Assignment 4-(Part 1)-on Disjoint Sets and MST

In this assignment, you will implement the Kruskal's algorithm for finding the minimum spanning tree from a given graph.

```
MST-KRUSKAL(G, w)
1  A = ∅
2  for each vertex v ∈ G.V
3      MAKE-SET(v)
4  sort the edges of G.E into nondecreasing order by weight w
5  for each edge (u, v) ∈ G.E, taken in nondecreasing order by weight
6      if FIND-SET(u) ≠ FIND-SET(v)
7          A = A ∪ {(u, v)}
8          UNION(u, v)
9  return A
```

- You must take input from a .txt file. The first line represents the node number and edge number. Rest of the lines represent each edge info. [leftnode rightnode weight]
- For sort operation, you can directly use the sort() function from algorithm (**C++ stl**) library.
- For your MAKE-SET, FIND-SET, UNION operations, modify the disjoint set codes as discussed in the class to include **union by rank and path compression** (following the pseudo codes provided).
- In the output, print all the edges of this MST and also print the sum of the edge weights of this MST

Sample Input	Sample Output
9 14 1 2 4 1 8 8 2 8 11 2 3 8 8 9 7 8 7 1 3 9 2 3 4 7 3 6 4 4 5 9 5 6 10 4 6 14 6 7 2 9 7 6	MST Edges: 8 7 3 9 6 7 1 2 3 6 3 4 1 8 4 5 Minimum weight of MST = 37

Total Marks: 10
Deadline: 23/12/2022 [Hard Deadline]
[Miss at your own risk]
[Zero tolerance for plagiarism]