

A. String Reconstruction

time limit per test: 2 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

Ivan had string s consisting of small English letters. However, his friend Julia decided to make fun of him and hid the string s . Ivan preferred making a new string to finding the old one.

Ivan knows some information about the string s . Namely, he remembers, that string t_i occurs in string s at least k_i times or more, he also remembers exactly k_i positions where the string t_i occurs in string s : these positions are $x_{i,1}, x_{i,2}, \dots, x_{i,k_i}$. He remembers n such strings t_i .

You are to reconstruct **lexicographically minimal** string s such that it fits all the information Ivan remembers. Strings t_i and string s consist of small English letters only.

Input

The first line contains single integer n ($1 \leq n \leq 10^5$) — the number of strings Ivan remembers.

The next n lines contain information about the strings. The i -th of these lines contains non-empty string t_i , then positive integer k_i , which equal to the number of times the string t_i occurs in string s , and then k_i distinct positive integers $x_{i,1}, x_{i,2}, \dots, x_{i,k_i}$ in increasing order — positions, in which occurrences of the string t_i in the string s start. It is guaranteed that the sum of lengths of strings t_i doesn't exceed 10^6 , $1 \leq x_{i,j} \leq 10^6$, $1 \leq k_i \leq 10^6$, and the sum of all k_i doesn't exceed 10^6 . The strings t_i can coincide.

It is guaranteed that the input data is not self-contradictory, and thus at least one answer **always** exists.

Output

Print lexicographically minimal string that fits all the information Ivan remembers.

Examples

input
3 a 4 1 3 5 7 ab 2 1 5 ca 1 4
output
abacaba

input
1 a 1 3
output
aaa

input
3 ab 1 1 aba 1 3 ab 2 3 5
output
ababab