Family Tree

Filename: `family`

You've been studying a lot of family trees lately, and have started to get confused as to who's in whose family. The connections span many generations, and a lot of people are involved. Since you are about to go to a family reunion, and want to at least appear as if you know who's in your own family, you decide to write a program to help you sort it all out.

The Problem:

Given a description of a family tree, your task is to determine whether or not two people are related. For this problem, two people are considered related if there is a path between the two in the family tree. A "path" is any series of parent-child (or child-parent) relationships that connect people in the tree (not only blood relatives are related). It is guaranteed that each child will have exactly two distinct parents, and each family tree will be valid, meaning that no child will be his/her own ancestor (luckily for you, there is no time travel allowed for this problem!).

The Input:

There will be multiple family trees. Each family tree will begin with an integer, n ($1 \leq n \leq 100$), on a line by itself, indicating the number of connections to be listed. This will be followed by exactly n lines, each of the form *parent1 parent2 child*, indicating that *parent1* and *parent2* are the parents of *child*. Each name will be separated by a single space. Each name will consist of only upper and lowercase letters, and no name will exceed 80 letters. In addition, each different person will have a unique, case-sensitive name. Each relationship will be unique (there will be no repeated relationships within a single family tree). This will be followed by a line of the form *name1 name2*, indicating the two people whose relation you are to determine. Both names will follow the same conventions as before, and will be separated by a single space. The final family will be indicated by $n = 0$, and should not be processed.

The Output:

For each family tree, you should output a single line beginning with "`Family #x:`" where *x* is the family tree being processed (beginning with 1). This should be followed by one space, then either "`Related.`" or "`Not Related.`" to indicate whether or not the two people are related.

(Sample Input and Sample Output are on the following page)

Sample Input:

```
2
Barbara Bill Ted
Nancy Ted John
John Barbara
3
Lois Frank Jack
Florence Bill Fred
Annie Fred James
James Jack
1
John Susan Billy
John Susan
2
Karen Roger Christopher
Karen Roger Michael
Christopher Michael
0
```

Sample Output:

```
Family #1: Related.
Family #2: Not related.
Family #3: Related.
Family #4: Related.
```