Problem D. If You Can't Beat Them, Join Them!

Input file:	`standard input`
Output file:	`standard output`
Time limit:	12 seconds
Memory limit:	512 megabytes

`Roundgod` and `kimoyami` are playing the **graph game** on a directed graph. Given a directed graph $G = (V, E)$ and a source vertex $s \in V$, the graph game (G, s) is defined as follows:

> Initially, there is a token on the source vertex s. `Roundgod` and `kimoyami` take turns moving the token through a directed edge, with `Roundgod` going first. The game ends when either player cannot make a valid move, and the player who cannot make a move loses. If the game lasts 10^{100} turns, then the game is considered a draw.

`Roundgod` is not an expert at this game and is often beaten by `kimoyami`. He remembered the famous quote, "If you can't beat them, join them!", and then came up with the notion of **join of graph games**. Given a nonempty collection of $k(k > 0)$ graph games $(G_1, s_1), \ldots, (G_k, s_k)$. The **join** of the k games is also a game with the following definition:

> `Roundgod` and `kimoyami` take turns moving the tokens in all k graph game **simultaneously**, with `Roundgod` going first. The game ends when either player cannot make a valid move **in any of the k games**, and the player who cannot make a move loses. If the game lasts 10^{100} turns, then the game is considered a draw.

Now, given a collection of k graph games, $(G_1, s_1), \ldots, (G_k, s_k)$, Roundgod then needs to choose a **nonempty subset** from the k games and play with `kimoyami` on the **join** of the chosen games. `Roundgod` wonders, how many ways are there to choose such a nonempty subset so that he may win the game under the optimal strategy of both players? As the answer may be too large, you need to output the answer modulo 998244353.

Input

The first line contains an integer $T(1 \le T \le 5)$, denoting the number of test cases.

For each test case, the first line of the input contains an integer $k(1 \le k \le 10^6)$, denoting the number of graph games in the collection.

Then the description of k graph games follows.

For the description of the $i(1 \le i \le k)$-th graph game, the first line contains three integers $n_i, m_i, s_i(1 \le n_i, m_i \le 10^6, 1 \le s_i \le n_i)$, denoting the number of vertices and edges of in the graph of the ith graph game, and the source vertex of the ith graph game, respectively.

Then m_i lines follow, each line contains two integers $u, v(1 \le u, v \le n_i, u \ne v)$, denoting an edge in the graph of the ith graph game. Note that it is possible for the graph to have **multiple edges**, but not **self loops**.

It is guaranteed that **for each test case**, $\sum_{i=1}^{k} n_i \le 2 \times 10^6$ and $\sum_{i=1}^{k} m_i \le 2 \times 10^6$.

Output

Output an integer in a line, denoting the answer taken modulo 998244353.

Example

standard input	standard output
2 4 3 1 1 2 1 3 3 4 3 2 2 1 1 2 2 1 2 1 1 1 2 2 1 2 1 2	1 2

Note

In the first test case of the sample test, Roundgod can choose the first graph game, and guarantee a win by moving the token from vertex 1 to vertex 2.

In the second test case of the sample test, Roundgod can either choose the second graph game, and guarantee a win by moving the token from vertex 1 to vertex 2; or choose both the first graph game and the second graph game, and guarantee a win by moving the token from vertex 1 to vertex 2 in both games.