**Assignment Description:**
Sometimes you will be given a program that someone else has written, and you will be asked to fix, update and enhance that program. In this assignment you will start with an existing implementation of the classify triangle program that will be given to you. You will also be given a starter test program that tests the classify triangle program, but those tests are not complete.

- These are the two files: Triangle.py and TestTriangle.py
    - ***Triangle.py*** is a starter implementation of the triangle classification program.
    - ***TestTriangle.py*** **c**ontains a starter set of unittest test cases to test the classifyTriangle() function in the file Triangle.py file.

In order to determine if the program is correctly implemented, you will need to update the set of test cases in the test program. You will need to update the test program until you feel that your tests adequately test all of the conditions. Then you should run the complete set of tests against the original triangle program to see how correct the triangle program is. Capture and then report on those results in a formal test report described below. For this first part you should not make any changes to the classify triangle program. You should only change the test program.

Based on the results of your initial tests, you will then update the classify triangle program to fix all defects. Continue to run the test cases as you fix defects until all of the defects have been fixed. Run one final execution of the test program and capture and then report on those results in a formal test report described below.

Note that you should NOT simply replace the logic with your logic from Assignment 1. Test teams typically don't have the luxury of rewriting code from scratch and instead must fix what's delivered to the test team.

*Triangle.py contains an implementation of the classifyTriangle() function with a few bugs.*

*TestTriangle.py contains the initial set of test cases*

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**Summary:**

| **Test ID** | **Input** | **Expected Results** | **Actual Result** | **Pass or Fail** |
|---|---|---|---|---|
| testRightTriangleA | 3,4,5 | Right | InvalidInput | Fail |
| testRightTriangleB | 5,3,4 | Right | InvalidInput | Fail |
| testEquilateralTriangles | 1,1,1 | Equilateral | InvalidInput | Fail |

| | | | | |
|---|---|---|---|---|
| testIsoscelesTriangles | 3,2,2 | Isosceles | InvalidInput | Fail |
| testInvalidInput | ‘a’,1,’bad’ | InvalidInput | Type Error | Fail |
| testLowInteger | -1,-50,1 | InvalidInput | InvalidInput | Pass |
| testScaleneTriangles | 7,9,10 | Scalene | InvalidInput | Fail |
| testBigNumbers | 2000,1000,201 | InvalidInput | InvalidInput | Pass |
| testNotATriangle | 1,9,10 | NotATriangle | InvalidInput | Fail |
| testBigEquilateralTriangles | 199,199,199 | Equilateral | InvalidInput | Fail |

| | Test Run 1 | Test Run 2 | Test Run 3 | Test Run 4 | Test Run 5 |
|---|---|---|---|---|---|
| Tests Planned | 10 | 10 | 10 | 10 | 10 |
| Tests Executed | 10 | 10 | 10 | 10 | 10 |
| Tests Passed | 2 | 4 | 8 | 9 | 10 |
| Defects Found | 8 | 6 | 2 | 3 | 0 |
| Defects Fixed | 0 | 2 | 4 | 2 | 1 |

Reflection: For this assignment to start I tried to create as many test cases as I could think of to adequately test the program. I realized that all of the tests were failing because of a bug in the InvalidInput check as well as a type error problem. I continued to add tests until I would get appropriate triangles for various inputs to my program. I then moved on to fixing the program itself. I fixed the most obvious bugs in the beginning then moved on to the more hidden ones as my tests improved. Overall, this assignment was very well rounded and taught me a lot about testing and writing enough tests. I also learned how to analyze another programmer's code and think of ways to improve.

**Honor Pledge:** *I pledge my honor that I have abided by the Stevens Honor System.*
**Detailed Results, if any:** For this assignment we were given the code and test cases to start with, so there is not any relevant information for this section.