

## Problem: Cake in a cake

Time limit: 3 seconds  
Memory limit: 128 MB

### Problem Statement

Mr. Panda's birthday is coming up and he has a rectangular cake that he is going to cut into several pieces to give to his friends. However, he wants to make it more interesting so he wants to make the pieces into very odd-shapes.

The cake can be represented as a grid with  $N$  rows and  $M$  columns and each grid square is a small piece of cake. In the representation, every cell contains a lowercase letter from 'a'-'z' stating who is supposed to receive that piece of cake.

Two cells are adjacent if they share a side so a set of cells that contain the same letter and are connected by adjacent cells form one piece of cake.

Mr. Panda wants his pieces of cake to have no holes so for any cyclic path of adjacent cells with the same letter, there should not be any piece of cake within that path. If there are holes, it is unacceptable. See the sample input for more details.

Given the way Mr. Panda wants to cut his cake, can you help Mr. Panda determine if his cutting is acceptable.

### Subtasks

Subtask	Score	Limits
1	37	$1 \leq N \times M \leq 100$
2	63	$1 \leq N \times M \leq 10^6$

For all inputs,  $1 \leq T \leq 18$

### Input

The first line of input contains an integer,  $T$ , representing the number of test cases. The first line of each test case contains two integers,  $N$  and  $M$  denoting the number of rows and columns. The next  $N$  lines contain  $M$  characters each, representing the cake.

## Output

For each test case, output either *YES* or *NO* on one line, stating whether the cut is acceptable.

## Sample Input

```
4
3 4
aaaa
abba
aaaa
3 4
aaac
abba
aaaa
4 5
xaaaa
aabca
abcca
aaaaa
6 6
aaaaaa
bbbbba
baaaba
babbba
baaaaa
bbbbbb
```

## Sample Output

```
NO
YES
NO
YES
```