

Get Programming with TypeScript

By Yakov Fain and Anton Moiseev

TOC (topic ratings are in red)

Unit 0 Getting started with TypeScript projects

- Lesson 1 Why program in TypeScript 3
- Lesson 2 Installing TypeScript compiler using npm 3
- Lesson 3 Getting familiar with Visual Studio Code 3

Unit 1 Just enough TypeScript types

- Lesson 4: Declaring variables with types 3
 - Basic type annotations
 - Types in function declarations
 - The union type
- Lesson 5: Defining custom types 3
 - Declaring type aliases
 - Using classes as custom types
 - Using interfaces as custom types
 - Structural vs nominal typing systems
 - Unions of custom types
- Lesson 6: Blockchain 101 3
 - Hashing functions
 - What a block is made out of
 - What's data mining is for
- Lesson 7: Starting the blockchain project 3
 - Introducing the blockchain project
 - Getting rid of a middleman
 - Developing a library that implements a mining algorithm

Unit 2 TypeScript classes and interfaces

- Lesson 8: Classes 4
 - Properties and access modifiers public, private, protected
 - Constructors
 - Instance and static methods

Abstract classes

Lesson 8: Interfaces as contracts 4

Lesson 10: Introduction to generics 3

Lesson 11: Hands-on: Developing browser-based blockchain node with TypeScript 5

Working with DOM elements

Implementing the blockchain node for the browser

Unit 3 More types

Lesson 12: Enums 3

Lesson 13: Creating custom generics 3

Lesson 14: Mapped types 3

Lesson 15: Conditional types 3

Lesson 16: Mixins 3

Lesson 17: Developing Angular apps with TypeScript 5

Brief overview of the Angular framework

Creating a new app with Angular CLI

Generating Angular components and service

Lesson 18: Implementing the Angular client for the blockchain node 4

Unit 4 Tooling

Lesson 19: Improving code quality with TSLint 3

Lesson 20: Bundling the TypeScript code with Webpack 4

Lesson 21: Sourcemaps and TypeScript debugging 3

Lesson 22: Unit testing TypeScript code 4

Lesson 23: Developing React apps with TypeScript

Brief overview of the React framework

Generating new React apps

Transpiling TypeScript with Babel

Lesson 24: Hands-on: Developing React client for the blockchain node 5

Unit 5 Advanced TypeScript features

Lesson 25: Introduction to decorators 3

Lesson 26: Creating custom decorators 4

Lesson 27: Namespaces 3

Lesson 28: Dynamic imports 3

Lesson 29: Functions	3
Function as a type	
Function overloading	
Lesson 30: Hands-on: Discovering blockchain network nodes on the server	5
 Unit 6 Using TypeScript with JavaScript libraries	
Lesson 31: Type declaration files	3
Lesson 32: Using the JavaScript lodash library in TypeScript code	3
Lesson 33: Hands-on: Implementing peer-to-peer blockchain nodes communication	5
Introducing WebRTC	
Implementing nodes communication via WebRTC	
 Appendix A Modern JavaScript	
A.1 The keywords let and const	
A.2 Functions	
A.2.1 Default and optional function parameters	
A.2.2 Fat arrow function expressions	
A.3 Classes and inheritance	
A.4. Asynchronous programming	
A.4.1 From callbacks to promises	
A.4.2 async and await	
A.5 Destructuring	
A.6 The Spread operator	
A.6.1 Cloning objects with the Spread operator	
A.7 The Rest operator	
A.8 Iterating data collections	
 Appendix B Answers to quick checks	