Practice Arena

Practice problems aimed to improve your coding skills.

- PRACTICE-02_SCAN-PRINT
- PRACTICE-03_TYPES
- LAB-PRAC-02_SCAN-PRINT
- LAB-PRAC-01
- PRACTICE-04_COND
- BONUS-PRAC-02
- LAB-PRAC-03_TYPES
- PRACTICE-05_COND-LOOPS
- LAB-PRAC-04_COND
- LAB-PRAC-05_CONDLOOPS
- PRACTICE-07_LOOPS-ARR
- LAB-PRAC-06_LOOPS
- LAB-PRAC-07_LOOPS-ARR
- LABEXAM-PRAC-01_MIDSEM
- PRACTICE-09_PTR-MAT
- LAB-PRAC-08_ARR-STR
- PRACTICE-10_MAT-FUN
- LAB-PRAC-09_PTR-MAT
- LAB-PRAC-10_MAT-FUN
- PRACTICE-11_FUN-PTR
- LAB-PRAC-11_FUN-PTR
- LAB-PRAC-12_FUN-STRUC
- LABEXAM-PRAC-02_ENDSEM
- LAB-PRAC-13_STRUC-NUM
- LAB-PRAC-14_SORT-MISC
    - Predecessor and Successor
    - Insertion Sort
    - Link a List
    - The United Sums of Arrays
    - Bubble Sort
    - Pretty Queues Revisited
    - Just About Sorted
    - Brick Sort
    - All My Descendants
    - Mr C likes a Majority
    - Cocktail Sort
    - All My Descendants - Part II

The United Sums of Arrays

LAB-PRAC-14_SORT-MISC

The United Sums of Arrays [20 marks]

Problem Statement
In the first line of the input we will give you three integers m, n, q. m and n will be strictly positive and will denote the size of two arrays A and B. q will be an integer that may be negative or positive or zero. In the next line we will give you m integers that constitute the array A. In the next line we will give you n integers that constitute the array B. Both arrays will be sorted in non-decreasing order.

You have to tell us, for every element of the array A[i], how many elements of B exist, such that A[i] + B[j] = q. Your output should contain m lines, each line telling us, for one value of i, how many elements of B exist which, when added to A[i], give q. There should be no spaces in your output.

Caution

1. Try to use the binary search method to avoid searching all pairs elements from the two arrays. Try to search for a matching element in array B corresponding to every element in array A. Your solution should work in O(m * log n) time rather than O(m * n) time.
2. Integers may repeat in the arrays A and B. The arrays may contain negative integers or zero values as well.
3. The lengths of the arrays, i.e. m and n may be any strictly positive integer, even 1.
4. Be careful about extra/missing lines and extra/missing spaces in your output.

EXAMPLE:
INPUT

```
4 4 12
1 4 4 6
6 8 8 12
```

OUTPUT:

```
0
2
2
1
```

Explanation: A[0] = 1 does not add with anything in array B to give 12. A[1] = 4 adds with B[1] = B[2] = 8 to give 12. A[2] = 4 also adds with B[1] = B[2] = 8 to give 12. A[3] = 6 adds with B[0] = 6 to give 12.

Grading Scheme:
Total marks: **[20 Points]**

There will be partial grading in this question. There are several lines in your output. Printing each line correctly, in the correct order, carries equal weightage. Each visible test case is worth 2 points and each hidden test case is worth 4 points. There are 2 visible and 4 hidden test cases.

Please remember, however, that when you press Submit/Evaluate, you will get a green bar only if all parts of your answer are correct. Thus, if your answer is only partly correct, Prutor will say that you have not passed that test case completely, but when we do autograding afterwards, you will get partial marks.

Start Solving! (/editor/practice/6288)