The Best Mask

You have an array of integers $a_0, a_1, \ldots, a_{n-1}$. Your task is to find an integer x such that the following are true:

- Bitwise AND between a_i and x is non-zero for each $0 \le i < n$.
- Number of ones in the binary expression of x is minimum.
- If there are many such x, you should find smallest of them.

For example, let's say the array is $\{1, 2, 3\}$. There are an infinite amount of integers that satisfies the first condition. First few of them are $3, 7, 11, 15, \ldots$ etc. Among all the number that satisfies the first condition, 3 has the least amount of ones in the binary expression (binary representation of 3 is 11 which have just two ones). So the answer for this example is $x = 3$.

Input Format

The first line contains single integer n, the number of elements in the array. The second line contains n space-separated integers $a_0, a_1, \ldots, a_{n-1}$.

Constraints

- $1 \le n \le 10^5$
- $1 \le a_0, a_1, a_2, \ldots, a_{n-1} \le 2^{26}$

Time limit

- C/C++/Pascal/Java/C#: $1s$
- For other languages the time limit is standard

Output Format

Print a single integer, the value of x.

Sample Input 0

```
3
1 2 3
```

Sample Output 0

```
3
```

Explanation 0

Explained in the problem statement.

Sample Input 1

```
10
1 2 4 8 16 32 64 256 512 128
```

Sample Output 1

```
1023
```

Sample Input 2

```
3
7 14 28
```

Sample Output 2

```
4
```