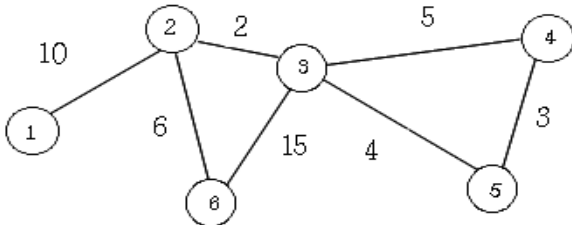


Cost

You are given an undirected graph with N vertices and M edges, where the weights are unique.

There is a function $\text{Cost}(u, v)$, which is defined as follows:

While there is a path between vertex u and v , delete the edge with the smallest weight. $\text{Cost}(u, v)$ is the sum of the weights of the edges that were deleted in this process.



For example, from the graph above (same as the sample input), $\text{Cost}(2,6)$ is $2+3+4+5+6 = 20$.

Given an undirected graph, your task is to calculate the sum of $\text{Cost}(u, v)$ for all vertices u and v , where $u < v$. Since the answer can get large, output the answer modulo 10^9 .

Input

The first line of the input consists of two integers, N and M . ($1 \leq N \leq 100,000$, $0 \leq M \leq 100,000$)

The next M lines consists of three integers, u , v , and w . This means that there is an edge between vertex u and v with weight w . ($1 \leq u, v \leq N$, $1 \leq w \leq 100,000$)

Output

Output the sum specified in the problem statement.

Example

Input:

```
6 7
1 2 10
2 3 2
2 6 6
4 3 5
6 3 15
3 5 4
4 5 3
2 6 6
```

Output:

```
256
```