

# Bhagat The Bit Man

Bhagat is student of CSE at ISM Dhanbad. In mid-semester exam somehow he was able to score full marks in Boolean algebra. So his profs doubt how can he score full marks. So profs decided to check his ability. They gave Bhagat a list student's admission number and ask him to find total kaptiness (K) of list.

Kaptiness is defined as or operation on every dukkerness( $d_i$ ) value. Dukkerness value is xor operation on every pair of number in list. As we all know Bhagat is not good in Boolean algebra. Can you help him to prove his profs that he can score full out of full in boolean algebra.

Example:-

If list contain three number 10,15 & 17. Then there will be total 3 pairs .

$$d_1 = 10 \oplus 15 = 5;$$

$$d_2 = 10 \oplus 17 = 27;$$

$$d_3 = 17 \oplus 15 = 30;$$

$$k = d_1 \mid d_2 \mid d_3 ;$$

$$K = 31;$$

## Input

First line of input contain  $N(2 \leq N \leq 10^6)$ .  $N$  is total number of admission number( $a_i$ ) in list.

Then following  $N$  line will contain admission number. ( $0 \leq a_i \leq 10^{18}$ )

## Output

Output only one line containing  $K$ .

## Example

Input:

3

10

15

17

Output:

31

**NOTE: Large input data .**

test cases have been updated and all solutions are rejudged .