Week 6: Assignment 6 - Question 1

ℓ-window smoothing.

Given an $n \times n$ integer Matrix A and an positive number ℓ such that $2\ell + 1 \leq n$, write a C program to print the ℓ window smoothing of A.

To get the ℓ-window smoothing of A , we replace $A[i][j]$ with the sum of the values of the imaginary submatrix **S** of A with centre at $A[i][j]$, and having size $2\ell + 1 \times 2\ell + 1$

More precisely, the smoothed matrix $B[i,j] = \sum_{u=il}^{ih} \sum_{v=jl}^{jh} A[u][v]$

where $il = \max(i - \ell, 0)$, $ih = min(i + \ell, n - 1)$, $jl = \max(j - \ell, 0)$, $jh = min(j + \ell, n - 1)$.

Input
The first line contains the dimension of the matrix n. Assume n < 100.
The second line contains the smoothing parameter ℓ.
The next n lines contains the contents of the matrix A, each row per line.

Output
The smoothed matrix of A

Note: Ignore the `Passed after ignoring Presentation Error` comment.

Example

Input

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

Output

```
12  21  27  20
27  45  45  30
27  45  45  30
18  30  27  17
```

Explanation

A[0][0] = 1 + 2 + 4 + 5 = 12
A[1][1] = 1 + 2 +3 + 4 + 5 + 6 + 7 + 8 + 9 = 45