public class Triangle
extends java.lang.Object

Triangle. The main function takes 3 positive whole-number lengths to be typed in as command line arguments. The program responds with a description of the triangle, as follows:

- **equilateral** - if all three sides have equal length
- **isosceles** - if two sides have equal length
- **right-angled** - if one angle is a right angle
- **scalene** - all sides different lengths, no right angles
- **impossible** - if the given side lengths do not form a triangle

Area and perimeter of the triangle are calculated, too.

### Constructor Summary

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<th>Constructor</th>
<th>Description</th>
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<tr>
<td>Triangle(int s1, int s2, int s3)</td>
<td>Constructor (without error checking)</td>
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### Method Summary

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<td>java.lang.String classify()</td>
<td>Classifies the triangle.</td>
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<td>double getArea()</td>
<td>Gets the area of the triangle.</td>
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<td>getPerimeter()</td>
<td>Gets the perimeter of the triangle.</td>
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<td>java.lang.String getSideLengths()</td>
<td>Gets the side lengths.</td>
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<td>boolean isEquilateral()</td>
<td>Checks if the triangle is equilateral.</td>
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<tr>
<td>boolean isIsosceles()</td>
<td>Checks if the triangle is isosceles.</td>
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<td>boolean isRightAngled()</td>
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<tr>
<td>boolean isScalene()</td>
<td>Checks if the triangle is scalene.</td>
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<tr>
<td>static void main(java.lang.String[] args)</td>
<td>Usage: java Quadrangle <a href="">side1:int</a> <a href="">side2:int</a> <a href="">side3:int</a> Main method is only used for testing purposes, no unit tests need to be written for this method.</td>
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<td>Triangle setSideLengths(int s1, int s2, int s3)</td>
<td>Sets the lengths of the sides of this triangle.</td>
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Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

**Constructor Detail**

**Triangle**

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

Constructor (without error checking)

**Parameters:**

- s1 - length of the side1 as an integer.
- s2 - length of the side2 as an integer.
- s3 - length of the side3 as an integer.
Method Detail

setSideLengths

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

Sets the lengths of the sides of this triangle.

Parameters:
s1 - length of the side1
s2 - length of the side2
s3 - length of the side3

Returns:
a reference to this triangle.

getSideLengths

public java.lang.String getSideLengths()

Gets the side lengths.

Returns:
a comma separated list of side lengths

getPerimeter

public int getPerimeter()

Gets the perimeter of the triangle.

Returns:
-1 if input values are invalid, otherwise the perimeter.

getArea

public double getArea()

Gets the area of the triangle.

Returns:
area of the triangle, -1.0 if triangle is impossible.
classify

public java.lang.String classify()

Classifies the triangle. Possible types, returned as a string, are:

- equilateral - if all three sides have equal length
- isosceles - if two sides have equal length
- right-angled - if one angle is a right angle
- scalene - all sides different lengths, no right angles
- impossible - if the lengths can't form a triangle

Returns:

type of the triangle as a string.

isIsosceles

public boolean isIsosceles()

Checks if the triangle is isosceles. Note: isosceles triangle may also be equilateral and right-angled.

Returns:

true if two sides have equal length

isEquilateral

public boolean isEquilateral()

Checks if the triangle is equilateral.

Returns:

true if all three sides have equal length.

isRightAngled

public boolean isRightAngled()

Checks if the triangle is right-angled. Note: right-angled triangle may also be isosceles.

Returns:

true if one angle is a right angle, otherwise false.
isScalene

public boolean isScalene()
    Checks if the triangle is scalene.
    Returns:
    true if all sides different lengths, no right angles.

isImpossible

public boolean isImpossible()
    Checks whether the given side lengths form a valid triangle.
    Returns:
    true if the given side lengths do not form a triangle.

main

public static void main(java.lang.String[] args)
    Usage: java Quadrangle <side1:int> <side2:int> <side3:int>

    Main method is only used for testing purposes, no unit tests need to be written for this method.