

Galaxy War

The X galaxy is facing its largest fight ever. The fight takes place across all regions with many of our and enemy warships, each identified by a code and strength. Determine the surviving ships in each region according to the following condition:

- The ships will be assigned to specific regions to fight, and a list of ship codes will represent the fight in each region.
- A stronger ship will defeat a weaker one. If two ships have equal strength, both will be destroyed.
- Enemy and our ships located close to each other in the list will fight each other first according to the order of the list. For example: [1 2 -1] means that our ship number 2 will fight enemy ship number 1 first, and then based on the result of this fight, the next fight will be determined.

Input:

- The first line is the number of warships N ($2 \leq N \leq 3 \cdot 10^5$), and the number of regions M ($1 \leq M \leq 10^5$).
- The next N lines each describe a warship: Ship code (positive for our ships, negative for enemy ships) (absolute value not exceeding 10^9) and ship strength (not exceeding 10^9).
- The following M lines each describe a region: Region code K (not exceeding 10^9), number of warships in region K , and a list of K integers representing the fighting situation of K ships.

The testcase ensures that each ship only participates in one region.

Output:

- For each region in the ascending order of identifier codes, an integer representing the winning side (1 is win, 2 is lose, 0 is a draw).

Sample

Input	Output
8 3	1 1
1 5	2 0
2 10	3 1
3 8	
4 10	
5 2	
-1 5	
-2 8	

-35

1 3 1 2 -1

2 2 3 -2

3 3 4 5 -3