrite the code gradually



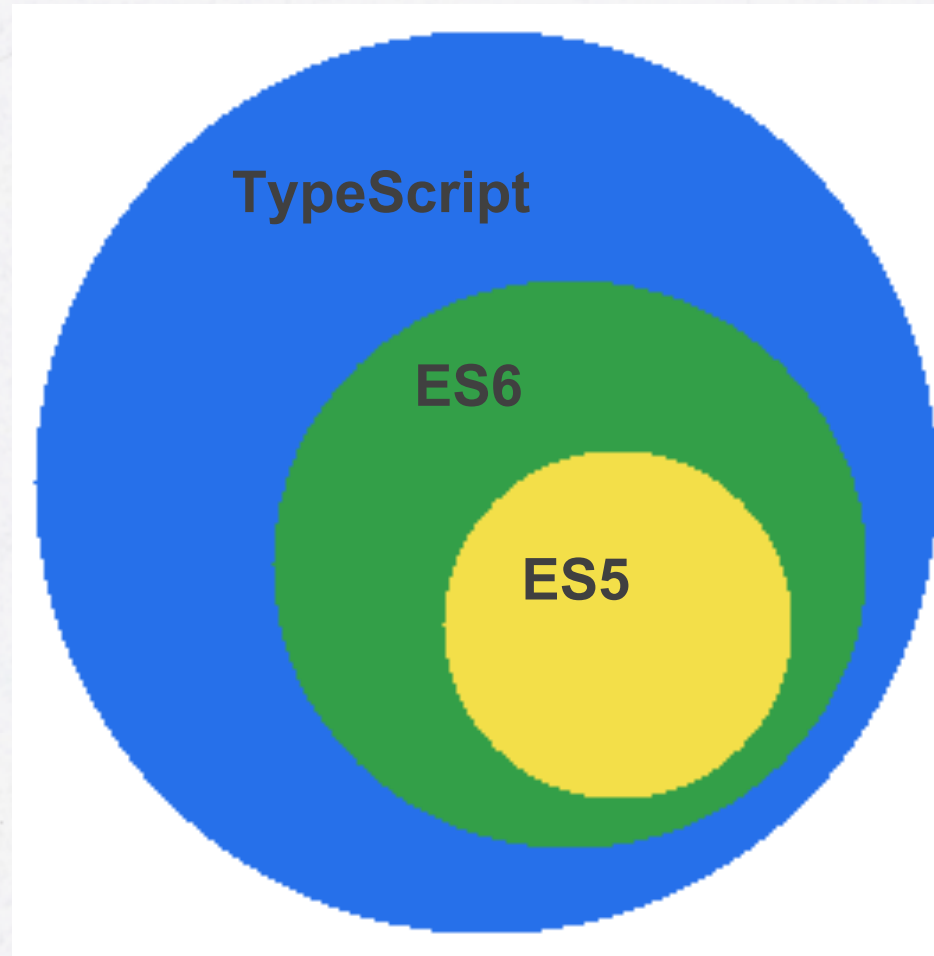


## TYPESCRIPT - WHAT IS IT?

*“What TypeScript does is, it basically formalizes a **static type** system that describes JavaScripts **dynamic types**. But it describes them at development time, not compile time”*

-- Anders Hejlsberg - main architect of C#

## TYPESCRIPT - WHAT IS IT?



## TYPESCRIPT - KEY FEATURES

- Types
- Interfaces
- Classes
- Modules
- Imports
- Generics
- ....

## TYPESCRIPT - HEADS UP ALL REACTJS DEVELOPERS!!!

- JSX support
- Files must be named with .tsx extension
- Jsx option must be enabled in config
- Supports 2 jsx modes
  - Preserve: `<div />` → `<div />`
  - React: `<div />` → `React.createElement('div')`

## TYPESCRIPT - IDE TOOLING

- IDE support
  - WebStorm
  - Visual Studio
  - Sublime
  - Atom
  - Eclipse
  
- Advanced support for:
  - autocompletion
  - navigation
  - refactoring

## TYPESCRIPT - COMMUNITY SUPPORT

- Large community
- Development mainly driven by Microsoft
- Used by Google e.g. Angular2 entirely written in TypeScript

# TYPESCRIPT - DEMO BY CODE EXAMPLES

DEMO

## CONCLUSION - HOW ABOUT ALTERNATIVES?

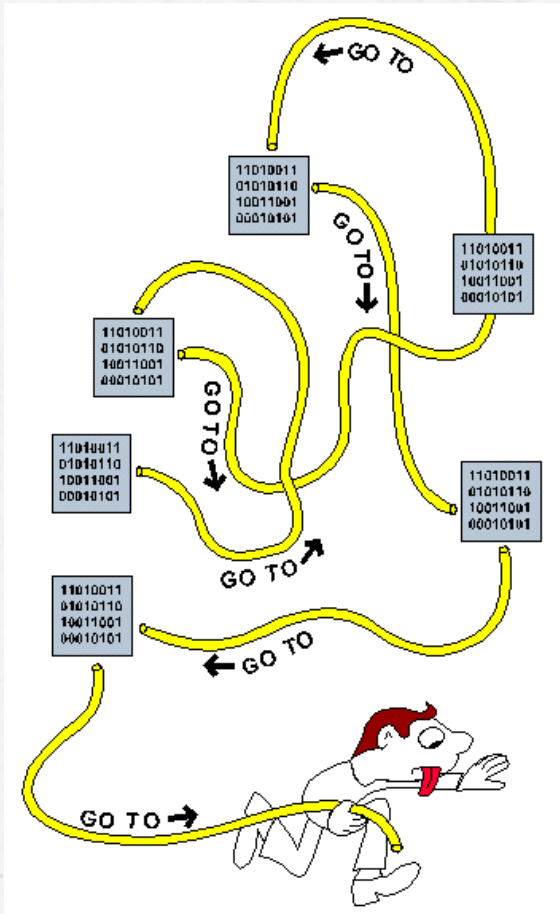
	TypeScript	Babel	Flow
Type checks	+	-	+
Transpilation	+	+	-
IDE suport	+	+/-	-



## CONCLUSION - WHEN TO USE TYPESCRIPT?

- if your project lives for long
- if there is a chance you will need to refactor
- if people enter or leave your team

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## TYPESCRIPT - REFERENCES

- <https://www.typescriptlang.org/>
- <http://kangax.github.io/compat-table/es5/>
- <https://github.com/callistaenterprise/cadec-2017-ts-client>
- <https://github.com/callistaenterprise/cadec-2017-ts-server-mock>