

## A. Antiprefixes (round 2)

Input: standard input (from the keyboard)

Output: standard output (to the screen)

Time limit: 1 second

Memory limit: 256 Mb

### **Problem**

A concept of prefix is very popular in the string theory. By analogy with it let's introduce a concept of antiprefix. Consider a string  $s_1s_2\dots s_n$ , where  $s_1, s_2, \dots, s_n$  are some symbols. Let  $k$  be the greatest non-negative integer  $k$ , for which the equalities  $s_1=s_n, s_2=s_{n-1}, \dots, s_k=s_{n+1-k}$  are fulfilled. Let the antiprefix of the string  $s_1s_2\dots s_n$  be its beginning  $s_1s_2\dots s_k$ . For a given string find the lengths of antiprefixes of all its beginnings.

### **Input**

In the first line of the input a string  $s_1s_2\dots s_n$  of small English letters is written. Its length is positive and no more than 100000. Input doesn't contain other symbols except  $s_1, s_2, \dots, s_n$ .

### **Output**

Output the lengths of antiprefixes of the strings  $s_1, s_1s_2, \dots, s_1s_2\dots s_n$ , splitting them by spaces.

### **Example**

Input	Output
Ottoto	1 0 0 4 0 2

### **Comment**

Ottoto is a Japanese name of a competition, in which it is needed to hold a pole on a hand in the vertical position. Such a competition was demonstrated in a TV-show «Unbeatable banzuke». Namely this word has inspired the author to create the given problem. :)

Chairman of the Judiciary Board

G.B. Varlamov