Virus on Network

Problem Code	hw06b_virus
Running Time Limit	1 sec
Memory Limit	16 mb

Objective

- Be able to compute alternative requirement of shortest path

Introduction

A computer virus is a program that tries to replicate itself to connected machine. There is a special kind of virus that targets specifically the router in the network. Assume that one router is infected; its adjacent router will be attacked and infected as well. To attack adjacent router, the virus must first try to gain access privilege to that router. The virus has to use specific amount of time to gain access and the time it takes depends on security strength of the attacked router. After the attack is completed, the virus must copy itself to the target router. The time needed to send a copy of virus depends on the bandwidth between the routers. Eventually, all routers in the network will be infected.

Given the topology of the network, bandwidth between each link and the security strengh of each router, we wish to know the time that all routers are infected, assume that initially, there is only one infected router.

Be noted that the bandwidth between from router A to router B might not be the same as bandwith from router B to router A.

Task

You are to write a program that reads information of the networks and the index of the first infected router and then compute the time that all routers are infected.

Input

The first line contains two integers N and M ($1 < N <= 1000, \ 1 \leq M \leq N(N-1)$), the number of routers in the networks the number of links between these routers. The router is numbered from 0 to $N - 1$. The next line gives the index of the first infected router. This is followed by N lines. Each line gives the time to successfully attack each router, starting from router 0 to router $N - 1$. After that, it is followed by M lines where each line contains three numbers A,B and C, indicating that there is a link from router A to router B and the virus needs C seconds to transfer itself from A to B. This does not include the time to attack either router.

Output

The output must have exactly one line containing the time that all routers are infected.

Example

Ex1

Input	Output
6 10 // there is 6 vertices, 10 edges 0 // the first infected router is router 0 1 // time to attack router 0 0 1 1 1 0 0 1 7 // a link from 0 to 1, use 7 sec to copy 0 4 1 1 2 4 2 3 1 2 5 5 4 1 4 4 2 8 4 5 2 5 1 1 5 3 4	10