

Problem D. Doesn't Contain Loops or Multiple Edges

Input file: *standard input*
 Output file: *standard output*
 Time limit: 2 seconds
 Memory limit: 512 mebibytes

Coloring of a labeled undirected graph with n vertices in k colors is an assignment of colors to its vertices, such that each vertex receives an integer color x ($1 \leq x \leq k$) and no two adjacent vertices have the same color. A coloring can be treated as an array of integers from 1 to k of length n , i -th element of which corresponds to the color of the i -th vertex of the graph.

Coloring b is **monotonic** to coloring a of the same graph if exactly one of the following statements holds:

1. $\forall_{1 \leq i \leq n} a_i \leq b_i$
2. $\forall_{1 \leq i \leq n} a_i \geq b_i$

Note that a coloring is not monotonic to itself because in that case both statements above hold.

You are given a labeled undirected graph and its coloring a in k colors. Is there a coloring b of the given graph in k colors which is monotonic to a ?

Input

The first line contains three integers n , m and k ($1 \leq n, m, k \leq 3 \cdot 10^5$), the number of vertices in the graph, the number of the edges in the graph and the number of colors, respectively.

The second line contains n integers a_i ($1 \leq a_i \leq k$), the colors of vertices.

m lines follow. i -th of them contains two integers u_i and v_i ($1 \leq u_i < v_i \leq n$), describing an edge between vertices u_i and v_i .

The graph doesn't contain loops or multiple edges. It is guaranteed that the array a describes a valid coloring of the given graph.

Output

Print 1 if there exists a coloring b monotonic to a and print 0 otherwise.

Examples

standard input	standard output
3 2 3 1 2 3 1 2 2 3	1
3 3 3 1 2 3 1 2 2 3 1 3	0
6 6 3 1 2 3 1 2 3 4 5 1 2 2 3 3 4 1 6 5 6	0