

Happy Tree Friends

Description

As a friend of *Happy Tree*, ATP is given a tree with n nodes as a gift.

Now he wants to pick a path with a specific length k to make a magic wand, can you help him?

Input

Each test case starts with a line containing two integers n, m indicating the size of tree and the number of queries. Following are $n - 1$ lines, each containing three integers a, b, c , indicating there is an edge between a and b with length c . Following is one line contains m integers, each one is a query of length k .

- $1 \leq n \leq 50000$
- $1 \leq m, k \leq 100000$
- $1 \leq a, b \leq n$
- $1 \leq c \leq 2$

Output

For each test case, output the m characters in a single line, where the i -th character indicates the answer for i -th query. We are using Y to denote that ATP can pick a path with length k , and N for can't.

Sample Input

```
4 3
1 2 1
1 3 1
1 4 1
1 2 3
4 5
1 2 2
2 3 2
3 4 2
1 2 3 5 8
```

Sample Output

```
YYN
NYNNN
```