Assignment Description

Given Triangle Class, design and run tests on the functions and find defects, fix the defects until all functions pass the test.

Author

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Summary

1. I designed 24 tests for the Triangle class. In the first round running test, 9 of them passed and 15 of them failed. By observing the test results I can easily find potential defects in the script. For example, I want to classify Right triangles but the system is giving NotAtriangle. I think that defect is from where the system is classifying whether the input values are valid integers.
2. This is a simple but solid test driven demo. I'm using unittest since it's used by default in this assignment, along with pycharm. I found it painful exporting test results; it might be a problem of pycharm, but a beautiful result extraction would make it much more comfortable.

I pledge my honor that I have abided by the Stevens Honor System.

Test Design

1. Exclude InvalidInput including zero, negative input and float input.
2. Exclude shapes that are not triangles according to the description if any two of three sides are shorter than the other side it is not a triangle
3. Exclude shapes that have any of the three sides that exceeds the limit(200)
4. For Equilateral triangles follow the definition make shapes that all sides have same length
5. For Right triangles define the same shape with various order of sides such as 3,4,5 and 5,4,3 to make sure that order of numbers don't affect the classification
6. For Isoceles make one shape that is valid triangle and it's Isoceles
7. For Scalene make any triangle that has three sides with different length

Testing Cycles

	Test Run 1	Test Run 2
Tests Planned	24	24
Tests Executed	24	24

Tests Passed	9	24
Defects Found	5	0
Defects Fixed	5	0

Initial Testing Attempt

FORMAT: TestId, Input, Expected Value, Actual Value, P/F
(1, (3, 4, 5), 'Right', 'InvalidInput'), F
(10, (0, 9, 5), 'InvalidInput', 'InvalidInput'), P
(11, (1, 9, 5), 'NotATriangle', 'InvalidInput'), F
(12, (7, 9, 9), 'Isoceles', 'InvalidInput'), F
(13, (7, 1, 1), 'NotATriangle', 'InvalidInput'), F
(14, (0, 0, 0), 'InvalidInput', 'InvalidInput'), P
(15, (1, 1, 0), 'InvalidInput', 'InvalidInput'), P
(16, (1, 0, 0), 'InvalidInput', 'InvalidInput'), P
(17, (1, 2, 16), 'NotATriangle', 'InvalidInput'), F
(18, (201, 201, 201), 'InvalidInput', 'InvalidInput'), P
(19, (199, 199, 201), 'InvalidInput', 'InvalidInput'), P
(2, (5, 3, 4), 'Right', 'InvalidInput'), F
(20, (4.5, 6.7, 8.7), 'InvalidInput', 'InvalidInput'), P
(21, (-1, -4.5, -10), 'InvalidInput', 'InvalidInput'), P
(22, (-4, -5, -6), 'InvalidInput', 'InvalidInput'), P
(23, (16, 1, 2), 'NotATriangle', 'InvalidInput'), F
(24, (1, 16, 2), 'NotATriangle', 'InvalidInput'), F
(3, (5, 4, 3), 'Right', 'InvalidInput'), F
(4, (5, 12, 13), 'Right', 'InvalidInput'), F
(5, (8, 15, 17), 'Right', 'InvalidInput'), F
(6, (1, 1, 1), 'Equilateral', 'InvalidInput'), F
(7, (199, 199, 199), 'Equilateral', 'InvalidInput'), F
(8, (10, 10, 10), 'Equilateral', 'InvalidInput'), F
(9, (7, 9, 5), 'Scalene', 'InvalidInput'), F

Fixed Testing Run

FORMAT: TestId, Input, Expected Value, Actual Value, P/F
(1, (3, 4, 5), 'Right', 'Right'), P
(10, (0, 9, 5), 'InvalidInput', 'InvalidInput'), P
(11, (1, 9, 5), 'NotATriangle', 'NotATriangle'), P

(12, (7, 9, 9), 'Isoceles', 'Isoceles'), P
(13, (7, 1, 1), 'NotATriangle', 'NotATriangle'), P
(14, (0, 0, 0), 'InvalidInput', 'InvalidInput'), P
(15, (1, 1, 0), 'InvalidInput', 'InvalidInput'), P
(16, (1, 0, 0), 'InvalidInput', 'InvalidInput'), P
(17, (1, 2, 16), 'NotATriangle', 'NotATriangle'), P
(18, (201, 201, 201), 'InvalidInput', 'InvalidInput'), P
(19, (199, 199, 201), 'InvalidInput', 'InvalidInput'), P
(2, (5, 3, 4), 'Right', 'Right'), P
(20, (4.5, 6.7, 8.7), 'InvalidInput', 'InvalidInput'), P
(21, (-1, -4.5, -10), 'InvalidInput', 'InvalidInput'), P
(22, (-4, -5, -6), 'InvalidInput', 'InvalidInput'), P
(23, (16, 1, 2), 'NotATriangle', 'NotATriangle'), P
(24, (1, 16, 2), 'NotATriangle', 'NotATriangle'), P
(3, (5, 4, 3), 'Right', 'Right'), P
(4, (5, 12, 13), 'Right', 'Right'), P
(5, (8, 15, 17), 'Right', 'Right'), P
(6, (1, 1, 1), 'Equilateral', 'Equilateral'), P
(7, (199, 199, 199), 'Equilateral', 'Equilateral'), P
(8, (10, 10, 10), 'Equilateral', 'Equilateral'), P
(9, (7, 9, 5), 'Scalene', 'Scalene'), P