1.1 Approximate Approaches

1.1.1 Christofide

1.1.2 Greedy Heuristic

The complexity of the greedy heuristic approach is $O(n^2 \log_2(n))$. The solution produced will be 15% - 20% within the Held-Karp lower bound.

1. Sort the edges E, of graph $G = (V, E)$, by distance.
2. From the available edges, select the shortest, and add it to the final tour. The edge may not be added to our tour if it violates the following conditions.
   (a) Tour cannot have a cycle of less than N edges.
   (b) No node may have a degree greater than 2.
3. Has the the tour accumulated N edges? If not, repeat the previous step.

1.1.3 2-opt & 3-opt

1.2 Genetic Algorithm

1 Aglorithms