



## Problem J. Bossy

A stupid, retarded boss called Bossy In a game of poker, every person who loses in a round has to share his/her money with some other players whom they determine before the game begin, these people are called "will list". For those of you that might not know what is the game of poker, game of poker is a multiplayer game in which at every round people stare at each other for 5 minutes. The ones who smile during this time will lose and they have to share their money with their will list.

However, a group of participants could lose together in one round and they might have mentioned each other in their will list. This could become problematic because now we do not know how to share these losers money with others in the game. Fortunately, in these cases the game's law states that we have to share this money repeatedly between these losers until the money that they own converges to zero. If after infinite number of redistribution of these money some of the losers still have money, we can throw these monies out.

Given the will list of the losers and their current financial status, output how much money would the players end up with.

### Input

In the first line of input you are given two numbers  $2 \leq N \leq 500$  and  $N < M \leq 50,000$ , where  $N$  is the number of losers, and  $M$  is the total number of players. The losers have ID starting from 1 to  $N$  and the rest of the players has an ID from  $N + 1$  to  $M$ . The  $N$  losers will list is given in the following format:

Each will list starts two numbers:  $1 \leq D \leq 1000$  representing the amount of money the  $i$ -th loser have, and  $1 \leq K < M$  the number of people in this will. The following  $K$  lines contains an integer  $Y$  specifying the ID of recipient, and  $10^{-6} \leq P$  indicating what portion of money goes to this person in the current will list. You can assume that:

- The total number of will's entries are less than  $10^6$ .
- The fraction in each losers' list will add up to 1.
- Someone's will does not contain his own ID.
- The  $P$  value is given with not more than 6 digits after the decimal points.
- A single loser list contains only unique people.

### Output

Output  $M$  lines the amount of money each student end up with in order of their ID. For each line of output, round the result to the nearest integer. It should be noted that first  $N$  lines are zero because their money either given away or thrown out.



## Examples

test	answer
2 3	0
100 1	0
2 1.000000	200
100 2	
1 0.250000	
3 0.750000	