Problem E. MST Inclusion

Time limit 1000 ms
Memory limit 256MB

Problem Description

A team of network engineers is studying how communication links interact when constructing an efficient communication backbone.The network is modeled as a connected, simple, undirected graph G with n vertices and m weighted edges, where each weight represents the cost or reliability of a link. To design a robust infrastructure, the engineers focus on Minimum Spanning Trees (MSTs) of the network.

For any link $e = (u, v, w)$, the engineers want to determine whether it can participate in at least one MST of the current network. To formalize this, they introduce the notion of the MST Inclusion Cost, denoted $H(e)$.

The MST Inclusion Cost of an edge e is defined as the minumum number of edges that must be removed from the network (excluding e) such that the graph remains connected and e appears in some MST of the resulting network. Any edge that already participates in an MST has an inclusion cost of 0.

Your task is to compute the total MST Inclusion Cost over all edges in the network:

$$\sum_{e \in E(G)} H(e)$$

Input format

The first line contains two integers n, m ($2 \le n \le 100,\ n-1 \le m \le 500$) — the number of vertices and edges.

Each of the next m lines contains three integers u_i, v_i, w_i ($1 \le u_i, v_i \le n,\ u_i \ne v_i,\ 1 \le w_i \le 500$) — representing a bidirectional connection between u_i and v_i with weight w_i.

It is guaranteed that the given network is connected.

Output format

Output a single integer — the total MST Inclusion Cost over all edges.

Subtask score

Subtask	Score	Additional Constraints
0	0	Sample testcases
1	30	$m = n$
2	70	No additional constraints

Sample

Sample Input 1

```
3 3
1 2 1
2 3 2
3 1 3
```

Sample Output 1

```
1
```

Sample Input 2

```
4 4
4 2 3
1 2 4
2 3 2
4 1 1
```

Sample Output 2

```
1
```

Sample Input 3

```
5 7
1 2 3
1 3 6
3 2 5
4 5 2
5 3 1
5 1 7
5 2 4
```

Sample Output 3

```
4
```