

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 TESTS

<b>input</b> aaaa	<b>input</b> ab	<b>input</b> bbabab
<b>output</b> a	<b>output</b> -1	<b>output</b> bba

**Clarification of the first example:** Notice that the word “aa” could also be the root, but “a” is shorter.

**Clarification of the second example:** The word is not a multigram because “a” and “b” are not mutually anagrams.