

# Comp625: Homework 1 due September 16<sup>th</sup>, 2022

## Synopsis

For your first homework you will write a very simple calculator. You will be required to write a new class. I will give you the main program code which you will not modify plus information on the new classes.

## Task

Your calculator will be command line driven and will have the following look to it:

```
C:\> Homework1.exe
Welcome to Math Calculator!
Please choose an option:
  1 - add two real numbers
  2 - subtract two real numbers
  3 - multiply two real numbers
  4 - divide two real numbers
  5 - get the factorial of an number
  6 - menu
  0 - exit
? 1
Enter 1st value: 5
Enter 2nd value: 4.3
5.0 + 4.3 = 9.3
? 4
Enter 1st value: 2
Enter 2nd value: 4
2.0 / 4.0 = 0.5
? 6
Please choose an option:
  1 - add two real numbers
  2 - subtract two real numbers
  3 - multiply two real numbers
  4 - divide two real numbers
  5 - get the factorial of an number
  6 - menu
  0 - exit
? 5
Enter value: 6
Factorial of 6 = 720
? 0
C:\>
```

**Code:**

*Homework1.cpp* looks like this:

```
// This is the main code. Do not modify.
#include "Calculator.h"

int main()
{
    Calculator *calc = new Calculator();
    calc->run();
    delete calc;
}
```

You'll have one other class called Calculator. Below, *Calculator.h* and *Calculator.cpp* are partially filled out. Your job is to complete them. See how far you can get before September 11<sup>th</sup> lab, at which time you'll have an opportunity to work on it with help from me.

*Calculator.h* looks like this:

```
// header file for Calculator class
#ifndef CALCULATOR_H
#define CALCULATOR_H

class Calculator
{
    public:
        void run();
};

#endif
```

*Calculator.cpp* looks like this:

```
// source code for Calculator class
#include <iostream>
#include "Calculator.h"

using namespace std;

void Calculator::run()
{
    // stick code for calculator in here...may want to create
    // functions to make code more readable and add instance
    // variables if needed along with constructors to initialize
    // them and destructors to remove any dynamic memory created
}
```

## Compiling and running:

To compile your code, if you haven't added any additional files, type this:

```
g++ Homework1.cpp Calculator.cpp -o Homework1.exe
```

To run it type this:

```
Homework1.exe
```

Remember to append "./" on Unix systems.

## Notes:

- **Please follow this specification precisely.** The user interface should be exactly as it appears in this document. You may lose points if it does not.
- To optimize time for helping you during lab on September 13th, please be sure to have put a reasonable amount of work on it before then. If you are really struggling, please email me or make arrangements with James before then.

## Submission:

You will turn in the source and header files for the *Calculator* class that you wrote on the due date at the top of the document (do not include Homework1.cpp). Please put the .cpp and .h files in a folder that you name *First.Last.Homework1*, where *First* is your first name and *Last* is your last name, compress using Zip and email it to me with the subject line:

**COMP625 Homework1**