XORSUM

You are given an array V, consisting of N integers V_1 , V_2 , … , V_N.
Your task is to find the result of $\text{XOR}\ (1 \le i \le j \le N)\ (V_i + V_j)$.

INPUT

The first line contains integer N – the size of the array. The second line contains N space-separated integers V_1 , V_2 , … , V_N.

OUTPUT

The first line contains the required answer.

SUBTASKS

Subtask	Constraints	Scoring
Subtask 1	$1 \le N \le 10^3$, $1 \le V_i \le 5 * 10^8$	7 points
Subtask 2	$1 \le N \le 10^6$, $1 \le V_i \le 10^3$	11 points
Subtask 3	$1 \le N \le 10^6$, $1 \le V_i \le 10^6$	21 points
Subtask 4	$1 \le N \le 10^5$, $1 \le V_i \le 5 * 10^8$	38 points
Subtask 5	$1 \le N \le 10^6$, $1 \le V_i \le 5 * 10^8$	23 points

EXAMPLE

Input	Output
4 3 9 6 6	20

Note:

(1 , 1) : 3 + 3 = 6
(1 , 2) : 3 + 9 = 12
(1 , 3) : 3 + 6 = 9
(1 , 4) : 3 + 6 = 9
(2 , 2) : 9 + 9 = 18
(2 , 3) : 9 + 6 = 15
(2 , 4) : 9 + 6 = 15
(3 , 3) : 6 + 6 = 12
(3 , 4) : 6 + 6 = 12
(4 , 4) : 6 + 6 = 12
6 ^ 12 ^ 9 ^ 9 ^ 18 ^ 15 ^ 15 ^ 12 ^ 12 ^ 12 = 20