

H. Repairing Of String

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Stepan had a favorite string s which consisted of the lowercase letters of the Latin alphabet.

After graduation, he decided to remember it, but it was a long time ago, so he can't now remember it. But Stepan remembers some information about the string, namely the sequence of integers c_1, c_2, \dots, c_n , where n equals the length of the string s , and c_i equals the number of substrings in the string s with the length i , consisting of the **same** letters. The substring is a sequence of consecutive characters in the string s .

For example, if the Stepan's favorite string is equal to "tttesst", the sequence c looks like: $c = [7, 3, 1, 0, 0, 0, 0]$.

Stepan asks you to help to repair his favorite string s according to the given sequence c_1, c_2, \dots, c_n .

Input

The first line contains the integer n ($1 \leq n \leq 2000$) — the length of the Stepan's favorite string.

The second line contains the sequence of integers c_1, c_2, \dots, c_n ($0 \leq c_i \leq 2000$), where c_i equals the number of substrings of the string s with the length i , consisting of the same letters.

It is guaranteed that the input data is such that the answer always exists.

Output

Print the repaired Stepan's favorite string. If there are several answers, it is allowed to print any of them. The string should contain only lowercase letters of the English alphabet.

Examples

input
6 6 3 1 0 0 0
output
kkrrrq

input
4 4 0 0 0
output
abcd

Note

In the first test Stepan's favorite string, for example, can be the string "kkrrrq", because it contains 6 substrings with the length 1, consisting of identical letters (they begin in positions 1, 2, 3, 4, 5 and 6), 3 substrings with the length 2, consisting of identical letters (they begin in positions 1, 3 and 4), and 1 substring with the length 3, consisting of identical letters (it begins in the position 3).