Problem I

Social Networks

Introduction

Social networks are a growing phenomena all over the world. These networks allow people to become more connected by allowing an easy way to share information.

A social network N can be defined as a pair (P, R) where P is the set of people in the network and R is the set of direct relations between people in the network.

In a social network, there are some relations that are older than others. Consider that it is known how many days any direct relation has existed between two people in the network and that defines its weight. For each relation $(p_i, p_j) \in R$, let w_{ij} denote the number of days that person p_i has been directly related to person p_j in the network. The total weight of the network connections, also called the *weight of the network*, is the sum of all direct relation weights.

A social network is said to be *connected* if, for any two people p_i and p_j, there is a path between them in the network. Let us define a *backbone* of a connected social network as a subnet $S_N = (P, R_b)$ with only $|P| - 1$ connections ($R_b \subseteq R$ and $|R_b| = |P| - 1$) such that it is still a connected network. A *maximum backbone* can be defined as a backbone for which the total weight of the connections is maximized.

Problem

Given a weighted connected social network, your objective is to find the weight of a maximum backbone of that network.

Input

The input is a weighted connected social network defined as follows:

- one line with two positive integers $|P|$ and $|R|$, such that $|P|$ is the number of people in the social network and $|R|$ denotes the number of direct relations in the network;
- a sequence of $|R|$ lines where each line denotes a weighted relation in the network. Each line contains three positive integers p_i, p_j and w_{ij}. The first two (p_i and p_j) denote the people in direct connection and w_{ij} denotes the number of days p_i and p_j have been directly connected in the network. All p_i and p_j are integers between 1 and $|P|$.

Constraints

- $0 < |P| \leq 10000$
- $0 < |R| \leq 200000$
- $0 < w_{ij} \leq 10000$

Output

The output has a single line with one integer, which is the total weight of a maximum backbone of the network defined in the input.

Sample Input and Output 1

Input 1

```
4 5
1 2 3
1 3 4
2 3 5
2 4 4
3 4 3
```

Output 1

```
13
```

Sample Input and Output 2

Input 2

```
5 8
1 2 15
1 3 10
1 4 11
2 3 12
2 4 8
2 5 3
3 4 9
4 5 1
```

Output 2

```
41
```