

Count Minimum Spanning Trees

Your task is simple in this problem: count the number of **minimum spanning tree** ([Wikipedia](#)) in a simple undirected graph. The number of minimum spanning trees mean in how many ways you can select a subset of the edges of the graphs which forms a minimum spanning tree.

Input

The first line of input contains two integers **N** ($1 \leq N \leq 100$), **M** ($1 \leq M \leq 1000$). Nodes are labeled from 1 to **N**. In the following **M** lines, every line contains three integers **a_i**, **b_i**, **c_i**, representing an undirected edge from node **a_i** to node **b_i**, with weight **c_i**. ($1 \leq a_i \neq b_i \leq N$, $1 \leq c_i \leq 1,000,000,000$). You can assume there is at most one edge between two nodes, and the graph described by input is connected.

Output

Print the **answer % 31011**.

Example

Input:

```
4 6
1 2 1
1 3 1
1 4 1
2 3 2
2 4 1
3 4 1
```

Output:

```
8
```