
Problem A. Find the Vertex

Input file: *standard input*
Output file: *standard output*
Time limit: 1 second
Memory limit: 256 mebibytes

You are given a connected undirected graph with n vertices and m edges. The vertices are numbered from 1 to n . The vertex number s is the *initial* vertex. You don't know the number s , but you know all distances from vertex s to every other vertex including itself, taken modulo 3. You have to find the number s .

The distance between two vertices is the length of the shortest path between them. The length of a path is the number of edges in it.

Input

The first line contains two integers n and m ($1 \leq n, m \leq 500\,000$), the number of vertices and the number of edges.

The second line contains n integers $d_1, d_2, \dots, d_n$ ($0 \leq d_i \leq 2$). Here, d_i is the distance between vertices s and i , taken modulo 3.

The next m lines describe the edges. The i -th of these lines describes i -th edge and contains two integers u and v ($1 \leq u, v \leq n$), the indices of vertices connected by this edge.

It is guaranteed that there are no self-loops and no multiple edges in the graph. Also, it is guaranteed that the graph is connected.

Output

Print the number s : the index of the initial vertex. If there are multiple answers, print any one of them.

Examples

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

Note

In the first sample, the array of lengths of paths between vertex 2 and all vertices is $[1, 0, 1, 1, 2]$. It is equal to the given array d .

In the second sample, the array of lengths of paths from vertex 1 is $[0, 1, 2, 3, 2, 1]$. If we take each element modulo 3, we will get the array d .