

Problem M. Window Arrangement

Input file: *standard input*
Output file: *standard output*
Time limit: 3 seconds
Memory limit: 1024 mebibytes

KAIST is running out of budget — they need some money! They thought the dormitories were way too luxurious compared to the other buildings of KAIST; they planned to sell all the dormitory buildings and build a new completely non-aesthetic one.

The new dormitory will have grid shape — it can't be more boring than this — of size $N \times M$, each cell being a room for the students to live in. We are going to add some windows, because we want students to get some sunlight during the daytime!

We plan to have exactly $w_{i,j}$ windows in the room (i, j) . Each room is surrounded by 4 unit edges of the grid. A window can be built on the side of a unit edge of the grid, and at most one window can be built on each side of a unit edge — so each cell has between 0 and 4 windows. A window is one-sided: a window on the opposite side of a unit edge does not count as a window in the room.

Unfortunately, students will experience huge discomfort when their private space is watched by someone else through the window. The **total discomfort** is the number of pairs of students $\{a, b\}$ such that a and b can see each other's private space through the window.

In other words, if a unit edge has windows on both sides, the total discomfort increases by the product of the numbers of people living in the two rooms sharing the window.

You are given $w_{i,j}$, the number of windows planned for the room (i, j) , and $p_{i,j}$, the number of people living in the room (i, j) . Your task is to find the minimum total discomfort that can be achieved by arranging the windows properly.

Input

The first line contains two integers N and M : the dimensions of the grid.

Each of the following N lines contains M space-separated integers $p_{i,j}$.

Each of the following N lines contains M space-separated integers $w_{i,j}$.

- $1 \leq N \leq 50$
- $1 \leq M \leq 50$
- $1 \leq p_{i,j} \leq 1000$ ($1 \leq i \leq N$, $1 \leq j \leq M$)
- $0 \leq w_{i,j} \leq 4$ ($1 \leq i \leq N$, $1 \leq j \leq M$)

Output

Output one integer: the minimum total discomfort.

Examples

<i>standard input</i>	<i>standard output</i>
4 3 1 7 10 7 2 8 7 9 10 4 6 4 3 3 3 3 2 4 4 3 4 2 2 3	178
4 3 2 2 9 9 8 4 8 4 5 7 5 2 0 1 0 1 0 1 0 0 1 0 1 0	0