Problem 13 : Walls defence

Statement

Paradise island has constructed N walls in order to defend their living area from the titans.
Walls are numbered from 1 to N, from the center to the outermost of the capital.
Titans desperately seek for humans to eat so they come by waves and try to break the abilities of the walls.
Wall **i** has defensive power **Di.**
M waves of titans are approaching the Capital, numbered from 1 to M.

Each wave has 2 values T,A
T: the number of days to get the first wall.
A: the attack power.

Each wall has 3 values ID,D,E.
ID: the id of the wall.
D: defensive power.
E: the enhancement value.

You need to consider the following statements:

- The distance between two walls takes one day.
- The enhancement is for all walls,each time the weak wave waits for another wave to strengthen their A to defeat D, the wall too gets to increase his E.
- The waves start all at the same time. (day=0).
- The wall brokes if the A>D.
- The attack power will be cumulated.

Help humanity to choose the strongest wall that can protect them.

Input

The first line 2 integers, N, M.
N lines follow. The i-th line contains three integers ID, Di, Ei.
M lines follow. The j-th line contains two integers Tj, Aj

Output

ID of the best wall.

Example

Input	Output
3 3 1 4 1 2 3 1 3 1 1 4 6 5 2 6 1	2