## The Goal

You mission is to print a specific line of the Conway sequence.

## Rules

Warning! This sequence can make you ill. The reasoning is simple but unusual: Read a line aloud whilst looking at the line above and you will notice that each line (except the first) makes ​​an inventory of the previous line.

1

1 1

2 1

1 2 1 1

1 1 1 2 2 1

3 1 2 2 1 1

...

- Line 3 shows because the line 2 contains two , one after the other.  
- Line 4 displays because the line 3 contains one followed by one .  
- Line 5 displays because the line 4 contains one followed by one followed by two .

This sequence refers to a technique used to encode ranges in order to compress identical values ​​without losing any information. This type of method is used, amongst others, to compress images.

Your mission is to write a program that will display the line L of this series on the basis of an original number R (R equals  in our example).

## Game Input

Input

Line 1: The original number R of the sequence.

Line 2: The line L to display. The index of the first line is .

Output

The line L of the sequence. Each element of the sequence is separated by a space.

Constraints

0 < R < 100  
0 < L ≤ 25

Example

Input

1

6

Output

3 1 2 2 1 1