

## C. Rumor

time limit per test: 2 seconds  
memory limit per test: 256 megabytes

Vova promised himself that he would never play computer games... But recently Firestorm — a well-known game developing company — published their newest game, World of Farcraft, and it became really popular. Of course, Vova started playing it.

Now he tries to solve a quest. The task is to come to a settlement named Overcity and spread a rumor in it.

Vova knows that there are  $n$  characters in Overcity. Some characters are friends to each other, and they share information they got. Also Vova knows that he can bribe each character so he or she starts spreading the rumor;  $i$ -th character wants  $c_i$  gold in exchange for spreading the rumor. When a character hears the rumor, he tells it to all his friends, and they start spreading the rumor to their friends (for free), and so on.

The quest is finished when all  $n$  characters know the rumor. What is the minimum amount of gold Vova needs to spend in order to finish the quest?

Take a look at the notes if you think you haven't understood the problem completely.

### Input

The first line contains two integer numbers  $n$  and  $m$  ( $1 \leq n \leq 10^5, 0 \leq m \leq 10^5$ ) — the number of characters in Overcity and the number of pairs of friends.

The second line contains  $n$  integer numbers  $c_i$  ( $0 \leq c_i \leq 10^9$ ) — the amount of gold  $i$ -th character asks to start spreading the rumor.

Then  $m$  lines follow, each containing a pair of numbers  $(x_i, y_i)$  which represent that characters  $x_i$  and  $y_i$  are friends ( $1 \leq x_i, y_i \leq n, x_i \neq y_i$ ). It is guaranteed that each pair is listed at most once.

### Output

Print one number — the minimum amount of gold Vova has to spend in order to finish the quest.

### Examples

input	Copy
5 2 2 5 3 4 8 1 4 4 5	
output	Copy
10	

input	Copy
10 0 1 2 3 4 5 6 7 8 9 10	
output	Copy
55	

input	Copy
10 5 1 6 2 7 3 8 4 9 5 10 1 2 3 4 5 6 7 8 9 10	
output	Copy
15	

### Note

In the first example the best decision is to bribe the first character (he will spread the rumor to fourth character, and the fourth one will spread it to fifth). Also Vova has to bribe the second and the third characters, so they know the rumor.


In the second example Vova has to bribe everyone.

In the third example the optimal decision is to bribe the first, the third, the fifth, the seventh and the ninth characters.

**Educational Codeforces Round 33**  
**(Rated for Div. 2)**

Finished

Practice



→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
<a href="#">313554759</a>	Apr/02/2025 06:11	Accepted

→ Problem tags

dfs and similargraphsgreedy\*1300

No tag edit access

→ Contest materials

Announcement

Tutorial