Problem C
Subgraph Selection

Time limit: 1 second
Memory limit: 2048 megabytes

Problem Description

Given a simple undirected graph with n vertices and m undirected edges, where the vertices are numbered from 1 to n. Each edge has a weight w_i while each vertex has a weight v_i.

A subgraph within a graph constitutes a collection of selected graph vertices and edges. For a valid subgraph, the set of edges must adhere to this condition: both ends of each edge from the chosen set must be part of the selected vertices.

Your goal is to choose a subgraph with the maximum *value*. This value, for a subgraph, is calculated by summing the w_i values of all edges within the subgraph and then subtracting the sum of v_i values corresponding to the vertices in that subgraph. Output the maximum *value* for a subgraph.

Input Format

The first line of the input contains two integers n and m. Each of the following m lines contains three integers u_i, v_i and w_i, where the i-th line denotes that there is an undirected edge from vertex u_i to v_i in the graph.

Output Format

Output the maximum *value* for a subgraph.

Technical Specification

- $1 \leq n \leq 500$
- $0 \leq m \leq \min(500, \frac{n(n-1)}{2})$
- $1 \leq v_i \leq 10^9$ for $i = 1, 2, \ldots, n$
- $1 \leq u_i, v_i \leq n$ and $u_i \neq v_i$ for $i = 1, 2, \ldots, m$
- $1 \leq w_i \leq 10^9$ for $i = 1, 2, \ldots, m$
- It is guaranteed that the input graph does not contain loops and multiple edges.

Scoring

1. (100 points) No additional constraints.

Sample Input 1

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

Sample Output 1

```
8
```

Sample Input 2

```
3 3
9 7 8
1 2 1
2 3 2
1 3 3
```

Sample Output 2

```
0
```

Hint

This problem is in fact a maximum flow problem. Try to reduce the problem to a maximum flow (or minimum cut) problem discussed in the class.