

Gao on a tree

There's a tree, with each vertex assigned a number. For each query (a, b, c), you are asked whether there is a vertex on the path from a to b, which is assigned number c?

Input

There are multiple cases, end by EOF.

For each case, the first line contains n ($n \leq 100000$) and m ($m \leq 200000$), representing the number of vertexes (numbered from 1 to n) and the number of queries.

Then n integers follows, representing the number assigned to the i-th vertex.

Then n-1 lines, each of which contains a edge of the tree.

Then m lines, each of which contains three integers a, b and c ($0 \leq c \leq n$), representing a query.

Output

You should output "Find" or "NotFind" for every query on one line.

Output a blank line AFTER every case.

Example

Input:

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

Output:

```
NotFind
Find
NotFind
NotFind
Find
```