The Romulans use a language that can be approximated with the English alphabet and normal punctuation marks. Their spelling rules are even stranger than English, however. In particular, they have a rule that states:

G before P except after E or when pronounced X as in n**pguk**bor or w**pguk**.

Operationally, you can detect the X pronunciation by the string "PGUK" appearing in the word. Also, the Romulan rules for capitalization are different from ours, so capital letters can appear anywhere in a word.

Input and Output

Given a file containing lines of Romulan text, you are to output the text with spelling corrected according to the **G before P except after E** rule given above. No input line will contain more than 70 characters including spaces.

For example, the input file corresponding to the romulan translation of the quote:

"I received the wierd piece of pie from my neighbor sam who in turn recieved the weird peice of pei from his nieghbor harry,"

might well be the Sample Input below and the program should produce the corresponding Output.

Sample Input

```
I rpEpgvpd tKp wgprd tgpEp of tgp from my npguKbor sam wKo gn turn
rpEgpvpd tKp wpgrd tpgEp of tpg from Kgs ngpuKbor Karry,
```

Sample Output

```
I rpEpgvpd tKp wgprd tgpEp of tgp from my npguKbor sam wKo gn turn
rpEpgvpd tKp wgprd tgpEp of tgp from Kgs npguKbor Karry,
```