PROBLEMS   SUBMIT   STATUS   STANDINGS   CUSTOM TEST

A. Candy Bags

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Gerald has n younger brothers and their number happens to be even. One day he bought n^2 candy bags. One bag has one candy, one bag has two candies, one bag has three candies and so on. In fact, for each integer k from 1 to n^2 he has exactly one bag with k candies.

Help him give n bags of candies to each brother so that all brothers got the same number of candies.

Input

The single line contains a single integer n (n is even, $2 \leq n \leq 100$) — the number of Gerald's brothers.

Output

Let's assume that Gerald indexes his brothers with numbers from 1 to n. You need to print n lines, on the i-th line print n integers — the numbers of candies in the bags for the i-th brother. Naturally, all these numbers should be distinct and be within limits from 1 to n^2. You can print the numbers in the lines in any order.

It is guaranteed that the solution exists at the given limits.

Examples

input
2

output
1 4 2 3

Note

The sample shows Gerald's actions if he has two brothers. In this case, his bags contain 1, 2, 3 and 4 candies. He can give the bags with 1 and 4 candies to one brother and the bags with 2 and 3 to the other brother.

→ Attention

Package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then value 800 ms will be displayed and used to determine the verdict.

Codeforces Round #194 (Div. 2)
Finished

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Problem tags

implementation

No tag edit access

→ Contest materials

- Announcement ✕
- Tutorial ✕