

ALGORITHMIQUE EFFECTIVE – TD 12

Mots hachés et croisés

1 Mots hachés

Résoudre le problème suivant grâce à une table de hachage, dans un premier temps sans trier la sortie dans l'ordre alphabétique. On pourra comparer les différents moyens de calcul de clé de hachage vus en cours.

Dans un second temps, résoudre le problème complet (avec tri alphabétique) comme bon vous semble et le soumettre au juge.

Exercice 1 Andy's first dictionary. UVa : 10815.

Andy, 8, has a dream - he wants to produce his very own dictionary. This is not an easy task for him, as the number of words that he knows is, well, not quite enough. Instead of thinking up all the words himself, he has a brilliant idea. From his bookshelf he would pick one of his favourite story books, from which he would copy out all the distinct words. By arranging the words in alphabetical order, he is done! Of course, it is a really time-consuming job, and this is where a computer program is helpful.

You are asked to write a program that lists all the different words in the input text. In this problem, a word is defined as a consecutive sequence of alphabets, in upper and/or lower case. Words with only one letter are also to be considered. Furthermore, your program must be CaSe InSeNsItIvE. For example, words like "Apple", "apple" or "APPLE" must be considered the same.

Input

The input file is a text with no more than 5000 lines. An input line has at most 200 characters. Input is terminated by EOF.

Output

Your output should give a list of different words that appears in the input text, one in a line. The words should all be in lower case, sorted in alphabetical order. You can be sure that the number of distinct words in the text does not exceed 5000.

Sample Input

Adventures in Disneyland

Two blondes were going to Disneyland when they came to a fork in the road. The sign read: "Disneyland Left."

So they went home.

Sample Output

a
adventures
blondes
came
disneyland
fork
going
home
in
left
read
road
sign
so
the
they
to
two
went
were
when

2 Mots croisés

Exercice 2 Crossword Puzzles. UVa : 842.

Almost everyone is familiar with crossword puzzles. Here you have to deal with a special kind of crossword puzzle that is adequate for an automated solver. A description of the puzzle and a list of admissible words (the dictionary) is given, and the goal is to find the number of possible solutions, if any exists, for the puzzle using the given dictionary.

The puzzle is represented as a grid of white and black squares. A solution is a subset of dictionary words that fill all the sequences of horizontal or vertical white squares in such a way that all the horizontal and vertical crossings formed are still valid dictionary words. One-letter sequences do not need to be in the dictionary.

An example of a crossword puzzle in which white and black squares are respectively represented by the '.' and '#' characters, a word dictionary and a solution for the puzzle is as follows:

```

. . . . . . . . . . aa ac al alao ali ap      v a r i e d a d e s
. . . . . # . . . . . atencao atlanta camilo   e p o c a # t u l e
. # . . . . . # . . . . . doar dr duo eam eis el  r # c a m i l o # n
. . . . . # . . # . . . . . epoca et icar ileso is  d o a r # l a # s i
. . # # . . . # . . . . . la loto mal men        a a # # m e n # a l
. . # . . . . . # # . . . . . merito mi no       d r # r e s t o # #
. . . # . . . . # . . . . . oaristo oo os pios    e i s # r o a # a p
. . # . . # # . . . . . resto roa roca rt         i s # m i # # a l i
. . # . . . . . . . . . . sa senil si tule       r t # a t e n c a o
. . # . . . . . # . . . . . variedades verdadeiro  o o # l o t o # o s

```

Your task is to develop a program to solve the described crossword puzzles.

Input

The input begins with a single positive integer on a line by itself indicating the number of the cases following, each of them as described below. This line is followed by a blank line, and there is also a blank line between two consecutive inputs.

The input consists of a 10×10 puzzle configuration and a word dictionary. For the puzzle each input line is a sequence of '.' and '#' characters. You may assume that the given configuration is always correct.

The dictionary words start immediately after the last line of the puzzle. Each word is a sequence of lower case letters, without accents and separated by spaces. The dictionary terminates when the end-of-file is reached from the standard input.

Output

For each test case, the output must follow the description below. The outputs of two consecutive cases will be separated by a blank line.

The program should output the number of solutions that the given crossword puzzle accepts.

Sample Input

1

```
.....  
.....#....  
.#.....#.  
....#..#..  
..##...#..  
..#.....##  
...#...#..  
..#...##...  
..#.....  
..#....#..  
aa ac al alao  
ali ap atencao  
atlanta camilo  
doar dr duo eam  
eis el epoca et  
icar ileso is  
la loto mal men  
merito mi no  
oaristo oo os pios  
resto roa roca rt  
sa senil si tule  
variedades verdadeiro
```

Sample Output

1