# *Lab Activity #1 – Input and Output*

It's time to begin programming in C++. For each of the following activities, submit both the **source code** and **output** through Blackboard. Your lab professor will show you how to submit your homework, and will be the one grading your homework.

***Exercise #1:***

Write a C++ program that prints out the following menu for a game (include the line of asterisks (*) on top and bottom):

```
**************************************************
                  Welcome!

Please choose a number from the following options:

1.    Play the game!
2.    Demo the game!
3.    Exit

**************************************************
```

***Exercise #2:***

Write a C++ program that will calculate the average of four numbers that are stored in variables. The variables are all of the data type: **`double`**. The values that are stored are `578, 986, 1066`, and `714`.

Display a message showing the **sum** of all four numbers

(ex. `The sum of those numbers is ___.`")

On the next line, display the **average** of all four numbers

(ex. – "`The average of those numbers is ___.`")

***Exercise #3:***

Write a C++ program that calculates the average of four numbers – just like in the previous exercise – but this time ***ask the user to enter which four numbers to calculate***. You will have to use the `cin` command to get all four numbers from the user.

***Sample Output:***

```
Enter the first number:   (number1)
Enter the second number:  (number2)
Enter the third number:   (number3)
Enter the fourth number:   (number4)

The average of these numbers is:  (average)
```

***Exercise #4:***

Write a C++ program that will calculate how much of a profit an investor will make. You will need to get the following three inputs:

- the number of shares the investor purchased
- the price of the stock (per share) when the investor purchased it
- the price of the stock (per share) now

The formula to use:

```
Profit = (# of shares * Current Price) – (# of shares * Purchase Price)
```

Output this message to the screen:

```
You have made a profit of $_____ dollars since you bought _____ shares of
this stock.
```

Also, you must display the dollar amount formatted to two decimal places. Place this statement at the start of your program:

```
cout << fixed << setprecision(2);
```

***Exercise #5:***

Use strings and user input to create a Madlib program. Ask the user to enter nouns, verbs, adjectives, etc., and generate a cohesive story that you will write as output.

For examples of Madlibs and how they work, check out: https://stuff.mit.edu/storyfun