Cutting Suffix

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Given a string S of length n consisting of lowercase English characters. We denote Suffix_i as the suffix of S starting from the i-th character. We define $w_{i,j}$ as the length of the LCP of Suffix_i and Suffix_j. LCP is the longest common prefix of two strings. For example, the LCP of `abca` and `abd` is `ab`.

You should divide the integers from 1 to n into two non-empty complementary sets T_1, T_2. We define the value of this partition as follows.

$$\sum_{i \in T_1} \sum_{j \in T_2} w_{i,j}$$

Please find a partition to minimize the value.

Input

The input contains a string S of length n ($2 \leq n \leq 10^5$) in a single line, consisting of only lowercase English letters.

Output

Output a single integer indicating the minimum value.

Examples

standard input	standard output
aa	1
ab	0