Online 2: SSSP

Marks: **20** Time: **25** minutes

In your country there are N cities numbered from 1 to N. You live in city 1. You want to go to city N. There are M bidirectional roads connecting some cities to each other. It is possible to get to any city from any other city. But each city has a predefined amount of tax that you have to pay if you enter into that city. How can you get to city N paying the least tax?

Input

The first line of input contains two integers N and M – denoting the number of cities and the number of roads respectively.
The next line contains N positive integer values – the tax you need to pay to enter into each city.
The next M lines contain two integers $u,\ v\ (1 \leq u,\ v \leq N)$ – denoting that there is a road between city u and city v.

Output

Print one integer – the least amount of tax you need to pay to get to city N.

Sample Input	**Sample Output**
3 2 5 10 15 1 2 2 3	25
6 9 5 5 15 10 10 7 1 2 2 3 3 5 5 4 4 1 2 4 2 5 5 6 3 6	22

Explanation

Sample 1

There's only one path: 1 ➞ 2 ➞ 3. You already live in city 1. So no tax is required to enter city 1. You need to pay 10 for city 2 and 15 for city 3. So a total of 25.

Sample 2

The best path here is 1 ➞ 2 ➞ 5 ➞ 6. Tax = 5 + 10 + 7 = 22.