

Homework Sheet 7, Ex. 2

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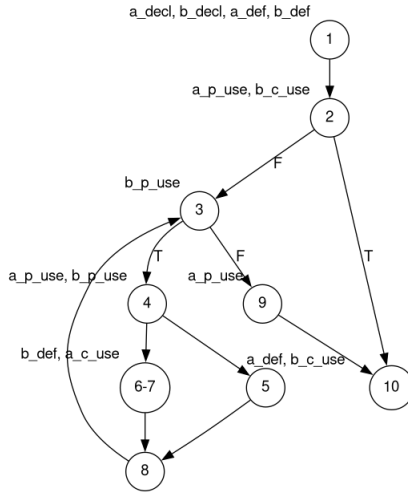
June 25, 2023

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- Data Flow
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Data Flow Graph



DU-Paths (a)

- 1-2, 1-2-3-9
- 1-2-3-4, 1-2-3-4-6-7, 1-2-3-4-6-7-9
- 5-8-3-4, 5-8-3-4-6-7
- 5-8-3-9

DU-Paths (b)

- 1-2, 1-2-3
- 1-2-3-4, 1-2-3-4-5
- 6-7-8-3, 6-7-8-3-4, 6-7-8-3-4-5

Test Suite

Test	#1
Test Path	1-2
Coverage	1-2
Input	$a = 0, b = 0$
Output	0
Test	#2
Test Path	1-2-3-9
Coverage	1-2, 1-2-3-9
Input	$a = 1, b = 0$
Output	1

Test Suite cont.

Test	#3
Test Path	1-2-3-4-6-7-8-3-9
Coverage	1-2, 1-2-3-4, 1-2-3-4-6-7, 1-2-3-4-6-7-8-9
Input	a = 1, b = 1
Output	1
Test	#4
Test Path	1-2-3-4-5-8-3-4-6-7-8-3-9
Coverage	1-2, 1-2-3-4, 5-8-3-4, 5-8-3-4-6-7, 5-8-3-4-9
Input	a = 2, b = 1
Output	1

Comparison Data Flow vs. Branch coverage

For 100% multiple-condition coverage, $c = 3 \implies 2^c = 8$
Twice the No. of Data-Flow cases, due to test cases of the form
 $a = 0, b = *$. Which never go further than the path 1-2-3-9.

Thanks

Thank you for your attention!