PROBLEM

We are given a 2-dimensional array of positive and negative integers; it is required to find the sub-array with the largest sum. The sum of a rectangle array is the sum of all the elements in that rectangle. In this problem the sub-array with the largest sum is referred to as the *max-sum matrix*. A sub-array is any contiguous sub-array of size 1 x 1 or greater located within the entire array. As an example, the max-sum matrix of the array:

$$\begin{array}{rrrr} 0 & -2 & -7 & 0 \\ 9 & 2 & -6 & 2 \\ -4 & 1 & -4 & 1 \\ -1 & 8 & 0 & -2 \end{array}$$

is in the lower-left-hand corner:

$$\begin{array}{rr} 9 & 2 \\ -4 & 1 \\ -1 & 8 \end{array}$$

and has the sum of 15.

INPUT

The input consists of an N x N array of integers. The input consists of N^2 integers separated by a single space. These N^2 integers make up the array in row-major order (i.e., all numbers on the first row, left-to-right, then all numbers on the second row, left-to-right, etc.). *N* may be as large as 100. The numbers in the array will be in the range [-127, 127].

OUTPUT

The output is the max-sum matrix followed by its sum.

EXAMPLE:

- Input:
  `0 -2 -7 0 9 2 -6  2 -4  1 -4  1 -1 8  0 -2`

  Output:
  Max-sum matrix:
  9 2
  -4 1
  -1 8
  Sum is: 15

- Input:
  -3 2 4 6 -1 2 7 3 5

Output:
Max-sum matrix:
-3 2 4
 6 -1 2
 7 3 5
Sum is: 25

- Input:
  6 5 -2 1 -2 0 3 -6 3 -4 9 -2 -4 -3 1 -6

  Output:
  Max-sum matrix:
   6 5 -2
  -2 0   3
   3 -4   9
  Sum is: 18