

## Problem F – String reconstruction

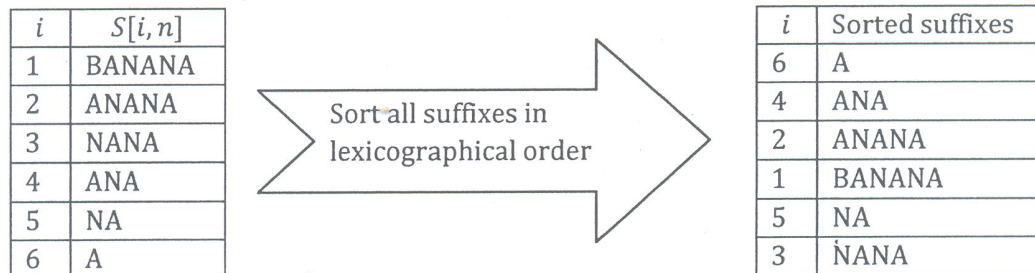
Little Long is now in grade 12<sup>th</sup> and is selected to represent Vietnam in the International Olympiads in Informatics (IOI). In a special training for the competition, he has just been introduced to the *suffix array* data structure.

A suffix array is defined as a sorted array of all suffixes of a string. It is a simple, yet powerful data structure which is used in full text indices, data compression algorithms and within the field of bioinformatics.

Let  $S = s_1s_2s_3 \dots s_n$  be a string and let  $S[i, j]$  denote the substring of  $S$  ranging from  $i$  to  $j$ . All  $S[i, n]$  with  $1 \leq i \leq n$  are suffixes of  $S$ .

The suffix array  $A$  of  $S$  is now defined to be an array of integers providing the starting point of suffixes of  $S$  in lexicographical order. This means, an entry  $A[i]$  contains the starting position of the  $i$ -th smallest suffix in  $S$  and thus, for all  $1 < i \leq n$ :  $S[A[i-1], n] < S[A[i], n]$ .

Consider  $S = \text{"BANANA"}$ :



We got the suffix array  $A$  of  $S = [6, 4, 2, 1, 5, 3]$ . Little Long is wondering: "Given an suffix array  $A$  of  $S$ , can we reconstruct string  $S$  which consist of only upper-case characters?"

### Input

The input consists of  $T$  test cases. Each test case starts with an integer  $N$  denotes the length of the string (i.e. the number of suffixes). Then  $N$  integers denote the suffix array follows. All the numbers in the input are positive integers and do not exceed 50.

### Output

For each test case, print in one line the reconstructed string. If there are multiple solutions, print the one that comes first lexicographically. If the string can not be reconstructed from the given suffix array, print "NO SOLUTION" instead.

Sample input	Output for sample input
2	AAAA
4	BAB
4 3 2 1	
3	
2 3 1	