

Introduction to TypeScript: Clean Code and Strong Skills for Web Developers - TT4154

Learn how to write cleaner, more reliable code using modern TypeScript features that make your projects easier to manage.

Duration: 2 Days

Skill Level: Introductory

Available Format: Instructor-Led Online; Instructor-Led, Onsite In Person

Learn how to write cleaner, more dependable code using a powerful language that adds structure and clarity to your JavaScript projects. This hands-on course helps you build real-world skills that make your day-to-day development work easier and more productive. You will explore helpful features like type checking, interfaces, and classes that keep your code organized and reduce guesswork. Along the way you will practice using modern tools like arrow functions, async and await, decorators, and even dependency injection. You will also get comfortable handling promises, organizing code into modules, and testing with ts-jest. With expert guidance every step of the way you will not just learn how to use TypeScript, you will understand how to use it well. The pace is steady, the tone is friendly, and the projects are practical. Whether you are building user interfaces, APIs, or complex web apps, the skills you gain here will help you work faster with more confidence. This course is especially useful if you already have some web or scripting experience and want to take your code to the next level. Expect plenty of support, real coding time, and a strong foundation you can keep building on.

What You'll Learn

Overview

TypeScript helps you write more structured, reliable, and scalable code by adding strong typing and modern programming features to JavaScript. If you have some experience with web development or scripting and are looking to improve how you organize, test, and maintain your code, this course is a practical next step. With expert

guidance throughout, you will get the support you need to understand not just how TypeScript works, but why it makes a difference in real projects.

Over two days, you will build skills that make your everyday development work easier and more effective. You will learn how to write clear, type-safe functions, build and use custom types, and use interfaces to make your code more flexible and consistent across teams. The course will show you how to use classes and inheritance to reduce repetition, structure your code with modules, and improve error handling. You will also explore asynchronous programming, learning how to write and manage promises and use `async` and `await` to keep your code clean and readable. Along the way, you will get hands-on with tools like `ts-jest` for testing and `InversifyJS` for managing dependencies.

This course is designed for developers who want to sharpen their skills with modern tooling and best practices. It focuses on real-world use, giving you practical techniques you can take back to your projects right away. With about half the time spent on guided hands-on work, you will build confidence through practice and leave with a deeper understanding of how to write better software using TypeScript.

Objectives

Geared for experienced web developers, this introductory-level course is focused on helping you get comfortable using TypeScript in the kind of projects you already work on. With expert guidance and plenty of hands-on time, you will build practical skills that make your code easier to understand, share, and keep working as it grows.

Working in a hands-on learning environment, guided by our expert instructor, you will learn how to:

- Use TypeScript type system to catch bugs early and make your code more predictable.
- Create your own types, interfaces, and classes to stay organized and reduce confusion in your projects.
- Write modern, cleaner functions with features like arrow functions and type inference.
- Handle `async` code with confidence using promises and `async/await` to keep things readable and smooth.
- Add structure with decorators and dependency injection so your code scales better as projects grow.
- Test your work with tools like `ts-jest` to make sure your TypeScript code is reliable and ready for real use.

If your team requires different topics, additional skills or a custom approach, our team will collaborate with you to adjust the course to focus on your specific learning objectives and goals.

Audience

This course is a great fit if you already know a bit of JavaScript or have worked on web or scripting projects and are ready to take the next step. It is designed for developers who want to write clearer, more manageable code using modern tools and techniques. Ideal attendees might be front-end developers, full-stack engineers, or anyone who wants to bring more structure to their coding.

Pre-Requisites

This course is a great match for experienced web developers who have some hands-on experience with JavaScript or scripting and want to build more structured, reliable, and modern code using TypeScript. It is especially helpful for front-end developers, full-stack developers, and software engineers who work on web apps or team-based projects and are looking to improve code quality and maintainability. The course is approachable and guided by an expert, so you do not need to be advanced, but you should feel comfortable writing and understanding basic code.

Skills-based prerequisites:

- Able to write and read JavaScript code confidently
- Familiar with programming basics like variables, functions, and objects
- Have worked on a web project, script, or similar coding task

Take Before: In order to gain the most from this course, you should have incoming skills equivalent to those in the course listed below, or should have attended this as a prerequisite:

TT4110 Introduction to JavaScript / Modern JavaScript Essentials

Agenda

Please note that this list of topics is based on our standard course offering, evolved from current industry uses and trends. We will work with you to tune this course and level of coverage to target the skills you need most. Course agenda, topics and labs are subject to adjust during live delivery in response to student skill level, interests and participation. The course tools, topics, use cases and hands-on labs can also be easily adjusted to suit your specific needs, goals or requirements. Please inquire for details and options.

1.TypeScript Fundamentals

- Getting Started with TypeScript
- TypeScript and Functions
- TypeScript and Objects
- Basic Types
- Making Your Own Types

2.Declaration Files

- Declaration Files
- Third-Party Code Libraries

3.Functions

- Functions in TypeScript
- Function Expressions
- Arrow Functions
- Type Inference
- Functional Programming
- Organizing Functions into Objects and Classes
- Import, Export, and Require
- Unit Testing with ts-jest
- Error Handling

4.Classes and Objects

- What Are Classes and Objects?
- TypeScript Interfaces
- Generating HTML Code in Methods

5.Interfaces and Inheritance

- Interfaces
- TypeScript Inheritance

6.Advanced Types

- Type Aliases
- Type Literals
- Intersection Types
- Union Types
- Index Types

7.Decorators

- Reflection
- Importance of Decorators
- Decorators and Decorator Factories
- Class Decorators
- Method and Accessor Decorators
- Using Metadata in Decorators
- Property Decorators
- Parameter Decorators
- Application of Multiple Decorators on a Single Target

8.Dependency Injection in TypeScript

- The DI Design Pattern
- InversifyJS

9.Generics and Conditional Types

- Generics
- Conditional Types

10.Event Loop and Asynchronous Behavior

- The Multi-Threaded Approach
- Executing JavaScript
- Browsers and JavaScript
- Environment APIs
- Promises

11.Higher-Order Functions and Callbacks

- Higher-Order Functions
- Callbacks
- The Event Loop

12.Guide to Promises in TypeScript

- The Evolution of and Motivation for Promises
- Anatomy of a Promise
- Enhancing Promises with Types
- Libraries and Native Promises – Third-Party Libraries, Q, and Bluebird
- Promisify
- Asynchronous FileSystem
- Working with Databases
- Developing with REST

- Putting It All Together – Building a Promise App

13.Async/Await in TypeScript

- Evolution and Motivation
- async/await in TypeScript
- Syntax
- Exception Handling
- Top-Level await
- Promise Methods

Follow On Courses

TT4165	Introduction to Angular 18 Essentials
TT4168	Mastering Angular 18 Boot Camp
TT8120	Web Application Security Essentials: Understanding OWASP Risks and Fixes That Really Work

Related Courses

TT4115	JavaScript & jQuery Essentials
TT4153	Introduction to Node.JS JumpStart to Node.JS
TT4214	Hands-On UX Workshop: Designing Web and App Experiences That Work
TT4110	Introduction to JavaScript / Modern JavaScript Essentials
TT4165	Introduction to Angular 18 Essentials
TT4168	Mastering Angular 18 Boot Camp
TT4190	Getting Started with React Essentials
TT4195	Mastering React Boot Camp
TT8120	Web Application Security Essentials: Understanding OWASP Risks and Fixes That Really Work
TT4215	Practical Web Accessibility Standards for Designers and Testers: WCAG 2.1 and 2.2

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Ways to Learn: At Trivera, we believe that Experience is Everything. Our customizable, hands-on courses are delivered live online, onsite, or in a blended format for maximum flexibility. We provide real-time expert-led training and coaching for all skill levels, from small groups to enterprise-wide programs, ensuring every learner gains the latest, most relevant job-ready skills they can apply with confidence. This course is also available for individuals or small groups on our extensive Public Schedule (see current dates below). We look forward to helping you take the next steps in your modern web developer learning journey.

For More Information

Please [contact us](#) or call 844-475-4559 toll free for more information about our training services (instructor-led, self-paced or blended), coaching and mentoring services, public course enrollment or questions, partner programs, courseware licensing options and more.