
Words with a, b and c (1)

P87741_en

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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 print 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 $1 \leq n \leq 15$, $0 \leq f \leq n$, and that all p_i 's are different.

Output

For every case, print in alphabetical order all words that satisfy the constraints. Print a line with 20 dashes at the end of each case.

Sample input

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

Sample output

```
ab
ac
ba
bc
ca
cb
-----
acb
bab
bcb
cab
-----
a
-----
abca
acba
-----
```

Problem information

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