Three Friends

Three friends like to play the following game. The first friend chooses a string. Then the second friend constructs a new string that consists of two copies of the original string. Finally, the third friend inserts one letter somewhere in the string.

Task

You are given the final string and your task is to reconstruct the original string.

Input

The only input line contains the final string. It consists of uppercase letters A, B, C, ... Z.

Output

Your program should print the original string. However, there are two exceptions:

1. If it is not possible that the final string is created using above procedure, you should print `NOT POSSIBLE`.

2. If the original string is not unique, you should print `NOT UNIQUE`.

Examples

Input	Output
ABXCABC	ABC

Input	Output
ABCDEF	NOT POSSIBLE

Input	Output
ABABABABA	NOT UNIQUE

Scoring

Subtask 1 (30 points): The length of the final string is at most 2001 letters.

Subtask 2 (70 points): The length of the final string is at most 2000001 letters.

Constraints

Time limit: 1 s.

Memory limit: 64 MB.