

### B. Sponsor

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

OLJ, a giant company, plans to sponsor CPL this year. The amount of money they will invest is equal to the maximum points that can be scored in the following problem.

- Given the number of Instagram followers of  $n$  teams in the CPL, you are allowed to choose any  $i(1 \leq i \leq n - 1)$  teams of your choice among them.
- Let the number of instagram followers of  $i$  teams you chose be  $a_1, a_2, a_3, \dots, a_i$  and the followers of rest of the teams be  $b_1, b_2, \dots, b_{n-i}$ .
- Then points are calculated using the formula
  - $f(a_1, a_2, a_3, \dots, a_i) + f(b_1, b_2, \dots, b_{n-i})$
- where  $f(d_1, d_2, \dots, d_m) = d_1 \oplus d_2 \oplus \dots \oplus d_{m-1} \oplus d_m$  and  $\oplus$  represents the [bitwise XOR operator](#)

Your task is to find the amount of money that OLJ will sponsor. You will need to use **long long** as answer can be out of bound of int.

#### Input

The first line contains a single integer  $n(2 \leq n \leq 10^5)$ — the number of teams in the CPL

The second line contains  $n$  integers  $c_1, c_2, \dots, c_n$  ( $1 \leq c_j \leq 10^{18}$ ) — number of instagram followers of each team.

#### Output

Print the amount of money that will be sponsored by OLJ ,that is the maximum possible points one can score. You will need to use **long long** as the answer can be out of bound of int.

#### Examples

input	Copy
4 2 5 7 4	
output	Copy
10	

input	Copy
3 4 4 4	
output	Copy
4	

input	Copy
3 90413825674767126 70258219014609588 49358208343180731	
output	Copy
209427676301511009	

#### Note


In the first sample, the maximum possible points one can score is 10 and is obtained by choosing 2 teams with followers 2 and 5, so now using the formula, points will be equal to  $f(2, 5) + f(7, 4) = (2 \oplus 5) + (7 \oplus 4) = 7 + 3 = 10$ .

**Shaastra Programming Contest Prelims**

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Contestant



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Language: 

Java 17 64bit

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In the second sample, the maximum possible points one can score is 4, obtained by choosing any one of the teams.

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