Homework 7 *(Due: Jun 20)*
C++ Programming - COSC 2321

Department of Computer Science and Electrical Engineering

Summer Session I, 2022

Exercises

*Create a **New Project** for every exercise. Take a screenshot of the source code along with its output and place the **source code** and the **screenshot** in a **zipped folder** named **LastNameFirstName_HW7***

Exercise 1

Create a class named **Rectangle** with **width** and **length** as private member variables. Create *setter* and *getter* functions for **width** and **length** and a *getArea* function. In **main**, ask user to enter values for *width* and *length*. Use a **Rectangle pointer** to call *setter* and *getter* functions (call *getters* to simply print the values entered), and *getArea* function

Note: Use the **this** pointer inside *setter* and *getter* functions as well as inside function *getArea*

Exercise 2

Similarly to Ex. 1, call *setter* functions using the **Rectangle pointer** with **chain function calls** (use a single statement)

Exercise 3

Similarly to Ex. 1, create a **second** class named **Rectangle2** and declare it as friend inside class **Rectangle**. **Rectangle2** has a public function named **mutator** that sets values to the private members of class **Rectangle**. In **main**, create an *object* of type **Rectangle2** and call the **mutator** function to assign values to private members of class **Rectangle**. Compute the area of the rectangle and print

Exercise 4

Given the code in the next page, overload the **+ operator**

Note: Submit through **Canvas**

```
4   #include <iostream>
5
6   using namespace std;
7
8   class HW
9   {
10  private:
11      double HWgrades;
12  public:
13
14      HW()
15      {
16          cout << "Default constructor called\n";
17      }
18
19      HW(double HWgrades)
20      {
21          cout << "Parameterized constructor called\n";
22          this->HWgrades = HWgrades;
23      }
24
25
26
27
28
29
30
31
32
33      double getHWgrades()
34      {
35          return HWgrades;
36      }
37  };
38
39  int main()
40  {
41      HW hw1(83.4), hw2(79.2), hw3(91.3), hw4(88.9), result;
42
43      result = (hw1 + hw2 + hw3 + hw4);
44
45      double average = result.getHWgrades() / 4;
46      cout << "The average HW grade is: " << average << endl;
47
48      return 0;
49  }
```

+ operator overloading function