**[100-days-of-code](https://github.com/AsharibAli/100-days-of-code/tree/main)** / [day-62](https://github.com/AsharibAli/100-days-of-code/tree/main/day-62) / [TS-Intro & Setup](https://github.com/AsharibAli/100-days-of-code/tree/main/day-62/TS-Intro%20%26%20Setup) / **typescript-intro.md**

## **Setup**

1. **Install Git:**
   * Download Git from the official website: [Git Downloads](https://git-scm.com/downloads).
   * Follow the installation instructions for your specific operating system.
2. **Install Visual Studio Code (VSCode):**
   * Download Visual Studio Code from the official website: [VSCode Downloads](https://code.visualstudio.com/download).
   * Follow the installation instructions for your specific operating system.
3. **Install Node.js:**
   * Download Node.js from the official website: [Node.js Downloads](https://nodejs.org/).
   * Choose the LTS (Long-Term Support) version for stability or the Current version for the latest features.
   * Follow the installation instructions for your specific operating system.
4. **Verify Node.js Installation (Optional):**
   * Open your terminal or Git Bash.
   * Run the following command to check if Node.js is installed:
   * node -v
   * It should display the Node.js version if it's installed correctly.
5. **Install TypeScript:**
   * Once Node.js is installed, you can use the Node Package Manager (npm) to install TypeScript globally.
   * Open your terminal or Git Bash.
   * Run the following command to install TypeScript:
   * npm install -g typescript
   * After installation, verify TypeScript by running:
   * tsc -v
   * It should display the TypeScript version if it's installed correctly.

## **Create Your First Application**

1. Create a new folder on your desktop, for example, named "typescript."
2. Inside the "typescript" folder, create a new file called index.ts and open it in Visual Studio Code (VS Code).
3. Write the following code in index.ts:

console.log(Math.floor(11.3));

1. Notice that VS Code highlights Math.floor() as if there's a problem even before compiling or running the code.
2. If you hover over it, you will see the message "(expected 1 argument but got 0)."
3. To fix the problem, add a number (e.g., 11.3) as an argument inside Math.floor().

## **Running the Code**

**Open Git Bash:**

1. Open the Git Bash terminal and navigate to the directory where you created your TypeScript file on the desktop.

cd /desktop/typescript/

**Compile TypeScript to JavaScript:**

1. Use the tsc command to compile it into JavaScript. For example:

tsc

This will generate a JavaScript file with the same name as your TypeScript file (index.js).

**Run the JavaScript File:**

1. Once the TypeScript file is compiled, you can run the resulting JavaScript file using Node.js. For example:

node filename.js

In this case

node filename.js

This will execute your JavaScript code, and you should see the output in the terminal.

## **Configuration**

1. Let's begin by structuring the project:
   * Create a src folder.
   * Move the index.ts file into the newly created src folder.
2. **Generate a tsconfig.json File:** Create a tsconfig.json file with default settings using this command:

tsc --init

This command will generate a tsconfig.json file in your project directory, including default compiler options.

1. **Customize tsconfig.json (Optional):** Open the tsconfig.json file in a text editor to tailor compiler options to your project's needs. Pay special attention to these key configurations:
   * "rootDir": "./src"
     + **rootDir**: Defines the root directory for TypeScript source files.
   * "outDir": "./dist"
     + **outDir**: Specifies the output directory for compiled JavaScript files. (that folder and file are going to be generated)
2. **Save tsconfig.json:** Save your changes to the tsconfig.json file if you made any customizations.
3. **Compile Your TypeScript Code:** After creating and configuring tsconfig.json, compile your TypeScript code by running:

tsc

TypeScript will utilize the settings defined in your tsconfig.json to compile your project.

1. **Run the Compiled JavaScript Code:** Once your TypeScript code is compiled to JavaScript, you can run the compiled JavaScript file using Node.js. Use the following command

node dist/filename.js

In this case

node dist/index.js

This will execute your JavaScript code, and you should see the output in the terminal.