Moon Safari

English Vietnamese

Given a M*N square board. Each square contains a letter of the English alphabet ('A' .. 'Z').

A K-rectangle of the board is a rectangle whose sides are parallel to the sides of the board, and contains exactly K different types of letter.

For example, with this 4*3 board:

CED
CEB
CBC
DDA

The rectangle [(1,1), (2,2)] is a 2-rectangle of the board because it contains 2 different letters: C and E.

Given M, N, K and the M*N board. Determine how many K-rectangles there are in the board.

Input

The first line contains 3 integers M, N and K. ($1 \le M, N \le 100$, $1 \le K \le 26$)

The following M lines, each contains N letters of the English alphabet ('A' .. 'Z')

Output

Write one integer - the number of K-rectangles in the given board.

Example

Input:
4 3 3
CED
CEB
CBC
DDA

Output:
12