CS 3364 Project 3 report

Group Members: Israel Inikori, De’Andre Gardener, Andrew Holmes, and Aidan Quinteros

Dr.Sheng

CS 3364

11/21/2022

Quickest path algorithms are broadly used fundamental operations in data processing. There are

numerous Quickest path algorithms available. In this problem we were given a graph and were asked to find the quickest path from a source to a destination. Below is the 3-step process followed throughout the implementation and interpretation of the project.

Step1: code the graph.

Step2: Implement Dijkstra’s and Bellman ford algorithm.

Step3: make sure path is correct with weighted edges.

Below is the description of the methodology of the solution

Our group had to implement Dijkstra and Bellman ford algorithms we started to first make a adjacency list in python with our weighted edges for our graph. We then made our procedure by looking at the pseudo code in the slides and implementing shortest distance and shortest path by using a heap inside Dijkstra’s. For Bellman-ford instead of taking a spanning tree approach with a heap we used a bottom-up manner approach. The Algorithms are different from each other because Dijkstra’s takes the shortest path but with a longer distance while Bellman-ford takes a longer path but with a shorter distance.

Conclusion: In completing this project, we were able to collaborate with one another and further developed our ability to: simplify and solve real-world problems, apply the existing algorithms into real world applications, modify and implement algorithmic approaches. As stated earlier in the experimental results section – We were able to implement the Dijkstra’s and Bellman-ford algorithms on a real-world problem.