FRIEND CIRCLE

Lucy has made too many friends but she does not know how many friends are in her circle. Assume that every relation is mutual. If Lucy is Patty's friend, then Patty is also Lucy's friend. Your task is to help Lucy in keeping track of each person's circle size.

Input Specification

The first line of input contains one integer T ($T<=10$) specifying the number of test cases to follow. Each test case begins with a line containing an integer N $(N<=100000)$, the number of new relations. Each of the following N lines contains couple of strings denoting the names of two people who have just formed relation, separated by a space. Names will have no more than 20 characters.

Output Specification

Print a line containing one integer, the number of people in the combined circle of two people who have just become friends.

Input

```
1
4
Lucy Patty
Patty Alice
Alice Mira
Tiffany Jayden
```

Output

```
2
3
4
2
```