Knights of the Old Republic

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

A long time ago in a galaxy far, far away a group of Jedi from the Resistance forces had to destroy the Death Star. The Death Star consists of n guarded command centers and m bidirectional pathways connecting them. Each pathway connects two (not necessarily distinct) command centers. A pair of command centers may be connected by two or more pathways. The goal of the Resistance is to capture all command centers. Note that it is **not** necessary to capture all pathways.

For any command center i, you are given the number of resources b_i required to transfer one Jedi there (thus, for sending k Jedi you need to spend $b_i \cdot k$ resources). To capture the command center i, the Resistance forces need to gather at least a_i Jedi there. To capture the pathway j, they need to simultaneously gather at least c_j Jedi cumulatively at the endpoints of this pathway. All captures happen without any casualties: none of the Jedi die and they all can fight for other command centers and pathways.

After capturing a pathway or a command center, Jedi can move through it for free. To capture a command center Jedi need to be either sent there or walk there from other command centers through already captured pathways. To capture a pathway, Jedi do not have to unite in one command center: they can attack the pathway from both endpoints (but only if the total number of Jedi at both endpoints is at least c_i).

Find the minimum number of resources required to capture all the command centers.

Input

The first line of the input contains two integers n and m ($1 \le n, m \le 300\,000$) — the number of command centers and pathways respectively.

Each of the next n lines contains two integers a_i and b_i ($0 \le a_i, b_i \le 1\,000\,000$) providing the minimum number of Jedi that can capture the i-th command center and the amount of resources required to send one Jedi directly to the i-th command center.

Next m lines describe the pathways. Each of them contains three integers s_i, f_i and c_i ($1 \le s_i, f_i \le n$, $0 \le c_i \le 1\,000\,000$) — the numbers of command centers connected by the i-th pathway and the minimum number of Jedi required to capture the i-th pathway.

Output

Print one integer: the minimum number of resources required to capture all the command centers of the Death Star.

Example

standard input	standard output
3 2 10 5 20 10 10 3 1 2 22 2 3 200	140