Kruskal (MST): Really Special Subtree

Given an undirected weighted connected graph, it is required to find the Really Special SubTree in it. The Really Special SubTree is defined as a subgraph consisting of all the nodes in the graph and

- There is only one exclusive path from a node to every other node.
- The subgraph is of minimum overall weight (sum of all edges) among all such subgraphs.
- No cycles are formed

To create the Really Special SubTree, always picking the edge with smallest weight. Determine if it will create a cycle. If so, ignore the edge. If there are edges of equal weight available:

- Choose the edge that minimizes the sum $u + v + wt$ where u and v are vertices and wt is the edge weight.
- If there is still a collision, choose any of them.
- While doing the above, ensure that no cycle is formed while picking up edges.

Print the overall weight of the Tree so formed using above rules.

For example, given the following edges:

```
u v wt
1 2 2
2 3 3
3 1 5
```

First we would choose $1 \rightarrow 2$ at weight 2. Next we would choose $2 \rightarrow 3$ at weight 3. All nodes are connected without cycles for a total weight of $3 + 2 = 5$.

Input Format

The first line has two integers g_nodes and g_edges, the number of nodes and edges in the graph.

The next g_edges lines each consist of three space separated integers g_from, g_to g_weight, where g_from and g_to denote the two nodes between which the **undirected** edge exists and g_weight denotes the weight of that edge.

Constraints

- $2 \leq g\_nodes \leq 3000$
- $1 \leq g\_edges \leq (N * (N-1))/2$
- $1 \leq g\_from, g\_to \leq N$
- $0 \leq g\_weight \leq 10^5$

**Note: ** If there are edges between the same pair of nodes with different weights, they are to be considered as is, like multiple edges.

Output Format

Print a single integer denoting the total weight of the Really Special SubTree.

Sample Input 0

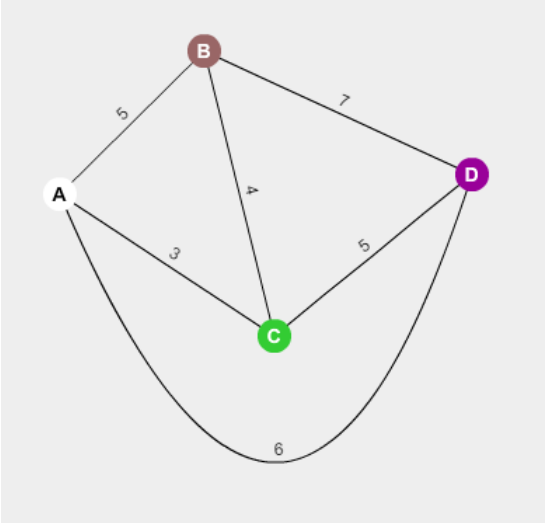
```
4 6
1 2 5
1 3 3
4 1 6
2 4 7
3 2 4
3 4 5
```

Sample Output 0

```
12
```

Explanation 0

The graph given in the test case is shown as :



- The nodes A,B,C and D denote the 1,2,3 and 4 node numbers.
- The starting node is A or 1 in the given test case.

Applying Kruskal's algorithm, all the edges are sorted in ascending order of weight.

After sorting, the edge choices are available as :

A->C (WT. 3) , B->C (WT. 4) , A->B (WT. 5) , C->D (WT. 5) , A->D (WT. 6) and B->D (WT. 7)

Picking these edges and finalizing only if it doesnt create a cycle :

A->C : B->C

The edge **A->B** would form a cycle so it is ignored.

The edge **C->D** is chosen to finish the MST:

A->C : B->C : C->D

The total weight of the Really Special SubTree is : **12**