Assignment #4

Goals: Use methods

➢ This lab gives students more experience in:
- Problem Solving
- Writing Java programs and methods
- Writing Algorithms, using Pseudocode

Problem Description

In this assignment, you will perform calculations with triangles.
A triangle is defined by the x- and y-coordinates of its three corner points.
Your job is to compute the perimeter of a given triangle.

The following is a sample program output:

This program calculates the perimeter of a Triangle.

Please enter the x-coordinate of point1: 5
Please enter the y-coordinate of point1: 5
Please enter the x-coordinate of point2: 6
Please enter the y-coordinate of point2: 7
Please enter the x-coordinate of point3: 8
Please enter the y-coordinate of point3: 5

The perimeter of a Triangle with point1 (5, 5), point2 (6, 7) and point3 (8, 5)
is 8.064495

Would you like to repeat the program? No

End of the program.

Notes:

- Your program should display appropriate error messages in case of invalid inputs. This should be done by creating and invoking a method called ***verify_input*** in your program
    - You may only accept positive integer numbers for the x- and y-coordinates of the three points.
    - You may only accept the points located on the 40 X 40 grid.
    - You may reject the input if the three points make a line and not a triangle.
- To calculate the square root of a number stored in variable "data", use the Math.sqrt(data).

- You may use the Pythagoras' theorem to calculate the length of the triangle sides.
- Your program should repeat as long as the user wishes.
- Please use methods for this assignment. For example, create a method to verify the input and display appropriate error messages in case of invalid input.

public static booleam verify_input (int point1_x, int point1_y,
int point2_x, int point2_y,
int point3_x, int point3_y)
{
** ….**
}

- Create an external document for this assignment; Write the pseudocode algorithm for verify_input method in a word or pdf file.
- Make a folder containing your source code, and external document file, zip the folder and submit the zip file to BrightSpace.

Marking Scheme

[5 marks] Presentation/Style: Organization, readability, descriptive identifier, indentation, bracket placement.
[50 marks] Correctness: Program (using methods) works without bugs
[15 marks] Error checking: Appropriate error messages to the user when invalid input is entered.
[10 marks] using methods: The class should contain at least two methods, including the main method.
[20 marks] Documentation: Internal and external document