Problem D. Blind Gauss

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	256 mebibytes

Construct a square matrix with n rows and n columns consisting of nonnegative integers from 0 to 10^{18} such that its determinant is equal to 1 and there are exactly a_i odd numbers in the i-th row for each i from 1 to n, or report that there is no such matrix.

Input

The first line contains a single integer n ($2 \le n \le 50$).

Each of the next n lines contains a single integer a_i ($1 \le a_i \le n$).

Output

If there is no matrix that meets the requirements, output `-1`.

Otherwise, output n lines with n numbers $m_{i,j}$ in each ($0 \le m_{i,j} \le 10^{18}$): the elements of the constructed matrix. If there are multiple solutions, print any one of them.

Examples

standard input	*standard output*
2 1 1	1 0 0 1
2 2 1	1 1 1 2
4 3 3 3 3	1 0 1 1 1 1 1 2 1 1 2 3 0 1 1 3
3 2 2 2	-1
3 3 1 3	-1