Problem C. AND PLUS OR

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

For two nonnegative integers a, b, let $a \wedge b$ be their bitwise AND, and $a \vee b$ be their bitwise OR.

You are given an array $A_0, A_1, \ldots, A_{2^N-1}$ of length 2^N consisting of nonnegative integers. Please find a pair of indices $0 \le i, j \le 2^N - 1$ such that $A_i + A_j < A_{i \wedge j} + A_{i \vee j}$, or state that no such pair exists. If there is more than one such pair, find any one of them.

Input

The first line contains an integer N ($0 \le N \le 20$).

The second line contains 2^N integers: $A_0, A_1, \ldots, A_{2^N-1}$ ($0 \le A_i \le 10^7$).

Output

If there is an answer, output two integers i and j denoting the answer. The numbers i and j should be in the range $[0, 2^N - 1]$. Otherwise, output `-1`.

Examples

standard input	*standard output*
2 0 1 1 2	-1
2 0 1 1 3	2 1
0 100	-1