Yet Another Coronavirus Question

Input file:	standard input
Output file:	standard output
Time limit:	2 seconds
Memory limit:	256 megabytes

Aladdin is the Supreme Leader of his country, Wadiya and wants to determine the epicentre of coronavirus in his nation. Wadiya has n cities which are connected to each other by n–1 roads which are bidirectional. The length of each road is 1 unit. For some weird reason, the virus can travel only along these roads. One can travel from any city u to any city v through these roads.

There are h cities which are infected and are coronavirus hotspots. This list of cities may be incomplete (i.e., there may be other cities which are also infected). Aladdin knows that the virus starts spreading from the epicentre and reaches only those cities which are at a distance of atmost x units from the epicentre. You are given the list of infected cities, and you have to determine the number of possible epicentres of the virus. Note that it may be possible that some opposer to the regime corrupted the data, and hence there is no valid epicentre that can be deduced from the data.

Input

The first line contains the integers n ($1 \leq n \leq 10^5$), h ($1 \leq h \leq n$) and x ($0 \leq x \leq n - 1$) which denote the number of cities, the number of hotspots and the distance that the virus can travel from the epicentre.

The second line contains h integers $c_1, c_1 \ldots c_h$ denoting the hotspots ($1 \leq c_i \leq n$).

Next $n - 1$ lines contain integers u, v indicating that a road exists between cities u and v.

Output

Output a single integer denoting the answer.

Example

standard input	standard output
5 2 2 2 5 1 2 2 3 2 4 4 5	3

Note

The cities numbered 2, 4, and 5 are the only cities from which the infected cities 2 and 5 are at a distance of atmost 2. Hence, the answer is 3.