PA 3 Reflection Essay

When I first started playing around with this assignment, I thought it would be super simple. But I don’t think I read closely enough into the assignment, because once I started looking into it, I realized there was more than I first thought. And while missing class probably didn’t help matters, I couldn’t figure out how to use your starter code with the minimum spanning tree to help me. Maybe I didn’t quite conceptualize the assignment well enough, but in the examples you showed in the PA3.docx it seemed that doing a minimum spanning tree was not going to help get the optimal path. The solution I came up with was to skip using the minimum spanning tree function and just use Dijkstra’s algorithm, but us it with each node as a starting point trying to find the next closest delivery point on the map. And then use that node as a starting point. This way if you have A,B,C and you start at A you use Dijkstra’s algorithm to find whichever is closer B or C, and then use B, or C to find the closest path to the one you didn’t visit. This seemed to work on paper to find the solutions you gave as examples so I figured I would code that. I’m not sure that this is the most efficient solution, but I did figure out eventually that this is using a min span tree and Dijkstra’s algorithm. In iterating to find each point, and going to the closest ones first, I am in fact creating a min span tree, while using Dijkstra’s.

The other problem I ran into was trying to get the tier 3 submission coded. I had to figure out a way to loop through each potential starting point, and loop through all the delivery points in my normal algorithm. It wasn’t really that complicated by the end, but at first I butchered my code when I tried to create setup variables and use them for the inner loop and got confused on what was what. But I eventually got it squared away. And luckily the last part of showing the paths to each node I had already done in PA2 so I just reused the code for that.

Also I’m not confident on my time and space complexity comments in any of these 3 PA’s. I would greatly appreciate it if you could give me some feedback on this PA on the Time and Space complexity of my algorithms. And if I got them very wrong let me know so I can come to your office hours and we can go over how to look at it in greater detail.