

**K****K-Neutral Rectangles**

Given an $N \times M$ rectangle of integers, find the area of the largest sub-rectangle such that, each cell of the sub-rectangle, $R_{i,j}$ is **K-neutral cell**. A cell, $R_{i,j}$ is **K-neutral**, if absolute difference between the values of $R_{i,j}$ and each of its neighbors in horizontal and vertical direction is not more than K . The cells $R_{i-1,j}$, $R_{i+1,j}$, $R_{i,j-1}$ and $R_{i,j+1}$ are the four neighbors of the cell $R_{i,j}$. The neighborhoods should be considered only in the new sub-rectangle, not in the original rectangle. For example,

9	30	20	25	10
10	1	2	3	9
0	2	3	4	7
1	7	11	10	8

For $N = 4$, $M = 5$ and $K = 1$ in the above rectangle, the largest K -neutral sub-rectangle is

1	2	3
2	3	4

Input

Input starts with an integer $T(\leq 100)$, denoting the number of test cases. Each test case starts with three integers N , M and K ($1 \leq N, M \leq 1000$, $0 \leq K \leq 100000$). Each of the next N line will contain M integers $R_{i,j}$ ($0 \leq R_{i,j} \leq 10000000$).

Output

For each case print the case number and the area of the largest K -neutral sub-rectangle.

Sample Input	Sample Output
2	Case 1: 6
4 5 1	Case 2: 1
9 30 20 25 10	
10 1 2 3 9	
0 2 3 4 7	
1 7 11 10 8	
2 2 1	
1 3	
4 6	

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