

SOFTWARE ENGINEERING II

EMPIRICAL TESTING WORKSHOP

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Team: W5

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1.Algorithm

```
Program triangle'
Dim a, b, c As Integer
Dim c1, c2, c3, IsATriangle As Boolean

'Step 1: Get Input
Do
    Output("Enter 3 integers which are sides of a triangle")
    Input(a, b, c)
    c1 = (1 ≤ a) AND (a ≤ 200)
    c2 = (1 ≤ b) AND (b ≤ 200)
    c3 = (1 ≤ c) AND (c ≤ 200)
    If NOT(c1)
        Then Output("Value of a is not in the range of permitted values")
    EndIf
    If NOT(c2)
        Then Output("Value of b is not in the range of permitted values")
    EndIf
    If NOT(c3)
        ThenOutput("Value of c is not in the range of permitted values")
    EndIf
Until c1 AND c2 AND c3
Output("Side A is",a)
Output("Side B is",b)
Output("Side C is",c)

'Step 2: Is A Triangle?
If (a < b + c) AND (b < a + c) AND (c < a + b)
    Then IsATriangle = True
    Else IsATriangle = False
EndIf

'Step 3: Determine Triangle Type
If IsATriangle
    Then If (a = b) AND (b = c)
        Then Output ("Equilateral")
        Else If (a ≠ b) AND (a ≠ c) AND (b ≠ c)
            Then Output ("Scalene")
            Else Output ("Isosceles")
        EndIf
    EndIf
Else Output("Not a Triangle")
EndIf
End triangle
```

2. Test cases

TEST ID	INPUT VALUES (a,b,c)	EXPECTED OUTPUT
1	18, 18, 9	“Isoceles”
2	24, 24, 24	“Equilateral”
3	54, 58, 62	“Escalene”
4	0, 0, 0	“Value not in the range”
5	15.4, 5 , 1.6	“Invalid input”
6	“W”, 4, “Q”	“Invalid input”
7	-7, 14, 25	“Value not in the range”
8	“, “, “	“Invalid input”
9	“G”, “G”, “G”	“Invalid input”

3. Assumptions

- The input of this program only supports integer values between 1 and 200.
- Non-numeric characters are not allowed, therefore they are invalid.
- Float and Double values are not allowed, therefore they are invalid.
- Empty values are not allowed, therefore they are invalid.
- This program only can determine 3 types of triangles: Isocetes, Equilateral, Escalene.