**AoA2 –FINAL PROJECT Q3**

**Compare the Bellman-Ford algorithm with the other two classical shortest path algorithms: Dijkstra and Floyd-Warshall [3], [2]. Discuss the basic properties, advantages, and disadvantages of these algorithms in your own words using a maximum of 300 words.**

Unlike Bellman-Ford, the dijkstra algorithm cannot find the shortest path to a graph with negative paths. Bellman-Ford controls all vertices, Dijkstra is only the one with the best distance ever calculated. Bellman\_Ford increases the complexity of the Dijkstra approach, but requires comparing all nodes to find the minimum distance value. They are both single-source shortest-path algorithm which means they can work when there is only one source. Floyd Marshall algorithm can work correctly even there are a multiple source and/or sink. Floyd Marshall and Bellman-Ford algorithms only fails when there are negative weight cycle. They are both dynamic programming algorithms. Floyd-Warshall runs in O(V^3) time, dijkstra runs O(V^2) time, while repeated-Bellman-Ford runs in O(V^2E) time.