TypeScript at a glance

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Defining TypeScript

TypeScript is an object-oriented programming language developed and maintained by the Microsoft Corporation. It is a superset of JavaScript and contains all of its elements.

TypeScript totally follows the OOPS concept and with the help of TSC (TypeScript Compiler), we can convert Typescript code (.ts file) to JavaScript (.js file)

Why Should We Use TypeScript?

- TypeScript simplifies JavaScript code, making it easier to read, understand and debug.
- TypeScript is open source.
- TypeScript provides highly productive development tools for JavaScript IDEs and practices, like static checking.
- TypeScript gives us all the benefits of ES6 (ECMAScript 6), plus more productivity.
- TypeScript can help us to avoid painful bugs that developers commonly run into when writing JavaScript by type checking the code.
- TypeScript code can be compiled as per ES5 and ES6 standards to support the latest browser.
- Aligned with ECMAScript for compatibility.
- Supports static typing.
- TypeScript will save developers time.
- TypeScript is a superset of ES3, ES5, and ES6.

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First : What is TypeScript?
a: In short, TypeScript is a superset of JavaScript that has optional typing and compiles to plain JavaScript.
Identify TypeScript's purpose and features beyond static typing?

- You can avoid masterfully-hidden-ninja errors like the classic `'undefined' is not a function.`
- It is easier to refactor code without breaking it significantly.
- Orienting oneself in complex, large-scale systems is not a nightmare anymore.
- Getting your code error before running your programs "mark with underline red"

Advantage and disadvantage of TypeScript

According to www.javatpoint.com

Advantage

1. TypeScript always highlights errors at compilation time during the time of development, whereas JavaScript points out errors at the runtime.

2. TypeScript supports strongly typed or static typing, whereas this is not in JavaScript.

3. TypeScript runs on any browser or JavaScript engine"after compiling".

4. Great tooling supports with IntelliSense, which provides active hints as the code is added.

5. It has a namespace concept by defining a module.

Disadvantage

1. TypeScript takes a long time to compile the code.

2. TypeScript does not support abstract classes.

3. If we run the TypeScript application in the browser, a compilation step is required to transform TypeScript into JavaScript.

Or you can work on a single portion together.

[Youssef]
Introduction

With the adoption and widespread usage of JavaScript as the standard programming language for web development, certain issues started to appear that caused lots of frustrations for Web Developers mainly due to JavaScript being a *weakly-typed* language. However, this did not stop developers who started looking for solutions to overcome JavaScript's weaknesses.

The Solution

Microsoft proposed a solution in 2012 to deal with these problems by publishing a superset open-source programming language called TypeScript. TypeScript introduced several benefits and solutions for the problems that were being faced by JavaScript developers at that time and it's currently being adopted as the go-to programming language in large-scale projects.

Benefits of Working with TypeScript

- **Statically Typed Language**
  This essentially prevents variables declared by a certain type to be changed into another data type.

- **Predictability**
  With the assurance of everything staying the way it is as it was initially defined, this increases the predictability of the intended output.

- **Readability**
  Code is more readable when other collaborators can have a grasp of what a certain snippet is doing by knowing the type of data accepted and returned.

- **Improved Error Feedback**
  The compiler will actively alert the developer of errors made during the compile-time, instead of having to figure out what went wrong during the runtime, thus, decreasing testing time needed and saving more time.

- **Improved Code Completion**
  By knowing which type of data to expect while coding, IDEs start providing better code suggestions that are most fit.

References
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