Wet Shark and Two Subsequences

by trophies

Problem Submissions Leaderboard Discussions Editorial

One day, Wet Shark was given an array $X = \{x_1, x_2, \ldots, x_m\}$. As always, he started playing with its subsequences.

When you came to know about this habit, you presented him a task of finding all pairs of subsequences, (A, B), which satisfies all of the following constraints. We will represent a pair of subsequence as $A = \{x_{a_1}, x_{a_2}, \ldots, x_{a_n}\}$ and $B = \{x_{b_1}, x_{b_2}, \ldots, x_{b_n}\}$

- A and B must be of same length, i.e., $|A| = |B|$.
- $\sum_{i=1}^{n}(x_{a_i} + x_{b_i}) = r$
- $\sum_{i=1}^{n}(x_{a_i} - x_{b_i}) = s$

Please help Wet Shark determine how many possible subsequences A and B can exist. Because the number of choices may be big, output your answer modulo $10^9 + 7 = 1000000007$.

Note:

- Two segments are different if there's exists at least one index i such that element x_i is present in exactly one of them.
- Both subsequences can overlap each other.
- Subsequences do not necessarily have to be distinct

Input Format

The first line consists of 3 space-separated integers m, r, s, where m denotes the length of the original array, X, and r and s are as defined above. The next line contains m space-separated integers, $x_1, x_2, \ldots, x_m$, representing the elements of X.

Constraints

- $1 \leq m \leq 100$
- $0 \leq r,\ s \leq 2000$
- $1 \leq x_i \leq 2000$

Output Format

Output total number of pairs of subsequences, (A, B), satisfying the above conditions. As the number can be large, output it's modulo $10^9 + 7 = 1000000007$

Sample Input 0

```
4 5 3
1 1 1 4
```

Sample Output 0

3

Explanation 0

For array $X = \{x_1, x_2, x_3, x_4\} = \{1, 1, 1, 4\}$ there are three pairs of subsequences:

1. $A = \{x_4\} = \{4\}; B = \{x_1\} = \{1\}$
2. $A = \{x_4\} = \{4\}; B = \{x_2\} = \{1\}$
3. $A = \{x_4\} = \{4\}; B = \{x_3\} = \{1\}$

Submissions:872

Max Score:80

Difficulty: Medium

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Current Buffer (saved locally, editable) Java 7

```
1  import java.io.*;
2  import java.util.*;
3  import java.text.*;
4  import java.math.*;
5  import java.util.regex.*;
6
7  public class Solution {
8      public static void main(String args[] ) throws Exception {
9          /* Enter your code here. Read input from STDIN. Print output to STDOUT */
10     }
11 }
12
```

Line: 1 Col: 1

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