COCI '15 Contest 5 #2 Multigram

Time limit: 1.0s   **Memory limit:** 64M

Pero is a passionate lover of riddles. The newest type of riddles he has come across requires the solver to check whether the given word is a **multigram**.

A multigram is a word that consists of concatenating two or more words that are all mutually **anagrams**. The first of these words is called the **root** of the multigram. For instance, the word ` bbabab ` is a multigram with the root ` bba ` because it consists of anagrams ` bba ` and ` bab `.

Help Pero solve the riddle by determining whether his word is a multigram and determining its root in case it is. If there are multiple possible roots of the multigram, output the **shortest**.

Please note: Two words are mutually anagrams if one of them can be obtained from the other by changing the letter order.

Input

The first and only line of input contains a word of length at most 100 000 **lowercase English** characters.

Output

If the given word is not a multigram, output ` -1 `.

Otherwise, output the shortest root of the given word in one line.

Sample Input 1

```
aaaa
```

Sample Output 1

```
a
```

Explanation for Sample Output 1

Notice that the word ` aa ` could also be the root, but ` a ` is shorter.

Sample Input 2

```
ab
```

Sample Output 2

```
-1
```

Explanation for Sample Output 2

The word is not a multigram because `a` and `b` are not mutually anagrams.

Sample Input 3

```
bbabab
```

Sample Output 3

```
bba
```