

## D. Palindrome pairs

time limit per test: 3 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

You are given a non-empty string  $s$  consisting of lowercase letters. Find the number of pairs of non-overlapping palindromic substrings of this string.

In a more formal way, you have to find the quantity of tuples  $(a, b, x, y)$  such that  $1 \leq a \leq b < x \leq y \leq |s|$  and substrings  $s[a \dots b]$ ,  $s[x \dots y]$  are palindromes.

A *palindrome* is a string that can be read the same way from left to right and from right to left. For example, "abacaba", "z", "abba" are palindromes.

A *substring*  $s[i \dots j]$  ( $1 \leq i \leq j \leq |s|$ ) of string  $s = s_1 s_2 \dots s_{|s|}$  is a string  $s_i s_{i+1} \dots s_j$ . For example, substring  $s[2 \dots 4]$  of string  $s = \text{"abacaba"}$  equals "bac".

### Input

The first line of input contains a non-empty string  $s$  which consists of lowercase letters ('a'...'z'),  $s$  contains at most 2000 characters.

### Output

Output a single number — the quantity of pairs of non-overlapping palindromic substrings of  $s$ .

Please do not use the %lld format specifier to read or write 64-bit integers in C++. It is preferred to use cin, cout streams or the %I64d format specifier.

### Examples

input
aa
output
1

input
aaa
output
5

input
abacaba
output
36