**Problem A**

**Babyslam’s Lost Tickets**

(Time limit: 1 second)

Babyslam, one of the most favorite rock bands of all time in Thailand, is throwing the special private concert in Chiang Mai province. Since the tour is private and special, the *online* concert tickets will be *very limited* and must be *invited only*.

To get a ticket, it is important that *you must either be* *one of the* *exclusive fans* of the band or *at least know one of the fans*. The exclusive fans are those who register in advance for the concert event. Thus, they are the only tier that will get invited by the band. But this does not mean that all exclusive fans will be ticketed: there are limitedly *n* tickets available for the first *n* persons who make a register.

After being ticketed, each individual possessing the ticket can decide whether to *keep it* or *give it to a number of selected persons he/she knows*. The first who in turn claims for the ticket will be ticketed instead of the ticket giver. Every person can possess only at most rone ticket. Note that it is also possible for a person to claims for the ticket and then later give it to some others. However, tickets cannot be claimed from those who are already a ticket giver.

**1**

Natasha

**3**

**2**

**2**

**2**

Bruce

Steve

Tony

**6**

**6**

**5**

**4**

Bucky

For example, the above figure illustrates the ticketing situation that comprises the following events that occur in chronological order:

1. Natasha is an exclusive fan.
2. Natasha decided to give her ticket to one among Steve, Tony, and Bruce.
3. Steve claimed for the ticket from Natasha. So, he was ticketed instead of Natasha.
4. Steve decided to give his ticket to Bucky.
5. Bucky in turn claimed for the ticket. Bucky was ticketed instead of Steve.

Observe that in the above situation the ticket originally from Natasha would be considered as *a lost ticket* if there will be no claim neither from Tony nor Bruce. Also, note that it is possible for Steve to claim for the ticket from Natasha before she decides to give her ticket.

As Babyslam is highly popular in Chiang Mai, one lost ticket is good for no one. Indeed, what the band has in mind is that all lost tickets should be re-ticketed to the rest of their exclusive fans. It is your job now to help them write a program that can check for the number of lost tickets. The input and output of the program are described in what follows.

**Input**

The first line of the input file contains the number of test cases *t*. Each test case comprises *m+*2 lines, where1*≤ m ≤* 10,000. For each test case, the first line contains the names of *n* exclusive fans (those who complete a register), separated by space, where1*≤ n ≤* 400. The second line contains integer *m.* This is followed by *m* lines each of which contains the information of a ticket event that input in chronological order. Each event comes in two flavors: (G) given and (C) claim. The given event is input by the letter G, followed by *k* strings *N*0 *N*1 … *N*k , 2 *≤ k ≤* 10, separated by space, meaning that person *N*0 decides to give his/her ticket to other *k-1* persons *N*1, *N*2, …, *N*k. The claim event is input by the letter C, followed by *2* strings *C*0 *C*1 separated by space, indicating that person *C*0 claims for the ticket from *C*1. Remark that your program should be able to handle the load up to 5,000 users.

**Output**

The output contains *t* lines. Each line contains the number of lost tickets in each test case, respectively.

**Example**

|  |  |
| --- | --- |
| **Input**  3  Erik Charles  4  C Jean Erik  G Erik Jean  G Charles Logan  C Logan Charles  Natasha  5  G Natasha Steve Tony Bruce  C Steve Natasha  G Steve Bucky  C Bucky Steve  G Bucky Tony Bruce  Scott Hank  1  G Scott Hank | **Output**  0  1  1 |

**Remark:** The second test case in the input illustrates the example in the problem.