Description

Due to budget cuts there are restrictions on the number of different letters that are being allowed in phrases. A list of "bad" letters has been developed, consisting of the 6 least frequent letters in English, that is "vkjxqz".

A phrase is allowed to use at most 4 of the letters from the bad set, ignoring case. If it does, it is classified as a bad phrase, and called a "badgram". If it uses 4 or less, is classified as an OK phrase.

So for example:

```
A quick fox jogs.
```

is ok, while

```
Vick the quizmaster just left.
```

is not, because it uses 5 different letters (v,k,j,q,z) from the bad set.

Write a script called **badgram.py** that reads a sequence of lines and outputs for each of the lines in the input whether the line is a badgram or not. For each input line, your program should produce a new line containing "BAD" if the input line is a badgram, otherwise it should produce a line containing "OK". Blank lines are simply ignored.

Input

The input consists of blank lines, or of lines containing some characters. Blank input lines are to be IGNORED, and generate no output.

Output

For each non-blank input line there should be an output line containing either "BAD" or "OK".

Sample Input 1

```
A quick fox jogs.

Vick the quizmaster just left.
```

Sample Output 1

```
OK
BAD
```