

Problem K

What's in an (Apaxian) Name?

Problem ID: apaxiannames

Archaeologists in Chicago recently discovered a new ancient civilization known as the Apaxians. They discovered this new civilization while conducting a survey of the Chicago Tunnel Company's abandoned tunnels. One archaeologist came upon a secret chamber containing a copy of the Codex Mendax, one of the most venerable texts in ancient Apaxian society.

The Codex Mendax has revealed that Apaxian society was divided into distinct communities, each with its own name. Not just that, the names of the Apaxians in a community would, in turn, include the name of the community itself. The location of the community's name in a person's name indicated their status in the community:

- If the community name appears at the start of the person's name, that person was a *princess*.
- If the community name appears at the end of the person's name, that person was a *baron*.
- If the community name appears in the middle of the person's name, that person was a *priest*.
- If the community name does *not* appear anywhere in the person's name, that person was considered a *commoner* in that community (although that same person could have a different status in a different community).

For example, suppose there was an Apaxian community called `mentior`:

- `mentioromenas` was a *princess*.
- `summentior` was a *baron*.
- `asmentiorones` was a *priest*.
- `menolaxios` was a *commoner*.

The Codex Mendax also states that a community name *never* appears more than once in an Apaxian name. Furthermore, no person in a community can have the exact same name as that community (so, for example, no one in the `mentior` community could be called `mentior`).

In light of this new information about Apaxian naming conventions, archaeologists are drawing upon our programming prowess to analyze a batch of Apaxian names.

Input

The input starts with a line containing a community name. A community name contains only lowercase letters, no whitespace, and has a maximum length of 10 characters.

Next, the input provides a list of Apaxian names from that community. The second line of input is an integer n ($1 \leq n \leq 100$) specifying the number of names. This is followed by n lines, each containing a single name. Each name contains only lowercase letters, no whitespace, and has a maximum length of 50 characters.

Output

You must count the number of princesses, the number of barons, the number of priests, and the number of commoners in the list of names provided in the input. The output will be the following four lines:

```
p PRINCESS  
h BARON  
r PRIEST  
c COMMONER
```

Where you must replace p with the number of princesses, h with the number of archaeologists, etc.

Sample Input 1

```
mentior  
4  
mentioromenas  
asmentiorones  
summentior  
menolaxios
```

Sample Output 1

```
1 PRINCESS  
1 BARON  
1 PRIEST  
1 COMMONER
```

Sample Input 2

```
ios  
3  
apalaxios  
menolaxios  
somolaxios
```

Sample Output 2

```
0 PRINCESS  
3 BARON  
0 PRIEST  
0 COMMONER
```