WIX1002 Fundamentals of Programming
Lab Report 1

1. Write a program to check whether a triangle is valid or invalid. If the triangle is valid, check whether a triangle is Equilateral, Isosceles or Scalene.

Sample Input	Sample Output
Enter length of each side of triangle: 10 5 5	Invalid triangle
Enter length of each side of triangle: 9 5 5	Isosceles triangle

2. Write a program to generate two cards randomly and display the bigger card between them. The cards contain of two characteristic, color (Red, Blue, Green and Yellow) and value (1-10). The rules to identify the bigger card as below:
   a. The bigger the value, the bigger the card is, except 1 is bigger than 10.
   b. If the card is the same value, the color will be used to get the bigger card.
      Red > Blue > Green > Yellow

Sample Input	Sample Output
Card 1 : Blue 6 Card 2 : Yellow 8	Card 2 is bigger
Card 1 : Red 4 Card 2 : Green 4	Card 1 is bigger

   (You are not allowed to use array for the above solution)

3. Write a program to solve the quadratic equation. The program will request user to enter one line of input, ax2 + bx + c, where a, b and c is in between 1-9. The formula to solve the quadratic equation is as below:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

   If $b^2 - 4ac$ is negative, the quadratic equation does not have solution.

Sample Input	Sample Output
Enter quadratic equation: x2+x+6	This quadratic equation has 0 root(s). No solution
Enter quadratic equation: x2+2x+1	This quadratic equation has 1 root(s). x = -1
Enter quadratic equation: 8x2-6x-9	This quadratic equation has 2 root(s). x = 1.5 x = -0.75

Lab Report

Prepare a report to solve the above problems. The report should contain all the sections as below for each question:

No	Section	Description
1	Problem	Description on the problem
2	Solution	Explanation on how to solve the above problems
3	Sample Input & Output	A few sets of input and output (snapshot)
4	Source Code	Java Source Code

Requirements

1. Group Assignment (4-5 students per group)
2. Cover page that includes all student matric number and full name.
3. Font: Times New Roman 12, Line Spacing: 1 ½ Spacing
4. Due Date: **26/11/2021**
5. The method of submission is based on your group lecturer.