

PSO #8

Week 10

MST

Let G be an undirected weighted graph, and T a minimum spanning tree of G . In each case, construct an algorithm to modify T so that it remains a MST.

- (a) The weight of some edge $e \in T$ is decreased
- (b) The weight of some edge $e \notin T$ is increased
- (c) The weight of some edge $e \in T$ is increased
- (d) The weight of some edge $e \notin T$ is decreased

MST

Let G be a graph where k edges are marked as essential.

How does one modify Prim's or Kruskal's such that a spanning tree can be formed that contains all essential edges? The k edges are given to not form a cycle.

Which one is better?

MST

Let there be a tree T that is claimed to be the minimum spanning tree of a graph G , but you are not sure.

Construct an algorithm to ensure the given tree is a MST.

MST

Let $G = (V, E)$ be an undirected weighted graph. Let the weight of every edge be from the set $\{1, 10, 25\}$.

Construct a linear time algorithm to find an MST of G .

MST

Let G be an undirected graph with distinct costs on every edge. Let e^* denote the least expensive edge on a cycle C in G .

Is it true that any minimum spanning tree of G contains the edge e^* ?