

# Genefinderx9000

## Problem ID: genefinderx9000

Bobby is a biology researcher with a great interest in genetics.

He loves to wander out in the wild collecting new DNA samples for his database which he later uses for his research. He has to find exact matches to genetic patterns in the DNA of the animals he has collected. However, it takes Bobby multiple weeks to manually check which animals contain the exact sequences of DNA he is looking for, so he could use a little help.

Your task is to write a program that Bobby can use to find all the animals that contain a specific DNA sequence in his database.

$$\alpha = \{'A','C','T','G'\} \quad (1)$$

### Input

The first line of input has a single integer  $I$  the number of animals in the database.

Each of the following  $I$  lines depicts the genes of animal <sub>$n$</sub>  as an unique non-empty string.

The combined length of the  $I$  animals is promised to never exceed  $10^6$ .

Following the  $I$  lines is a single integer  $K$ . The next  $K$  lines depicts a query <sub>$k$</sub>  as an unique non-empty string. The total length of the  $K$  queries is promised to never exceed  $10^6$ .

Both the  $I$  animals and the  $K$  queries consist exclusively of characters from the gene alphabet  $\alpha$  (see equation 1).

### Output

Given a database of animal genes you are to output the answer to each query on a single line.

For simplicity the animals are numbered from 0 to  $I - 1$ .

The answer to query <sub>$k$</sub>  should be given as  $Z \ z_0 \cdots z_{Z-1}$ , where  $Z$  denotes the count of animals containing the  $k$ 'th sequence and  $z_0 \cdots z_{Z-1}$  is a space-separated integer set of the  $Z$  animals. The  $Z$  animals should be given in ascending order such that animal <sub>$j$</sub>   $\leq$  animal <sub>$j+1$</sub>  for all  $z \in \{0, \cdots, Z - 1\}$ .

#### Sample Input 1

```
4
AGGT
CAAGACT
CATA
GACTTT
3
ACT
G
CA
```

#### Sample Output 1

```
2 1 3
3 0 1 3
2 1 2
```

#### Sample Input 2

```
5
CCACACCGTTAAGGT
AAACCCAAAGGA
GAAAATTGGGGGGGA
AACCGGGA
AACAGGTAA
4
AAC
CA
T
TGGA
```

#### Sample Output 2

```
3 1 3 4
3 0 1 4
3 0 2 4
0
```