# PA#6, Q1 - humble test case

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Miroslav Dimitrov · 20 days ago

Corner test case I did myself for the 2-SUM algorithm.

10000
-10000
5464564
134
1344
899
0
1

Answer: 17

6 · flag

Deanna · 19 days ago

Another test case found. I am not sure what's the correct answer, so please kindly post yours if you have tried.

0
1
10
10
-10
10000
-10000
10001
9999
-10001
-9999
10000
5000
5000

-5000
-1
1000
2000
-1000
-2000

5 · flag

 Takafumi Yoshida · 19 days ago

Hi! Deanna,
The answer is 73, 92, 100 or 111?
Thanks,
Taka

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Jon Hoffman · 18 days ago

I got 73** for this test case. I just turned in the solution for PA6 and got both Q1 and Q2 correct.

The problem definition is very ambiguous. He says "compute the number of target values t in the interval ... such that there are distinct numbers x,y... that satisfy x+y=t". He never mentions there should be no duplicates of the sum "t". This crushed me. I was getting a solution larger than 100K, I don't remember exactly what, it was just way beyond his spec'ed range.

I tried getting clarification from this thread yesterday:
https://class.coursera.org/algo-009/forum/thread?thread_id=290

but it just further confused the issue.

So to clarify, if you have two distinct x, y that sum to the same value t, this should only be counted one time.
**x + y = t:**
-1+1 = 0 --> counter = 1
-2+2 = 0 --> counter = 1 (note that x,y are distinct, per the problem definition, however this case should be ignored.)
-1+0 = -1 --> counter = 2
-40+40=0 --> counter = 2 (same here, ignore this case)

**edited, see comments below

2 · flag

Varad Gunjal · 18 days ago

Hi Jon. Are you sure you got 65? I ran mine and I got 55.

0 · flag

Jon Hoffman · 18 days ago

I reprogrammed to print pairs each time. Here are all the distinct values of x,y,t that I got (sorry for the very long post):

1) 10001 + -10001 = 0
2) 10001 + -10000 = 1
3) 10001 + -9999 = 2
4) 10001 + -5000 = 5001
5) 10001 + -2000 = 8001
6) 10001 + -1000 = 9001
7) 10001 + -10 = 9991
8) 10001 + -1 = 10000
9) 10000 + -10001 = -1
10) 10000 + -5000 = 5000
11) 10000 + -2000 = 8000
12) 10000 + -1000 = 9000
13) 10000 + -10 = 9990
14) 10000 + -1 = 9999
15) 9999 + -10001 = -2
16) 9999 + -5000 = 4999
17) 9999 + -2000 = 7999
18) 9999 + -1000 = 8999
19) 9999 + -10 = 9989
20) 9999 + -1 = 9998
21) 5000 + -10001 = -5001
22) 5000 + -10000 = -5000
23) 5000 + -9999 = -4999
24) 5000 + -2000 = 3000
25) 5000 + -1000 = 4000
26) 5000 + -10 = 4990
27) 5000 + 10 = 5010
28) 5000 + 1000 = 6000
29) 5000 + 2000 = 7000
30) 2000 + -10001 = -8001
31) 2000 + -10000 = -8000
32) 2000 + -9999 = -7999
33) 2000 + -5000 = -3000
34) 2000 + -1000 = 1000
35) 2000 + -10 = 1990
36) 2000 + -1 = 1999
37) 2000 + 0 = 2000
38) 2000 + 1 = 2001
39) 2000 + 10 = 2010
40) 1000 + -10001 = -9001
41) 1000 + -10000 = -9000
42) 1000 + -9999 = -8999
43) 1000 + -5000 = -4000

44) 1000 + -2000 = -1000
45) 1000 + -10 = 990
46) 1000 + -1 = 999
47) 1000 + 1 = 1001
48) 1000 + 10 = 1010
49) 10 + -10001 = -9991
50) 10 + -10000 = -9990
51) 10 + -9999 = -9989
52) 10 + -5000 = -4990
53) 10 + -2000 = -1990
54) 10 + -1000 = -990
55) 10 + -1 = 9
56) 10 + 0 = 10
57) 10 + 1 = 11
58) 1 + -10001 = -10000
59) 1 + -10000 = -9999
60) 1 + -9999 = -9998
61) 1 + -2000 = -1999
62) 1 + -1000 = -999
63) 1 + -10 = -9
64) 0 + -2000 = -2000
65) 0 + -10 = -10
66) -1 + -2000 = -2001 ****VVVV  EDITED (thanks, Daniel)
67) -1 + -1000 = -1001
68) -1 + -10 = -11
69) -10 + -5000 = -5010
70) -10 + -2000 = -2010
71) -10 + -1000 = -1010
72) -1000 + -5000 = -6000
73) -2000 + -5000 = -7000

↑ 1 ↓ · flag

Daniel Hunt · 18 days ago

I'm getting 73, you don't have any addition of 2 negative numbers, is that correct?  (ex -2000+-5000=-7000)

↑ 2 ↓ · flag

Varad Gunjal · 18 days ago

yep. it's 73. my mistake. for speed, i had structured my code to suit the data in the assignment where the sum of two positive numbers in the range of integers provided is never within the target range specified.

on another note, don't you think that hash tables might not be the best way to solve this problem? in my implementation, i found that using a sorted array was **much** faster than inserting the elements into a hash table and going ahead from there.

↑ 0 ↓ · flag

Jon Hoffman · 18 days ago

@Dan, you are right! In an ill-conceived changed to speed up the program caused the bug.

I confirm it is 73 (I will change the output above).

0 · flag

Deanna · 18 days ago

Thanks for everyone's answers. Initially I got 100, too. After removing the duplicates for same target, I got 73.

0 · flag

Steven Hong · 18 days ago

Thank you, Jon Hoffman.  You saved me a lot of time!

0 · flag

Sandeep Gudla · 17 days ago

I got 74 ...
20(10+10) is missing in the above comment...

target sums :
[-10000, -9999, -9998, -9991, -9990, -9989, -9001, -9000, -8999, -8001, -8000, -7999, -7000, -6000, -5010, -5001, -5000, -4999, -4990, -4000, -3000, -2010, -2001, -2000, -1999, -1990, -1010, -1001, -1000, -999, -990, -11, -10, -9, -2, -1, 0, 1, 2, 9, 10, 11, 20, 990, 999, 1000, 1001, 1010, 1990, 1999, 2000, 2001, 2010, 3000, 4000, 4990, 4999, 5000, 5001, 5010, 6000, 7000, 7999, 8000, 8001, 8999, 9000, 9001, 9989, 9990, 9991, 9998, 9999, 10000]

3 · flag


桂亚楠 · 17 days ago

I got 73 and 17 for these two samples. But when I did the PA#6, I seem to get a wrong answer. And I even use integer array to calculate the answer directly. By this method, I still got 17 and 73 correctly, and the same "wrong" answer for PA#6. I am convinced that my logic is right and the "wrong" answer should be right. What is the problem?

0 · flag


桂亚楠 · 17 days ago

By the way, for PA#6, I got a answer between 300-400. I would not tell the exact number. Is the right answer in this range?

0 · flag


桂亚楠 · 16 days ago

I have figured out the problem, that is the number is out of range.

↑ 0 ↓ · flag

 桂亚楠 · 16 days ago

The number is out of int type variable range in c++. So I should use long long int.

↑ 0 ↓ · flag

 Dmitry Karataev · 14 days ago

Now I have the same result and I use long (java). Test cases are correct. Could you please explain a little bit more where you didn't use long and got 300-400?

Update: solved it, forgot about -1 in for loop. Takes less than 1 sec to solve.

↑ 0 ↓ · flag

+ Comment

mugnaio · 18 days ago

I have 74 because i consider good 10 + 10 = 20.
I think x and y = 10 are distinct because we have two 10 in the list. So x = 10 is one of the two 10, and y = 10 is the other one.
If we had only one 10 in the list, I would not count t = 20.
Maybe I'm wrong, anyway my solution is correct, so the exercise file does not have this problem.

I past my solution to this test case (iterating t as outer loop)

t x y
-10000 0 -10000
-9999 0 -9999
-9998 1 -9999
-9991 10 -10001
-9990 10 -10000
-9989 10 -9999
-9001 -10001 1000
-9000 -10000 1000
-8999 -9999 1000
-8001 -10001 2000
-8000 -10000 2000
-7999 -9999 2000
-7000 -5000 -2000
-6000 -5000 -1000
-5010 -10 -5000
-5001 -10001 5000
-5000 0 -5000
-4999 1 -5000
-4990 10 -5000
-4000 -5000 1000

-3000 -5000 2000
-2010 -10 -2000
-2001 -1 -2000
-2000 0 -2000
-1999 1 -2000
-1990 10 -2000
-1010 -10 -1000
-1001 -1 -1000
-1000 0 -1000
-999 1 -1000
-990 10 -1000
-11 -10 -1
-10 0 -10
-9 1 -10
-2 9999 -10001
-1 0 -1
0 1 -1
1 0 1
2 10001 -9999
9 10 -1
10 0 10
11 1 10
20 10 10 ----------?
990 -10 1000
999 -1 1000
1000 0 1000
1001 1 1000
1010 10 1000
1990 -10 2000
1999 -1 2000
2000 0 2000
2001 1 2000
2010 10 2000
3000 5000 -2000
4000 5000 -1000
4990 -10 5000
4999 9999 -5000
5000 0 5000
5001 1 5000
5010 10 5000
6000 5000 1000
7000 5000 2000
7999 9999 -2000
8000 10000 -2000
8001 10001 -2000
8999 9999 -1000
9000 10000 -1000
9001 10001 -1000
9989 -10 9999
9990 -10 10000

9991 -10 10001
9998 9999 -1
9999 0 9999
10000 0 10000

total: 74

3 · flag

+ Comment

Deanna · 14 days ago

Can someone kindly post his/her (x, y) sets for 1000.txt? I got all the other test cases right except for the 1000.txt.

https://www.dropbox.com/s/z8ul18rwa4i4rmo/2sum_100-100000_testcases.zip?dl=0

100.txt = 42
1000.txt = 486
10000.txt = 496
100000.txt = 519

1 · flag

Nikhil Thakur · 13 days ago

is the answer correct for 100000.txt?.I am getting a different answer only for 100000.txt

0 · flag

Javier Guzmán Santiago · 13 days ago

I'm getting 519 for 100000.txt

0 · flag

Dmitry Karataev · 13 days ago

Deanna answers are correct.
100.txt = 42
1000.txt = 486
10000.txt = 496
100000.txt = 519

0 · flag

Nikhil Thakur · 13 days ago

Ya they are correct,my bad.I did a mistake in my code

0 · flag

Deanna · 13 days ago

Also got 519 for 100000.txt

0 · flag

 Marcel Fuehren · 12 days ago

I got the same results as Deanna (and submitted my code succesfully)

0 · flag

vicente · 9 days ago

this is strange, I'm getting all these test cases correct, every single one of them. but once I switch to the programming assignment, I'm getting it wrong. can someone tell me the range for the correct answer for question 1? Just to make sure, if the answer is say 700, all we need to enter is 700 correct?

0 · flag

 Dmitry Karataev · 9 days ago

Yes, correct. Maybe you use ints and not longs?

0 · flag

vicente · 8 days ago

yes, that was it, I realized it soon after I posted.

0 · flag

+ Comment

Daniel So · 14 days ago

if your answer for 1000.txt is 489, you may want to check these cases

-9981866 + 9952250 = -29616
-9971557 + 9952250 = -19307
-9963715 + 9952250 = -11465

The expected sums are:
[-9985, -9968, -9937, -9839, -9825, -9793, -9739, -9714, -9709, -9708, -9692, -9680, -9620, -9605, -9591, -9580, -9570, -9558, -9454, -9431, -9409, -9382, -9340, -9277, -9263, -9169, -9156, -9145, -9113, -8973, -8917, -8907, -8873, -8779, -8727, -8709, -8643, -8599, -8555, -8477, -8470, -8410, -8199, -8191, -8072, -7988, -7975, -7965, -7943, -7928, -7906, -7853, -7827, -7814, -7794, -7767, -7720, -7713, -7651, -7606, -7592, -7578, -7491, -7473, -7462, -7460, -7458, -7426, -7422, -7413, -7409, -7401, -7298, -7270, -7224, -7217, -7189, -7172, -7107, -7037, -6956, -6952, -6950, -6927, -6833, -6739, -6699, -6585, -6478, -6477, -6451, -6309, -6306, -6275, -6227, -6214, -6113, -6106, -6047, -6038, -6033, -5988, -5980, -5974, -5916, -5914, -5766, -5743, -5741, -5718, -5692, -5684, -5617, -5588, -5580, -5558, -5527, -5516, -5495, -5492, -5467, -5441, -5417, -5408, -5404, -5288,

-5255, -5073, -5051, -5022, -5005, -4950, -4931, -4871, -4851, -4833, -4753, -4751, -4706, -4686, -4660, -4657, -4473, -4445, -4425, -4408, -4391, -4234, -4139, -4134, -4118, -3986, -3953, -3891, -3870, -3746, -3709, -3699, -3642, -3613, -3594, -3518, -3487, -3465, -3403, -3386, -3325, -3241, -3215, -3178, -3168, -3105, -3041, -3025, -3018, -2981, -2977, -2966, -2960, -2928, -2911, -2882, -2870, -2714, -2685, -2576, -2556, -2541, -2538, -2461, -2391, -2306, -2179, -2132, -2047, -2026, -2007, -1990, -1898, -1869, -1838, -1823, -1686, -1663, -1571, -1565, -1526, -1475, -1471, -1331, -1219, -1189, -1008, -979, -913, -908, -905, -893, -855, -773, -754, -707, -704, -646, -615, -554, -521, -520, -515, -498, -468, -409, -400, -385, -380, -311, -233, -232, -224, -216, -143, -132, -117, -50, -47, -11, -8, -5, -4, 22, 111, 123, 172, 244, 249, 257, 290, 305, 331, 406, 506, 599, 620, 640, 743, 795, 925, 1039, 1129, 1236, 1294, 1338, 1381, 1454, 1472, 1484, 1490, 1494, 1506, 1544, 1562, 1595, 1610, 1705, 1722, 1740, 1975, 1995, 2002, 2005, 2007, 2033, 2037, 2136, 2160, 2212, 2282, 2283, 2334, 2361, 2377, 2400, 2461, 2514, 2554, 2708, 2808, 2841, 2860, 2865, 2894, 3041, 3091, 3102, 3113, 3124, 3126, 3146, 3246, 3304, 3320, 3446, 3451, 3455, 3481, 3513, 3583, 3586, 3640, 3646, 3701, 3719, 3752, 3790, 3796, 3851, 3890, 3895, 3964, 3965, 4130, 4306, 4425, 4531, 4548, 4607, 4688, 4689, 4703, 4739, 4754, 4757, 4771, 4814, 4830, 4836, 4852, 5050, 5058, 5089, 5114, 5136, 5148, 5170, 5197, 5220, 5304, 5425, 5474, 5490, 5527, 5556, 5574, 5584, 5644, 5689, 5725, 5762, 5801, 5832, 5841, 5857, 5924, 5932, 5978, 6030, 6057, 6125, 6141, 6152, 6160, 6195, 6218, 6288, 6316, 6429, 6490, 6506, 6521, 6631, 6701, 6707, 6712, 6718, 6756, 6760, 6772, 6817, 6857, 6884, 6900, 6974, 7024, 7052, 7094, 7100, 7113, 7211, 7242, 7285, 7309, 7370, 7400, 7442, 7465, 7524, 7586, 7654, 7663, 7665, 7754, 7774, 7813, 7845, 7884, 7980, 7982, 8074, 8135, 8177, 8191, 8244, 8264, 8288, 8392, 8443, 8450, 8459, 8530, 8550, 8603, 8612, 8666, 8698, 8826, 8837, 8865, 8877, 8888, 8974, 9007, 9010, 9028, 9033, 9098, 9109, 9148, 9159, 9164, 9203, 9241, 9247, 9261, 9277, 9488, 9512, 9579, 9602, 9754, 9755, 9776, 9861, 9895, 9970, 9986, 9998]

0 · flag

Deanna · 13 days ago

Thank you, Daniel for posting the sums. I got it now.

0 · flag

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