Escuela Superior Politécnica del Litoral

Workshop: Empirical Software Testing

TEAM 6

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Introduction

The triangle problem is the most widely used example in software testing literature. The logic used for the problem is clear but complex, meaning that behind some intuitive conditions are other hidden ones more difficult to get.

The traditional problem states the following: the triangle program accepts three integers, a, b, and c, as input. These are taken to be sides of a triangle. The output of the program is the type of triangle determined by the three sides: Equilateral, Isosceles, Scalene, or NotATriangle. [1]

To start, it is important to define what a triangle is. Let's see some definitions and compare them with yours:

• A closed plane figure having three sides and three angles [2].

• A polygon having three sides [3].

• A triangle is a polygon with three edges and three vertices [4].

Git repository

https://github.com/AlvaroRaul7/Software-Engineering-Workshop

Assumptions

- Non numerical values are invalid, i.e. "A" or "?"
- Float numbers are invalid, i.e. "2.3".
- The 0 values are not permitted in the set range of values.
- The negative numerical values are not permitted in the set range of values.
- Numerical values greater than 200 are not permitted in the set range of values.
- The classification of the triangles is according to their sides (Equilateral, Scalene, Isosceles).
- The user will enter integers, on the inputs of the program.
- The user enters only 3 number..

Test Cases

Test Cases	Input Values(a,b,c)	Expected Output
1	3, 3, 3	Equilateral Triangle
2	2,3,4	Scalene Triangle
3	5,5,6	Isosceles Triangle
4	0,0,0	Values are not in the range of permitted values
5	-3,5,6	Value a are not in the range of permitted values
6	205,5,6	Value a are not in the range of permitted values
7	1,1,1	Equilateral Triangle
8	200,200,200	Equilateral Triangle
9	99,99,99	Equilateral Triangle

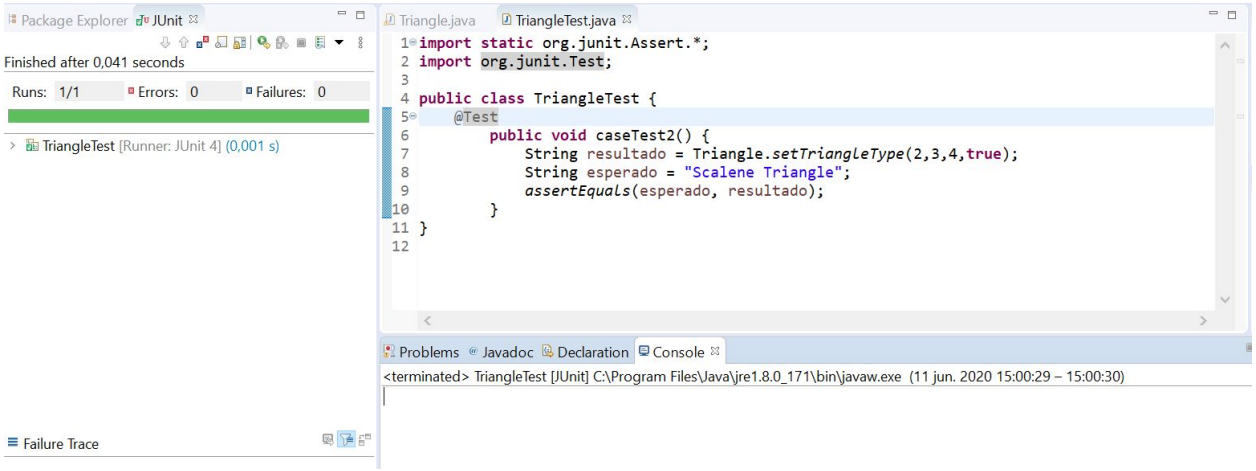
Case Tests Results

Case Test 1

The input values are in the allowed range and are valid integers for the definition of equilateral triangle because the values are the same number, the expected output is **equilateral triangle** and the result of the unit test is **equilateral triangle**.

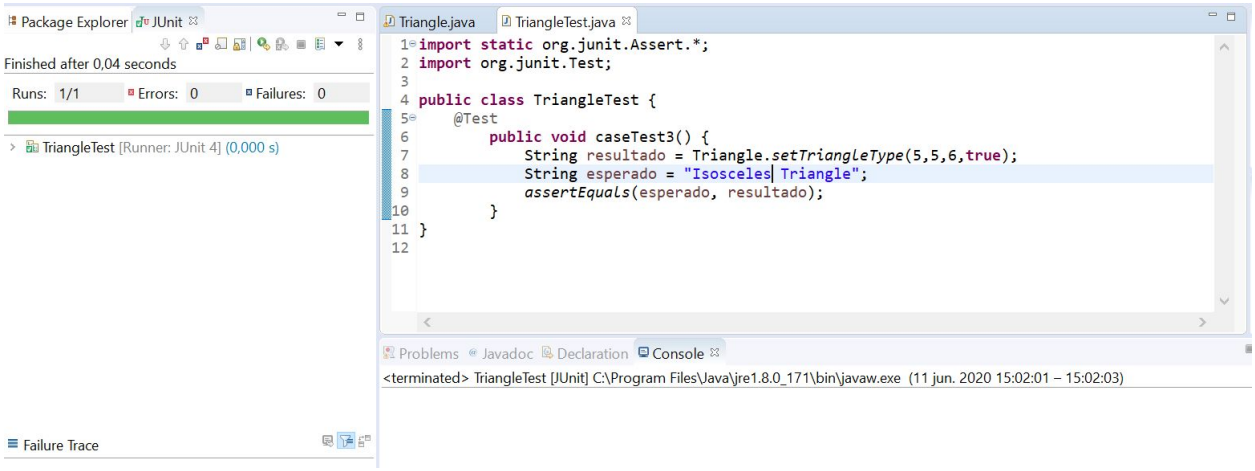
Case Test 2

The input values are in the allowed range and are valid integers for the definition of scalene triangle because the the sum of two values is greater than the third, the expected output is **scalene triangle** and the result of the unit test is **scalene triangle**.



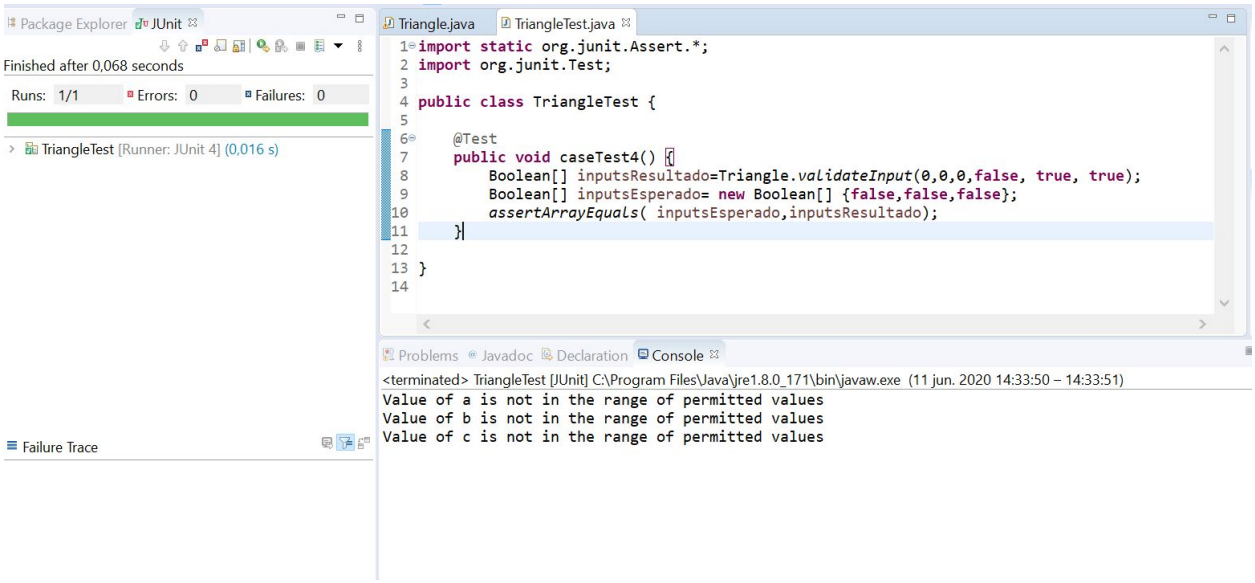
Case Test 3

The input values are in the allowed range and are valid integers for the definition of isosceles triangle because two values are the same, the expected output is **isosceles triangle** and the result of the unit test is **isosceles triangle**.



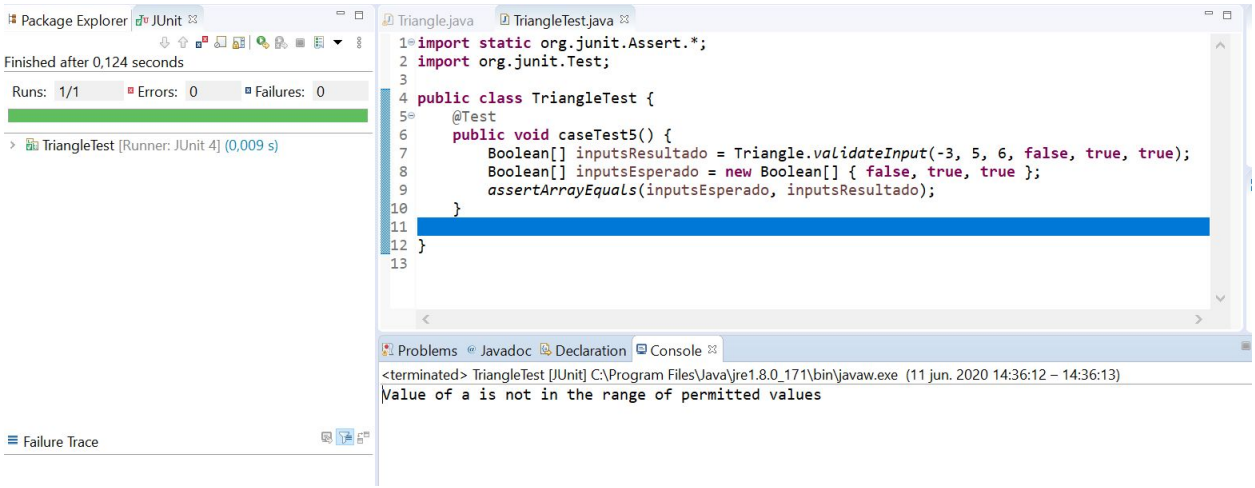
Case Test 4

The input value 0 is **not** in the allowed range and is **not** valid integers for the definition of an triangle ,the expected output is **Values are not in the range of permitted values** and the result of the unit test is **Values are not in the range of permitted values.**



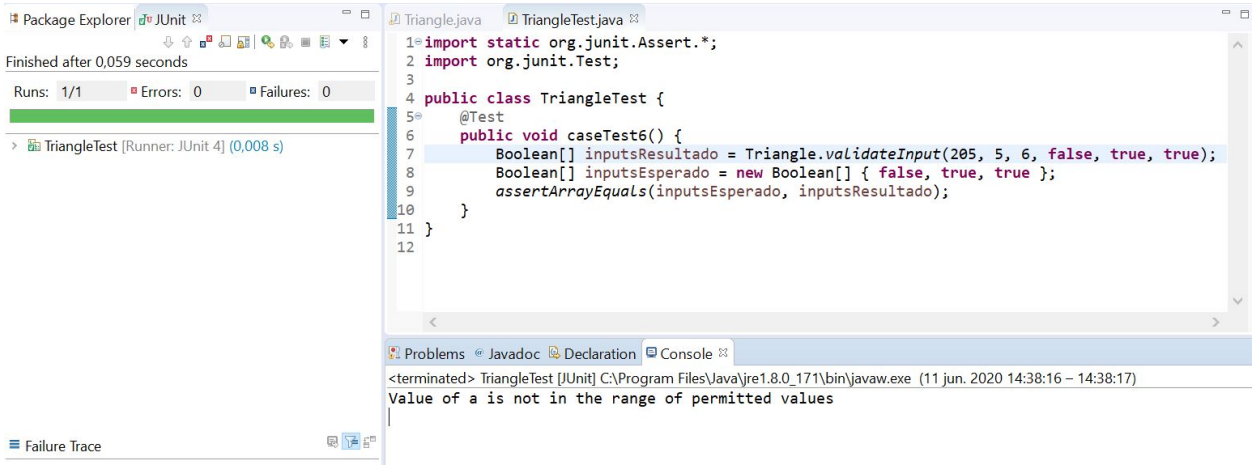
Case Test 5

The input value -3 are **not** in the allowed range and is **not** valid integers for the definition of an triangle ,the expected output is **Values are not in the range of permitted values** and the result of the unit test is **Values are not in the range of permitted values.**



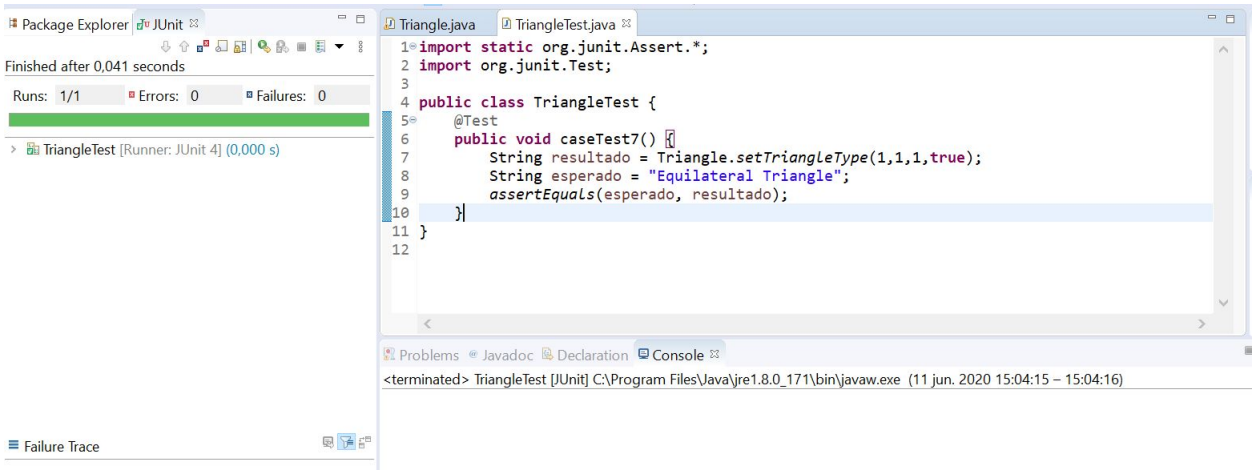
Case Test 6

The input value 205 is **not** in the allowed range and is **not** valid integers for the definition of an triangle ,the expected output is **Values are not in the range of permitted values** and the result of the unit test is **Values are not in the range of permitted values.**



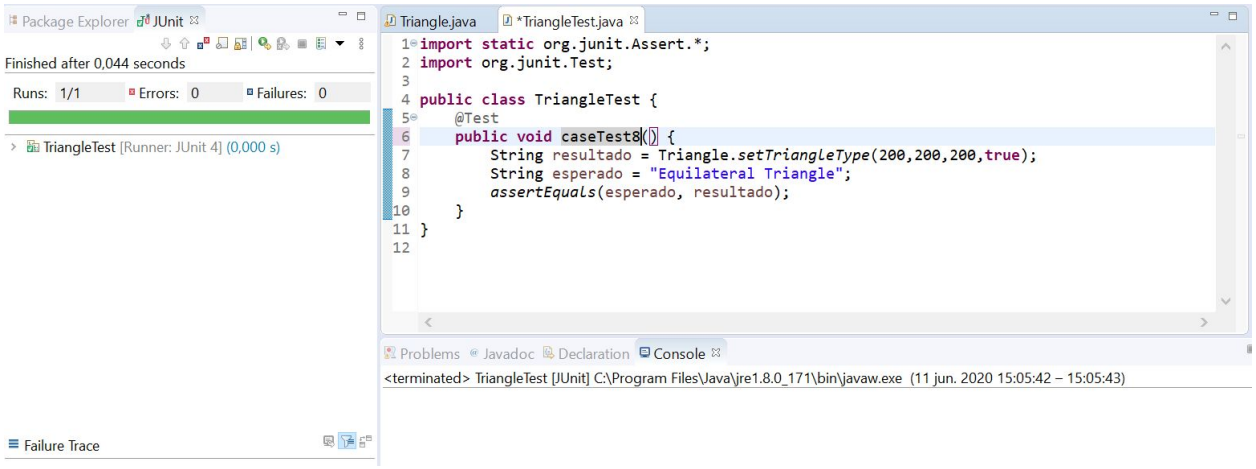
Case Test 7

The input values are the minimum of the allowed range and are valid integers for the definition of equilateral triangle because the values are the same number, the expected output is **equilateral triangle** and the result of the unit test is **equilateral triangle**.



Case Test 8

The input values are the maximum in the allowed range and are valid integers for the definition of equilateral triangle because the values are the same number, the expected output is **equilateral triangle** and the result of the unit test is **equilateral triangle**.



Case Test 9

The input values are the average of the allowed range and are valid integers for the definition of equilateral triangle because the values are the same number, the expected output is **equilateral triangle** and the result of the unit test is **equilateral triangle**.


Package Explorer
JUnit
Finished after 0,035 seconds
Runs: 1/1
Errors: 0
Failures: 0
TriangleTest [Runner: JUnit 4] (0,002 s)
Failure Trace
Triangle.java
TriangleTest.java
1 import static org.junit.Assert.*;
2 import org.junit.Test;
3
4 public class TriangleTest {
5 @Test
6 public void caseTest9() {
7 String resultado = Triangle.setTriangleType(99,99,99,true);
8 String esperado = "Equilateral Triangle";
9 assertEquals(esperado, resultado);
10 }
11 }
12
Problems
Javadoc
Declaration
Console
<terminated> TriangleTest [JUnit] C:\Program Files\Java\jre1.8.0_171\bin\javaw.exe (11 jun. 2020 15:08:23 – 15:08:24)