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Project 4 Write Up

1. Big-O of StreetMap: **load(),** **getSegmentsThatStartWith()**
   1. **load():** The big-O is O(N) because the function goes through each line in mapdata.txt, *N lines,* and loads them into the expandable hash map.
   2. **getSegmentsThatStartWith():** The big-O is O(N) because the function goes through each street segment put into the vector by **Load()**, N items, and returns the segments that are equal to the passed value, O(1).
2. Big-O of PointToPointRouter: **generatePointToPointRoute()**
   1. **generatePointToPointRoute():** I used the A\* algorithm to determine the path that the robot would take, “The time complexity of A\* depends on the heuristic. In the worst case of an unbounded search space.. O(b^d), where b is the branching factor (the average number of successors per state).” – Wikipedia. In this case I will assume that it is O(N), assuming the heuristic is O(1).
3. Big-O of DeliveryOptimizer: **optimizeDeliveryOrder()**
   1. **optimizeDeliveryOrder():** The big-O is O(N) based off of the number of deliveries passed in, N, iterating through each one and comparing distances to the last.