

Customized Shortest Path

Input file: standard input
Output file: standard output
Time limit: 1 second
Memory limit: 256 megabytes

The English statement was translated by AI and may be slightly different from the original Chinese statement. Please refer to the Chinese statement if you have any questions.

Given an undirected graph with n vertices and m edges. The i -th edge connects vertex u_i and vertex v_i with traversal cost w_i .

Now, you may increase the traversal cost of all edges **simultaneously** by k , where k is any non-negative real number. Question: how many distinct [†] paths from vertex 1 to vertex n exist such that there is at least one value of k for which that path is one of the shortest paths from 1 to n ?

[†] Two paths are considered different if and only if they have different numbers of edges, or there exists an index i such that the i -th edge on the two paths has a different edge index.

Input

Each test file contains multiple test cases. The first line contains the number of test cases T ($1 \leq T \leq 1000$). The description of the test cases follows.

The first line of each test case contains two integers n and m ($2 \leq n \leq 5000$, $1 \leq m \leq 5000$), denoting the number of vertices and edges in the graph.

The next m lines each contain three integers u_i , v_i and w_i ($1 \leq u_i, v_i \leq n$, $1 \leq w_i \leq 10^9$), describing an undirected edge between vertices u_i and v_i with traversal cost w_i .

For each test file, it is guaranteed that the sum of n over all test cases does not exceed 5000, and the sum of m over all test cases does not exceed 5000.

Output

For each test case, output a single integer — the number of paths that can become shortest paths from vertex 1 to vertex n . Since the answer may be large, output it modulo 998 244 353.

Example

standard input	standard output
3	4
3 4	3
1 2 1	4
1 2 1	
2 3 1	
2 3 1	
5 6	
1 5 3	
1 2 1	
2 5 2	
1 3 1	
3 4 1	
4 5 1	
8 9	
1 2 1	
1 3 5	
2 6 1	
6 4 1	
3 4 1	
3 5 1	
4 8 5	
5 7 1	
7 8 1	