# D. Palindromic characteristics

time limit per test: 3 seconds memory limit per test: 256 megabytes

input: standard input output: standard output

Palindromic characteristics of string s with length |s| is a sequence of |s| integers, where k-th number is the total number of non-empty substrings of s which are k-palindromes.

A string is 1-palindrome if and only if it reads the same backward as forward.

A string is k-palindrome (  $k \ge 1$ ) if and only if:

- 1. Its left half equals to its right half.
- 2. Its left and right halfs are non-empty (k-1)-palindromes.

The left half of string t is its prefix of length  $\lfloor |t|/2 \rfloor$ , and right half — the suffix of the same length.  $\lfloor |t|/2 \rfloor$  denotes the length of string t divided by 2, rounded down.

Note that each substring is counted as many times as it appears in the string. For example, in the string "aaa" the substring "a" appears 3 times.

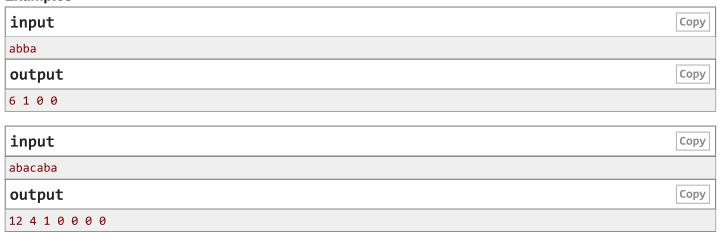
## Input

The first line contains the string s ( $1 \le |s| \le 5000$ ) consisting of lowercase English letters.

## Output

Print |s| integers — palindromic characteristics of string s.

### **Examples**



### Note

In the first example 1-palindromes are substring «a», «b», «b», «a», «bb», «abba», the substring «bb» is 2-palindrome. There are no 3- and 4-palindromes here.