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MET CS 566

Assignment Draft 3

1:For this project, I want to do a package destination based classification by the city, state and country where the package is located. So the first option is not to seek their common ground. This part can be done using divide and conquer. We will talk about the international classification of packages based on the city classification of the package. For each city, we can find the shortest package delivery route through Dijkstra's algorithm. Also, I use merge sort to prioritize each package. The shortest path has the highest priority.

2:

INPUT:

Package #1, destination: MA Boston, Priority: 1

Package #2, destination: MA Worcester, Priority: 3

Package #3, destination: CA Los Angles , Priority: 2

Package #4, destination: MA Boston, Priority: 4

Package #5, destination: CA San Francisco , Priority: 5

OUTPUT:

MA:

Boston: Package #1, Package #4

Worcester: Package #2

CA:

Los Angles: Package #3

San Francisco: Package #5

Delivery Order: #1, #3, #2, #4, #5

3:

Input requirements: Package information should include package number, destination and priority.

Output requirements: Packages belong to the same state should be sorted by city first, with priority. The delivery note should also be informed.

4:

In my projects, I would use the idea of merge sort when trying to prioritize packages sequentially. Regarding timing, the time complexity of merge sort is O(nlogn), sorting is O(n), and division is O(logn). We start by splitting the entire list into two parts and proceed to divide based on the information provided. For example, courier companies usually go down to street level and apartment number. Then we sort the sublists and combine them, and finally we can get an ordered list.

Package #1, destination: MA Boston, Priority: 1

Package #2, destination: CA Los Angles , Priority: 2

Package #3, destination: MA Worcester, Priority: 3

Package #4, destination: MA Boston, Priority: 4

Package #5, destination: CA San Francisco , Priority: 5

Package #6, destination: CA San Diago , Priority: 7

Package #7, destination: CA Irven , Priority: 6