Harry loves walking in Varna. To be precise - in the "Chaika" district. While Harry was planning his next trip, he found out that a construction company "Galab" has started the construction of new buildings in the neighborhood. This didn't appeal to him at all because it would spoil the landscape. Fortunately, Barry, a friend of Harry, works for the company and has the plans for the construction.

The neighborhood can be envisioned as an $N×M$ matrix. The rows and columns are indexed from 1. Barry knows the positions of each of the intended $Q$ buildings. Building with number$i$ will be constructed in cell $(x\_{i},y\_{i})$ (more than one building can be constructed in the same cell). Each cell has a certain view beauty factor$ a\_{i,j}$. A building in cell $(x,y)$ decreases the beauty of all cells in its row and column by the distance to the cell. The distance between two cells in the same row $(x, y\_{1})$ and $(x, y\_{2})$ is $\left|y\_{1}-y\_{2}\right|$ and the distance between two cells in the same column $(x\_{1}, y)$ and $(x\_{2}, y)$ is$ \left|x\_{1}-x\_{2}\right|$.

Harry wants to know what the view beauty factor will be for each cell after all the buildings are constructed. At the moment, he is busy making a list of places he wants to visit (again) in Varna, so there is no time for these simple calculations. He needs your help. Write a program calledscenery.cpp to calculate the view beauty factor for each cell of the neighborhood.

**Input**

From the first line of the scenery.in file, three positive integers are entered - $N$, $M$ and $Q$, respectively the size of the neighbourhood and the number of buildings to be built. On each of the next $N$ lines, $M$ numbers are entered – the initial view beauty factor for each cell. On the following $Q$ lines, two numbers are entered – the row and column for each building.

**Output**

In the scenery.out file, you need to print $N$ lines with $M$ numbers that represent the view beauty factor for each of the cells in the neighborhood after all the buildings are built.

**Constraints**

$$1\leq N,M\leq 1000$$

$$1\leq Q\leq 10^{5}$$

$$-10^{9}\leq a\_{i,j}\leq 10^{9}$$

**Time limit: 2sec.**

**Memory limit: 256 MB.**

**Sample test:**

|  |  |
| --- | --- |
| **Input(scenery.in)** | **Output(scenery.out)** |
| 4 5 53 9 -4 15 211 -5 -2 8 17 2 14 -9 173 12 -8 4 -72 43 31 23 24 3 | 2 7 -10 12 -18 -9 -6 8 04 -1 12 -13 121 7 -9 1 -9 |