Running TypeScript Locally

Running TypeScript locally involves setting up your environment to compile TypeScript code into JavaScript, which can then be executed. Here's how to do it:

Step 1: Install Node.js and npm

First, download and install Node.js if you haven't already. Node.js comes with npm, the Node Package Manager.

Verify Installation:

node -v

npm -v

Step 2: Install the TypeScript Compiler

Install the TypeScript compiler globally using npm:

npm install -g typescript

Step 3: Write TypeScript Code

Create a new directory for your project and navigate into it:

mkdir typescript-demo

cd typescript-demo

Create a file named app.ts:

```
// app.ts

function greet(name: string): string {

  return `Hello, ${name}! Welcome to TypeScript.`;

}

console.log(greet("Developer"));
```

Step 4: Compile TypeScript to JavaScript

Compile your TypeScript code using the tsc command:

tsc app.ts

This generates an app.js file in the same directory.

Step 5: Run the JavaScript Code

Execute the compiled JavaScript file with Node.js:

node app.js

Output:

Hello, Developer! Welcome to TypeScript.

Setting Up TypeScript in Visual Studio Code

Visual Studio Code is a free, powerful code editor with excellent TypeScript support.

Step 1: Install Visual Studio Code

Download and install VS Code from the official website.

Step 2: Open Your Project

Open your typescript-demo folder in VS Code.

Step 3: Initialize TypeScript Configuration

In the terminal, run:

```
tsc --init
```

This creates a tsconfig.json file, which TypeScript uses to manage project settings.

Step 4: Configure tsconfig.json

Edit tsconfig.json to set your compiler options:

```
{
  "compilerOptions": {
    "target": "es6",
    "module": "commonjs",
    "outDir": "./dest",
    "strict": true
  },
  "include": ["./**/*.ts"],
  "exclude": ["node_modules"]
}
```

Step 5: Compile and Run (in terminal)

Compile your project (in terminal, at the path of the project):

```
tsc
```

Run the compiled code:

```
node dist/app.js
```

Using ts-node for Seamless Execution

ts-node allows you to run TypeScript code directly without manual compilation

Step 1: Install ts-node

Install ts-node globally:

```
npm install -g ts-node
```

Step 2: Run TypeScript Code Directly

Run your TypeScript file:

```
ts-node demo_folder/app.ts
```

Output:

```
Hello, Developer! Welcome to TypeScript.
```