

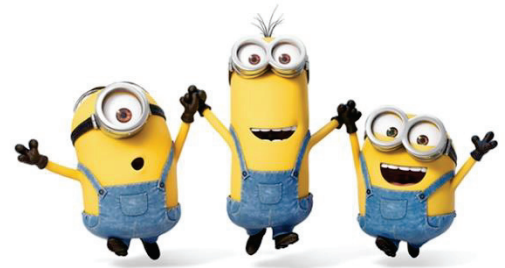
Problem D

Minions

Time Limit: 1 second

Do you know that Minions can live on the Moon? Believe it or not! Actually, you can see a lot of Minions wandering around in the Virtual Moon in the Mid-Autumn Festival.

"Bello!" (or "Hello!" in English). Do you also know that Dr. Nefario is the first man on Earth that taught minions to speak? In the Mid-Autumn Festival this year, Dr. Nefario will teach his Lunar minions new and much longer words.



According to his secret research, a minion-word or a minion-string can be represented as a lowercase string and has this particular property: It is lexicographically smaller than each of its proper suffixes (different from the string itself). All strings of length one are minion-strings. A suffix of a string S is a substring of S , starting somewhere in S and finishes at the end of S .

As a teaching assistant of Dr. Nefario, you are asked to split a given string in a concatenation of minion-substrings, such that each substring (except the first one) is lexicographically smaller than or equal to the previous one. So that he can estimate the length of his lecture.

Input

The single row of the standard input will contain the given string. It will less than 10^6 characters of Latin alphabet.

Output

Display in a single line the number of substrings, following by the length of each substring, separated by a single space.

Sample Input

Sample Output

Waaw	2 1 3
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Explanation: The given string is a concatenation of the following 2 minion-substrings:

w

aaw