

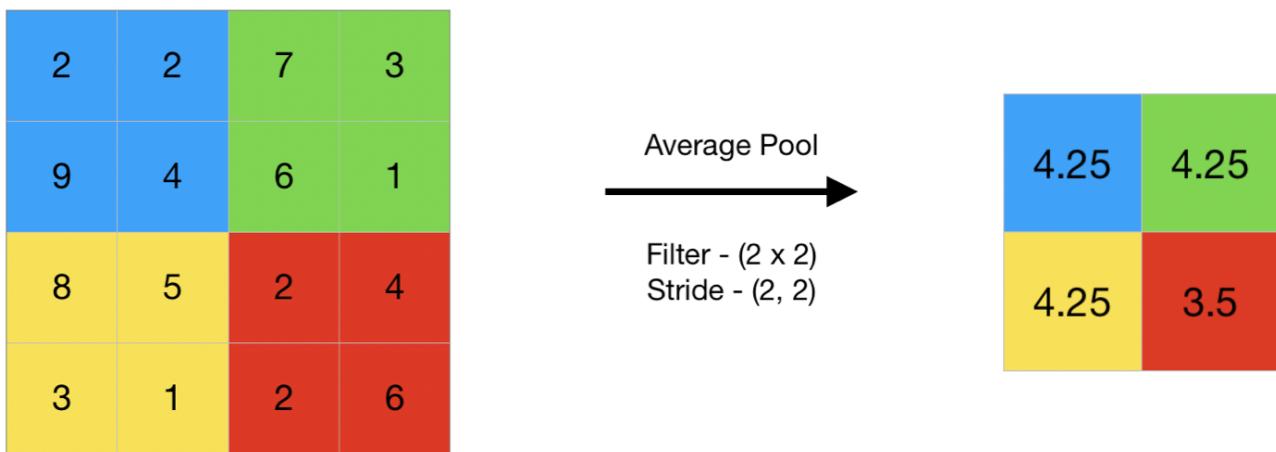
Problem D Pooling II

Time limit: 3 seconds

Memory limit: 1024 megabytes

Problem Description

Pooling is a crucial concept in CNNs (Convolutional Neural Networks). It helps reduce the size of an image while preserving important features. One common pooling method is Mean Pooling. In Mean Pooling, we define a pooling window and a stride (步幅). The pooling window slides across the image from left to right and top to bottom using the given stride. At each position, it determine the average of the values within the window and stores it in the output matrix. The following figure illustrate this process.



Furong, a student in the AI course, was absent from the final exam and is about to fail the class. He approaches Professor Wizard to ask for a chance to make up for it. Fortunately, because he has consistently paid attention in class, Professor Wizard agrees to let him pass – on one condition: he must implement a CNN using Mean Pooling.

Now, Furong needs your help!

You are given three integers n , m and p , which represent the size of the image ($n \times n$), the size of the pooling window ($m \times m$), and the stride p , respectively. You are also given the image in the form of a numerical matrix. Your task is to output the resulting matrix after applying Mean Pooling.

For a collection of k numbers $Num_1, Num_2, \dots, Num_k$, its mean is determined as $\frac{\sum_1^k Num_i}{k}$.

Input Format

Your program is to read from standard input. The input may include multiple test cases. For each test case, the first line contains three integers n , m and p , whose meanings are described in the problem

statement. The next n lines each contain n integers representing the image with size $n \times n$. The input ends when n, m and p are 0.

Output Format

Your program is to write to standard output. For each test case, please output the resulting matrix after applying Mean Pooling. Print a blank line between two consecutive test cases. Please see the sample output.

Note: For each mean value, please format it to two decimal points.

Technical Specification

- $4 \leq n \leq 100$
- $1 \leq m \leq n$
- $0 \leq A_{i,j} \leq 9, 0 \leq i, j < n$
- p must be the common divisor of n and m .

Sample Input 1

```
4 2 2
2 2 7 3
9 4 6 1
8 5 2 4
3 1 2 6
4 2 1
2 2 7 3
9 4 6 1
8 5 2 4
3 1 2 6
0 0 0
```

Sample Output 1

```
4.25 4.25
4.25 3.50

4.25 4.75 4.25
6.50 4.25 3.25
4.25 2.50 3.50
```