B. Present from Lena

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Vasya's birthday is approaching and Lena decided to sew a patterned handkerchief to him as a present. Lena chose digits from 0 to n as the pattern. The digits will form a rhombus. The largest digit n should be located in the centre. The digits should decrease as they approach the edges. For example, for $n = 5$ the handkerchief pattern should look like that:

```
        0
      0 1 0
    0 1 2 1 0
  0 1 2 3 2 1 0
0 1 2 3 4 5 4 3 2 1 0
  0 1 2 3 4 3 2 1 0
    0 1 2 3 2 1 0
      0 1 2 1 0
        0 1 0
          0
```

Your task is to determine the way the handkerchief will look like by the given n.

Input

The first line contains the single integer n ($2 \le n \le 9$).

Output

Print a picture for the given n. You should strictly observe the number of spaces before the first digit on each line. Every two adjacent digits in the same line should be separated by exactly one space. There should be no spaces after the last digit at the end of each line.

Examples

input
2

output
0 0 1 0 0 1 2 1 0 0 1 0 0

input
3

output
0 0 1 0 0 1 2 1 0 0 1 2 3 2 1 0 0 1 2 1 0 0 1 0 0

→ **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 Beta Round #89 (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**

constructive algorithms
implementation

No tag edit access

→ **Contest materials**

- Announcement
- Tutorial #1
- Tutorial #2

Server time: Nov/30/2016 19:20:14^{UTC+8} (c4).
Desktop version, switch to mobile version.