Given a string, A, we define some operations on the string as follows:

a. $reverse(A)$ denotes the string obtained by reversing string A. Example: **`reverse("abc") = "cba"`**

b. $shuffle(A)$ denotes any string that's a permutation of string A. Example: **`shuffle("god")`** $\in$ **`['god', 'gdo', 'ogd', 'odg', 'dgo', 'dog']`**

c. $merge(A1, A2)$ denotes any string that's obtained by interspersing the two strings $A1$ & $A2$, maintaining the order of characters in both. For example, **`A1 = "abc"`** & **`A2 = "def"`**, one possible result of $merge(A1, A2)$ could be **`"abcdef"`**, another could be **`"abdecf"`**, another could be **`"adbecf"`** and so on.

Given a string s such that **`s`** $\in$ **`merge(reverse(A), shuffle(A))`** for some string A, find the lexicographically smallest A.

For example, $s = abab$. We can split it into two strings of ab. The reverse is ba and we need to find a string to shuffle in to get $abab$. The middle two characters match our reverse string, leaving the a and b at the ends. Our shuffle string needs to be ab. Lexicographically $ab < ba$, so our answer is ab.

Function Description

Complete the *reverseShuffleMerge* function in the editor below. It must return the lexicographically smallest string fitting the criteria.

reverseShuffleMerge has the following parameter(s):

- *s*: a string

Input Format

A single line containing the string s.

Constraints

- s contains only lower-case English letters, *ascii[a-z]*
- $1 \leq |s| \leq 10000$

Output Format

Find and return the string which is the lexicographically smallest valid A.

Sample Input 0

```
eggegg
```

Sample Output 0

```
egg
```

Explanation 0

Split "eggegg" into strings of like character counts: "egg", "egg"
reverse("egg") = "gge"
shuffle("egg") can be "egg"
"eggegg" belongs to the merge of ("gge", "egg")

The merge is: $e\underline{gge}gg$.

'egg' < 'gge'

Sample Input 1

```
abcdefgabcdefg
```

Sample Output 1

```
agfedcb
```

Explanation 1

Split the string into two strings with like characters: $abcdefg$ and $abcdefg$.
Reverse $abcdefg$ = $gfedcba$
Shuffle $agfedcb$ can be $bcdefga$
Merge to **a**$bcdefg$**bcdefga**$abcdefg$

Sample Input 2

```
aeiouuoiea
```

Sample Output 2

```
aeiou
```

Explanation 2

Split the string into groups of like characters: $aeiou$
Reverse $aeiou$ = $uoiea$
These merge to $aeiou$**uoiea**