田野

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(a)

call sites in method trach:

line 12: call function takeout

line 13: call standard output method

(b)

The pairs are listed in the following, each gives a unit name, variable name and a line number. The first triple in a pair says where the variable is defined and the second where it is used.

(trash(), m, 5) ---- (takeOut(), a, 19)

(trash(), m, 7) ---- (takeOut(), a, 19)

(trash(), n, 9) ---- (takeOut(), b, 21)

(trash(), n, 9) ---- (takeOut(), b, 23)

(trash(), n, 11) ---- (takeOut(), b, 21)

(trash(), n, 11) ---- (takeOut(), b, 23)

(takeOut(), e, 21) ---- (trash(), o, 12)

(takeOut(), e, 23) ---- (trash(), o, 12)

(c)

test case: x = 0

expect output o = 0

actual output o = 0

test pair (trash(), m, 5) ---- (takeOut(), a, 19)

test case: x = 1

expect output o = 200

actual output o = 200

test pair (trash(), m, 7) ---- (takeOut(), a, 19)

test case: x = 6

expect output o = 192

actual output o = 192

test (trash(), n, 9) ---- (takeOut(), b, 21)

it’s impossible to test (trash(), n, 9) ---- (takeOut(), b, 23), because line 9 need x > 5 that means m=4 a = 4 but line 23 need a < 0. So, that can’t be done.

test case: x = 4

expect output o = 200

actual output o = 200

test (trash(), n, 11) ---- (takeOut(), b, 21)

test case: x = -1

expect output o = 0

actual output o = 0

test (trash(), n, 11) ---- (takeOut(), b, 23)

test case: x = 4

expect output o = 200

actual output o = 200

test (takeOut(), e, 21) ---- (trash(), o, 12)

test case: x = -1

expect output o = 0

actual output o = 0

test (takeOut(), e, 23) ---- (trash(), o, 12)