Problem D. Dwarf Tower

Input file:	dwarf.in
Output file:	dwarf.out
Time limit:	2 seconds
Memory limit:	256 megabytes

Little Vasya is playing a new game named "Dwarf Tower". In this game there are n different items, which you can put on your dwarf character. Items are numbered from 1 to n. Vasya wants to get the item with number 1.

There are two ways to obtain an item:

- You can buy an item. The i-th item costs c_i money.
- You can craft an item. This game supports only m types of crafting. To craft an item, you give two particular different items and get another one as a result.

Help Vasya to spend the least amount of money to get the item number 1.

Input

The first line of input contains two integers n and m ($1 \le n \le 10\,000; 0 \le m \le 100\,000$) — the number of different items and the number of crafting types.

The second line contains n integers c_i — values of the items ($0 \le c_i \le 10^9$).

The following m lines describe crafting types, each line contains three distinct integers a_i, x_i, y_i — a_i is the item that can be crafted from items x_i and y_i ($1 \le a_i, x_i, y_i \le n$; $a_i \ne x_i$; $x_i \ne y_i$; $y_i \ne a_i$).

Output

The output should contain a single integer — the least amount of money to spend.

Examples

dwarf.in	dwarf.out
5 3 5 0 1 2 5 5 2 3 4 2 3 1 4 5	2
3 1 2 2 1 1 2 3	2