Problem I: The Elves

Time Limit: 1 Sec Memory Limit: 128 MB
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Description

To make the kingdom more prosperous, Pisces decides to ally with the elves living in the forest. However, the elven elders want to test Pisces, so they give him a simple question. Given a DAG with n nodes and m edges, the elven elders want to know the value of $\sum_{i=1}^{n}\sum_{j=1}^{n} count(i,j) \cdot a_i \cdot b_j \mod 1e9+7$, where $count(x,y)$ is defined by the number of different paths from x to y, and a, b are 2 given arrays. It is too hard for Pisces to answer this question, so he turns to you for help.

Input

The first line contains an integer T ($1 \le T \le 10$), which denotes the number of test cases.

For each test case, the first line contains 2 integers n and m ($1 \le n, m \le 10^5$) — the number of nodes and the number of edges, respectively. Each of the next n lines contains 2 integers a_i and b_i. And for the next m lines, each line contains 2 integers u and v denoting a directed edge going from node u to node v ($1 \le u, v \le n$).

Output

For each test case, print the answer.

Sample Input

```
3
3 3
1 1
1 1
1 1
1 2
1 3
2 3
2 2
1 0
0 2
1 2
1 2
2 1
500000000 0
0 500000000
1 2
```

Sample Output

```
4
4
250000014
```

HINT

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