

Problem 10. Symmetric matrix

Input file: input.txt
Output file: output.txt
Time limit: 2 seconds
Memory limit: 256 mebibytes



In a square matrix with n rows, all elements are integers. You can swap two elements of the matrix at one step. Find out the minimal number of steps necessary to obtain a symmetric matrix from the initial one. A symmetric matrix is a matrix with the same element at the intersection of the i th row and j th column as that at the intersection of the j th row and the i th column for any i, j .

It is guaranteed that in this matrix, n elements occur only once, and each of the rest occurs twice.

Input

The first line of the input file contains an integer n — the number of rows in the matrix ($1 \leq n \leq 500$). The following n lines describe the rows of the matrix. Each of them contains n space-separated integers, which are not greater than 10^9 in absolute value.

Output

In the first line of the output file, print a single integer m — the minimal number of steps to obtain a symmetric matrix. Next, print an example of m such steps. For the i th step, print four integers a_i, b_i, c_i, d_i into a separate line, which mean that the element located in the a_i th row and the b_i th column must be swapped with the element in the c_i th row and the d_i th column.

Examples

input.txt	output.txt
2 1 2 3 1	2 1 1 1 2 2 1 2 2
3 1 4 -3 4 2 5 6 6 5	2 3 3 3 2 3 3 1 3