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Exercise – *New Tiles*

Problem Domino Magic started releasing brand new 2×2 tiles because everybody is already tired of the 1×2 domino tiles. To make a long story short, you are given a rectangular floor plan with some cells which you are not allowed to place tiles on, and your goal is to maximize the number of new 2×2 tiles you can put in this rectangle without overlapping.

Input The first line contains $1 \leq t \leq 20$, the number of testcases. Each of the t testcases is described as follows:

- It starts with a single line that contains two integers `h w`, separated by a space, specifying specify the height h and the width w of the floor plan at hand ($1 \leq h \leq 100,\ 1 \leq w \leq 17$).
- The following h lines each describe one row of the floor plan, ordered from top to bottom. Each such line consists of w space-separated characters: `'1'` if that square can be tiled and `'0'` if it cannot be used. You may assume that the floor plan is surrounded by a wall, so the border cells of the input consist of `0`'s.

Output For each test case output a single line with the maximum number of new 2x2 tiles you can place on the grid without overlapping.

Points There are two test sets:

1. For the first set, worth 50 points, you may assume that $w \leq 10$.
2. For the second set, worth 50 points, there are no additional constraints.

Sample input

```
2
5 5
0 0 0 0 0
0 0 1 1 0
0 1 1 1 0
0 1 1 1 0
0 0 0 0 0
5 6
0 0 0 0 0 0
0 0 1 1 0 0
0 1 1 1 1 0
0 1 1 1 1 0
0 0 0 0 0 0
```

Sample output

```
1
2
```