4769   Fuzzy Google Suggest

Google Suggest is a typical feature of the Google search box. It guesses what you're typing and offers suggestions in real time (Fig 1). Sometimes, we may mistype the keyword. For example, when we want to find the information of "mcgrady" (a famouse NBA star), we mistyped it to "macgrady" (Fig 2). The clever Google can still give you the right suggestions. It is amazing, isn't it?

Fig 1: Google Suggest

Fig 2: Fuzzy Google Suggest

In this problem, your job is to implement a similar system. You will be given a data set including a large amount of English words. Your system should provide the search service. For each input query word, find the *prefix-fuzzy-match* words from the data set and ouput the number of those words. In the following, I will explain you the *prefix fuzzy match*. When we say the two words are *fuzzy-match* (without "*prefix*"), we mean that they look similar and their Edit Distance meets a given threshold (If you have no idea of the Edit Distance, please refer to the **Hints** below). When we say the word A is *prefix-fuzzy-match* (with "*prefix*") to the word B, we mean that there exists a prefix p of word B, and the Edit Distance between p and B meets a given threshold. For Example, the data set contains four English words: "content", "common", "onganize", "case". The input query contains a word "con" and a

Edit Distance threshold 1. "con" is *prefix-fuzzy-match* to the words "**con**tent", "**co**mmon", "**on**ganize", but "**c**ase" doesn't meet the condition, because the minimun Edit Distance between all of its prefixes and "con" is 2 which is larger than the given threshold 1.

Input

The input file consists of two parts. The first part is a data set with n ($1 \leq n \leq 300,000$) English words. The second part is the m ($1 \leq m \leq 300$) input queries. Each query has a word and an Edit Distance threshold *edth* ($0 \leq edth \leq 2$), separated by a space. The words in the data set and the queries contain at most 10 small letters (`a-z`).

Output

For each input query, output the number of words from data set that the query word is *prefix-fuzzy-match* to.

Hints(From Wikipedia):

The Edit Distance between two strings is given by the minimum number of operations needed to transform one string into the other, where an operation is an insertion, deletion, or substitution of a single character. For example, the Edit Distance between "kitten" and "sitting" is 3, since the following three edits change one into the other, and there is no way to do it with fewer than three edits:
- kitten → sitten (substitution of 's' for 'k')
- sitten → sittin (substitution of 'i' for 'e')
- sittin → sitting (insert 'g' at the end).

Sample Input

```
4
content
common
organize
case
7
c 0
con 0
con 2
con 1
com 1
comm 2
cog 1
```

Sample Output

```
3
1
4
3
2
2
2
```