Problem F. Travel plan

Input file:	standard input
Output file:	standard output
Time limit:	1.5 seconds
Memory limit:	256 megabytes

Bob lives on a magical land. There are n cities and m roads on the land. The length of the i-th road is w_i, and the length is an integer between 1 and L. Each road connects two cities. The land can be viewed as a graph of n points and m edges.

This land is magical because Bob was surprised to find that there are no **simple circuits** with an even total length in this land!

Bob likes to travel. If Bob takes a **simple path** from x to y ($x < y$), the happiness value is the greatest common factor (gcd) of the lengths of all roads on the path.

simple path:A path is called a simple path if the vertices on the path do not repeat each other.

simple circuit:A circuit in which the vertices are not repeated except for the first and last vertices is called a simple circuit

Bob wants to count all possible travel paths.

Define $F(k)$ as the total number of travel paths with happiness value k, modulo 998244353.

Please find $F(1) \bigoplus F(2) \bigoplus F(3) \bigoplus ... \bigoplus F(L)$,where $\bigoplus$ represents XOR.

Input

The first line contains an integer $T(T \leq 500)$ —the number of test cases.

The first line of each test case contains 3 integers $n, m, L(1 \leq n, L \leq 100000, 1 \leq m \leq 200000)$ —number of cities, number of roads, length range of roads.

The next m lines , each line contains 3 integers $u_i, v_i, w_i(1 \leq u_i, v_i \leq n, 1 \leq w_i \leq L)$ —.represents a road of length w_i connecting u_i, v_i.

It is guaranteed that there are no double edges and self-loops.

$1 \leq \sum n, \sum L \leq 500000, 1 \leq \sum m \leq 1000000$

Output

For each test case, output a line containing an integer representing the answer.

Example

standard input	standard output
2 3 3 6 1 2 6 2 3 4 3 1 5 5 4 10 1 2 10 1 3 1 2 4 7 1 5 4	2 6