

Results from Klee:

Job queued!

Executing KLEE

Executing KLEE

Uploading KLEE output directory

Done!

Ran command "/home/klee/klee\_build/bin/klee /tmp/code/code.o".

KLEE: output directory is "/tmp/code/klee-out-0"

KLEE: Using STP solver backend

KLEE: WARNING: undefined reference to function: printf

KLEE: WARNING ONCE: calling external: printf(19505824) at /tmp/code/tmp/code/code.c:1 0

non-triangle.

non-triangle.

non-triangle.

triangle.

equilateral triangle .

isosceles triangle.

isosceles triangle.

KLEE: done: total instructions = 136

KLEE: done: completed paths = 8

KLEE: done: generated tests = 8

Interpretation of results:

To give greater context a missing output exists in the function. In the deepest nested if statement, no statement is presented if only a==b is satisfied. A print statement is placed here (else printf(“missed area.\n”);). This reveals the eighth test condition. This results the output sequence:

non-triangle.

non-triangle.

non-triangle.

Triangle.

Equilateral triangle .

Missed area.

Isosceles triangle.

Isosceles triangle.

Reason for output sequence:

First the run fails each of the first decision’s conditions. That is (a+b<=c) then (a+c<=b) then (b+c<=a). This results in the three “non-triangles.” Outputs.

The rest of the run only concerns the equality of the different values. The following table may be used.

|  |  |  |
| --- | --- | --- |
| a == b | a == c | b == c |
| false | false | false |
| true | true | true |
| true | false | false |
| false | true | false |
| false | false | true |

The first row results in the “triangle.” Output, no two values are equal. The second row results in the “equilateral triangle.” Result, all values are equal. The third through fifth results are each condition being true one at a time.

Inputs:

Decision Coverage:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| a | b | c | output | valid |
| 1 | 1 | 5 | Non-triangle | True |
| 1 | 5 | 1 | Non-triangle | True |
| 5 | 1 | 1 | Non-triangle | True |
| 2 | 3 | 4 | Triangle | True |
| 2 | 2 | 2 | Equilateral | True |
| 2 | 2 | 3 | Missed area | False, should output isosceles. |
| 2 | 3 | 2 | Isosceles | True |
| 3 | 2 | 2 | Isosceles | True |

Condition Coverage:

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Condition / Decision Coverage:

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Multiple Condition Coverage:

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