



## XORSUM

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

## INPUT

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

## OUTPUT

The first line contains the required answer.

## SUBTASKS

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

## EXAMPLE

Input	Output
4 3 9 6 6	20

## Note:

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