Problem I
Palindrome Type
Time Limit: 1.0 Seconds

A *palindrome* string is a word which reads the same backward as forward, such as *madam* or *racecar*. In this problem we only consider strings with lowercase alphabets.

We newly define the types of palindromes. If a string is not a palindrome, we try to make it a palindrome by removing the minimum number of characters in the string. For a string w, if k is the minimum number of characters removed to make the string a palindrome, we call the string w *type-k palindrome*. Thus, if w is a palindrome, then w is a type-0 palindrome.

Given a string w, write a program to determine if w is a type-k palindrome where $k = 0, 1, 2, 3$.

Input
Your program is to read from standard input. The input is a single line containing a string w with length n ($5 \leq n \leq 10^5$) of lowercase alphabets.

Output
Your program is to write to standard output. Print exactly one line. The line should contain a number k among $\{0, 1, 2, 3, -1\}$ if the input string is a type-k palindrome where $k = 0, 1, 2, 3$ and otherwise -1. The negative number -1 means the input string is not a type-k palindrome where $k = 0, 1, 2, 3$.

The following shows sample input and output for three test cases.

Sample Input 1	Output for the Sample Input 1
aababaa	0

Sample Input 2	Output for the Sample Input 2
abccbbab	2

Sample Input 3	Output for the Sample Input 3
acmicpc	-1