



HOME CONTESTS GYM PROBLEMSET GROUPS RATING API CANADA CUP 🖫 SECTIONS

PROBLEMS SUBMIT STATUS STANDINGS CUSTOM TEST

C. New Year and Domino

time limit per test: 3 seconds memory limit per test: 256 megabytes input: standard input output: standard output

They say "years are like dominoes, tumbling one after the other". But would a year fit into a grid? I don't think so.

Limak is a little polar bear who loves to play. He has recently got a rectangular grid with h rows and W columns. Each cell is a square, either empty (denoted by '.') or forbidden (denoted by '#). Rows are numbered 1 through h from top to bottom. Columns are numbered 1 through W from left to right.

Also, Limak has a single domino. He wants to put it somewhere in a grid. A domino will occupy exactly two adjacent cells, located either in one row or in one column. Both adjacent cells must be empty and must be inside a grid.

Limak needs more fun and thus he is going to consider some queries. In each query he chooses some rectangle and wonders, how many way are there to put a single domino inside of the chosen rectangle?

Input

The first line of the input contains two integers h and $W(1 \le h, W \le 500)$ – the number of rows and the number of columns, respectively.

The next h lines describe a grid. Each line contains a string of the length w. Each character is either '.' or '# — denoting an empty or forbidden cell, respectively.

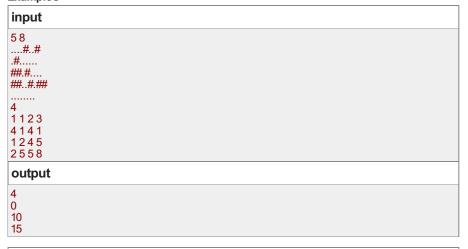
The next line contains a single integer q ($1 \le q \le 100000$) — the number of queries.

Each of the next q lines contains four integers r_i , c_i , c_i , c_i , c_i ($1 \le r_i \le r_i \le r_i$) — the i-th query. Numbers r_i and c_i denote the row and the column (respectively) of the upper left cell of the rectangle. Numbers r_i and r_i and r_i denote the row and the column (respectively) of the bottom right cell of the rectangle.

Output

Print q integers, i-th should be equal to the number of ways to put a single domino inside the i-th rectangle.

Examples



7 39

Good Bye 2015

Finished

→ Virtual participation

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Start virtual contest





Note

A red frame below corresponds to the first query of the first sample. A domino can be placed in 4 possible ways.

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