

Overview: Perform the box-blur algorithm.

Description: Natasha the Black Widow has too much red in her ledger. So much, in fact, that she's decided to erase it all. She's developed an infallible mechanism for ensuring that her file is erased: averaging. None of the super-villains she's faced have been particularly mathematically adept - they won't be able to recover a thing.

The physical manifestation of Natasha's ledger exists in an $n \times n \times \dots \times n$ matrix M of dimension d . You can think of this as an array of array of arrays, etc. etc. (d times) of numbers. Natasha needs to modify each cell of the matrix to be the average of all cells adjacent to it. A cell is a pair $\langle v_i, e_i \rangle$, where v_i is a list of length d , with positive integer elements, and e_i is real-valued. Two cells c_i and c_j are adjacent if c_i and c_j differ at only one index, and at this index, they differ by exactly one.

Fortuitously, you've been signed up to shadow her on the job for the day, to learn all about how to be a super-spy. However, this means that Natasha has delegated responsibility of erasing/blurring her ledger to you. Good luck!

Filename: adv23.{java, cpp, c, cc, py}

Input: The first line of the file is the dimension of the matrix. The second line is the value n . Each subsequent i^{th} line is a data point in the matrix, formatted as follows: $v_{i_0} \ v_{i_1} \ \dots \ v_{i_n} \ e_i$, where v_{i_j} is the j^{th} component of vector v_i .

Output: The output format should print out the blurred values, in the same order as they were presented in the input. All blurred values must be printed out with exactly four digits of precision.

Assumptions: $1 \leq d \leq 6$, where d is the dimension. $3 \leq n \leq 6$.

Sample Input #1:

```
1
4
0 0.8059404802742957
1 0.3206427823347451
2 0.313852955279466
3 0.3815666443994810
```

Sample Output #1:

```
0 0.3206
1 0.5599
2 0.3511
3 0.3139
```

Sample

Input #2:

```
2
3
0 0 0.5671041571574271
0 1 0.9634210776834465
0 2 0.42398240091477024
1 0 0.39132864130390355
1 1 0.6043757213302796
1 2 0.12003518992042594
2 0 0.1561295162290356
2 1 0.1833858856182503
2 2 0.8049107263276758
```

Sample

Output #2:

```
0 0 0.6774
0 1 0.5318
0 2 0.5417
1 0 0.4425
1 1 0.4145
1 2 0.6111
2 0 0.2874
2 1 0.5218
2 2 0.1517
```