

Tries: Contacts

We're going to make our own *Contacts* application! The application must perform two types of operations:

1. **add name**, where *name* is a string denoting a contact name. This must store *name* as a new contact in the application.
2. **find partial**, where *partial* is a string denoting a partial name to search the application for. It must count the number of contacts starting with *partial* and print the count on a new line.

Given n sequential *add* and *find* operations, perform each operation in order.

Input Format

The first line contains a single integer, n , denoting the number of operations to perform.
Each line i of the n subsequent lines contains an operation in one of the two forms defined above.

Constraints

- $1 \leq n \leq 10^5$
- $1 \leq |name| \leq 21$
- $1 \leq |partial| \leq 21$
- It is guaranteed that *name* and *partial* contain lowercase English letters only.

Output Format

For each **find partial** operation, print the number of contact names starting with *partial* on a new line.

Sample Input

```
4
add hack
add hackerrank
find hac
find hak
```

Sample Output

```
2
0
```

Explanation

We perform the following sequence of operations:

1. Add a contact named **hack**.
2. Add a contact named **hackerrank**.
3. Find and print the number of contact names beginning with **hac**. There are currently two contact names in the application and both of them start with **hac**, so we print **2** on a new line.
4. Find and print the number of contact names beginning with **hak**. There are currently two contact names in the application but neither of them start with **hak**, so we print **0** on a new line.

