

CSE 208
Online 1
Section A1, A2
Time: 30 minutes

Given a set of houses, each with the option of having an independent gas supply incurring a cost 'gas_supply[i]' or connecting to other houses through bidirectional pipelines with associated costs 'pipelines[i] = [house1, house2, cost]'. The objective is to minimize the total cost of ensuring gas supply to all houses, considering both independent gas supplies and pipeline connections. In other words, we want to find the most cost-effective way to provide gas to all houses, allowing for a mix of individual gas supplies and interconnected pipelines.

Input

The first input line contains two integers, n and m, representing the number of houses and the number of bidirectional pipelines. Following that, there is an array gas_supply of length n, where gas_supply[i] represents the cost of providing independent gas supply to the ith house. The values should be space-separated. The next m lines each contain three space-separated integers: house1, house2, and cost (1 <= house1, house2 <= n, 1 <= cost <= 1000). These values represent the cost of connecting house1 and house2 with a bidirectional pipeline of cost 'cost'

Output

Your program should print a single integer to the standard output, representing the minimum total cost of ensuring gas supply to all houses.

Examples:

Input	Output
4 2 1 4 4 4 1 4 2 1 2 1	8
3 3 5 5 5 1 2 80 1 3 20 2 3 90	15