

Problem E. Pattern

Time limit 1000 ms
Code length Limit 50000 B
OS Linux

You are given a number N . Your task is to print an $N \times N$ matrix with a special sequence, consisting of numbers from 1 to N^2 .

For example, if $N = 4$:

1	1	2	4	7
2	3	5	8	11
3	6	9	12	14
4	10	13	15	16

Input

The first line of input contains an integer T . This number indicates the number of queries. Each of the next T lines contains an integer N .

Output

For each query, print the $N \times N$ matrix.

Constraints

- $1 \leq T \leq 10$
- $1 \leq N \leq 100$

Example

Input	Output
1 4	1 2 4 7 3 5 8 11 6 9 12 14 10 13 15 16