C950 Performance Assessment

# A:

I have chosen a variant of the Nearest Neighbor algorithm, which is a type of greedy algorithm, as the basis for my system to deliver packages for WGUPS.

# B:

1. The basic form of my algorithm is as follows:
   1. Sort the packages by distance to the starting location
   2. Add the closest package to the path
   3. Sort the remaining packages by distance to the location of the most recently added location in the path
   4. Add the first package to the path
   5. Repeat steps c and d until there are no packages remaining
2. I used Sublime Text to edit all the python files used in my application and tested and run the application from the command line. At all times I have used the most recent version of python available.
3. Since the worst-case time complexity of the algorithm is O(N2), the program will slow down significantly as the number of packages increases. However, on modern hardware it will still run quickly enough to be functional even with hundreds of packages instead of the 40 currently being delivered.
4. I have mainly followed object oriented design principles and split the major classes into separate files, making the software easy to understand and maintain. In addition, the simple nature of the nearest neighbor makes it easy to understand as well. The pathfinding code is split into its own function, so if the future maintainer wished to use a different algorithm to meet changing business needs it would not be overly difficult.