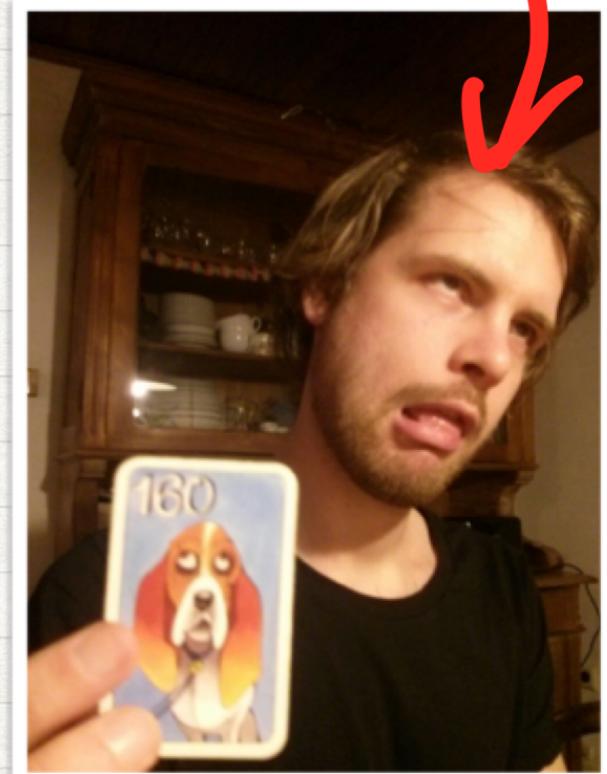


FLOWTYPE  
AND  
THE WONDERS OF  
STATICALLY TYPED  
JAVASCRIPT

# ABOUT ME

- FLOWTYPE ENTHUSIAST SINCE v0.15 (v0.38)
- DIGITAL NOMAD & SYSTEM ENGINEER
- REACT & REACT-NATIVE

BEFORE  
USING  
TYPES



@ryyppy



github.com/ryyppy



ryppy / flow-guide

Code Issues 6 Pull requests 0 Projects 0 Wiki Pulse Graphs Settings

The definitive guide for using Flow static JavaScript type checker (<https://flowtype.org>)

Edit

23 commits 1 branch 0 releases 5 contributors MIT

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 rypy Add acknowledgments Latest commit e0cebc5 on Oct 19, 2016

|  styleguide     | Rename guidelines to styleguide       | 5 months ago |
|--|---------------------------------------|--------------|
|  tutorial      | Initial react tutorial (base) (#10)   | 6 months ago |
|  .babelrc     | Add tool related files / dependencies | 9 months ago |
|  .eslintrc    | Add basic tool configuration          | 9 months ago |
|  .flowconfig  | Initial react tutorial (base) (#10)   | 6 months ago |
|  .gitignore   | Rename guidelines to styleguide       | 5 months ago |
|  LICENSE      | Initial commit                        | 9 months ago |
|  README.md    | Add acknowledgments                   | 3 months ago |
|  package.json | Upgrade to flow 0.28                  | 6 months ago |
|  README.md    |                                       |              |

## Flow Guide

This repository aims to be a newbie-guide for writing typed JavaScript with Facebook's Flow - a static type checker for JavaScript (<http://flowtype.org>).

## flowtype / flow-typed

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Code

Issues 84

Pull requests 50

Projects 1

Wiki

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Graphs

A central repository for Flow library definitions

482 commits

7 branches

0 releases

132 contributors

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 marudor redux-saga v0.38 fix

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|   |   |               |
|---|---|---------------|
|  cli                   | [CLI] Add support for prerelease versions               | a month ago   |
|  definitions           | redux-saga v0.38 fix                                    | 12 hours ago  |
|  .editorconfig         | fix(editorconfig): fix the tab size and style (#495)    | 2 months ago  |
|  .gitignore            | mv npm cli (#79)  | 9 months ago  |
|  .travis.yml           | Use node v6.1 and v7.0 in travis (#426)                 | 2 months ago  |
|  CONTRIBUTING.md       | Fix broken link (#614)                                  | 5 days ago    |
|  LICENSE               | Initial commit  | a year ago    |
|  README.md            | Add shields to readme (#468)                            | 2 months ago  |
|  flow-typed-logo.png | Update README.md  | 10 months ago |
|  run_def_tests.sh    | add eslint to check for at least 1 negative test (#185) | 6 months ago  |
|  travis.sh           | [CLI] Add support for prerelease versions               | a month ago   |

 README.md



# flow-typed

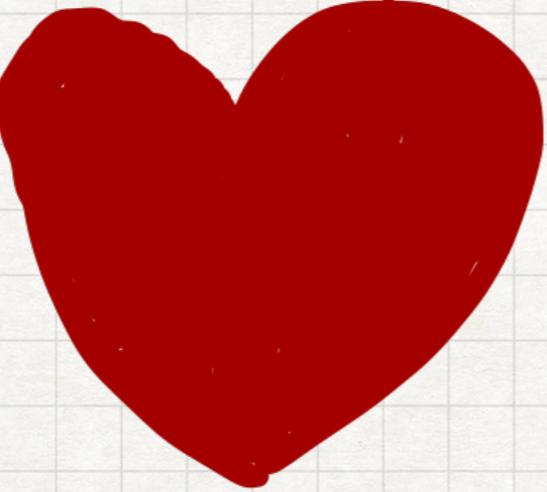
 failing  22k/month

flow-typed is a repository of third-party library interface definitions for use with Flow.

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```
$ npm install -g flow-typed
```

```
$ cd /path/to/my/project  
$ npm install
```

I  Iypes

# MY MISSION

"MAKE JAVASCRIPT  
A NICER PLACE"



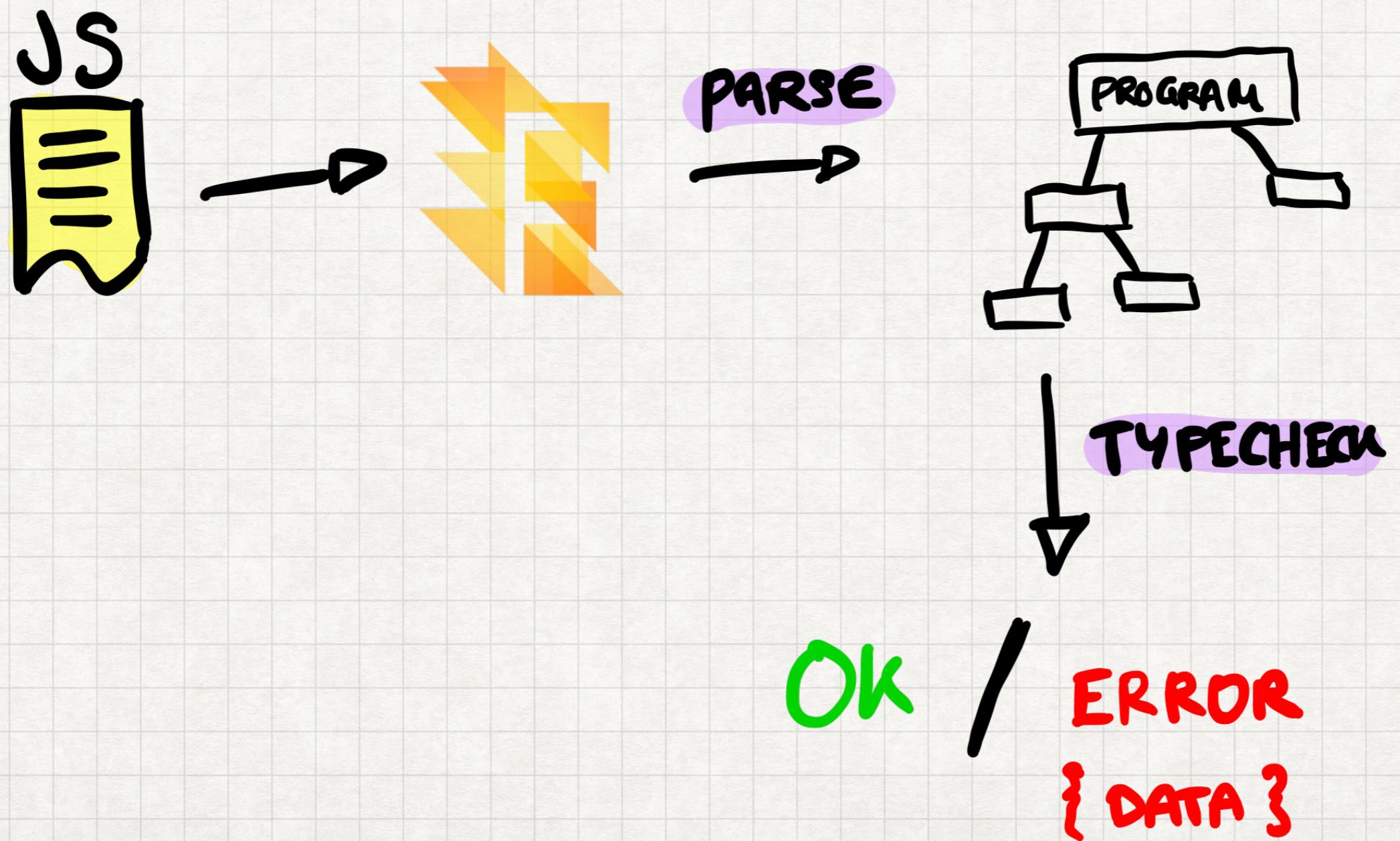
**DOCUMENTATION**

**ANALYSIS**

**MAINTAINABILITY**

# WHAT DOES A TYPECHECKER DO ?

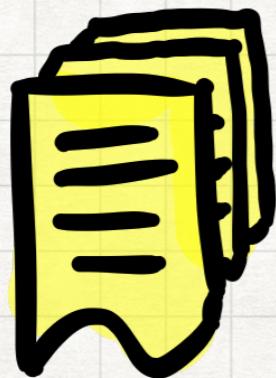
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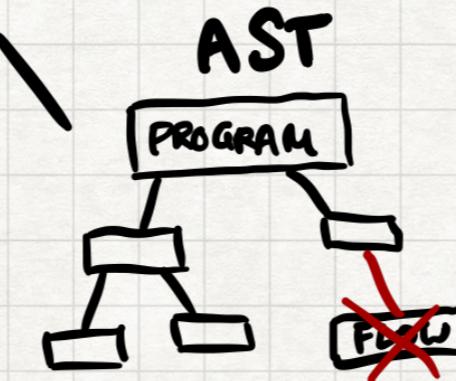


DYNAMIC  
"AGILE"  
COMPILERS ARE SLOW

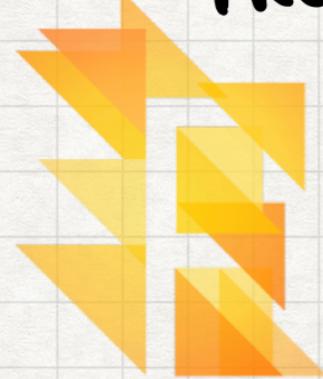
JS + FLOW



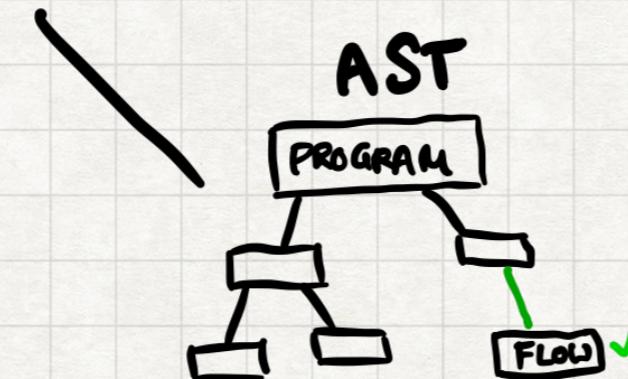
BABEL



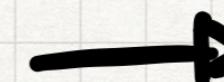
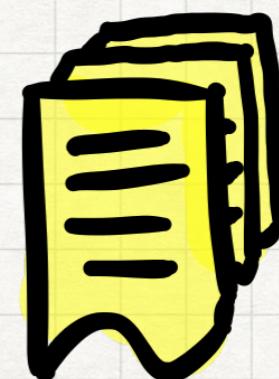
PROCESS



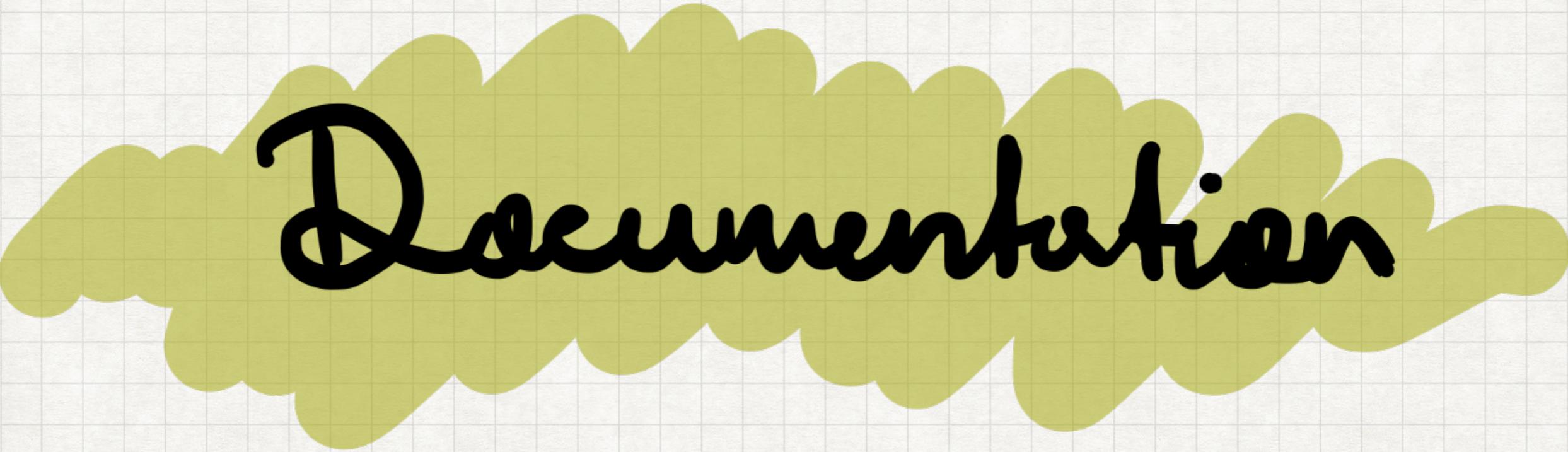
DATA  
{ ... }



JS



BROWSER



Documentation

# PLAIN JAVASCRIPT

```
function //....  
{ }
```

↑  
Return type ?

```
getUser (id) {  
    int | string ?
```

# JSDoc Headers

```
/**  
 * @param {string} id - Some Id String  
 * @return {Promise<User>} - The queried User  
 */  
function getUser(id) { /* ... */ }
```

need to be in  
sync

# MARKDOWN README

## # ANOTHER ROUTING LIB

## Router(routes)

- routes: Array of Route objects

# AUTOCOMPLETE

```
3 // @flow
2
1 describe('jest test', () => {
4     it('should do autocomplete', () => {
1         });
2     });

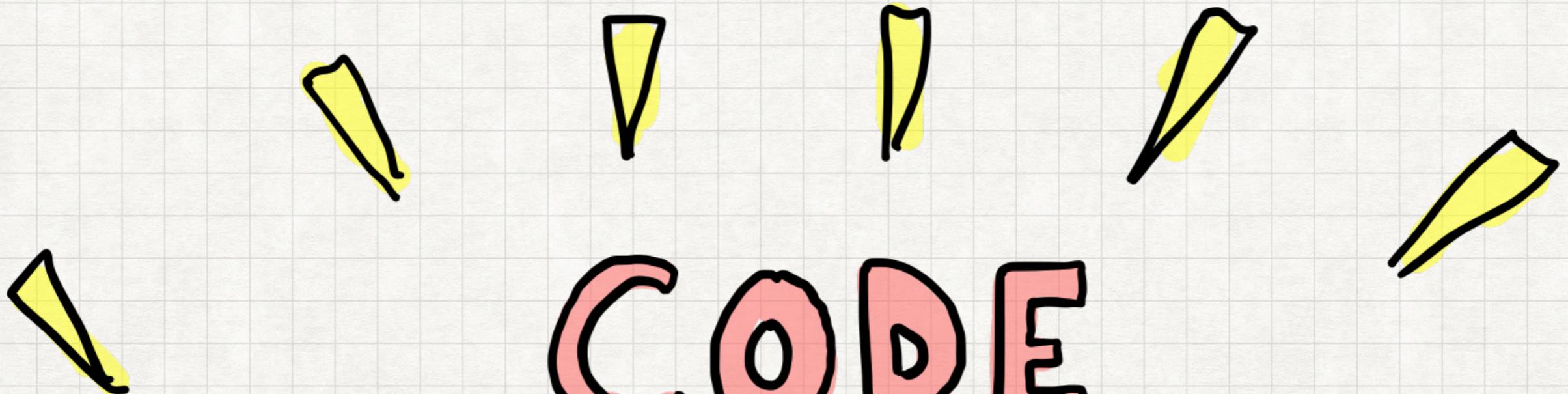
```

# JAVASCRIPT & FLOW

```
function getUser (id: string): Promise<string> {  
    /* ... */  
}
```

getUser(1) // FLOW ERROR!

**CODE**  
**AWARENESS**



// src/some/file.js class.js

```
export class MyClass {  
    users: Array<numberUser>  
    constructor() {}  
}
```

- WHICH OTHER CODE WILL BREAK ?
- How MANY IMPORTS AFFECTED ?

```
function configure(config) {  
    if(typeof config != "object") {  
        throw new Error("Whyyy?")  
    }  
    if(!(config.urls instanceof Array)) {  
        //.....  
    }  
}
```



UNNECESSARY DEFENSIVE PROGRAMMING

```
type Config = {  
    urls: Array<string>  
}
```



```
function configure(config: Config): void {  
    // .... FLOW ENFORCES OBJECT STRUCTURE  
}
```

```
$ npm update
```

WHAT CODE WILL BREAK ?

**GET CONFIDENCE  
IN OUR CODE !**

**BUT WHERE  
TO START?**

# EASY

- FROM SCRATCH
- NO 3RD PARTY MODULES

# HARD



# Redux

- ALREADY EXISTING CODEBASE
- COMPLEX 3RD PARTY MODULES

# ADD FLOW TO REDUX

Do's

REDUCERS

COMPONENTS

ACTIONS

DONT'S

CONTAINERS

3RD PARTY STUFF

# ACTIONS

//src/actions/user.js

const ~~FETCH\_USER~~ = "FETCH\_USER"

const ~~FETCH\_USER\_SUCCESS~~ = "FETCH\_USER\_SUCCESS"

//src/actions/user.js

import type { User } from "../types"

type FetchUserAction = {  
 type: "FETCH\_USER",  
 userId: string  
}

type FetchUserSuccessAction = {  
 type: "FETCH\_USER\_SUCCESS",  
 user: User  
}

//src/actions/user.js

```
export type UserAction =  
  FetchUserAction  
  | FetchUserSuccessAction
```

```
function fetchUser (userId: string): FetchUserAction {  
  //...  
}  
export fetchUser
```

# REDUCER

```
// src/reducer/user.js
```

```
export type State = {
    user    : ?User,
    -loading ?: boolean,
    userId  : ?string
}
```

// src/reducer/user.js

import type { UserAction } from "../actions/user"

const INITIAL\_STATE: State = {

  user: null,

  userId: null,

  >Loading: false

}

function userReducer (

  state: State = INITIAL\_STATE,

  action: UserAction): State {

  // switch....

}

# // src/reducer/user.js

// ...

```
switch(action.type) {
  case "FETCH_USER": {
    const { userId } = action
    return {
      ...state,
      userId,
      _loading: true
    }
  }
  case "FETCH_USER_SUCCESS": {
    const { user } = action
    return {
      ...state,
      user,
      _loading: false
    }
  }
}
```

# COMPONENTS

```
import type { User } from "../types"
```

```
type Props = {
  user : User,
  onClick: (user: User) => void
}
```

```
export class UserBox {
  propTypes: //...
  props: Props;
  render() {
    //...
  }
}
```

# 3RD PARTY MODULES



# DECLARATIONS

```
declare module "foo" {  
    declare module.exports: any  
}
```

PRIORITY 1



# ACTUAL CODE

```
//node_modules/foo/index.js  
module.exports = "foo"
```

PRIORITY 2

import lodash from "lodash" ?

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 build failing  downloads 22k/month

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```

# MAKE OUR LIVES EASIER

- Use a type system
- Enforce self-documenting, saner code
- Make writing library definitions possible

# QUESTIONS?



@ryyppy



github.com/ryyppy

- <https://github.com/ryyppy/flow-guide>
- <https://github.com/flowtype/flow-typed>
- <https://medium.com/@ryyppy>