

Contest Duration: 2025-06-14(Sat) 22:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250614T2100&p1=248>) - 2025-06-14(Sat) 23:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250614T2240&p1=248>) (local time) (100 minutes)

Back to Home (/home)

🏠 Top (/contests/abc410)

📋 Tasks (/contests/abc410/tasks)

❓ Clarifications (/contests/abc410/clarifications)

📊 Results ▼

🏆 Standings (/contests/abc410/standings)

🏆 Virtual Standings (/contests/abc410/standings/virtual)

📖 Editorial (/contests/abc410/editorial)

💬 Discuss (<https://codeforces.com/blog/entry/143737>)



F - Balanced Rectangles

Editorial (/contests/abc410/tasks/abc410_f/editorial)



Time Limit: 3 sec / Memory Limit: 1024 MiB

Score : 525 points

Problem Statement

You are given an $H \times W$ grid, where each cell contains # or . .

The information about the symbols written in each cell is given as H strings S_1, S_2, \dots, S_H of length W , where the cell in the i -th row from the top and j -th column from the left contains the same symbol as the j -th character of S_i .

Find the number of rectangular regions in this grid that satisfy all of the following conditions:

- The number of cells containing # and the number of cells containing . in the rectangular region are equal.

Formally, find the number of quadruples of integers (u, d, l, r) that satisfy all of the following conditions:

- $1 \leq u \leq d \leq H$
- $1 \leq l \leq r \leq W$
- When extracting the part of the grid from the u -th through d -th rows from the top and from the l -th through r -th columns from the left, the number of cells containing # and the number of cells containing . in the extracted part are equal.

You are given T test cases. Find the answer for each of them.

2026-01-02 (Fri)
05:25:37 +11:00

Constraints

- $1 \leq T \leq 25000$
- $1 \leq H, W$
- The sum of $H \times W$ over all test cases in one input does not exceed 3×10^5 .
- S_i is a string of length W consisting of # and ..

Input

The input is given from Standard Input in the following format:

```
 $T$   
case1  
case2  
⋮  
case $T$ 
```

case _{i} represents the i -th test case. Each test case is given in the following format:

```
 $H$   $W$   
 $S_1$   
 $S_2$   
⋮  
 $S_H$ 
```

Output

Output T lines. The i -th line should contain the answer for the i -th test case.

Sample Input 1

Copy

Copy

```

3
3 2
##
#.
..
6 6
..#...
..#..#
#.#.#.
.###..
#####
.###..
15 50
.....#.....###.###.###.###
.....#..#..#.....#.#.#.#.#..
.....#..#####..#.....###.#.#.###.###
.....#..##.##.#.....#..#.#.#.....#
.....#####.....###.###.###.###
.....#.....#.....
.###.....##.....#.....#.#.....#.....#####.###.##
#..#.....#.....#.....#.#.....#.....##..#
#..#.....#.....#.....#.#.....#.....##..#
#.....##...###.##..#.....#.#.....#.....#.#.#
#.....#..#.#.#.#.#.#.#..#.#.....#####.###.##
#.....#..#.#.#.#.#####.#.....#.#.....#.#.#
#.....#..#.#.#.#.#.....#.....#.#.....#.....##
#..#.#..#.#.#.#.#.#.#.....#.#.#.....#.....##
.##...##...#####.##...#####.#..###.#####.###.##

```

Sample Output 1

Copy

```

4
79
4032

```

Copy

This input contains 3 test cases.

For the 1st case, the following 4 rectangular regions satisfy the conditions in the problem statement:

- From the 1st to 2nd rows from the top, from the 2nd to 2nd columns from the left
- From the 2nd to 3rd rows from the top, from the 1st to 1st columns from the left
- From the 2nd to 2nd rows from the top, from the 1st to 2nd columns from the left
- From the 1st to 3rd rows from the top, from the 1st to 2nd columns from the left

/#telegram)

are#url=https%3A%2F%2Fatcoder.jp%2Fcontests%2Fab410%2Ftasks%2Fab410_f%3Flang%3Den&title=F%3Ds)

2026-01-02 (Fri)
05:25:37 +11:00

[Rule \(/contests/abc410/rules\)](/contests/abc410/rules) [Glossary \(/contests/abc410/glossary\)](/contests/abc410/glossary)

[Terms of service \(/tos\)](/tos) [Privacy Policy \(/privacy\)](/privacy) [Information Protection Policy \(/personal\)](/personal) [Company \(/company\)](/company)
[FAQ \(/faq\)](/faq) [Contact \(/contact\)](/contact)

Copyright Since 2012 ©AtCoder Inc. (<http://atcoder.co.jp>) All rights reserved.