E - 連続しない文字列 / Non-repeating String

Time limit : 5sec / Memory limit : 256MB

Score : 100 points

Problem Statement

You are given a string S.

Among the strings that can be obtained by arbitrarily permuting the characters in S, find the number of the different strings such that no two adjacent characters are the same.

Since the answer will be extremely large, print the answer modulo $1,000,000,007$.

Constraints

- S consists of lowercase English letters.
- $1 \leq |S| \leq 26$

Partial Scores

- 30 points will be awarded for passing the test set satisfying $1 \leq |S| \leq 8$.
- Additional 30 points will be awarded for passing the test set satisfying $1 \leq |S| \leq 16$.

Input

The input is given from Standard Input in the following format:

S

Output

Follow the problem statement and print the expected output.

Sample Input 1

```
aabb
```
Copy

Sample Output 1

```
2
```
Copy

- There are two strings that satisfies the condition: `abab` and `baba`.

Sample Input 2

```
abc
```
Copy

Sample Output 2

```
6
```
Copy

- All permutations of the given string satisfy the condition, and thus the answer is 6.

Sample Input 3

```
aaab
```
Copy

Sample Output 3

```
0
```
Copy

- In any permutation of `aaab` there will be two adjacent `a`, and thus the answer is 0.

Sample Input 4

```
aaabbccd
```
Copy

Sample Output 4

```
384
```
Copy

Sample Input 5

```
abcdefghijklmnopqrstuvwxyz
```
Copy

Sample Output 5

```
459042011
```
Copy

- This input is not included in the test sets for the partial scores.
- The answer, $403291461126605635584000000$, should be printed modulo $1,000,000,007$.