

Problem Set 7 — Minimum Spanning Trees and Single Source Shortest Paths Due by 4:30pm Friday, March 30, 2018 as a single pdf via Moodle (either generated via \LaTeX , or concatenated photos of your work). Late assignments are not accepted.

This is an *individual* assignment: collaboration (such as discussing problems and brainstorming ideas for solving them) on this assignment is highly encouraged, but the work you submit must be your own. Give information only as a tutor would: ask questions so that your classmate is able to figure out the answer for themselves. It is unacceptable to share any artifacts, such as code and/or write-ups for this assignment. If you work with someone in close collaboration, you must mention your collaborator on your assignment.

Suggested practice problems, from CLRS: 23.1-3; 23.1-6; 23.2-4; 23.2-5; 24.1-1

1. Problem 23.1-1 from CLRS. Let $G = (V, E)$ be a connected undirected graph. Let (u, v) be a minimum weight edge. Let there be T which is some subset of E that does not contain a vertex u . Since (u, v) is a minimum weight edge, it is a safe edge. And a minimum spanning tree must contain all vertices including v the edge (u, v) will be added.
2. Problem 23.2-8 from CLRS. With the valid input where three
3. Problem 24.1-6 from CLRS. *Hint: Consider running Bellman-Ford more than once.*
4. Problem 24.3-4 from CLRS.