

TypeScript is Super Set of JavaScript !!

TypeScript Pre requisite is JavaScript



TypeScript doesn't add new features to JavaScript. It's just a way to write precise JavaScript.

Many of errors we will get while typing it !! TypeScript is finally compiled as JS.

TypeScript is Just precise JS so that we can get less Errors.

Dont use TypeScript for small projects !!.

TypeScript is All about Type Safety

$$\text{Type Safety} + \text{JavaScript} = \text{TypeScript}$$

If in JS we do " $2 + 2 \rightarrow \underline{\underline{2}} \underline{\underline{2}}$ " which TypeScript Stops !!

$$\begin{array}{l} \text{In null } 2 + 2 = 2 \\ \text{undefined } 2 + 2 = \text{NaN} \end{array} \Rightarrow \text{Not in TypeScript}$$

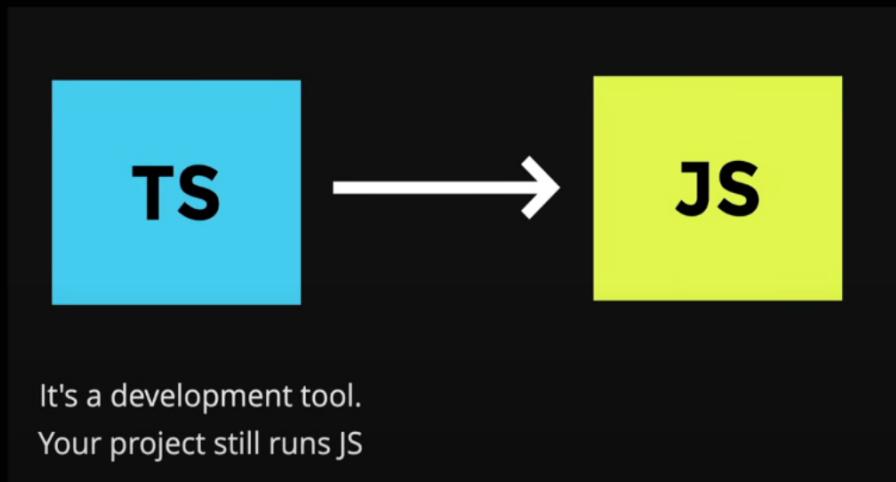
What TypeScript do ?? Static Checking like present in Java, C++. Static Checking is Syntax of language is constantly analyzed by IDE's which is not done in JS

In JS, we see error at runtime.

TypeScript only do Static Checking.

Sometimes even error is there, still the output to JS the code entirely works !!.

Code is written in .ts file.



TS is a layer on top of JS & chances of error is very less !!.

typescriptlang.org/play?#code/FDA2FMBcAlFcGdwCcC8BvY0vC

TS TypeScript Download Docs Handbook Community Play

Playground TS Config Examples Help

v5.3.2 Run Export Share

```
1
2
3 let user={
4   name:"mohit",
5   age:22
6 };
7
8 console.log(user.name);
9 console.log(user.email);
```

→ See Red line
Sayig user don't have email

TypeScript is
just a
development tool
not a language
Just wrap over
on JS

There are 2 types of installation in TypeScript

- ① Global TypeScript installation
- ② When needed with a project [Angular / React] there are additional TypeScript configuration is needed

We will see Global installation 1st as need to

understand TypeScript Concepts

The screenshot shows the official TypeScript documentation page. A handwritten note on the left says "Just TypeScript official documentation". The main content is divided into two sections: "via npm" and "with Visual Studio".

via npm

TypeScript is available as a [package on the npm registry](#) available as `"typescript"`.

You will need a copy of [Node.js](#) as an environment to run the package. Then you use a dependency manager like [npm](#), [yarn](#) or [pnpm](#) to download TypeScript into your project.

```
npm install typescript --save-dev
```

All of these dependency managers support lockfiles, ensuring that everyone on your team is using the same version of the language. You can then run the TypeScript compiler using one of the following commands:

```
npx tsc
```

[npm](#) [yarn](#) [pnpm](#)

with Visual Studio

For most project types, you can get TypeScript as a package in NuGet for your MSBuild projects, for example an ASP.NET Core app.

When using NuGet, you can [install TypeScript through Visual Studio](#) using:

- The Manage NuGet Packages window (which you can get to by right-clicking on a project node)
- The NuGet Package Manager Console (found in Tools > NuGet Package Manager > Package Manager Console) and then running:
`Install-Package Microsoft.TypeScript.MSBuild`

For project types which don't support NuGet, you can use the [TypeScript Visual Studio extension](#). You can [install the extension](#) using Extensions > Manage Extensions in Visual Studio.

A Command Prompt window on Windows 10 shows the command `npm install typescript --save-dev` being run. The output indicates that 1 package was added in 3 seconds, and a notice about a new major version of npm available from 9.5.1 to 10.2.4.

```
Microsoft Windows [Version 10.0.22631.2715]
(c) Microsoft Corporation. All rights reserved.

C:\Users\mohit>npm install typescript --save-dev
D) Install TypeScript

added 1 package in 3s
npm notice
npm notice New major version of npm available! 9.5.1 -> 10.2.4
npm notice Changelog: https://github.com/npm/cli/releases/tag/v10.2.4
npm notice Run npm install -g npm@10.2.4 to update!
npm notice
```

1stly node should be installed as prerequisite & then you can use npm (node package manager)

Globally Installing TypeScript

It can be handy to have TypeScript available across all projects, often to test one-off ideas. Long-term, codebases should prefer a project-wide installation over a global install so that they can benefit from reproducible builds across different machines.

via npm

You can use npm to install TypeScript globally, this means that you can use the `tsc` command anywhere in your terminal.

To do this, run `npm install -g typescript`. This will install the latest version (currently 5.3).

via Visual Studio Marketplace

You can install TypeScript as a Visual Studio extension, which will allow you to use TypeScript across many MSBuild projects in Visual Studio.

The latest version is available [in the Visual Studio Marketplace](#).

```
C:\Users\mohit>npm install -g typescript  
added 1 package in 337ms
```

```
C:\Users\mohit>
```

install globally

In case of Linux / Mac put
Sudo before it .

Now lets check Version of TypeScript we command
TSC -v

```
mohit@BOOK-N00DGRN68S MINGW64 ~/Desktop/programs/typescript (main)  
$ tsc -v  
Version 5.3.2
```

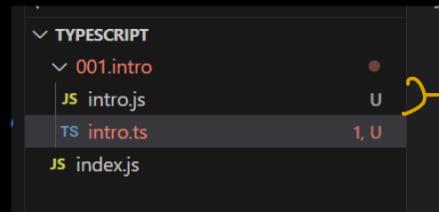
```
001.intro > TS intro.ts > ...  
1 let user={  
2   name:"Mohit",  
3   age:10,  
4   email:"mohit.zxyz@gmail.com"  
5 }  
6 console.log("Mohit Kumar");  
7 console.log(user.email);  
8
```

TypeScript code

```
mohit@BOOK-N00DGRN68S MINGW64 ~/Desktop/programs/typescript (main)
$ cd 001.intro

mohit@BOOK-N00DGRN68S MINGW64 ~/Desktop/programs/typescript/001.intro (main)
$ tsc intro.ts
```

→ To run Type Script



at Just Create or
Equivalent JavaScript code

This is Just a development tool

Just to make life Easy