Given a binary tree, determine if there exist two or more subtrees of size bigger than M that have the exact summation and exact size. You are allowed to use unordered_map and unordered_set if needed.

Input Format

- The first line will contain the number of nodes in the tree N and the size M.
- The following N numbers will contain the data in each node.
- The next line will contain the number of edges in the tree E.
- The following E lines will contain 3 values:
    -
    - L or R to represent of this is a left or right child
    -
    - Index of the parent.
    -
    - Index of the child.

Constraints

- N is between 1 and 10^6
- Node 0 is always the root
- Node values are between 1 and 10^4

Output Format

One line containing 0 if no such subtrees exist and 1 otherwise.

Sample Input 0

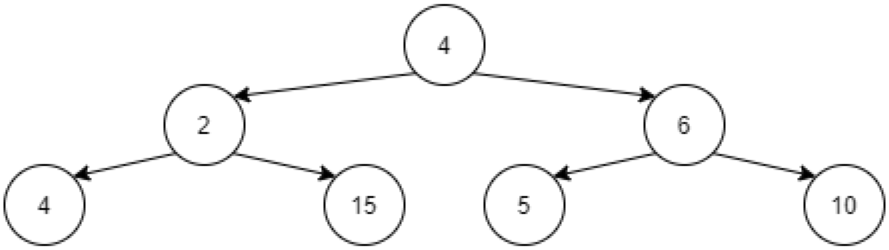
```
7 1
4 2 6 4 15 5 10
6
L 0 1
R 0 2
L 1 3
```

```
R 1 4
L 2 5
R 2 6
```

Sample Output 0

```
1
```

Explanation 0



There exist two subtrees of size 3 with sum of 21. (2,4,15) and (6,5,10)

Sample Input 1

```
10 1
4 4 3 2 4 4 1 5 1 4
9
L 2 3
R 1 2
L 0 1
L 5 6
L 4 5
L 7 8
R 7 9
R 4 7
R 0 4
```

Sample Output 1

```
1
```

Explanation 1

There exist two subtrees of size 2 with sum of 5. (2,3) and (4,1)