

## Assignment 11: Minimum Spanning Trees

1. Find a Minimum Spanning Tree (MST) of a given connected, undirected and weighted graph using Kruskal's algorithm.
2. Find a MST of a given connected, undirected and weighted graph using Prim's algorithm.
3. Find if a given directed graph contains any cycle(s).
4. Instead of adding edges as in Prim's or Kruskal's algorithms to create, write a program that deletes edges till the graph reduces to its MST.
5. Find a Maximum Spanning Tree of a given connected, undirected and weighted graph.
6. Read  $n$  3D points  $\{(x_i, y_i, z_i)\}$  in real space. Generate MST for the Euclidean graph.
7. Find if a given unweighted directed graph is arborescence. An arborescence is a directed acyclic graph in which for a given vertex  $u$ , there exists one and only one path to every other node  $v$ .