COP3331 Lab 1

Submission Instructions:

1. Create a folder named Lab1_LastName_FirstInitial (e.g. Lab1_Neal_T).

2. In your folder, place a **PDF** file containing your answers to questions with a ◇.

3. Copy your directories containing your programs for questions with a ♠ into the folder; **these directories should only contain files needed to run your program, which may include one or more of the following file types: .cpp, .h., and .txt**. Do NOT include the full project (e.g., solution file) if you're using an IDE. Test your program on CIRCE before submitting by compiling and running with g++. Your file containing main() should **always** be named main.cpp.

4. Ensure that all programs have block comments at the very beginning (starting at the first line) in the file containing main() with your name and the program's description. **The block comment's format should be identical to what's provided in Figure 2-1.**

5. Use single-line comments to describe your code's functionality as needed.

6. Do not submit anything for questions with a ♣.

7. Zip the folder and submit it via Canvas.

◇ = 5 points each, ♠ = 15 points each

Sum the number of points across each question to determine how many points this assignment is worth.

1. ♣ Read *Chapter 1: An introduction to C++ programming*.

2. ♣ Follow the instructions in Appendix A or B to set up the appropriate IDE (Visual Studio (Windows) or Xcode (macOS)).

3. ♣ Download the book's programs and exercises at the bottom of

   `https://www.murach.com/shop/murach-s-c-programming-382-detail`

   under the tab "FREE Downloads."

4. ♣ Complete Exercises 1-1 and 1-2.

5. ♠ Copy folder `ch01_circle_calculator` to a new folder named `lab1_q5`. In the new folder, edit the Circle Calculator program to receive the diameter instead of the radius from the user, and write the radius, circumference, and area to the console instead of the diameter, circumference, and area. Here's an example output:

   ```
   Circle Calculator

   Enter diameter:  10
   Radius:        5
   Circumference: 31.4
   Area:          78.5

   Bye!
   ```

6. ♣ Read *Chapter 2: How to write your first programs*.

7. ◇ What is contained in the `iostream` header?

8. ◇ The _____ object represents the standard output stream to write a stream of characters to the console.

9. ♠ Write a program that receives five `doubles` from the user. The program should print the sum, average, product, and the absolute value (using the `cmath` library) of each number to the console. Place the main.cpp file in a folder `lab1_q9`. The console should appear as:

```
Enter five numbers: 1 -9.1 4.23 7.1 -3
Sum: 0.23
Average: 0.046
Product: 819.901
Absolute Values: 1 9.1 4.23 7.1 3
Done
```

10. ◇ `int`, `double`, and `char` are built-in _____; `string`, on the other hand, is an _____ defined by the string class.

11. ◇ Forgetting a semi-colon at the end of statement will result in a _____ or _____ error.

12. ♣ Complete Exercise 2-3.