Beautiful Triplets

by Shafaet

Problem Submissions Leaderboard Discussions Editorial

Erica wrote an increasing sequence of n numbers ($a_0, a_1, \ldots, a_{n-1}$) in her notebook. She considers a triplet (a_i, a_j, a_k) to be beautiful if:

- $i < j < k$
- $a[j] - a[i] = a[k] - a[j] = d$

Given the sequence and the value of d, can you help Erica count the number of beautiful triplets in the sequence?

Input Format

The first line contains 2 space-separated integers, n (the length of the sequence) and d (the beautiful difference), respectively.
The second line contains n space-separated integers describing Erica's increasing sequence, $a_0, a_1, \ldots, a_{n-1}$.

Constraints

- $1 \leq n \leq 10^4$
- $1 \leq d \leq 20$
- $0 \leq a_i \leq 2 \times 10^4$
- $a_i > a_{i-1}$ for $0 < i \leq n - 1$

Output Format

Print a single line denoting the number of beautiful triplets in the sequence.

Sample Input

```
7 3
1 2 4 5 7 8 10
```

Sample Output

```
3
```

Explanation

Our input sequence is $1, 2, 4, 5, 7, 8, 10$, and our beautiful difference $d = 3$. There are many possible triplets (a_i, a_j, a_k), but our only beautiful triplets are $(1, 4, 7)$, $(4, 7, 10)$ and $(2, 5, 8)$. Please see the equations below:

$7 - 4 = 4 - 1 = 3 = d$
$10 - 7 = 7 - 4 = 3 = d$
$8 - 5 = 5 - 2 = 3 = d$

Recall that a beautiful triplet satisfies the following equivalence relation: $a[j] - a[i] = a[k] - a[j] = d$ where $i < j < k$.

Submissions: 5493
Max Score: 20
Difficulty: Easy

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Current Buffer (saved locally, editable) C#

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

class Solution {
    static void Main(String[] args) {
        /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution */
         string[] input = Console.ReadLine().Split(' ');
            int n =  int.Parse(input[0]);
            int d =  int.Parse(input[1]);

            int[] a = Array.ConvertAll(Console.ReadLine().Split(' '), e => int.Parse(e));



            int ans = 0;

            for (int i = 0; i < n; i++)
            {
                int j = i+1;
                while (j < n && a[j] - a[i] <= d)
                {
                    if (a[j] - a[i] == d)
                    {
                        int k =j+1;
                        while (k < n && a[k] - a[j] <= d)
                        {
                            if (a[k] - a[j] == d)
                            {
                                ans++;
                                break;
                            }
                            k++;
                        }
                    }
                    j++;
                }

            }

            Console.WriteLine(ans);



    }
}
```

Line: 8 Col: 29

Upload Code as File Test against custom input Run Code Submit Code

Congrats, you solved this challenge!

- ✔ Test Case #0
- ✔ Test Case #1
- ✔ Test Case #2
- ✔ Test Case #3
- ✔ Test Case #4
- ✔ Test Case #5
- ✔ Test Case #6
- ✔ Test Case #7
- ✔ Test Case #8
- ✔ Test Case #9

Next Challenge