Problem L. Two Sequences

Time limit 3000 ms
Mem limit 262144 kB

Problem Statement

You are given two integer sequences, each of length N: $a_1, ..., a_N$ and $b_1, ..., b_N$.

There are N^2 ways to choose two integers i and j such that $1 \leq i, j \leq N$. For each of these N^2 pairs, we will compute $a_i + b_j$ and write it on a sheet of paper. That is, we will write N^2 integers in total.

Compute the XOR of these N^2 integers.

▶ Definition of XOR

Constraints

- All input values are integers.
- $1 \leq N \leq 200,000$
- $0 \leq a_i, b_i < 2^{28}$

Input

Input is given from Standard Input in the following format:

N
a_1 a_2 ... a_N
b_1 b_2 ... b_N

Output

Print the result of the computation.

Sample 1

Input	Output
2 1 2 3 4	2

On the sheet, the following four integers will be written: $4(1 + 3)$, $5(1 + 4)$, $5(2 + 3)$ and $6(2 + 4)$.

Sample 2

Input	Output
6 4 6 0 0 3 3 0 5 6 5 0 3	8

Sample 3

Input	Output
5 1 2 3 4 5 1 2 3 4 5	2

Sample 4

Input	Output
1 0 0	0