Problem A. Hyperdromes Strike Back

Input file:	stdin
Output file:	stdout
Time limit:	2 seconds
Memory limit:	256 megabytes

In the problem E one of the ways of inventing new programming problems is shown. Another one will be presented here.

On the NEERC 2012 contest there was, up to restatement, the following problem:

The string is called hyperdrome if its symbols can be shuffled so that this string becomes palindrome.

The number of hyperdromes in the string s of length n is the number of such pairs (l, r) ($1 \le l \le r \le n$) that the substring $s_l \ldots s_r$ is a hyperdrome.

Given a string s of length at most 10^5, consisting of lowercase Latin letters, find how many hyperdromes it has.

We will not suggest you the problem from NEERC 2012, so we will just swap input and output.

You are given an integer k. Find a string of length at most 10^5, consisting of lowercase Latin letters, so that it has exactly k hyperdromes.

Input

The only line contains the only integer k ($1 \le k \le 2 \cdot 10^9$) — the required number of hyperdromes in the string.

Output

Output a string of length at most 10^5, consisting of lowercase Latin letters, so that it has exactly k hyperdromes. It's guaranteed that the answer exists.

Examples

stdin	stdout
6	aaa
12	abadaba
5	azz