Problem F. Foremen

Input file:	`Standard Input`
Output file:	`Standard Output`
Time limit:	1 second
Memory limit:	64 megabytes

A factory employs a staff of N ($1 \le N \le 100$) workers. The management has decided to split all of them into K brigades. In every brigade there will be elected a foreman — the leader of the brigade who apparently is a member of the brigade. A foreman in addition to his wages will receive a salary rise that depends on his skills and the size of his brigade. For every worker the management knows how much the rise will be if he becomes a foreman. Needless to say that the management wants, as it usually happens, to save some money. Pursuing this purpose they are trying to split all the workers into the brigades and elect the foremen so that the total rise amount (the sum of all rise amounts of all the foremen) is minimal possible. Unfortunately they are good neither in maths nor in backtracking. So you are the one to help them.

Input

In the first line of the input file there are two integers N and K ($1 \le K \le N$). Each of the following N lines contains N integers — the "rise" table. j-th number in the $(i+1)$-th line shows the rise that is required by the worker i provided that the size of his brigade is j (certainly, if he is the foreman of that brigade). The rise is an integer from the interval $[0, 1000]$. All the numbers in the lines are separated by spaces.

Output

In the first line of the output file write the minimal total rise amount. In the second line output K different numbers — i-th number should be the number of the worker who is elected to become the foreman in the i-th brigade. In the third line output N different numbers in range from 1 to K: i-th of them must be the number of the brigade to which i-th worker belongs.

Example

Standard Input	Standard Output
5 3 5 1 2 3 4 1 5 4 3 2 1 2 3 4 5 4 5 1 2 3 2 1 5 4 3	3 1 3 5 1 3 2 1 3