Dr Strange v/s COVID-19 - (Subtask 2)

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

A COVID-19 vaccine has finally been found but it's in a different universe.

There are a total of **n universes** in this multiverse and Dr Strange can make portals between any of them. They are numbered 1 to n and travelling between any two is only possible through these specially created portals. Earth is in the **1st universe** whereas the vaccine is known to be on the **nth universe**.

Due to the complexity of multiverse space-time continuum, different portals can take an unequal amount of travelling time (in minutes). Dr Strange is too important to leave Earth right now, so he sends Spiderman instead to hop from universe to universe.

Also, some of the universes are captured by Dark Forces and are patrolled by demons at specific time instances. In order to pass through them, Spiderman has to hide there until it's safe. If Spiderman arrives at a universe at time t and it is marked unsafe at time t, then Spiderman would have to hide until the next safe minute arrives.

Since Earth is in dire need of the vaccine, Dr Strange decides to get it at the earliest. With information about the portal travel time and unsafe minutes for each universe, help Dr Strange make the fastest route for Spiderman to take, in order to reach the vaccine.

Input

The first line contains two space-separated integers: **n**, the number of universes and **m**, the number of portals.
Then m lines follow, i^{th} line contains three integers, universe $\mathbf{a}_i$ and $\mathbf{b}_i$, connected through the i^{th} portal and $\mathbf{c}_i$, the travelling time between the mentioned universes.

Then n lines follow, i^{th} line contains $\mathbf{k}_i$, number of time instances when the demons are patrolling the i^{th} universe. Then k_i space separated integers $\mathbf{t}_{ij}$ follow in sorted order. t_{ij} means that at this timestamp some demon was patrolling on the i^{th} universe and the spiderman had to wait for this second (if he is at this universe at this timestamp).

Constraints:
$2 \leq n \leq 10^3$
$0 \leq m \leq 10^3$
$1 \leq a,b \leq n$
$1 \leq c \leq 10^4$
$0 \leq k_i \leq 10^3$; sum of $k_i < 10^5$
$0 \leq t_{ij} \leq 10^9$

Output

Print a single number — the least amount of time spiderman needs to get from universe 1 to universe n. If spiderman can't get to universe n in any amount of time, print number -1.

Example

standard input	standard output
4 4 1 2 3 1 3 2 2 4 2 3 4 3 0 1 4 2 2 3 0	5

Note

It is guaranteed that there would be at most one portal between any pair of universe

Spiderman has two ways to reach universe 4.
The first way is to go from 1->2 (3 seconds) then 2->4 (2 seconds). Total = 5 seconds.
The second way is to go from 1->3 (2 seconds), wait until 3 seconds (demons are patrolling) then 3->4 (3 seconds). Total = 6 seconds.