604 The Boggle Game

The language PigEwu has a very simple syntax. Each word in this language has exactly 4 letters, the first cannot be a vowel. Also each word contains one or two vowels (y is consider a vowel in PigEwu). For instance, maar and beer are legitimate words, arts is not a legal word.

In the game boggle, you are given a 4x4 array of letters and asked to find all words contained in it. A word in our case (PigEwu) will thus be a sequence of 4 distinct squares (letters) that form a legal word and such that each square touches (have a corner or edge in common) the next square.

For example:

```
A   S   S   D
S   B   E   Y
G   F   O   I
H   U   U   K
```

In this board a (partial) list of legal words include:

```
BASS    SABS    FOIK    FOYD    SYDE    HUGS
```

BOBS is a legal word but it is not on this boggle board (there are no two B's here).

Write a program that reads a pair of Boggle boards and lists all PigEwu words that are common to both boards.

Input

The input file will include a few data sets. Each data set will be a pair of boards as shown in the sample input. All entries will be upper case letters. Two consecutive entries on same board will be separated by one blank. The first row in the first board will be on the same line as the first row of the second board. They will be separated by a few tabs, the same will hold for the remaining 3 rows. Board pairs will be separated by a blank line. The file will be terminated by '#'.

Output

For each pair of boggle boards, output a sorted list of all common words, each word on a separate line; or the statement "There are no common words for this pair of boggle boards." Separate the output for each pair of boggle boards with a blank line.

Sample Input

```
D F F B             W A S U
T U G I             B R E T
O K J M             Y A P Q
K M B E             L O Y R

#
```

Sample Output

```
There are no common words for this pair of boggle boards.
```