



Problem F. Constructive Problem

Time limit: 1 second

Memory limit: 256 megabytes

input: standard input

output: standard output

Patricky has been loving the **F5** coffees lately, and they're packaged like some keys, very endearing:



Now Patricky has collected n each of n flavors of coffee, he wants to arrange them into a $n \times n$ matrix so that no two identical flavors are next to each other. To make this more interesting, initially a flavor has been placed in column 1 of each row.

Input

The first line contains an integer n ($1 \leq n \leq 10^3$).

The second line contains n integers f_1, f_2, \dots, f_n ($1 \leq f_i \leq n$), indicating flavors put in the first column. No two coffees given with same flavor share an edge.

Output

Output a matrix of $n \times n$, indicating the way you put coffees.

If there are multiple answers, you can print any of them.

Examples

standard input	standard output
3 1 2 3	1 2 1 2 3 2 3 1 3