

Problem 4—Palinwords

A palindrome is a string of characters which can be read forward and backward and still result in the same word; for example, “MADAMIMADAM”. So, by definition, the empty string, all strings consisting of one character, and all strings consisting of two identical characters are palindromes. We will not be considering palindromes this short. The length of a palindrome is the total number of characters in the palindrome, or, in other words, the standard string length.

A palinword is a string of characters that contains at least 2 different palindromes each with a length of at least 3. Although the two palindromes are allowed to overlap, neither palindrome may completely contain the other nor may it completely contain a copy of the other. For example, “AMAMA” is a palinword because it contains the palindromes “AMA” and “MAM”, but “ABATRABAR” is not a palinword because although it contains “ABA” and “RABAR”, “RABAR” completely contains “ABA”.

You are to write a program that copies palinwords from the input file to the output file.

INPUT SPECIFICATION

The input file consists of series each of which is a string of capital letters. The words may be preceded, followed, and separated by any number of spaces and **<EOLN>**'s in any combination, but the words themselves will be no longer than 20 characters. The last word in the file will be **END**, and this word will only occur as the last word. This word signifies the end of the input data and is not to be processed by the program.

OUTPUT SPECIFICATION

The words in the input file that are palinwords are to be copied to the output file in the order in which they appear in the input file. Each word is to be followed by **<EOLN>**. The words in the input file that are not palinwords should be completely ignored. No extra spaces or **<EOLN>**'s should appear in the output file.

SAMPLE INPUT

```
MOEILIJKHEDEN INVOER<EOLN>
VERNEDEREN<EOLN>
AMUMA AMAMA MUMMUM<EOLN>
AMATRAMA AAAA<EOLN>
ABATRABAR<EOLN>
DUMMY<EOLN>
WORDS END<EOLN>
<EOF>
```

SAMPLE OUTPUT

```
MOEILIJKHEDEN<EOLN>
VERNEDEREN<EOLN>
AMAMA<EOLN>
MUMMUM<EOLN>
<EOF>
```