Experiment 9-10

Objective(s): To implement greedy algorithms for solving the Single Source Shortest Path Problem in a weighted graph and also in a binary tree as a special case.

Brief Theory:

Single Source Shortest Path Problem: You are given a weighted graph and a single source vertex in it. The problem is to find the shortest paths from the source vertex to all other vertices in the graph.

Shortest Path Problem in a Binary Tree: You are given a binary tree along with a source and a destination vertex in it. The problem is to find the shortest path from the source vertex to the destination vertex.

Task: 1) Write a program to solve the Single Source Shortest Path Problem using Dijkstra's Algorithm.
Task: 2) Write a program to find solve the Shortest Shortest Path Problem in a binary tree in $O(\log n)$ time.

Apparatus and components required: Computer with C or C++ Compiler and Linux platform.

Experimental/numerical procedure: Coding, compilation, editing, run and debugging.

Observation table and calculations based on observations: Not Applicable.