

Hajimi's Rebellion

Input file: **standard input**
Output file: **standard output**
Time limit: 3 seconds
Memory limit: 256 megabytes

Although Hajimi's Rebellion has already been put down, it has left serious trouble in the Magic Kingdom: many roads in the kingdom were damaged and became hard to pass, and many local powers appeared. Even worse, 80% of the kingdom's children caught NTT because of it, and the harm to young people is beyond measure! The serious situation forces the king to think: how great is the threat of the rebellion to this country?

There are n cities in the Magic Kingdom, numbered $1 \sim n$, and m roads. Each road connects cities u, v and has travel difficulty w . For cities u, v , let $f(u, v)$ be the smallest integer d such that there is a path using only roads with travel difficulty at most d that connects u, v . In particular, $f(u, u) = 0$; if u, v are not connected, then $f(u, v) = +\infty$.

For a set S of pairwise connected cities, if $\max_{u, v \in S} f(u, v) < \min_{u \in S, v \notin S} f(u, v)$, then S is called a union. Each union S has a weight Γ_S . Initially, $\Gamma_S = \sum_{u \in S} u$, which means the weight is the sum of the city numbers in the union.

Any union may declare independence, but unions containing the same city will not declare at the same time. Several unions declaring independence at the same time are called a situation, and its threat value is the product of the weights of all unions that declare independence. We say situations A, B are different if and only if there exists a union S such that it declares independence in exactly one of A, B .

To measure the threat more accurately, the king will make q adjustments. Each adjustment gives parameters c, k, g . For all unions $S(c, k)$ that contain city c and consist of exactly k cities, change $\Gamma_{S(c, k)}$ to g .

Your task is to report to the king the sum of the threat values of all possible situations after each adjustment.

As the answer may be very large, you only need to output it modulo 998244353.

Input

Each test file contains multiple test cases. The first line contains an integer T ($1 \leq T \leq 10^3$), the number of test cases.

For each test case, the first line contains three integers n, m, q ($1 \leq n \leq 10^4, 0 \leq m \leq 2 \times 10^5, 1 \leq q \leq 5 \times 10^5$), denoting the number of cities in the kingdom, the number of roads, and the number of the king's instructions.

The next m lines each contain three integers u, v, w ($1 \leq u, v \leq n, 1 \leq w \leq 10^9$), denoting a road.

The next q lines each contain three integers c, k, g ($1 \leq c, k \leq n, 1 \leq g \leq 10^9$), meaning changing $\Gamma_{S(c, k)}$ to g .

It is guaranteed that the sum of n over all test cases does not exceed 10^4 , the sum of m does not exceed 2×10^5 , and the sum of q does not exceed 5×10^5 .

Output

For each test case, after each adjustment, output one line containing one integer, the sum of the threat values modulo 998244353.

Examples

standard input	standard output
1 3 3 1 1 2 2 1 3 4 2 3 3 1 1 1	41
1 6 5 1 3 2 3 1 4 2 5 3 5 2 1 6 6 4 1 5 2 6	11332

Note

In Sample 1, the weight of union [1] is changed from 1 to 1.

All situations and their threat values are:

Situation	Threat	Situation	Threat
[1]	1	[1 3]	3
[2]	2	[1, 2]	3
[3]	3	[1, 2, 3]	6
[1 2]	2	[1 2 3]	6
[2 3]	6	[1, 2 3]	9

The sum of the threat values of all situations is 41. Two of the situations, [1, 2 | 3] and [2 | 3], are shown below:

