

Birthday Gift

Bitman's birthday is coming soon. Byteman, his older brother, wants to gift him a string. He knows that the happiness that Bitman gets from a string S is equivalent to sum of all odd length palindrome substrings of S . Byteman goes to the gift shop and sees a huge amount of strings there. He wants to gift Bitman the best string he can. Unfortunately, he doesn't know how to compute the happiness of a given string S . He asks you to help him.

Write a program that inputs a string S and outputs the happiness that Bitman gets from S .

Input Format:

First line contains a string S .

Output Format:

Output a single integer denoting the happiness obtained from S .

Constraints:

$1 \leq |S| \leq 100000$

$|S|$ is the length of string S .

S consists of lower-case letters.

Sample Input:

aaa

Sample Output:

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“a”, “a”, “a”, “aaa” are the odd length substrings of S.