Problem A. AND Permutation

Input file:	*standard input*
Output file:	*standard output*
Time limit:	5 seconds
Memory limit:	1024 mebibytes

You are given a sequence of n distinct nonnegative integers $a_1, a_2, \ldots, a_n$.

For the given sequence, it is guaranteed that for all nonnegative numbers x, if there is some i such that $a_i \ \& \ x = x$, then there is a j such that $a_j = x$. Here, & refers to the bitwise AND operator.

Find a permutation $b_1, b_2, \ldots, b_n$ of $a_1, a_2, \ldots, a_n$ such that $b_i \ \& \ a_i = 0$ for all i. If there are multiple solutions, find any such permutation. It is guaranteed that a solution always exists.

Input

The first line of input contains an integer n ($1 \le n < 2^{18}$), which is the number of integers in the permutation.

Each of the next n lines contains an integer a_i ($0 \le a_i < 2^{60}$), which is the input sequence, in order of i. All of the a_i's are guaranteed to be distinct. For all nonnegative numbers x, if there is some i such that $a_i \ \& \ x = x$, then there is a j such that $a_j = x$.

Output

Output n lines, each containing a single integer, which are the b_i's, in order of i.

Example

standard input	standard output
6 0 1 4 5 2 6	4 6 0 2 5 1