Friends

A, B and C are three friends. First A chooses a string. Then B constructs a new string that consists of two copies of the original string. Finally C adds one letter somewhere to 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 ... Z.

Output

Your program should print the original string. However, there are two exceptions: If the original string is not unique, you should print `NOT UNIQUE`. In addition, if it is not possible that the final string is created using above procedure, you should print `IMPOSSIBLE`.

Examples

Input	Output
ABXCABC	ABC

Input	Output
ABCDEF	IMPOSSIBLE

Input	Output
ABABABABA	NOT UNIQUE

Scoring

Subtask 1 (30 points): The length of the original string is at most 1000 letters.

Subtask 2 (70 points): The length of the original string is at most 1000000 letters.

Constraints

Time limit: 1 s.

Memory limit: 64 MB.