



Problem B Building a Kingdom

Time limit: 1 second

Memory limit: 2048 megabytes

Problem Description

The PCCA kingdom has n cities, numbered $1, 2, \dots, n$. The PCCA king wants to build m bidirectional roads between the cities. Each road connects two distinct cities. From any city, one can get to any other city by moving along the roads. Furthermore, there is at most one road between any pair of cities.

However, the PCCA king finds it too costly to build all the roads, so he wants to remove some roads from the road network while building all the others. To be specific, the i^{th} road connects city u_i and city v_i , removing it costs a_i dollars, and building it costs b_i dollars. The PCCA king hopes that after building and removing some roads, any two cities can still be reached from each other by moving along the built roads.

Can you determine the minimum cost of removing and building the roads, so that the road network satisfies the king's demand?

Input Format

The first line contains two integers n and m . The i^{th} of the next m lines contains four integers u_i, v_i, a_i and b_i describing a road.

Output Format

Print one integer, the minimum total cost of removing and building the roads.

Technical Specification

- $2 \leq n \leq 2 \times 10^5$
- $1 \leq m \leq 2 \times 10^5$
- $1 \leq u_i, v_i \leq n$ for $i = 1, 2, \dots, m$
- $u_i \neq v_i$ for $i = 1, 2, \dots, m$
- $0 \leq a_i, b_i \leq 10^9$ for $i = 1, 2, \dots, m$

Sample Input 1

```
5 6
1 2 5 4
2 3 1 7
2 4 8 6
1 5 3 9
5 4 2 3
```

Sample Output 1

```
20
```



4 3 7 3

Sample Input 2

```
4 3
1 2 1000000000 1000000000
2 3 1000000000 1000000000
3 4 1000000000 1000000000
```

Sample Output 2

```
3000000000
```