Words with a, b and c (2) — P70046_en

In this problem we consider words of size n made up only of letters '`a`', '`b`' and '`c`', and without two or more consecutive equal letters. Suppose that some positions of the word have fixed letters. Write a program to count all the words that meet these constraints.

Input

Input consists of several cases. Every case starts with n, followed by the number of fixed positions f, followed by f pairs p_i c_i, where p_i is a position between 0 and $n-1$ and c_i is '`a`', '`b`' or '`c`'. Suppose $1 \leq n \leq 10^4$, $0 \leq f \leq n$, and that all p_i's are different.

Output

For every case, print the number of words that satisfy the constraints modulo $10^8 + 7$.

Sample input 1

```
2 0
3 1  2 b
1 1  0 a
2 2  0 b  1 b
4 2  3 a  0 a
10000 0
27 0
```

Sample output 1

```
6
4
1
0
2
15429856
1326578
```

Problem information

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