Individual reflection

Andres Benjamin Antelis Moreno A01637683

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For this algorithm integrated activity, we had to work with several algorithms that helps us find useful information about the information of a graph, first we had to use an algorithm that utilizes a minimum spanning tree, which helps us connect every single node, without having any repetitions or any cycles. For this case we implemented the prims algorithm has a time complexity of **O(ElogV),** however if we wanted to make our implementation a little better and utilize another data structure we could use a Fibonacci heap, which helps us a little bit to get the next time complexity **O(E + logV).**

The next algorithm we had to implement was the travelling salesman algorithm problem, in order to find the best route on a weighted graph, as we know this is one of those problems, that even to this day, it still doesn't have a polynomial time complexity, maybe in the future I can change that, however, because of this it is known as an np problem, describing it as a non-polynomial problem, meaning that it doesn't have a better solution than to search trough every single edge and vertices, so it has a time complexity of O(n!), however the subproblem of finding the nearest neighbor will have a time complexity of O(n^2), making it possible to solve it and implement it, as we did.

We also had to implement a graph algorithm to find the max flow of a graph, to do that we implemented the ford fulkerson algorithm, which will have a time complexity of O(E * F), where F is the maximum flow value, this algorithm will help us find the total amount of any value that can enter and exit a graph, it works by applying the concepts of residual graph.

And finally, not only having to implement advanced graph algorithms, we also had to implement a computational graph algorithm problem, which in this case were the Voronoi diagram problem algorithm, the purpose of this algorithm is to find, given points on a graph, and find where on any given location, the location is closer to a point than another.