

## Lab 11: STL Sets and Maps

Using the given **Main.cpp** file, create a project and implement the functions below in the **Functions.h** file. Write **ONLY** the **definition** of the functions (**NO** need to write the declarations).

- **Function difference**

- **Parameter:** A non-empty **STL set** of integers
- The function returns the difference between the largest and smallest values in the set.
- Example:

Sequence given: 7, 2, 10, 9

Largest value: 10

Smallest value: 2

Return value:  $(10 - 2) \Rightarrow 8$

- **Function multiplesOfTen**

- **Parameters:** A non-empty **STL map** of integers
- For each multiple of 10 in the map's first key, change the next pair's second key to be that multiple of 10, and keep on changing every subsequent pair until you find another multiple of 10. Do not change the second key when the first key is a multiple of 10.

**Example:**

Given map:  $\{10,0\}, \{12,0\}, \{14,0\}, \{20,0\}, \{22,0\}, \{30,0\}$

1<sup>st</sup> pair: Found a multiple of 10, do nothing and hold 10

2<sup>nd</sup> pair: Need to change the second key to 10

3<sup>rd</sup> pair: Need to change the second key to 10

4<sup>th</sup> pair: Found a multiple of 10, do nothing and hold 20

5<sup>th</sup> pair: Need to change the second key to 20

6<sup>th</sup> pair: Found a multiple of 10, do nothing and hold 30

Resulting map:  $\{10,0\}, \{12,10\}, \{14,10\}, \{20,0\}, \{22,20\}, \{30,0\}$

- **Function afterFive**

- **Parameters:** A non-empty **STL multiset** of integers and an empty **STL multiset** of integers
- The function searches for the last 5 in the set, and then copies the remaining values into the second set.
- **Example:**

First set: 1 1 3 5 5 7 8 9

Second set becomes: 7 8 9

After implementing your functions, **re-visit** them and see if there is a way to make them more **efficient**.

All necessary **test cases** are already implemented in the **Main.cpp** file.