KATHTHI

Kathiresan is initially locked at cell (0,0) in a highly guarded rectangular prison of order RxC. He must reach the gate at (R-1,C-1) in order to escape from the prison. Kathiresan can move from any cell, to any of it's 4 adjacent cells (North, East, West and South). If Kathiresan is currently at (x1,y1), then he can move to (x2,y2) if and only if abs(x2-x1)+abs(y2-y1) == 1 and 0<=x2<R and 0<=y2<C

Kathiresan somehow manages to get the map of the prison.
If map[x1][y1] == map[x2][y2] then Kathiresan can move from (x1,y1) to (x2,y2) without killing any guards.
If map[x1][y1] != map[x2][y2], then Kathiresan can move from (x1,y1) to (x2,y2) by killing a guard.

Given the map of the prison, find the minimum number of guards Kathiresan must kill in order to escape from the prison.

Input:

The first line consists of an integer t, the number of test cases. For each test case, the first line consists of two integers R and C representing the order of the rectangular prison followed by R strings representing the map of the rectangular prison.

Output:

For each test case find the minimum number of guards Kathiresan must kill in order to escape from the prison.

Input Constraints:

1 <= t <= 10

2 <= R <= 1000

2 <= C <= 1000

'a' <= map[i][j] <= 'z'

Sample Input:

4

2 2

aa

aa

2 3

abc

def

6 6

akaccc

aaacfc

amdfcc

aokhdd

zyxwdp

zyxwdd

5 5

abbbc

abacc

aaacc

aefci

cdgdd

Sample Output:

0

3

2

2