

Problem D

Largest Square

Time limit: 1 second Memory limit: 1024 megabytes

Problem Description

Given a rectangular grid of characters you have to find out the length of a side of the largest square such that all the characters of the square are same and the center [intersecting point of the two diagonals] of the square is at location (r, c). The height and width of the grid is M and N respectively. Upper left corner and lower right corner of the grid will be denoted by (0,0) and (M-1,N-1) respectively. Consider the grid of characters given below. Given the location (1,2) the length of a side of the largest square is 3.

abbbaaaaaa

abbbaaaaaa

abbbaaaaaa

aaaaaaaaaa

aaaaaaaaaa

aaccaaaaaa

aaccaaaaaa

Input Format

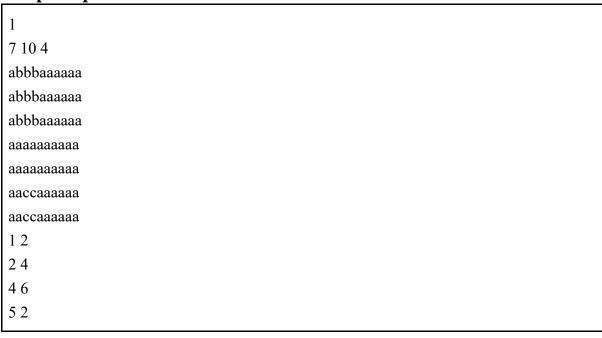
The input starts with a line containing a single integer T (< 21). This is followed by T test cases. The first line of each of them will contain three integers M, N and Q (< 21) separated by a space where M, N denotes the dimension of the grid. Next follows M lines each containing N characters. Finally, there will be Q lines each containing two integers r and r. The value of r and r will be at most r 100.

Output Format

For each test case in the input produce Q+1 lines of output. In the first line print the value of M, N and Q in that order separated by single space. In the next Q lines, output the length of a side of the largest square in the corresponding grid for each (r,c) pair in the input.



Sample Input 1



Sample Output 1

7 10 4		
3		
1		
5		
1		