IT314 – SOFTWARE ENGINEERING

LAB 08 : TESTING - INTRODUCTION

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Question: Write a set of test cases – specific set of data – to properly test a relatively Simple program. Create a set of test data for the program - data the program must handle correctly to be considered a successful program.

Format:

Tester Action and Input Data	Expected Outcome

Here's a description of the program:

"The program reads three integer values from an input dialog. The three values represent the lengths of the sides of a triangle. The program displays a message that states whether the triangle is scalene, isosceles, or equilateral".

Code: The function triangle takes three integer parameters that are interpreted as the lengths of the sides of a triangle. It returns whether the triangle is equilateral (three lengths equal), isosceles (two lengths equal), scalene (no lengths equal), or invalid (impossible lengths).

```
final int EQUILATERAL = 0;
final int ISOSCELES = 1;
final int SCALENE = 2;
final int INVALID = 3;
int triangle(int a, int b, int c)
{
    if (a >= b+c || b >= a+c || c >= a+b)
        return(INVALID);
    if (a == b && b == c)
        return(EQUILATERAL);
    if (a == b || a == c || b == c)
        return(ISOSCELES);
    return(SCALENE);
}
```

Test Action	Input Data			Code Output	Expected Output	Result
	A	B	C			
Equilateral	5	5	5	Equilateral	Equilateral	True
Equilateral	36	36	36	Equilateral	Equilateral	True
Equilateral	1	1	1	Equilateral	Equilateral	True
Equilateral	INT_MAX	INT_MAX	INT_MAX	Invalid	Equilateral	False
Equilateral	100000	100000	100000	Equilateral	Equilateral	True
Invalid	1	1	2	Invalid	Invalid	True
Invalid	3	3	100	Invalid	Invalid	True
Invalid	-10	-10	56	Invalid	Invalid	True
Invalid	-5	-8	3	Invalid	Invalid	True
Invalid	15	15	32	Invalid	Invalid	True
Isosceles	31	31	5	Isosceles	Isosceles	True
Isosceles	INT_MAX	INT_MAX	6	Invalid	Isosceles	False
Isosceles	10	9	10	Isosceles	Isosceles	True
Isosceles	1	13	13	Isosceles	Isosceles	True
Isosceles	7	7	9	Isosceles	Isosceles	True
Scalene	INT_MAX	500	379	Invalid	Scalene	False
Scalene	2	3	4	Scalene	Scalene	True
Scalene	15	16	28	Scalene	Scalene	True
Scalene	9	8	13	Scalene	Scalene	True
Scalene	3	4	5	Scalene	Scalene	True

Note: INT_MAX = 2147483647