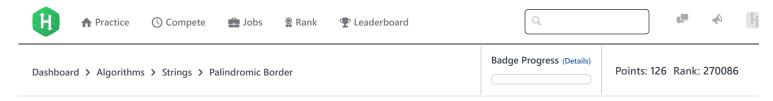
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Palindromic Border



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A border of a string is a proper prefix of it that is also a suffix. For example:

- a and abra are borders of abracadabra,
- kan and kankan are borders of kankankan.
- de is a border of decode.

Note that decode is not a border of decode because it's not proper.

A palindromic border is a border that is palindromic. For example,

- a and ana are palindromic borders of anabanana,
- 1, lol and lolol are palindromic borders of lololol.

Let's define P(s) as the number of palindromic borders of string s. For example, if s= lololol, then P(s)=3.

Now, a string of length N has exactly N(N+1)/2 non-empty substrings (we count substrings as distinct if they are of different lengths or are in different positions, even if they are the same string). Given a string s, consisting only of the first 8 lowercase letters of the English alphabet, your task is to find the sum of P(s') for all the non-empty substrings s' of s. In other words, you need to find:

$$\sum_{1 \leq i \leq j \leq N} P\left(s_{i \dots j}\right)$$

where $s_{i...j}$ is the substring of s starting at position i and ending at position j.

Since the answer can be very large, output the answer modulo $10^9 + 7$.

Input Format

The first line contains a string consisting of N characters.

Output Format

Print a single integer: the remainder of the division of the resulting number by $10^9 + 7$.

Constraints

$$1 \le N \le 10^5$$

All characters in the string can be any of the first 8 lowercase letters of the English alphabet (abcdefgh).

Sample Input 1

ahaha

Sample Output 1

5

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Sample Input 2

aaaa

Sample Output 2

10

Sample Input 3

abcacb

Sample Output 3

3

Explanation

s = ababa has 15 substrings but only 4 substrings have palindromic borders.

$$egin{aligned} s_{1\dots 3} &= \mathsf{aba} &\longrightarrow P\left(s_{1\dots 3}
ight) = 1 \ s_{1\dots 5} &= \mathsf{ababa} &\longrightarrow P\left(s_{1\dots 5}
ight) = 2 \ s_{2\dots 4} &= \mathsf{bab} &\longrightarrow P\left(s_{2\dots 4}
ight) = 1 \ s_{3\dots 5} &= \mathsf{aba} &\longrightarrow P\left(s_{3\dots 5}
ight) = 1 \end{aligned}$$

f y in Submissions:<u>718</u> Max Score:100 Difficulty: Expert Rate This Challenge: ☆☆☆☆☆

```
Current Buffer (saved locally, editable) \ \mathscr{V} \ \mathfrak{O}
                                                                                                Java 7
1 ▼ import java.io.*;
2 import java.util.*;
3 import java.text.*;
   import java.math.*;
   import java.util.regex.*;
7 ▼ public class Solution {
8
        public static void main(String[] args) {
9 ▼
             /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution. */
10 ▼
11
12
   }
                                                                                                                          Line: 1 Col: 1
```

<u>Upload Code as File</u> Test against custom input

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