Mosquitoes

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

There is a building with N floors, each having M windows. If a window at position (i, j) has a brightness $F_{i,j}$, then $F_{i,j}$ mosquitoes are attracted to it. Additionally, some mosquitoes attracted by the light of window (i, j) will fly to other windows. If a window has coordinates (a, b), then the number of mosquitoes that will attempt to settle on it is given by: $\lfloor F_{i,j}/(2^{max(|a-i|,|b-j|)}) \rfloor$ (the fractional part is discarded).

It is known that no more than S mosquitoes can settle on a single window, and all mosquitoes that cannot find space will fall to the ground.

Given the brightness of each window, calculate the total number of mosquitoes that settle on all the windows of the building, as well as how many fall to the ground.

Input

In the first line, the number of floors N ($1 \leq N \leq 500$), the number of windows on each floor M ($1 \leq M \leq 500$), and the maximum number of mosquitoes that can fit on one window S ($1 \leq S \leq 10^9$) are given.

Each of the following N lines contains M integers representing the brightness of the windows $F_{i,j}$ ($0 \leq F_{i,j} \leq 500$).

Output

Output two integers: the total number of mosquitoes that successfully settled on the windows and the number of mosquitoes that fell to the ground.

Examples

standard input	standard output
7 7 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	94 3
4 5 6 9 0 0 0 0 1 2 0 0 0 0 0 0 0 2 0 0 4 0 0	73 6

Note

In the first test case, the number of mosquitoes on the windows will be as follows:

1 1 1 1 1 1 1
1 2 2 2 2 2 1
1 2 4 4 4 2 1
1 2 4 6 4 2 1
1 2 4 4 4 2 1
1 2 2 2 2 2 1
1 1 1 1 1 1 1

In the second test case:

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6 5 3 1 0
6 6 4 3 2
4 5 5 4 3
2 3 5 4 2
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