

A. Suffix Array - 2

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

This task is the same as the previous one, but the length of string is larger. Try to write as efficient an algorithm as possible.

Build a suffix array for the given string s .

Input

Input contains a single string s of length n ($1 \leq n \leq 400\,000$). String consists of small english letters.

Output

Print $n + 1$ distinct integers, indices of first characters of suffixes of s , ordered in lexicographical order.

Examples

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

→ Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

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