Problem K. Kids And Sequence Game

Input file:	*standard input*
Output file:	*standard output*
Time limit:	3 seconds
Memory limit:	1024 mebibytes

Alice and Bob are playing the *Binary Game*. Initially, there is a sequence $a_1, a_2, \ldots, a_n$ of n positive integers. The players take turns starting with Alice. On each turn, the player performs the following action:

- Choose an integer i ($1 \le i \le n$) such that $a_i > 0$. Then get ($a_i \bmod 2$) points and apply $a_i := \left\lfloor \frac{a_i}{2} \right\rfloor$.

The game ends when all integers in the sequence become zeroes. The *result* of the game is the value $A - B$ where A is Alice's points and B is Bob's points. Alice's goal is to maximize the result, and Bob's goal is to minimize it. What will be the result of the game if both players play optimally?

Input

The first line of input contains a single integer n ($1 \le n \le 5 \cdot 10^4$).

The second line contains n integers $a_1, a_2, \ldots, a_n$ ($1 \le a_i < 2^{63}$).

Output

Output a single integer: the result of the game (Alice's points minus Bob's points) if both players play optimally.

Example

standard input	*standard output*
5 13 29 10 1 26	3