Problem L. Least Annoying Constructive Problem

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Consider a complete graph on n nodes. You have to arrange all its $\frac{n(n-1)}{2}$ edges on the circle in such a way that every $n-1$ consecutive edges on this circle form a tree.

It can be proved that such an arrangement is possible for every n. If there are many such arrangements, you can find any of them.

As a reminder, a tree on n nodes is a connected graph with $n-1$ edges.

Input

The only line of the input contains a single integer n ($3 \le n \le 500$).

Output

Output $\frac{n(n-1)}{2}$ lines. The i-th line should contain two integers u_i, v_i ($1 \le u_i < v_i \le n$). All pairs (u_i, v_i) have to be distinct, and for every i from 1 to $\frac{n(n-1)}{2}$, edges $(u_i, v_i), (u_{i+1}, v_{i+1}), \ldots, (u_{i+n-2}, v_{i+n-2})$ have to form a tree.

Here $u_{\frac{n(n-1)}{2}+i} = u_i, v_{\frac{n(n-1)}{2}+i} = v_i$ for every i.

Examples

standard input	standard output
3	1 2 2 3 1 3
4	1 2 3 4 2 3 1 4 1 3 2 4