

traingleClassification
Classify a triangle based on length of three sides
Input will be three integers

⚡ a ,c ,d is representing the side. of triangle

⚡ Equilateral Triangle: A triangle is said to be equilateral triangle if all the sides are equal. If a, b, c are three sides of the triangle. Then, the triangle is equilateral only if $A = B = C$.

⚡ Isosceles Triangle: A triangle is said to be an isosceles triangle if any of its two sides are equal. If a ,b ,c are three sides of the triangle. Then, the triangle is isosceles if either $a = b$ or $a = c$ or $b = c$.

⚡ Scalene Triangle: A triangle is said Scalene Triangle if none of its sides is equal .

⚡ There is two more condition to be verified to avoide any errors in the program.

1. The first is that input should be in +ve Interegers or decimals.
for this we use try and catch function any input other than number will result in error and will be identified by catch function
 2. The second but most important to check that the sum of any two side should be greater than the third side otherwise the triangle will not be formed
for the we use `***if(a<=0 || b<=0 || c<=0)***`. statement
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```
import java.util.*;                // imported scanner fucntion

public class Triangle {

    int a,b,c;                      //variable declaretion

    public static void main(String[] args){

        Scanner sc = new Scanner(System.in);        //scanner function
        System.out.println("Enter the sides of Triangle");
        try{                                     // for insuring number input
            System.out.println("Enter the 1st sides of Triangle : ");
            int a = sc.nextInt();
            System.out.println("Enter the 2nd sides of Triangle : ");
            int b = sc.nextInt();
            System.out.println("Enter the 3rd sides of Triangle : ");
            int c = sc.nextInt();

            if(a<=0 || b<=0 || c<=0)                //. checking for invalid inputs such as negative value
            and zero
```

```

    System.out.println("InvalidInput");
    else if(a>=(b+c) || c>=(b+a) || b>=(a+c)).    //if sum of two sides is less then the third side
then the trangle cannot be formed
    System.out.println("Not a Triangle");
    else if(a==b && b==c)    //checking for equilateral triangle
    System.out.println("Equilateral Triangle");
    else if(((a*a)+(b*b))== (c*c) || ((a*a)+(c*c))== (b*b) || ((c*c)+(b*b))== (a*a)).    // checking for
right angled triangle
    System.out.println("Right angle Triangle");
    else if(a!=b && b!=c && c!=a)    // checking for Scalene Triangle
    System.out.println("Scalene Triangle");
    else if(a==b || c==a || c==b)
    System.out.println("Isosceles Triangle");    //. checking for Isosceles Triangle
    }
catch(InputMismatchException ime){
    System.out.println("Error: your value must be an integer");
}
}
}

```