

Arbitrage is the use of discrepancies in currency exchange rates to transform one unit of a currency into more than one unit of the same currency. For example, suppose that 1 US Dollar buys 0.5 British pound, 1 British pound buys 10.0 French francs, and 1 French franc buys 0.21 US dollar. Then, by converting currencies, a clever trader can start with 1 US dollar and buy  $0.5 * 10.0 * 0.21 = 1.05$  US dollars, making a profit of 5 percent.

Your job is to write a program that takes a list of currency exchange rates as input and then determines whether arbitrage is possible or not.

## Input

The input file will contain one or more test cases. On the first line of each test case there is an integer  $n$  ( $1 \leq n \leq 30$ ), representing the number of different currencies. The next  $n$  lines each contain the name of one currency. Within a name no spaces will appear. The next line contains one integer  $m$ , representing the length of the table to follow. The last  $m$  lines each contain the name  $c_i$  of a source currency, a real number  $r_{ij}$  which represents the exchange rate from  $c_i$  to  $c_j$  and a name  $c_j$  of the destination currency. Exchanges which do not appear in the table are impossible.

Test cases are separated from each other by a blank line. Input is terminated by a value of zero (0) for  $n$ .

## Output

For each test case, print one line telling whether arbitrage is possible or not in the format

Case *case*: Yes

respectively

Case *case*: No

## Sample Input

```
3
USDollar
BritishPound
FrenchFranc
3
USDollar 0.5 BritishPound
BritishPound 10.0 FrenchFranc
FrenchFranc 0.21 USDollar

3
USDollar
BritishPound
FrenchFranc
6
USDollar 0.5 BritishPound
USDollar 4.9 FrenchFranc
BritishPound 10.0 FrenchFranc
BritishPound 1.99 USDollar
FrenchFranc 0.09 BritishPound
FrenchFranc 0.19 USDollar

0
```

## Sample Output

Case 1: Yes

Case 2: No