1. **Assignment Description**

* Identify appropriate test strategies for the Triangle problems.
* Test the program and find bugs to be corrected.
* Write test cases to fix the bugs in the program.

1. **Author(s)**

Rafif, Maha, Danielle, Pranay

1. **Summary**

**Language used:** Python

**Development environment:** Canopy

**Test tool:** Unit Test

The program identifies a triangle type (right, equilateral, scalene, isosceles) based on given inputs of the lengths of the sides. The test cases included different possible inputs including 0, negative values and positive values that cannot form a triangle.

We have learned how to use Unit Test for Python and the configuration management system (GitHub) for continuous integration.

**Reflection:** Diversified thinking was required to decide on the test cases to be used.

**Buggy Test Report**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test ID** | **Input** | **Expected Results** | **Actual Result** | **Pass or Fail** |
| 1 | 1,2,3 | Not a triangle | Invalid input | Fail |
| 2 | 3,4,5 | Right triangle | Invalid input | Fail |
| 3 | 101,101,101 | Equilateral triangle | Invalid input | Fail |
| 4 | 7,9,13 | Scalene triangle | Invalid input | Fail |
| 5 | 2,2,1 | Isosceles triangle | Invalid input | Fail |
| 6 | 211,211,211 | Invalid input | Invalid input | Pass |
| 7 | 10,10,10 | Equilateral triangle | Invalid input | Fail |
| 8 | 35,7,19 | Not a triangle | Invalid input | Fail |
| 9 | 15,30,30 | Isosceles triangle | Invalid input | Fail |
| 10 | 12,16,20 | Right triangle | Invalid input | Fail |
| 11 | A,B,c | Invalid input | Invalid input | Pass |
| 12 | ?, 2, S | Invalid input | Invalid input | Pass |
| 13 | -1,2,1 | Invalid input | Invalid input | Pass |
| 14 | 0,11,100 | Invalid input | Invalid input | Pass |
| 15 | 13,0,0 | Invalid input | Invalid input | Pass |

**Improved Test Report**

**Test Report on testing the bug free code:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test ID** | **Input** | **Expected Results** | **Actual Result** | **Pass or Fail** |
| 1 | 1,2,3 | Not a triangle | Not a triangle | Pass |
| 2 | 3,4,5 | Right triangle | Right triangle | Pass |
| 3 | 101,101,101 | Equilateral triangle | Equilateral triangle | Pass |
| 4 | 7,9,13 | Scalene triangle | Scalene triangle | Pass |
| 5 | 2,2,1 | Isosceles triangle | Isosceles triangle | Pass |
| 6 | 211,211,211 | Invalid input | Invalid input | Pass |
| 7 | 10,10,10 | Equilateral triangle | Equilateral triangle | Pass |
| 8 | 35,7,19 | Not a triangle | Not a triangle | Pass |
| 9 | 15,30,30 | Isosceles triangle | Isosceles triangle | Pass |
| 10 | 12,16,20 | Right triangle | Right triangle | Pass |
| 11 | A,B,c | Invalid input | Invalid input | Pass |
| 12 | ?, 2, S | Invalid input | Invalid input | Pass |
| 13 | -1,2,1 | Invalid input | Invalid input | Pass |
| 14 | 0,11,100 | Invalid input | Invalid input | Pass |
| 15 | 13,0,0 | Invalid input | Invalid input | Pass |

**Test Report Summary**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Test 1** | **Test 2** | **Test 3** |
| **Tests Planned** | Positive scenarios with valid inputs | Negative scenarios with valid inputs | Scenarios with invalid inputs |
| **Tests Executed** | Positive scenarios with valid inputs, one for each type of triangle | Negative scenarios with valid inputs, one for each type of triangle | Scenarios with invalid inputs like alphabets, special characters, 0 and values greater than 200. |
| **Tests passed** | All | All | All |
| **Defects found** | None | None | None |
| **Defects fixed** | None | None | None |

1. **Team Member Roles and Contributions**

**Rafif and Danielle found the bugs, fix them and wrote the test cases to classify triangle. Maha and Pranay review the fixed program and wrote the Project report.**

1. **Honor pledge**

**I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination. I further pledge that I have not copied any material from a book, article, the Internet or any other source except where I have expressly cited the source.**

1. <https://github.com/Malidrisi/SSW567-MRD/blob/master/buggy%20Triangle%20fixed.py>