

Permutation

Description

Permutation means each different arrangement of some elements.

For example all permutations of {'a', 'b', 'c'} are

abc
acb
bac
bca
cab
cba

In general, for n elements there exist $n \times (n - 1) \times (n - 2) \times \dots \times 2 \times 1 = n!$ permutations.

Print all permutations of first n alphabets.

Input

Your program is to read from standard input. In the first line you are given an integer n ($1 \leq n \leq 7$)

Output

Your program is to write to standard output. Print every permutation of first n alphabets in lexicographical order on each line.

Sample

Input1

3

Output1

abc
acb
bac
bca
cab
cba

Input2

4

Output2

abcd
abdc
acbd
acdb
adbc

	adcb bacd badc bcad bcda bdac bdca cabd cadb cbad cbda cdab cdba dabc dacb dbac dbca dcab dcba
--	--