Contents

1 Is Full Stack TypeScript Right for You? 3

1.0.1 The Weaknesses and Risks 4

1.0.2 The Strengths and Opportunities 6

1.0.3 Conclusion 8

2 Fundamentals 9

2.1 What is TypeScript? 9

2.2 Types 11

2.2.1 Booleans, Numbers and Strings 12

2.2.2 Arrays 12

2.2.3 Any 12

2.2.4 Functions 13

2.2.5 Objects 15

2.2.6 Enum 17

2.2.7 More Types 18

2.3 Interfaces 18

2.4 Classes 21

2.5 The TypeScript Compiler 22

2.5.1 Installing the TypeScript Compiler 22

2.5.2 Compiling 23

3 Tooling & Setup 25

3.1 Choosing your IDE 25

3.1.1 IntelliJ Ultimate / Webstorm . . . 25
3.1.2 VisualStudio Code . . . 26
3.1.3 Atom . . . 26
3.2 Coding Style . . . 26
3.2.1 Indentation: Tabs vs Spaces . . . 27
3.2.2 Single-Quotes vs Double-Quotes . . . 27
3.2.3 Semicolons, yes or no? . . . 27
3.2.4 Should you use the `noImplicitAny` flag? . . . 28
3.2.5 Should you use the `strictNullChecks` flag? . . . 29
3.2.6 TSLint . . . 30

4 TypeScript in the Backend 31
4.1 Runtime Environment - Node.js . . . 31
4.1.1 Performance . . . 32
4.1.2 Production Mode . . . 33
4.2 Library-Oriented Architecture . . . 33
4.3 Unit Testing . . . 33
4.4 Avoiding Callback Hell . . . 33
4.5 Database-Layer . . . 33
4.5.1 SQL . . . 33
4.5.2 NoSQL . . . 33
4.6 Authentication . . . 33
4.7 Routing . . . 33

5 TypeScript in the Frontend 34
5.1 TypeScript with Angular . . . 34
5.2 TypeScript with React . . . 35
5.3 TypeScript with VueJS . . . 35
5.4 Vanilla TypeScript . . . 35

6 A Starter / Seed / Boilerplate for Full Stack TypeScript 36
6.1 Why MEAN? . . . 37

6.2 Getting started with the starter 37

7 Deployment **38**

7.0.1 Continuous Integration 38

8 Epilogue **39**