

Non-decreasing Sequence Sum

Problem Code	hw08a_seqsum
Running Time Limit	1 sec
Memory Limit	16 mb

Objective

- Be able to generate all sequence with given constrains

Introduction

A non decreasing sequence of length N is a sequence a_1, a_2, \dots, a_n such that $a_i \leq a_{i+1}$ for $1 \leq i < n$. In this problem, you have to identify all non decreasing sequence of positive integer the summation of which equals to K .

Task

Your task is to display all sequences whose summation equals to the given value K .

Input

The input contains only one number K ($1 \leq K \leq 30$)

Output

The first line of input gives the number of sequences. This has to be followed by that many lines, each give the sequence. Each number in the sequence must be separated by one white space character and the last number in the sequence must be followed by one white space.

Sequences must be printed out in sorted in lexicographic order, i.e., a sequence a_1, a_2, \dots, a_n comes before a sequence b_1, b_2, \dots, b_n only when $a_i < b_i$ and $a_j = b_j$ for all $j < i$. For example, "1 1 2" comes before "1 2 3" which comes before "2 4".

Example

Ex1

Input	Output
2	2 1 1 2

Ex2

Input	Output
4	5 1 1 1 1 1 1 2 1 3 2 2 4