XOR Sum

Time limit: 0.6s **Memory limit:** 256M

Given an array of length N, partition it into one or more contiguous groups. Once partitioned, take the XOR of the elements in each group. Compute the sum of these values. Bessie wants this sum to be minimal, Farmer John wants the sum to be maximal. Compute the difference between their sums.

Input Specification

The first line of the input will contain a single positive integer, N. You may assume $N \leq 10^5$.

The second line of the input will contain N space-separated positive integers, the integers of the array in order. These positive integers will be less than 10^9.

Output Specification

Print on a single line the difference between the sums Bessie and Farmer John compute.

Sample Input

```
5
1 2 4 8 16
```

Sample Output

```
0
```