D. Valid Sets

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

As you know, an undirected connected graph with n nodes and n - 1 edges is called a tree. You are given an integer d and a tree consisting of n nodes. Each node i has a value a_i associated with it.

We call a set S of tree nodes valid if following conditions are satisfied:

1. S is non-empty.
2. S is connected. In other words, if nodes u and v are in S, then all nodes lying on the simple path between u and v should also be presented in S.
3. .

Your task is to count the number of valid sets. Since the result can be very large, you must print its remainder modulo 1000000007 $(10^9 + 7)$.

Input

The first line contains two space-separated integers d $(0 \le d \le 2000)$ and n $(1 \le n \le 2000)$.

The second line contains n space-separated positive integers $a_1, a_2, ..., a_n (1 \le a_i \le 2000)$.

Then the next n - 1 line each contain pair of integers u and v $(1 \le u, v \le n)$ denoting that there is an edge between u and v. It is guaranteed that these edges form a tree.

Output

Print the number of valid sets modulo 1000000007.

Examples

input

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

output

```
8
```

input

```
0 3
1 2 3
1 2
2 3
```

output

```
3
```

input

```
4 8
7 8 7 5 4 6 4 10
1 6
1 2
5 8
1 3
```

```
3 5
6 7
3 4
```

output

```
41
```

Note

In the first sample, there are exactly 8 valid sets: $\{1\}$, $\{2\}$, $\{3\}$, $\{4\}$, $\{1, 2\}$, $\{1, 3\}$, $\{3, 4\}$ and $\{1, 3, 4\}$. Set $\{1, 2, 3, 4\}$ is not valid, because the third condition isn't satisfied. Set $\{1, 4\}$ satisfies the third condition, but conflicts with the second condition.