Problem F. 奇跡も、魔法も、あるんだよ

Time limit   1500 ms
Memory limit   256MB

Problem Description

owo

You are given a undirected connected graph consisting of N vertices and M edges. The i-th edge connects a_i and b_i, with a weight of c_i and a color of d_i.

The weight of a path is defined as the maximum weight among all edges on the path.

Define $f(a, b)$ as the minimum weight of a path between vertices a and b, where all edges in the path share the same color. If no such path exists, then $f(a, b) = 0$.

Your task is to find $\sum\limits_{i=1}^{N} \sum\limits_{j=i+1}^{N} f(i, j)$.

Input format

The first line contains two integers N and M.

The next M lines each contain four integers, a_i, b_i, c_i, d_i.

- $1 \leq N \leq 10^5$

- $1 \leq M \leq 10^5$

- $1 \le a_i \le N$

- $1 \le b_i \le N$

- $1 \le c_i \le 10^6$

- $1 \le d_i \le 2$

Output format

Print one integer.

Subtask score

Subtask	Score	Additional Constraints
1	20	$N, M \le 3 \cdot 10^3$
2	40	$d_i = 1$
3	40	No constraint

Sample

Sample Input 1

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

Sample Output 1

```
3
```

Sample Input 2

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

Sample Output 2

```
11
```

Notes