C. How Many Squares?

time limit per test: 2 seconds
memory limit per test: 64 megabytes
input: standard input
output: standard output

You are given a 0-1 rectangular matrix. What is the number of squares in it? A square is a solid square frame (border) with linewidth equal to 1. A square should be at least 2×2. We are only interested in two types of squares:

1. squares with each side parallel to a side of the matrix;
2. squares with each side parallel to a diagonal of the matrix.

For example the following matrix contains only one square of the first type:

```
0000000
0111100
0100100
0100100
0111100
```

The following matrix contains only one square of the second type:

```
0000000
0010000
0101000
0010000
0000000
```

Regardless of type, a square must contain at least one `1` and can't touch (by side or corner) any foreign `1`. Of course, the lengths of the sides of each square should be equal.

How many squares are in the given matrix?

Input

The first line contains integer t ($1 \le t \le 10000$), where t is the number of test cases in the input. Then test cases follow. Each case starts with a line containing integers n and m ($2 \le n, m \le 250$), where n is the number of rows and m is the number of columns. The following n lines contain m characters each (`0` or `1`).

The total number of characters in all test cases doesn't exceed 10^6 for any input file.

Output

You should output exactly t lines, with the answer to the i-th test case on the i-th line.

Examples

input
2 8 8 00010001 00101000 01000100 10000010 01000100 00101000 11010011 11000011 10 10

```
1111111000
1000001000
1011001000
1011001010
1000001101
1001001010
1010101000
1001001000
1000001000
1111111000
```

output

```
1
2
```

input

```
1
12 11
11111111111
10000000001
10111111101
10100000101
10101100101
10101100101
10100000101
10100000101
10111111101
10000000001
11111111111
00000000000
```

output

```
3
```