PROMISES WITH GENERICS USING TYPESCRIPT

WHO AM I?

Brennan Stehling

Long time JavaScript Developer

JavaScript ➤ AJAX ➤ Node.js ➤ TypeScript

SUMMARY.

- Why use Promises?
- What are Generics?
- What is TypeScript?
- Which IDE can I use?
- How can I automated this transpiling?
- How can I ensure my coding standards?

WHY USE PROMISES?

- Introduced with ES6
- Callback Hell
- Function Chaining
- Cleaner Syntax

WHAT ARE GENERICS?

```
export function eachItem<T>(
  items : T[],
  processItemFunction: (item: T) => Pr
    let index = 0;
    let promise = new Promise<any>((re
        let continueWhile = function(n
            let item = nextItem();
            if (item) {
                processItem(item).then
                    index++;
```

WHAT IS TYPESCRIPT?

- Superset of JavaScript
- Includes Promises & Generics
- ES5 and ES6 compatible
- TS is transpiled to JS
- Visit typescriptlang.org

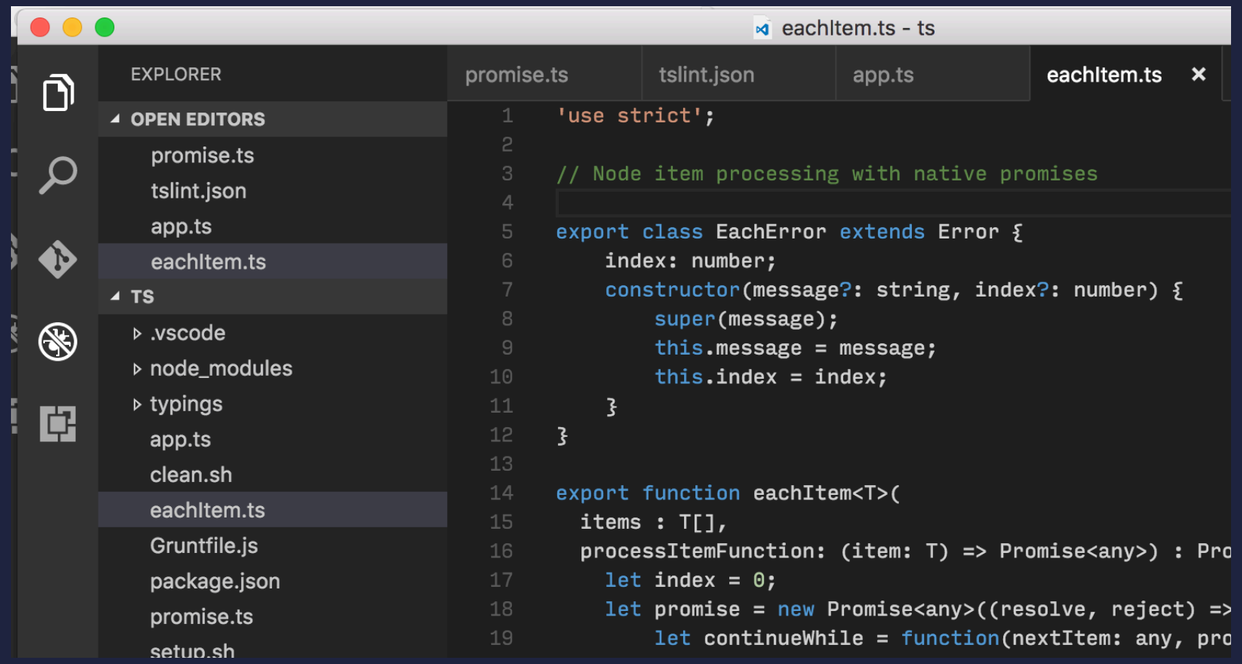
```
let doAsyncWork = function (): Promise<Message> {
  let p = new Promise<Message>(function (resolve, reject) {

    log({ text: 'I\'m working here!' });

    setTimeout(function () {
      let isOdd = Date.now() % 2 === 1;
      if (isOdd) {
        resolve({ text: 'We are all going to die.' });
      }
      else {
        let error = new Error('I cannot work anymore. I am dead.');
        reject(error);
      }
    }, 250);
  });

  return p;
};
```

CREATED BY ANDERS HEJLSBERG

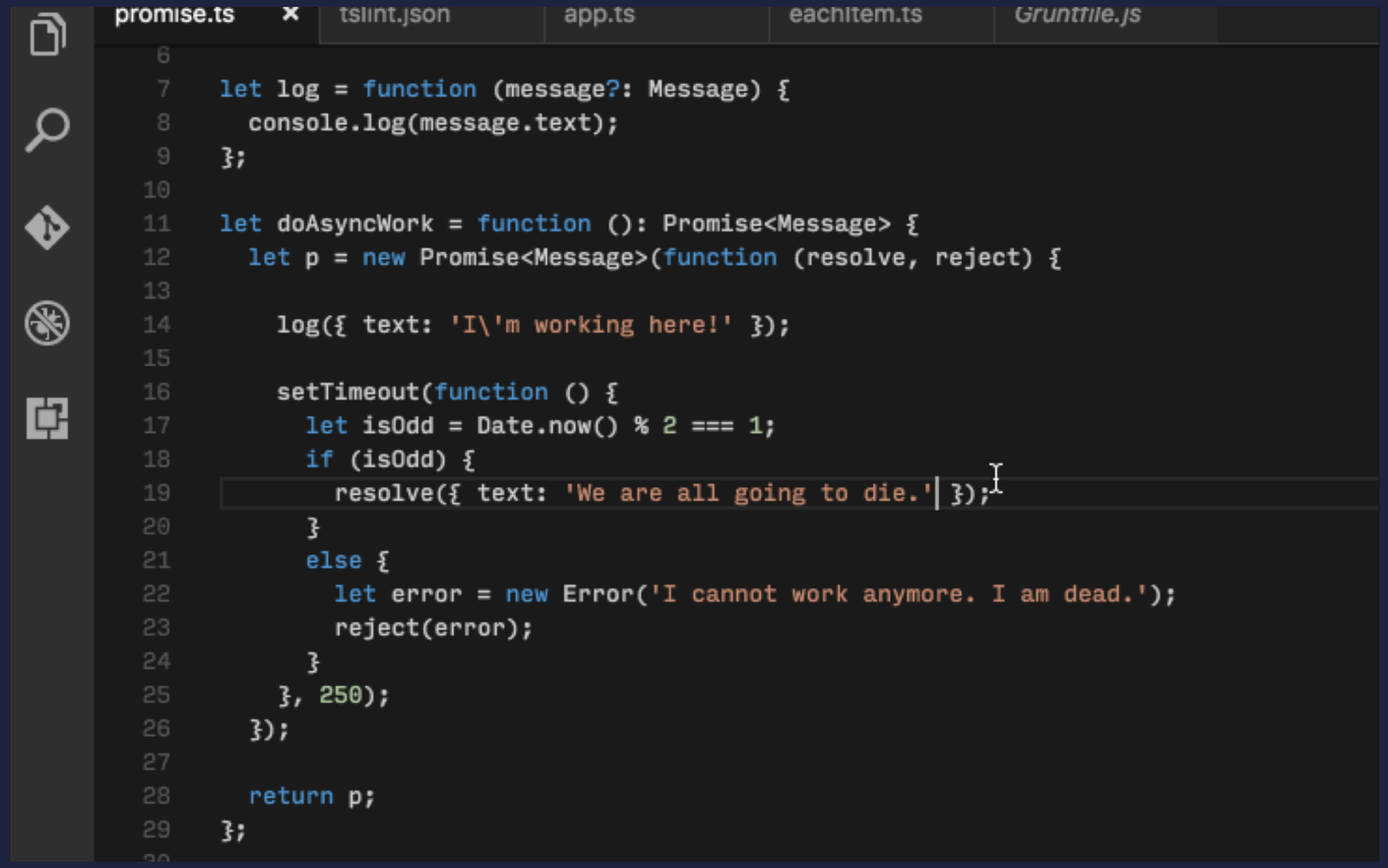
- Delphi
- C#
- TypeScript

WHICH IDE CAN I USE?

- VSCode (now v1.4.0)
- Built on Atom/Electron
- Helpful IDE features
- Extensions Gallery
- Task manager integration
- Visit code.visualstudio.com



TYPE AND SYNTAX SUPPORT

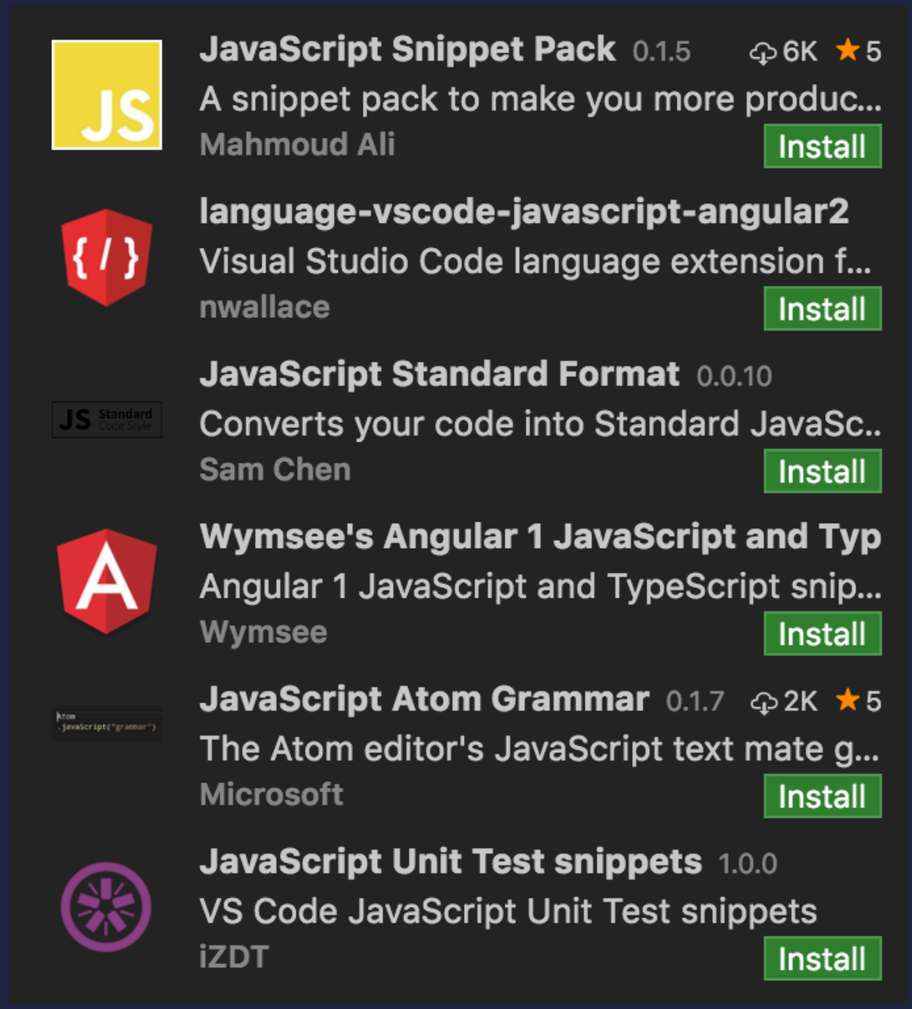


GOOD BUT NOT PERFECT 🤓

- Submit bugs as issues on GitHub
- Comment on current issues
- Provide details when you can
- The team is very responsive
- Updates are regular

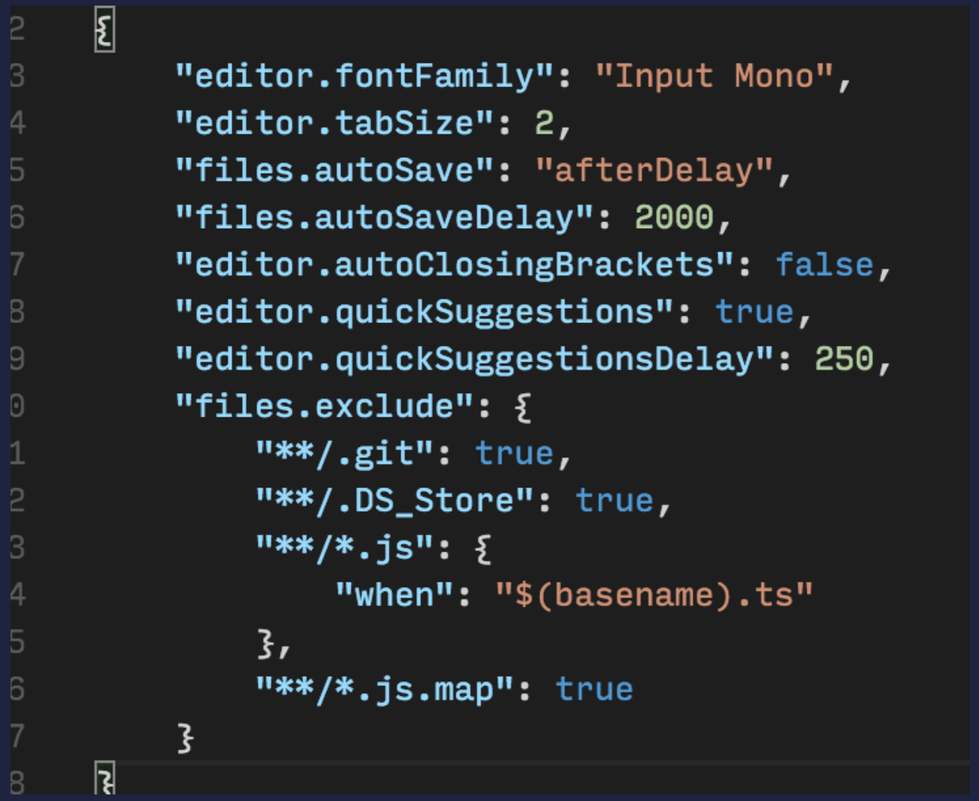
EXTENSIONS FOR VSCODE

- Install extensions easily
  - Stay up to date
- Create your own extensions
  - See Extension Gallery



HIGHLY CONFIGURABLE

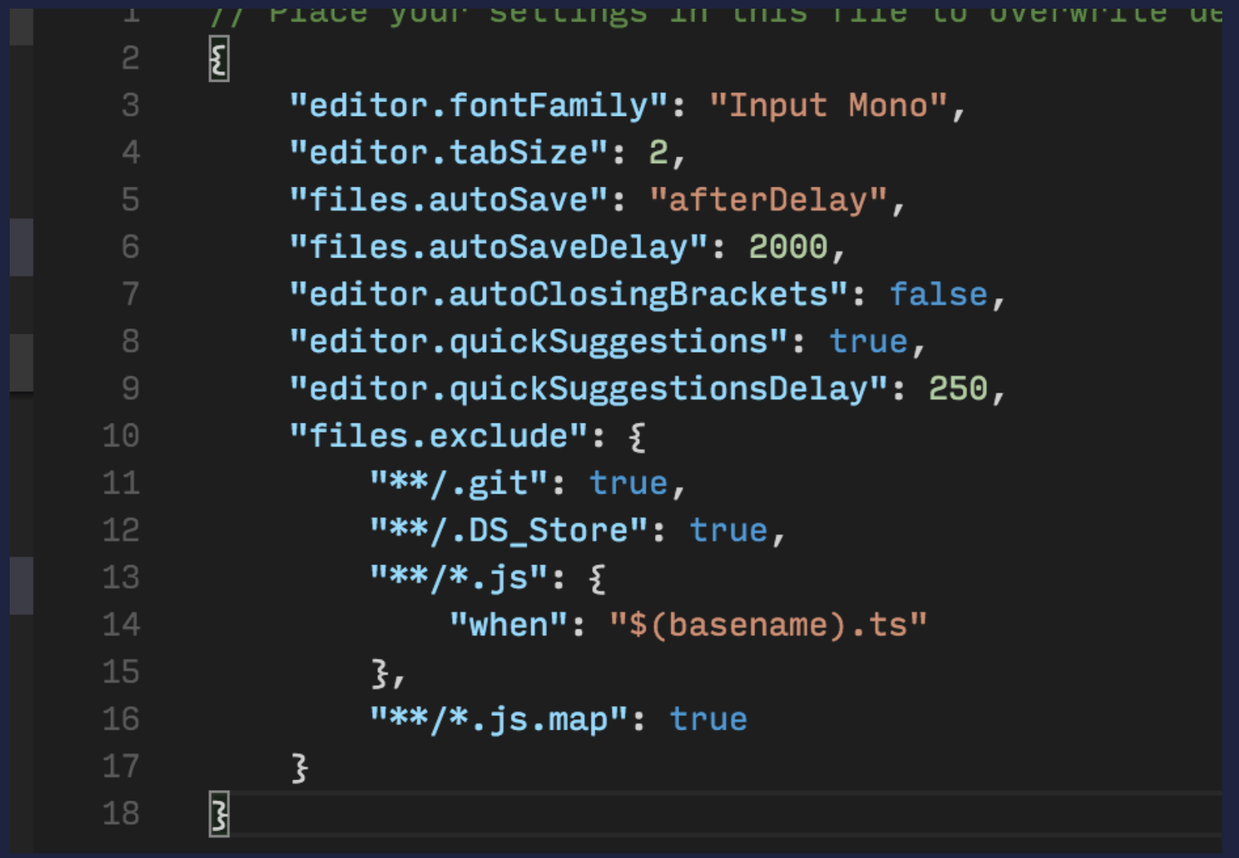
- .vscode/launch.json
- .vscode/settings.json
- .vscode/tasks.json



```
{
    "editor.fontFamily": "Input Mono",
    "editor.tabSize": 2,
    "files.autoSave": "afterDelay",
    "files.autoSaveDelay": 2000,
    "editor.autoClosingBrackets": false,
    "editor.quickSuggestions": true,
    "editor.quickSuggestionsDelay": 250,
    "files.exclude": {
        "**/.git": true,
        "**/.DS_Store": true,
        "**/*.js": {
            "when": "$(basename).ts"
        },
        "**/*.js.map": true
    }
}
```

HIDING JAVSCRIPT

- Show TypeScript
- Hide JavaScript



DEBUGGING TYPESCRIPT

- Set Breakpoints in TS
- Use SourceMaps

```
"configurations": [
  {
    "name": "Run",
    "type": "node",
    "request": "launch",
    "program": "${workspaceRoot}/app.js",
    "stopOnEntry": false,
    "args": [],
    "cwd": "${workspaceRoot}",
    "preLaunchTask": null,
    "runtimeExecutable": null,
    "runtimeArgs": [
      "--nolazy"
    ],
    "env": {
      "NODE_ENV": "development",
      "PORT": "3010"
    },
    "externalConsole": false,
    "sourceMaps": true,
    "outDir": "${workspaceRoot}/"
  },
```

DEMO!

HOW CAN I AUTOMATED THIS TRANSPILING?

- Watch `tsc -w`
- Grunt or Gulp
- Configure Tasks in VSCode

```
/**
 * Compile TS
 */
ts: {
  default : {
    src: [
      '**/*.ts',
      '!node_modules/**/*.ts',
    ],
    options: compilerOptions
  }
},
```

HOW CAN I ENSURE MY CODING STANDARDS?

- tslint.json
- Like jslint/jshint

```
"max-line-length": [true, 120],
"member-ordering": [true, "public-before-privat
"no-arg": true,
"no-console": [false, "log", "trace", "error",
"no-duplicate-key": true,
"no-duplicate-variable": true,
"no-empty": true,
"no-eval": true,
"no-unreachable": true,
"no-unused-expression": true,
"no-unused-variable": true,
"no-use-before-declare": true,
"no-var-keyword": true,
"label-undefined": true,
"no-construct": true,
"quotemark": [true, "single", "avoid-escape"],
```


THANK YOU!


QUESTIONS?
BRENNAN STEHLING
@BRENNANSV
GITHUB.COM/BRENNANMKE
GIST.GITHUB.COM/BRENNANMKE