1.8 Generics

This section will guide you to:

* Implement generics
* Use Visual Studio Code
* Push code to Git

This lab has three subsections, namely:

* + 1. Writing a function in TypeScript to implement generics
    2. Compiling the code
    3. Pushing the codes to your GitHub repositories

**Step 1.8.1:** Writing a function in TypeScript to implement generics

* Open Visual Studio Code, open the folder of **TypeScript Demos** and create a new file named **main.ts**.
* Write the program in TypeScript.

*class GenericMap<T extends number | string>*

*{*

*private items: { [key: string]: T } = { };*

*setItem(key: string, item: T): void*

*{*

*this.items[key] = item;*

*}*

*getItem(key: string): T*

*{*

*return this.items[key];*

*}*

*clear(): void*

*{*

*this.items = {};*

*}*

*printMap(): string*

*{*

*const itemsAsString = Object*

*.getOwnPropertyNames(this.items)*

*.map(key => `'${key}': ${this.getItem(key)}`)*

*.join(", ");*

*return `{ ${itemsAsString} }`;*

*}*

*}*

*const numb = new GenericMap < number > ();*

*numb.setItem('alpha', 7);*

*numb.setItem('beta', 14);*

*console.log(numb.printMap());*

*numb.clear();*

*console.log(numb.printMap());*

*const strMap = new GenericMap < string > ();*

*strMap.setItem('color', 'Blue');*

*strMap.setItem('height', '54 cm');*

*console.log(strMap.printMap());*

**Step 1.8.2:** Compiling the code

* To compile the code, you can open the Integrated Terminal (Ctrl+`) and type the following:

*npm install typescript -g*

*tsc main.ts*

* This will compile and create a new main.js JavaScript file.
* Type *node main.js*

Output:

{ ‘alpha’: 7, ‘beta’: 14 }

{ }

{ ‘beta’: Blue, ‘height’: 54cm }

**Step 1.8.3:** Pushing the codes to your GitHub repositories

Open your command prompt and navigate to the folder where you have created your files.

cd <folder path>

Initialize your repository using the following command:

git init

Add all the files to your git repository using the following command:

git add . 

Commit the changes using the following command:

git commit . -m “Changes have been committed.”

Push the files to the folder you initially created using the following command:

git push -u origin master