Problem A – Ananna

Danaland is a very typical country: it consists of N cities, each identified by a distinct number. These cities are connected by M unidirectional roads, where each road has a name.

Ananna is a bright little girl who lives in Danaland. Unfortunately, she was born with a terrible disease: she can only read backwards. After being a victim of terrible bullying by her peers, or, as Ananna calls them, sreep, she found solace in palindromes: words that are the same when read backwards.

Ananna's mom, Eeve, is trying to help her with her condition. One way she helps is by taking her on road trips. A road trip is a sequence of roads that starts at some city U and ends at a different city V; the same road may appear more than once.

While on a road trip, Eeve asks Ananna the first letter of each road name, so she can practice looking at the start of words. This is, obviously, a source of great anxiety to Ananna, so to avoid having a kcatta cinap, Eeve always makes sure that the sequence formed by taking the first letter of each road's name, in the order they are traversed, is a palindrome.

Eeve is now looking at a map of Danaland, and she wonders: How many distinct pairs of cities U, V exist such that Eeve can take a road trip from U to V?

Input

The first line contains two integers N and M ($1 \leq N, M \leq 5000$), indicating respectively the number of cities and the number of roads in Danaland. Each city is identified by a distinct integer from 1 to N.

Each of the next M lines contains two integers U and V ($1 \leq U, V \leq N$) and a lowercase letter C, representing that there is a unidirectional road from U to V whose name starts with C. Several roads may connect the same pair of cities, and a road may connect a city to itself.

Output

Output a single line with an integer indicating the number of pairs of cities U, V such that $U \neq V$, there is a road trip from U to V, and the letters of the roads (in the order they are traversed) form a palindrome.

Sample input 1	Sample output 1
4 6 1 2 b 2 3 a 3 4 a 1 1 a 4 3 d 4 3 c	7

Explanation of sample 1:
The 7 pairs of cities and possible road trips are:

- $1, 2 : 1 \xrightarrow{b} 2$
- $1, 3 : 1 \xrightarrow{a} 1 \xrightarrow{b} 2 \xrightarrow{a} 3$
- $1, 4 : 1 \xrightarrow{a} 1 \xrightarrow{a} 1 \xrightarrow{b} 2 \xrightarrow{a} 3 \xrightarrow{a} 4$
- $2, 3 : 2 \xrightarrow{a} 3$
- $2, 4 : 2 \xrightarrow{a} 3 \xrightarrow{a} 4$
- $3, 4 : 3 \xrightarrow{a} 4$
- $4, 3 : 4 \xrightarrow{d} 3$

Sample input 2	Sample output 2
2 3 1 1 x 2 2 y 1 1 z	0