Vocabulary Game

William is developing an educational game for kindergarten children to help them improve their English vocabulary. In this game, a word called *reference word* is given. The player's goal is to construct as many English words as possible using the letters from the *reference word*. The game's development is almost complete except for a routine to check the validity of all the words constructed by the player. A word is valid if all of its letters can be taken from the *reference word*, regardless of the letter case. For example, if the *reference word* is "prOgraMmIng", then some of the valid words are "roam", "groan", and "organ". The word "pop" is invalid as it contains an extra letter 'p' that is not available in "prOgraMmIng".

Given the *reference word*, and a list of English words constructed by the player, your goal is to determine for each player word whether it is valid or invalid.

Input Format

The first line contains the reference word. The next line contains a positive integer, M indicating the number of player words. This line is followed by M lines, which contains one player word each.

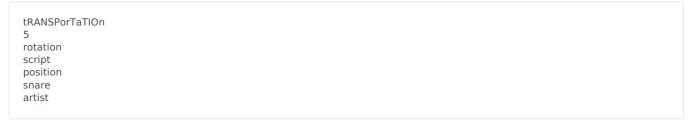Refer the sample input for illustration.

Constraints

- **The reference word:** A string of alphabets (A-Z and a-z).

- **The number of player words, M:** A positive integer where (1<= M <=100).

- **The player word(s):** A string of alphabets (A-Z and a-z).

Output Format

- The output begins with the reference word single line.

- This line is followed by M lines where the i-th line (1 <= i <= M) contains the i-th player word, a colon, and a string ("Valid" if the i-th player word is valid or "Invalid" if the i-th player word is invalid, all without the double quotes.)

Refer to the sample output for illustration.

Sample Input 0

```
tRANSPorTaTIOn
5
rotation
script
position
snare
artist
```

Sample Output 0

```
tRANSPorTaTIOn
rotation:Valid
script:Invalid
position:Invalid
snare:Invalid
artist:Valid
```

Explanation 0

Each line shows the validity of the player word - whether it could be constructed from the reference letter.