

Submask Parity

Let us consider two cases:

- Every number appears an even number of times in the array.

In this case, no matter which number x we choose, the array will contain an even number of its submasks. Therefore, the answer is -1 .

- There exists a number that appears an odd number of times in the array.

Let x be the smallest such number. Note that if y is a submask of x , then $y \leq x$. All numbers smaller than x appear an even number of times, and the number x itself appears an odd number of times. Thus, x is a valid solution.