EEGR 4101 - EMBEDDED 10/28/13

Look at this sample design

(1)

Input int x
Verify $0 \le x \le 200$. If not, Reenter

Input int y, verify $0 \le y \le 200$ If not, reenter
Input int z, verify $0 \le z \le 200$, If not, reenter

0	200	0	x
1	200	0	y
2	200	0	z
✓	✓	✓	If x < y {
✓			If y < z
✓			a = 200
			Else
			a = 0
			}
✓	✓		Else {
✓	✓		If x < z
			a = 100
✓	✓		Else
✓	✓		a = 50
✓	✓		}
✓	✓	✓	Return.
200	50	50	

What are the different values of x, y & z that will test all paths through the code

P.1

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Values of x, y, z to test code (2)

x	y	z	
0	1	2	→ a = 200
0	2	0	→ a = 0
1	0	2	→ a = 100
2	0	1	→ a = 50
201			→ Reenter x
	201		→ Reenter y
		201	→ Reenter z
-1	0	0	→ Reenter x
0	-1	0	→ Reenter y
0	0	-1	→ Reenter z

$x < y < z \rightarrow a = 200$

$x < y > z \rightarrow a = 0$

$y < z < x \rightarrow$ ~~$x > y < z$~~ $\rightarrow a = 100$

$y < z < x \rightarrow$ ~~$x \quad y \quad z$~~ $\rightarrow a = 50$

$(x = y) < z \rightarrow a = 100$

$(x = y) > z \rightarrow a = 50$

$(x = z) < y \rightarrow a = 50$

$(x = z) > y \rightarrow a = 0$

$x = y = z \rightarrow a = 50$

Lecture 17

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What values of x, y, z will give what values of a?

① If $(x < y) \& (y < z)$ and $x, y, z \in [0, 200]$ then $a = 200$

② If $(x < y) \& (y \geq z)$ and $x, y, z \in [0, 200]$, then $a = 0$

③ If $(x \geq y) \& (x < z)$ and $x, y, z \in [0, 200]$, then $a = 100$

④ If $(x \geq y) \& (x \geq z)$ and $x, y, z \in [0, 200]$, then $a = 50$.

Embedded Systems — 11/28/13

Test case: 001
Test object: verify Subroutine X_Y_Z — error entry, normal where X<Y<Z
Passing: Expected outputs
materials needed: PC & Embedded board, HEW

Steps:

Enter	-1	for X	→ Expect the reenter screen
Enter	201	for X	→ Expect the reenter screen
Enter	0	for X	
	1	for Y	
	2	for Z	

examine a, should be a=200

X = 1
Y = 0
Z = 2

test case 002

X = 2
Y = 1
Z = 0

Test case 003