Problem C: Magic Sequences

Time Limit: 1 Sec Memory Limit: 128 MB
Submit: 631 Solved: 204
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Description

IceRuler has a sequence A = [a_1,a_2,...,a_n]. With a magic number m, he wants you to tell him the maximum element in these intervals [a_1,..a_m], [a_2,...a_{m+1}],...[a_{n-m+1},...,a_n].

Input

The first line is the magic number m. The second line contains n integers, where the i-th integer repersents the integer ai. Input ends with a number -1. Constraints: 1 ≤ m < n 1 ≤ n ≤ 2000000 0 ≤ ai ≤ 1000000000

Output

Print one integer K in one line, represents the XOR sum of the maxmium elements in a[i]..a[i +m-1]s. K = the max number in [a1,..am] ⊕ the max number in [a2,..am+1] .....⊕ the max number in [an-m+1,..an]. ⊕ is the bit operation exclusive OR.

Sample Input

```
5
121 123 122 13 12 12 52 2 6 7 32 7 324 34 124 213 214 1412 -1
```

Sample Output

```
1178
```

HINT

Easy pro.

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