Problem K
Flower Field

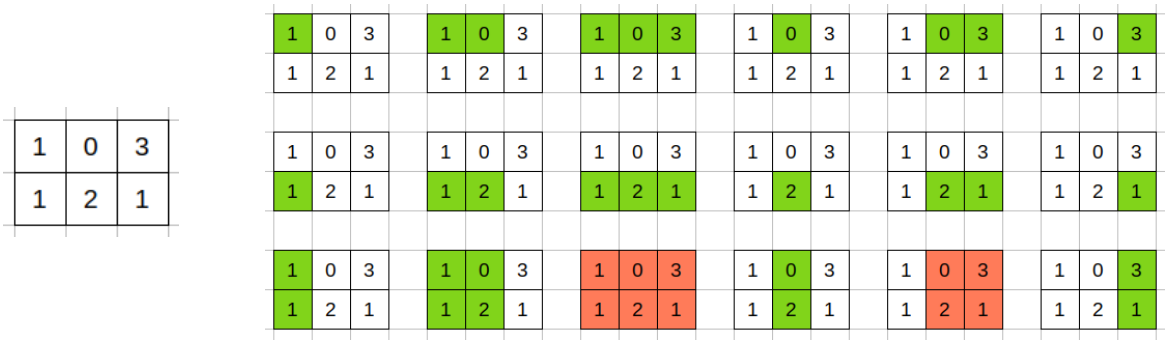
As the most beloved grandson, William inherits a land of N meters by M meters from his grandfather. The land can be divided equally into $1\,\text{m} \times 1\,\text{m}$ square cells. Each of the cell is assigned a coordinate (r, c) where r represents the row (numbered sequentially from 1 to N) and c represents the column (numbered sequentially from 1 to M) of the cell. For example, the cell at the 1^{st} row and 3^{rd} column has a coordinate of $(1, 3)$.

William wants to fulfil his mother's wish, that is, to have a large flower field. William thinks that he can achieve that using the land he has just inherited. The flower field should be a rectangular-shape, and each cell is either completely inside or completely outside the flower field.

Upon inspection, William notices that the land may need to be cultivated first before flowers can be planted. William only has a budget of K to cultivate the land while the cost to cultivate a cell at coordinate (r, c) is $A_{r,c}$. The cost to cultivate a flower field is simply the total cost to cultivate all the cells inside the flower field.

Your task is to determine the size of the largest flower field William can get without exceeding his budget to cultivate.

For example, consider a land of $2\,\text{m} \times 3\,\text{m}$ and a budget of $K = 5$. The cost to cultivate each cell is shown as follows (left figure).



There are 18 ways to make a flower field in which 2 of them are invalids as they cost more than 5 to cultivate (shown as red on the right figure). Among those 16 possible flower fields, the largest one has a size of $4\,\text{m}^2$ (i.e. $2\,\text{m} \times 2\,\text{m}$).

Input

Input begins with an integer T ($1 \leq T \leq 10$) representing the number of cases.

Each case begins with three integers N M K ($1 \leq N, M \leq 400$; $0 \leq K \leq 10^9$) representing the number of rows and columns of the land and William's budget to cultivate the land, respectively. The next N lines each contains M integers representing the cost to cultivate a cell. The r^{th} row and c^{th} column represents the cost to cultivate a cell at coordinate (r, c), $A_{r,c}$ ($0 \leq A_{r,c} \leq 10\,000$).

Output

For each case, output in a line "`Case #X: Y`" (without quotes) where `X` is the case number (starts from 1) and `Y` is the size of the largest flower field William can get without exceeding his budget to cultivate. If there is no possible flower field that William can get, output `0` for `Y`.

Sample Input #1

```
3
2 3 5
1 0 3
1 2 1
3 4 10
20 20 20 20
20 20 20 20
20 20 20 20
3 4 10
0 0 0 0
0 0 0 0
0 0 0 0
```

Sample Output #1

```
Case #1: 4
Case #2: 0
Case #3: 12
```

Explanation for the sample input/output #1

In the 2^{nd} case, all the cells cost 20 while William only has a budget of 10, thus, he cannot get any flower field.

In the 3^{rd} case, all the cells cost 0, so he can use all the cells for his flower field.