

Homework 5: Graph Algorithms (Part II)

Instructor: Sid Nadendla

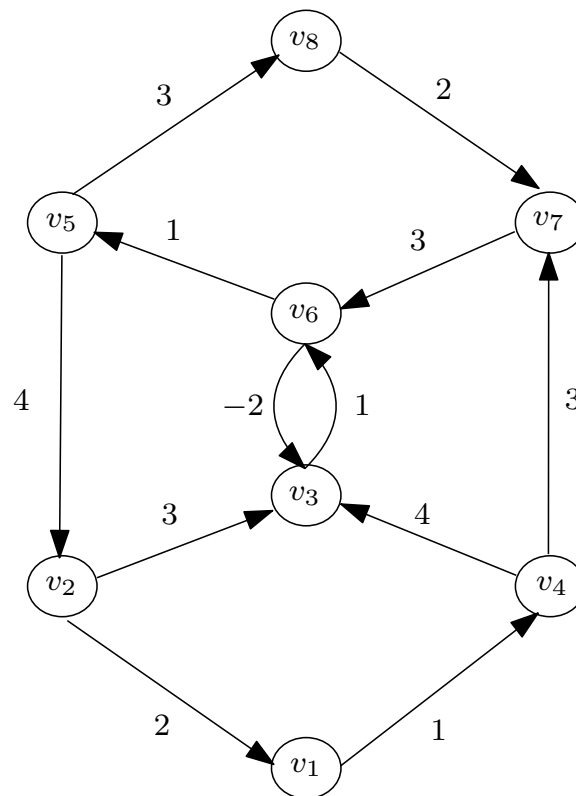
Due: May 7, 2023

In this homework, we will find shortest-paths in graphs with a single source node.

Problem 1: Bellman-Ford Algorithm

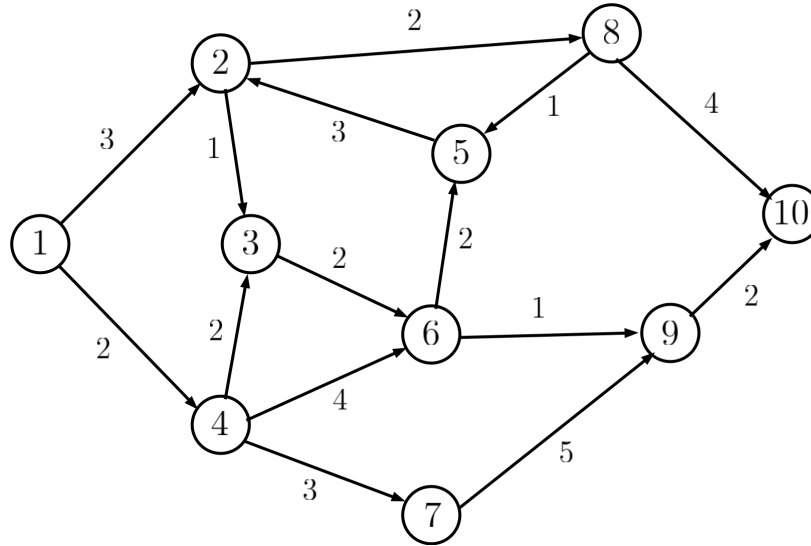
50 points

Demonstrate Bellman-Ford algorithm on the following graph. In each stage of the algorithm, clearly state the shortest distance estimate at each node from the source.



Problem 2: Dijkstra's Algorithm**50 points**

Demonstrate Dijkstra's algorithm on the following graph. In each stage of the algorithm, clearly state the shortest distance estimate at each node from the source.

**Bonus Problem (10 points):**

1. Implement Dijkstra's algorithm on graphs represented as adjacency lists in Python, and validate your code on the example graph given in Problem 2.