NOKIA

Nokia Collegiate Code Warriors Hunt 2021 LIVE

Jun 10, 2021, 10:10 AM IST - Jun 14, 2021, 12:05 AM IST

01 : 02 : 05 : 09
DAY HRS MIN SEC

Product of pairs

Max. score: 100

You are given an array *A* consisting of *N* elements and an integer *K*.

Let's define a function as following:

$$f(i,j) = \begin{cases} A_i \times A_j & \text{if i < j and K|(j - i)} \\ 0 & \text{else} \end{cases}$$

Task

Calculate $\sum_{i=1}^{N} \sum_{j=i}^{N} f(i,j)$.

Notes

- *n*|*m* denotes *m* is divisible by *n*.
- *1*-based indexing is followed.

Example

Assumptions

- *N = 5*
- *K = 3*
- *A = [2, 4, 3, 2, 1]*

Approach

Considering all the possible pairs, only the following pairs satisfy the conditions:

- Pair *(1, 4)* satisfies *1 < 4* and *4 - 1 = 3* is divisible by *K*
- Pair *(2, 5)* satisfies *2 < 5* and *5 - 2 = 3* is divisible by *K*

All the other pairs would contribute zero.

Hence, the final answer is $(A_1 \times A_4) + (A_2 \times A_5) = (2 \times 2) + (4 \times 1) = 8$.

Function description

Complete the *solve* function provided in the editor. This function takes the following *3* parameter and returns the answer:

- *N*: Represents the size of the array
- *K*: Represents the number *K* according to the problem statement
- *A*: Represents an array of integers of size *N*

Input format

Note: This is the input format that you must use to provide custom input (available above the **Compile and Test** button).

- The first line contains an integer *T* denoting the number of test cases. *T* also denotes the number of times you have to run the *solve* function on a different set of inputs.
- For each test case:
  - The first line contains an integer *N* denoting the size of the array.
  - The second line contains an integer *K*.
  - The third line contains *N* space-separated integers denoting the array *A*.

Output format

For each test case, print the answer on a new line.

Constraints

$1 \leq T \leq 10$

$1 \leq K < N \leq 10^5$

$1 \leq A_i \leq 100 \, \forall \, i \in [1, N]$

RECENT SUBMISSIONS

DEVELOPERS	RESULT	LANGUAGE
Salim Ahmed Ali	✓	C++14
Niranjan	✗	C++17
Niranjan	✗	C++17
Salim Ahmed Ali	✗	C++14
Mohammed Kaleemu...	✓	Java 8
Niranjan	✗	C++17
Chandan C Bagan	✓	C++

View All

Code snippets (also called starter code/boilerplate code)

This question has code snippets for C, CPP, Java, and Python.

SAMPLE INPUT	SAMPLE OUTPUT
2 5 4 2 3 5 1 5 5 3 7 8 2 3 1	10 29

Explanation

The first line contains the number of test cases, *T* = 2

The first test case

Given

- *N = 5*
- *K = 4*
- *A = [2, 3, 5, 1, 5]*

Approach

Considering all the possible pairs, only the following pairs satisfy the conditions:

- Pair *(1, 5)* satisfies *1 < 5* and *5 - 1 = 4* is divisible by *K*

All the other pairs would contribute zero.

Hence, the final answer is $A_1 \times A_5 = 2 \times 5 = 10$.

The second test case

Given

- *N = 5*
- *K = 3*
- *A = [7, 8, 2, 3, 1]*

Approach

Considering all the possible pairs, only the following pairs satisfy the conditions:

- Pair *(1, 4)* satisfies *1 < 4* and *4 - 1 = 3* is divisible by *K*
- Pair *(2, 5)* satisfies *2 < 5* and *5 - 2 = 3* is divisible by *K*

All the other pairs would contribute zero.

Hence, the final answer is $(A_1 \times A_4) + (A_2 \times A_5) = (7 \times 3) + (8 \times 1) = 29$.

Time Limit:	3.0 sec(s) for each input file.
Memory Limit:	256 MB
Source Limit:	1024 KB
Marking Scheme:	Score is assigned if any testcase passes.
Allowed Languages:	C, C++, C++14, C++17, Java, Java 8, Python, Python 3

CODE EDITOR

Save C++14 (g++ 5.4.0)

```
#include<bits/stdc++.h>
using namespace std;

long long solve (int N, int K, vector<int> A) {
    // Write your code here
//     ios_base::sync_with_stdio(false);
//     cin.tie(NULL);
     int count =1;
    long long result = 0;
    for(int width=K; width<(int)A.size(); width=K*count){
        for(int i=0; i+width<(int)A.size(); i++){
```

```
            int j = i+width;
            result += ((long long)A[i]*(long long)A[j]);
          //     cout<<result<<" ";
        }
        count +=1;
    }

    return result;
}

int main() {

    ios::sync_with_stdio(0);
    cin.tie(0);
    int T;
```

1:1 vscode

Provide custom input

COMPILE & TEST SUBMIT

⚠ Warning: Copy & Paste in code editor is not allowed for this challenge. If you think this is an issue, please contact administrator at support@hackerearth.com.

Tip: You can submit any number of times you want. Your best submission is considered for computing total score.

Your Rating:

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