Words with a, b and c (1) — P87741_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 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 1

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

Sample output 1

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

Problem information

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