D. 3-palindrome

Time limit: 1s Memory limit: 256 MB

In the beginning of the new year Keivan decided to reverse his name. He doesn't like palindromes, so he changed Naviek to Navick.

He is too selfish, so for a given n he wants to obtain a string of n characters, each of which is either 'a', 'b' or 'c', with no *palindromes* of length 3 appearing in the string as a substring. For example, the strings "abc" and "abca" suit him, while the string "aba" doesn't. He also want the number of letters 'c' in his string to be as little as possible.

Input

The first line contains single integer n ($1 \le n \le 2 \cdot 10^5$) — the length of the string.

Output

Print the string that satisfies all the constraints.

If there are multiple answers, print any of them.

Examples

input
2
output
aa

input
3
output
bba

Note

A *palindrome* is a sequence of characters which reads the same backward and forward.