E0 225: Homework 3

Deadline: Oct 29th, 5pm

Instructions

- Academic dishonesty/plagiarism will be dealt with severe punishment.

- Late submissions are accepted only with prior approval or medical certificate.

1. Suppose G is a directed graph with positive weight edges, and let s be a designated source vertex in G. Design and analyse an efficient algorithm that counts the number of shortest paths from s to every vertex in G.

2. Given a graph G and a minimum spanning tree T, suppose that we decrease the weight of one of the edges in T. Show that T is still a minimum spanning tree for G.