Triple Recursion

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Problem Submissions Leaderboard Discussions

Your submission will run against only preliminary test cases. Full test cases will run at the end of the day.

You are filling a matrix by following a set of rules. Given a square matrix of size $n \times n$, where $(0, 0)$ is its upper-left cell and $(n-1, n-1)$ is its bottom-right cell, fill all the cells according to the following rules:

Value of $a[i][j]$ is defined recursively as follows:

- if $i = 0$ and $j = 0$ then $a[i][j] = m$
- else if $i = j$ then $a[i][j] = a[i-1][j-1] + k$
- else if $i > j$ then $a[i][j] = a[i-1][j] - 1$
- else, if $i < j$, then $a[i][j] = a[i][j-1] - 1$

In other words, given integers m and k, the matrix is filled by putting m in the upper-left cell, and then every other cell (i, i) on the main diagonal of the matrix is filled with the value $a[i-1][j-1] + k$. Remaining cells of the matrix are filled according to the two other recursive rules defined above.

For example, for $n = 4$, $m = 3$, $k = 1$, the matrix will be:-

```
3 2 1 0
2 4 3 2
1 3 5 4
0 2 4 6
```

The task is to print the matrix after all its cells are filled with values.

Input Format

In the first and only line of the input, there are 3 space-separated integers n, m, and k, where n is the size of the matrix and both m and k denote values used in the recursive definition in the statement.

Constraints

- $4 \leq n \leq 100$
- $5 \leq m \leq 100$
- $2 \leq k \leq 50$

Output Format

Output the matrix with exactly n lines. In the i^{th} line, print n space-separated integers denoting the i^{th} row of the matrix with all cells filled with appropriate values.

Sample Input 0

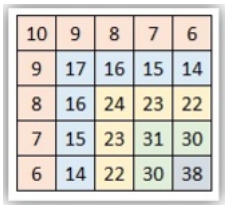
```
5 10 7
```

Sample Output 0

```
10 9 8 7 6
9 17 16 15 14
8 16 24 23 22
7 15 23 31 30
6 14 22 30 38
```

Explanation 0

See the color-coded illustration below for the right answer:



10	9	8	7	6
9	17	16	15	14
8	16	24	23	22
7	15	23	31	30
6	14	22	30	38

Sample Input 1

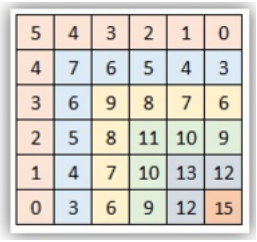
```
6 5 2
```

Sample Output 1

```
5 4 3 2 1 0
4 7 6 5 4 3
3 6 9 8 7 6
2 5 8 11 10 9
1 4 7 10 13 12
0 3 6 9 12 15
```

Explanation 1

See the color-coded illustration below for the right answer for the 6×6 matrix:



5	4	3	2	1	0
4	7	6	5	4	3
3	6	9	8	7	6
2	5	8	11	10	9
1	4	7	10	13	12
0	3	6	9	12	15

Contest ends in 4 days

Submissions: 6099
Max Score: 18
Difficulty: Easy

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```
1  using System;
2  using System.Collections.Generic;
3  using System.IO;
4  using System.Linq;
5  class Solution {
6
7      static void tripleRecursion(int n, int m, int k) {
8          // Complete this function
```

```
    }

    static void Main(String[] args) {
        string[] tokens_n = Console.ReadLine().Split(' ');
        int n = Convert.ToInt32(tokens_n[0]);
        int m = Convert.ToInt32(tokens_n[1]);
        int k = Convert.ToInt32(tokens_n[2]);
        tripleRecursion(n, m, k);
    }
}

```

Line: 1 Col: 1

Upload Code as File | Test against custom input | Run Code | Submit Code