
Words with a, b and c (2)

P70046_en

Examen parcial d'Algorísmia, FME (2013-11-08)

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

```
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

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

Problem information

Author : Salvador Roura

Translator : Salvador Roura

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