

Problem P. Plant Trees, Save Life

Time limit 1000 ms

Mem limit 524288 kB

There are n students in a school. Some of them are friends with each other. You want to make the school clean. So you have to give ice-cream to each student so he or she starts planting trees. When one plants a tree, he/she tells it to all of his friends and they start to plant trees and tell their friends too (without any ice creams) and so on.

i -th student wants x_i ice creams in exchange for starting the trend.

Your work is finished when all n students start planting trees. What is the minimum number of ice creams you need to distribute to finish the work?

Input

The first line contains two integer numbers n and k — the number of students and the number of pairs of friends.

The second line contains n integer numbers x_i ($0 \leq x_i \leq 109$)

Then there will be k lines. Each will contain a pair of numbers (a,b) where a and b are friends ($1 \leq a, b \leq n$) and a is not equal to b .

Constrains:

For 10 points: $1 \leq n \leq 700, 0 \leq k \leq 300$

For 40 points: $1 \leq n \leq 105, 0 \leq k \leq 1200$

For 100 points: $1 \leq n \leq 105, 0 \leq k \leq 105$

Output

Print the minimum amount of ice creams you need to finish the work.

Sample

Input	Output
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Input	Output
10 5 1 6 2 7 3 8 4 9 5 10 1 2 3 4 5 6 7 8 9 10	15