# Introduction

**1. What TypeScript?**

- Typescript is a strongly typed programming language that builds on JavaScript, giving you better tooling at any scale.
- Alternative to JavaScript (superset)
- Allows us to use strict typescript
- Supports modern features (arrow functions, let, const)
- Extra features (generics, interfaces, tuples etc.)

Link :

https://www.typescriptlang.org/
https://www.youtube.com/watch?v=2pZmKW9-I_k

2. **What should I use TypeScript?**

- TypeScript's primary purpose is to improve productivity when developing complex applications. One way this happens is to enable IDEs to have a richer environment to spot common errors while you type the code.
- This adds a type of safety to your projects.
- Developers no longer have to check for errors whenever changes are made manually.
- And since TypeScript technically involves adding static typing to JavaScript, it can help you avoid errors like the classic:
- As it catches errors for you, this makes code refactoring easier without breaking it significantly. With features like interfaces, abstract classes, type aliases, tuple, function overloading, and generics.
- Adopting this programming language in a large JavaScript project could provide more robust software and still be deployable anywhere a JavaScript application would run.

More Details : https://www.clickittech.com/developer/why-use-typescript/

**Requirements**:

**1. VS Code**

Visual Studio Code, also commonly referred to as VS Code, is a source-code editor developed by Microsoft for Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git.

Download VS Code Installer:

a) Visit the official Visual Studio Code website: https://code.visualstudio.com/
b) Download the installer for Windows.
c) Run the Installer:
d) Double-click on the downloaded installer to run it.
e) Follow the on-screen instructions in the Visual Studio Code Setup Wizard.
f) Launch VS Code:

After the installation is complete, you can launch Visual Studio Code from the Start menu or by searching for "Visual Studio Code" in the search bar.

2. **NodeJs**

- an open source server environment
- is free
- runs on various platforms (Windows, Linux, Unix, Mac OS X, etc.)
- uses JavaScript on the server

Download Node.js Installer:

a) Visit the official Node.js website: https://nodejs.org/en
b) Download the recommended LTS (Long Term Support) version for your Windows operating system.
c) Run the Installer:
d) Double-click on the downloaded installer to run it.
e) Follow the on-screen instructions in the Node.js Setup Wizard.

Verify Installation:

a. Open a command prompt or PowerShell or Gitbash.
b. Run the following commands to check if Node.js and npm (Node Package Manager) are installed:
    - To check version of nodejs
      **node -v**
    - To check the version of npm (node package manager)
      **npm -v**

You should see version numbers for both Node.js and npm if the installation was

successful.

3. **TypeScript**
    a) Install TypeScript using npm
        a) Once you have Node.js and npm installed, open a terminal or command prompt and run the following command to install TypeScript globally :

            ***npm install -g typescript***

    b) Verify TypeScript Installation
        a) After the installation is complete, you can verify that TypeScript is installed by checking its version. Run the following command in the terminal

            ***tsc --version***