**Project 2: Associative Property**

In this Java programming assignment, you will practice using primitive data types in order to perform simple arithmetic applying the associative property.

1. Design a class called **Associative** in a file called **Associative.java**. This class will hold the main method, and the class methods that we will write in this assignment.
2. Write an empty **public static void main(String[] args)** method. This method should appear inside the curly braces of the Associative class.
3. Create three class variables, all integers.
4. Write a class constructor, that assigns values from three parameters passed to the constructor to the three class variables that you created for your Associative class.
5. Write two class methods (**firstTwo**, **lastTwo**). The method **firstTwo** should combine the three class variables by grouping the sum of the first two class variables, and then multiplying that result by the third class variable and returning the result. The method **lastTwo** should combine the three class variables by grouping the product of the last two class variables, and then adding the result to the first class variable and returning the result. If you call your variables x,y, and z for example, the calculations should appear as below.

**firstTwo**: (x + y) \* z

**lastTwo:** x + (y \* z)

1. Complete the definition for main. Your program should create a new **Scanner** object, prompt the user to type in three integers, and then store three integer values from standard input. The **main** method should then create a new **Associative** object, and print out two lines like that display the results of calling your **firstTwo** and **lastTwo** methods. For example, if the user enters 1, 2, and 3 as inputs:

“Grouping the first two terms, (1 + 2) \* 3 = 9”

“Grouping the last two terms, 1 + (2 \* 3) = 7”

1. Submit your **Associative.java** file on Blackboard.

For those students that feel confident and would like an extra challenge, add the following elements to your code before submitting.

1. Create one function for each of the five arithmetic operations (addition, subtraction, multiplication, division and modulus). Each function should take three parameters and return a Boolean value specifying whether or not the operation is associative or not (given the inputs). You can achieve a Boolean result by utilizing the equality operator (“==”). Modify your main function to report on which operations are associative in a user-friendly way.