

Game of Strings

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 1024 megabytes

Little P and Little B like to play games, and they found Little Skip. Little Skip introduced them to the following game:

- There is a string S containing lowercase letters, and at the start of the game, it is given by skip as a string S_0 . The game scores Little P and Little B, with their initial scores both being 0.
- Little P and Little B take turns operating on this string, with Little P going first. Each player can perform the following operation during their turn:
 - Choose a non-empty prefix of S (which can be S itself), earn a score equal to the number of occurrences of this prefix in S , and then remove this prefix from S .
- If S becomes empty after a certain operation, the game ends.

To help you better understand the rules of the game, consider the following example:

- Initially, $S_0 = ababa$;
- Little P chooses the prefix a of $ababa$, earning 3 points, and S becomes $baba$;
- Little B chooses the prefix ba of $baba$, earning 2 points, and S becomes ba ;
- Little P chooses ba , earning 1 point, and the string becomes empty, ending the game. Finally, Little P earns 4 points, and Little B earns 2 points.

Little P aims to maximize the score of Little P minus the score of Little B, while Little B aims to minimize this value. They want to know, assuming both sides are extremely smart, what the value of the score of Little P minus the score of Little B will be.

Input

The first line of the input contains a string S_0 made up of lowercase letters. It is guaranteed that $1 \leq |S_0| \leq 10^6$.

Output

Output a single line contains a single integer, representing under the premise of both sides being extremely smart, the value of the game's end score difference between Little P and Little B.

Examples

standard input	standard output
ababa	2
letitrotwillwinworldfinals	4