Returning Home

Time limit: 1.0s **Memory limit:** 512M

After a long day, Adam is on his way home. However, after suffering a sudden bout of amnesia, he has forgotten the name of the street where he lives!

Fortunately, he has a list of N potential names, from S_1 to S_n, which are composed of lowercase Latin characters, all with **equal length**. He also has a set of M quirky constraints that the street name should satisfy; each constraint is of the form $[L_i, R_i]$, meaning that the substring from L_i to R_i should be a palindrome. (Recall that a palindrome is a string which reads the same forwards and backwards, like `racecar` or `tacocat`).

Can you help Adam figure out the total number of strings on his list that satisfy these constraints?

Constraints

For all subtasks:

$1 \leq N \leq 5000$

$1 \leq M \leq 500\,000$

$1 \leq |S_i| \leq 30$, $|S_i| = |S_{i+1}|$ for all integer i from 1 to $N - 1$.

$1 \leq L_i \leq R_i \leq |S_i|$

Subtask 1 [20%]

$1 \leq M \leq 30$

Subtask 2 [80%]

No additional constraints.

Input Specification

The first line will contain the values for N, M, and $|S_i|$, denoting the number of strings, number of queries, and the length of each string.

The next N lines will contain S_i, the i^{th} string Adam is considering.

The next M lines after that will contain two numbers L_i and R_i, denoting the substring from L_i to R_i which must be a palindrome.

Output Specification

Print out, on a single line, the number of strings that Adam is considering which satisfies the constraints.

Sample Input 1

```
3 2 8
maineste
aracecar
reeeeeee
3 3
2 8
```

Sample Output 1

```
2
```

Explanation for Sample Output 1

Though all three candidate strings satisfy the first constraint, only the second and third strings satisfy the 2^{nd} to 8^{th} letter being also a palindrome.

Sample Input 2

```
2 2 3
aaa
aba
1 3
2 3
```

Sample Output 2

```
1
```

Explanation for Sample Output 2

Only the first string satisfies both the string itself being a palindrome and the substring $[2, 3]$ also being a palindrome.