Assignment 5: Dynamic Programming (graphs) and Greedy Algorithms (spice)

Robert Perrone

robert.perrone1@marist.edu

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1 Asymptotic Running Time

1.1 Single Source Shortest Path (SSSP)

The asymptotic running time of SSSP is O(VE) where V is the number of vertices and E is the number of edges. This is because the code has a for loop to go through each vertex and then a nested for loop to go through all of the edges in the graph.

1.2 Fractional Knapsack (Spice)

The asymptotic running time of Fractional Knapsack is $O(n^2)$ where n is the number of spices (in this case nodes) that are in the file. This is because this is the time complexity of Selection sort, which was my method of sorting the spices based on unit price.