Readings

- Lecture Notes Chapter 20.3: Shortest Path in DAGs
- Lecture Notes Chapter 22: Union Find

Problems

Problem 1

True or False: The shortest path algorithm in an edge weighted DAG works even with negative edge weights.

Problem 2

Recall the solution for finding the shortest path on an edge weighted DAG. Now, for a single source s, how can we find the longest (heaviest) path in a DAG that begins at s?

Problem 3

Is it guaranteed that a call to Find(v) will always return the same result throughout the algorithm? If not, is it possible to modify the algorithm such that it does?

Problem 4

How could one use Union-Find to detect cycles in an undirected graph?