

# C- John, He is Your Uncle. Call Him Uncle Jack

**Run-time Limit:** 1 second

**Memory Limit:** 32 MB

## DESCRIPTION

Family reunion is making John confused. Jack has the same age as John, and yet he is John's uncle. John has to call him “uncle” instead of using his name.

Make a program to help John list the names of every family member that he can casually call with his/her name only. John can call someone casually if he/she is placed in the same or lower level in the family tree.

## INPUT FORMAT

The first line contains an integer  $N$  ( $2 \leq N \leq 100$ ), denoting the total number of people attending the family reunion.

The next  $N$  lines, each consists of a string  $S$  ( $1 \leq \text{length}(S) \leq 100$  | lower case alphabetical character without space | unique), denoting the names of the family members.

The next  $N - 1$  lines, each consists of one of the following family connection:

- 1) A married B (one person can only marry one other person)
- 2) A is B child (meaning that A is the child of B. One person can have more than one child)

Both A and B will be replaced by a person's name.

The last line consists of a string, John's real name.

It is guaranteed that the family tree is connected and has  $N - 1$  family connection

## OUTPUT FORMAT

Print the names of people (one on each line | ordered ascending lexicographically) that John can call casually. Print "none" if there is no person that John can call casually.

### 1<sup>st</sup> INPUT EXAMPLE

```
5
john
jack
clara
eve
ruth
john is clara child
jack is eve child
clara is eve child
ruth is jack child
john
```

### 1<sup>st</sup> OUTPUT EXAMPLE

```
ruth
```

### 2<sup>nd</sup> INPUT EXAMPLE

```
5
andi
budi
cinta
didi
endah
andi is budi child
cinta married andi
didi is cinta child
endah is didi child
andi
```

### 2<sup>nd</sup> OUTPUT EXAMPLE

```
cinta
didi
endah
```