28 Dilahk's contest

17 points

Introduction

Our colleague Dilahk needs help with his math contest. Here is what the contest is about: given a number n, the students have to draw a triangle of numbers with n levels.

To start building the triangle, start with 1 at the top, then continue placing numbers below it in a triangular pattern. The next row of the triangle is constructed by summing adjacent elements in the previous row. Because there is nothing next to the 1 in the top row, the adjacent elements are considered to be 0.

So, the simplest Dilahk's triangle has only 1 level:

```
1
```

And here is the Dilahk's triangle of 2 levels:

```
 1
1 1
```

This process will be repeated to produce each subsequent row. If the given number is 3, then the triangle will look like this one:

```
  1
 1 1
1 2 1
```

But Dilahak's triangle is formed exclusively by single-digits. So, when the result of adding adjacent elements in the previous row is greater than 9, all the digits of the result are added until the result is a single-digit number. For instance, if the given number is 6, then the triangle will look like this one:

```
     1
    1 1
   1 2 1
  1 3 3 1
 1 4 6 4 1
1 5 1 1 5 1
```

> HINT: Notice that between, after and before the numbers there are white spaces. For instance, in the above example should be written as this: (where - denotes a white space for visual representation)

```
-----1-----
----1-1----
---1-2-1---
--1-3-3-1--
-1-4-6-4-1-
1-5-1-1-5-1
```

Input

A positive integer N (greater than or equal to 1).

Output

You should write the numbers until Nth row in form of a triangle where each position is calculated as explained above.

Example 1

Input

```
1
```

Output

```
1
```

Example 2

Input

```
3
```

Output

```
  1
 1 1
1 2 1
```

Example 3

Input

6

Output

```
     1
    1 1
   1 2 1
  1 3 3 1
 1 4 6 4 1
1 5 1 1 5 1
```