PROBLEM 6

Mundane Square

Time and memory limits: 1 second, 256 MB

You might have heard of a *magic square*. Unfortunately, there is nothing magical about this problem.

A *mundane square* is an $N \times N$ grid of integers, where

- all the integers in the grid are between 0 and a given value K inclusive;
- the sum of values in the ith row is equal to a given target value R_i, for all $1 \leq i \leq N$; and
- the sum of values in the jth column is equal to a given target value C_j, for all $1 \leq j \leq N$.

For instance, if $K = 4$, the list of target row sums is $[6, 8, 3]$, and the list of target column sums is $[5, 5, 7]$, the following is a 3×3 mundane square:

	C_1	C_2	C_3	
R_1	4	0	2	(6)
R_2	1	3	4	(8)
R_3	0	2	1	(3)
	(5)	(5)	(7)	

Given N and K, as well as the target row and column sums, your task is to determine whether a mundane square exists, and if so, to construct one.

Subtasks and Constraints

Your program will be graded using many secret tests. Every test follows some rules:

- $1 \leq N \leq 1\,000$.
- $1 \leq K \leq 1\,000\,000\,000$.
- $0 \leq R_i \leq 1\,000\,000\,000$ for all i.
- $0 \leq C_j \leq 1\,000\,000\,000$ for all j.

The secret tests are divided into subtasks. Your program must correctly solve **every test** within a subtask to earn the marks for that subtask.

- For Subtask 1 (10 points), the smallness rule[1] applies, $K = 1\,000\,000\,000$, and $R_i = 1$ for all i.
- For Subtask 2 (20 points), the smallness rule[1] applies and $K = 1\,000\,000\,000$.
- For Subtask 3 (30 points), the smallness rule[1] applies and $K = 1$.
- For Subtask 4 (30 points), the smallness rule[1] applies.
- For Subtask 5 (10 points), no special rules apply.

[1]The *smallness rule* requires that $N \leq 100$, $R_i \leq 100$ for all i, and $C_j \leq 100$ for all j.

Input

Your solution must read input and print output. We recommend using the solution templates (which you can find on the competition website) to help you with input and output.

The input follows a specific format:

- The 1st line contains the integers N and K.
- The 2nd line contains N integers $R_1, R_2, \ldots, R_N$, the target row sums.
- The 3rd line contains N integers $C_1, C_2, \ldots, C_N$, the target column sums.

Output

- The first line of output must be `YES` if a mundane square exists and `NO` otherwise.
- If the answer is `YES`, then the next N lines must each contain N integers:
  - The ith line must contain the integers in the ith row of your mundane square.
  - If multiple mundane squares exist, you may output any one of them.

Sample Input 1

```
3 4
6 8 3
5 5 7
```

Sample Output 1

```
YES
4 0 2
1 3 4
0 2 1
```

Sample Input 2

```
4 1
2 3 2 3
2 2 3 3
```

Sample Output 2

```
YES
1 0 0 1
1 1 1 0
0 0 1 1
0 1 1 1
```

Sample Input 3

```
3 4
7 0 3
6 2 3
```

Sample Output 3

```
NO
```

Sample Input 4

```
4 1
1 5 1 5
3 3 3 3
```

Sample Output 4

```
NO
```

Explanation

- The 1st sample case corresponds to the example at the start of the statement. Other valid outputs exist.
- In the 2nd sample case, the correct number of 1s is placed in each row and in each column. Other valid outputs exist.
- In the 3rd sample case, it can be shown that no mundane square exists.
- In the 4th sample case, it can be shown that no mundane square exists.