

CATALOG CONTESTS GYM PROBLEMSET GROUPS HOME TOP API CALENDAR HELP RATING EDU

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A. Suffix Array and LCP

time limit per test: 2 seconds memory limit per test: 512 megabytes

Try to implement the algorithm of Kasai, Arimura, Arikawa, Lee and Park find the values of lcp for the suffix array.

Build a suffix array for a given string s, for each two adjacent suffixes find the length of longest common prefix.

First line holds a single string s of length n ($1 \le n \le 400\,000$). String consists of small english letters.

Output

In the first line print n+1 distinct integers, indices of first characters of suffixes of s, ordered in lexicographical order.

In the second line print n integers, lengths of longest common prefixes.

Examples	
input	Сору
ababba	
output	Сору
6 5 0 2 4 1 3 0 1 2 0 2 1	
input	Сору
aaaa	
output	Сору
4 3 2 1 0 0 1 2 3	
input	Сору
ppppplppp	
output	Сору
9 5 8 4 7 3 6 2 1 0 0 0 1 1 2 2 3 3 4	
input	Сору
nn	
output	Сору
2 1 0	
0 1	

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