

Involutions

Timelimit: 2 sec

Problem description

An *involution* is a permutation with no fixpoints. For example $\pi = (3\ 2\ 1)$ is not an involution because 2 is a fixpoint, i.e., $\pi(2) = 2$.

Your task is to list all involutions of a given size in lexicographic order.

Input

A number n ($2 \leq n \leq 9$).

Output

All involutions of length n in lexicographic ascending order. There should be one involution per line and the numbers should be separated by spaces.

Sample input/output

Input	Output
4	2 1 4 3 2 3 4 1 2 4 1 3 3 1 4 2 3 4 1 2 3 4 2 1 4 1 2 3 4 3 1 2 4 3 2 1