

Problem K. Forest Task

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

You are given a forest with N vertices and M edges. The vertices are numbered 0 through $N - 1$. The edges are given in the format (x_i, y_i) , which means that vertex x_i and y_i are connected by an edge.

Each vertex i is assigned value a_i . You want to add edges in the given forest so that the forest becomes connected. To add an edge, you choose two different vertices i and j , then span an edge between i and j . This operation costs $a_i + a_j$ dollars, and afterward neither vertex i nor j can be selected again.

Find the minimum total cost required to make the forest connected, or print “Impossible” if it is impossible.

Input

Input is given in the following format:

N M

a_0 a_1 ... a_{N-1}

x_1 y_1

...

x_M y_M

Constraints:

$1 \leq N \leq 100\,000$, $0 \leq M \leq N - 1$, $1 \leq a_i \leq 10^9$, $0 \leq x_i, y_i \leq N - 1$. The given graph is a forest. All input values are integers.

Output

Print the minimum total cost required to make the forest connected, or print “Impossible” if it is impossible.

Examples

standard input	standard output
7 5 1 2 3 4 5 6 7 3 0 4 0 1 2 1 3 5 6	7
5 0 3 1 4 1 5	Impossible
1 0 5	0

Note

In Sample 1, if we connect vertices 0 and 5, the graph become connected, and the cost is $1 + 6 = 7$.

In Sample 2, we can't make the graph connected.

In Sample 3, the graph is connected, regardless of whether we do something or not.