**JAVA PROGRAMMING**

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**Problem**

**Write a program, call it: TriangleTest. This program should include a main method and a static method computeRadius(Trainangle t). Your program should prompt a user for the 3 sides of a triangle, pass this triangle to computeRadius() to compute the radius of a circle which has the same perimeter as that of the triangle, and print out the result if successful.**

**Your function computeRadius(Triangle t) must check for the following two invalid conditions and throw the appropriate exception.**

**the side of a triangle must be greater than 0**

**the sum of the lengths of any two sides of a triangle must be greater than the length of the third side**

**You must define two user-defined exceptions to handle the above errors. These exceptions must inherit from a more general IllegalTriangleException which is given.**

**Code**

package exceptionhandling;

import java.util.Scanner;

import java.lang.Math;

class Triangle

{

private int side1;

private int side2;

private int side3;

public Triangle(int s1,int s2,int s3)

{

side1=s1;

side2=s2;

side3=s3;

}

public int getSide1()

{

return side1;

}

public int getSide2()

{

return side2;

}

public int getSide3()

{

return side3;

}

}

class IllegalTriangleException extends Exception

{

Triangle triangle;

IllegalTriangleException()

{

super("Illegal triangle parameters");

}

IllegalTriangleException(Triangle triangle)

{

this();

this.triangle=triangle;

}

}

public class ExceptionHandling

{

public static void computeRadius(Triangle t)

{

int perimeter=0,circum=0;

try

{

if((t.getSide1()<0 || t.getSide2()<0 || t.getSide3()<0)||

(t.getSide1()+t.getSide2()<t.getSide3())||(t.getSide2()+t.getSide3()<t.getSide1())||(t.getSide3()+t.getSide1()<t.getSide2()))

{

throw new IllegalTriangleException();

}

else

{

perimeter=t.getSide1()+t.getSide2()+t.getSide3();

circum=perimeter;

double radius= circum/(2\*3.14);

System.out.println(perimeter+"\n"+radius);

}

}

catch(IllegalTriangleException ite)

{

System.out.println("Error because of wrong parameters"+ite);

}

}

public static void main(String[] args)

{

Scanner scan=new Scanner(System.in);

System.out.println("Enter the sides of the triangle: ");

int si1=scan.nextInt();

int si2=scan.nextInt();

int si3=scan.nextInt();

Triangle tri=new Triangle(si1,si2,si3);

ExceptionHandling.computeRadius(tri);

}

}

**Screenshot**

