Tries: Contacts ☆

Problem

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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 $m{n}$ 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

- $1 \le n \le 10^5$
- $1 \leq |name| \leq 21$
- $1 \leq |partial| \leq 21$
- It is guaranteed that *name* and *partial* contain lowercase English letters only.
- The input doesn't have any duplicate *name* for the *add* operation.

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

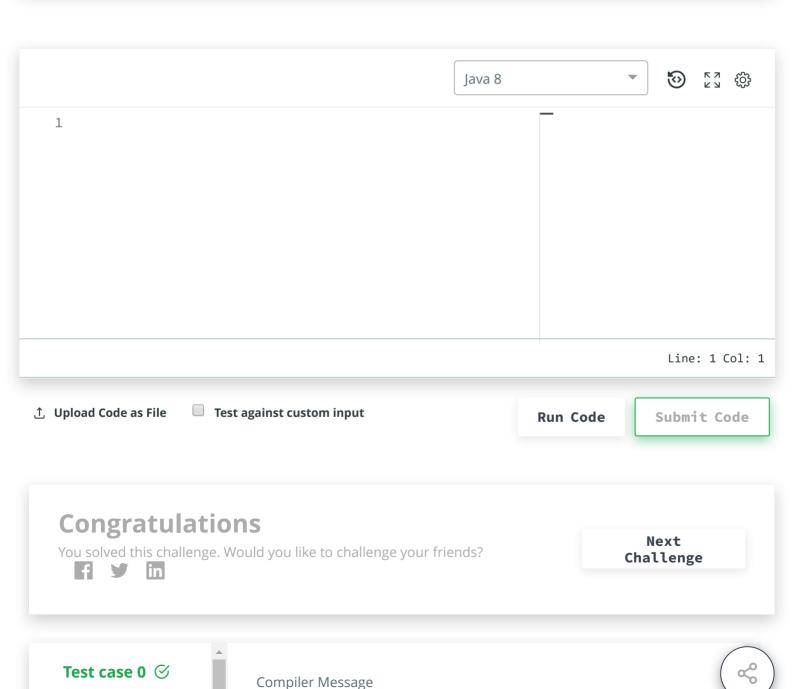
Sample Output



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 $\mathbf{0}$ on a new line.



Success