PROBLEM 6 - MOBILE PHONES

ACMIA mobile phones have a shortcut mode for typing text messages using the numerical phone keypad. In this mode, the system uses a dictionary of known words. After a sequence of digits is entered the system checks for and displays all possible matches in the dictionary. The ACMIA phone keypad for the English alphabet is as follows:

1	2 abc	3 def
4 ghi	5 jkl	6 mno
7 pqrs	8 tuv	9 wxyz
	0 (space)	

Your task is to write a program that displays all possible matches for given digit sequences, using a given dictionary.

A digit sequence corresponds to a sequence of words, with zero digits ('0') indicating spaces. Leading and trailing zeros are ignored, and multiple consecutive embedded zeros are treated as a single zero. For each sequence of non–zero digits, display the matching word from the dictionary. When more than one match is available, display all matches in dictionary order between round parentheses and separated by bars ('|'). If there is no matching word, display a sequence of asterisks ('*') of the same length. For example, with a dictionary consisting solely of the words '`i`', '`loud`', '`love`', '`programming`', the digit sequence

'`00405683000776472664640777 0`'

will be displayed as the text

'`i (loud|love) programming ****`'

INPUT FORMAT

The input will consist of one or more scenarios, each scenario consisting of a dictionary of permitted words and a series of digit sequences to be interpreted as text messages.

The dictionary consists of 1 to 1,000 words, one word per line, in increasing dictionary order, with no duplicates. Each word consists of 1 to 30 lowercase letters. For any given non–zero digit sequence there will be no more than 10 matching words in the dictionary. The end of the dictionary is indicated by a line consisting of a single '#'.

The digit sequences to interpret as text messages follow the dictionary, one per line. Each message line consists of 1 to 100 digits, with at least 1 non–zero digit. The end of messages is indicated by a line consisting of a single '#'.

The end of input is indicated by an empty dictionary (a dictionary with zero words).

SAMPLE INPUT:

```
i
loud
love
programming
#
00405683000776472664640777 70
#
a
game
go
golf
good
hand
hold
hole
home
in
me
of
to
#
2046630426306304653
46086020466304663
#
#
```

OUTPUT FORMAT

For each scenario output a line consisting of the word 'SET' (all uppercase) followed by a space and then the scenario number, starting with 1. Following this output the list of interpreted text messages, one message per line.

SAMPLE OUTPUT:

```
SET 1
i (loud|love) programming ****
SET 2
a (good|home) (game|hand) (me|of) (golf|hold|hole)
(in|go) to a (good|home) (good|home)
```