Data Structure
Homework 3 Report

學號：0416106 姓名：彭敬樺

In this homework, we use Kruskal's Algorithm to compute minimum spanning tree. Before implementing this algorithm, first disjoint sets class is implement.

Class disjoint_set is declared using map to ensure efficiency and simplicity. The function available will be "makeSet", "unions", "findset". In this program, the "findset" function is implementing using Collapsing rule to ensure that the algorithm is efficient. In function "unions", the rank of the sets will determine which one that will be the parent of the other. "makeSet" function will create individual disjoint sets with itself as its parent.

The input data saved in a vector of vertex class so that they are sort. Before any algorithm implementation done, the vertex sorted in non-decreasing ordering with respect to its weight.

Next, Kruskal's Algorithm implemented by picking the vertex one by one and comparing if the parent of from node is the same with the parent of to node. If they are in the same disjoint sets, then nothing had to do. If they are not in the same disjoint sets, then this vertex is one of the vertex in the minimum spanning tree. Next, unions function performed for from and to node.

This is simple explanation of my program implementation, the comment in the program will further be able to explain in more detail about the usage of each parts.