CMP3004
Formal Languages and Automata Theory
Project

Group Members:

- 1730080 Buğra Mert Ayar (Nearest Neighbor Algorithm)
- 1602414 Anıl Şülekoğlu (Greedy Algorithm)
- 1602268 Hakan Yıldız (Divide and Conquer Strategy)

Project Description: There are X and Y coordinates of 48 cities in USA and we will find the shortest tour among them with heuroistic algorithms. We will implement nearest neighbor algorithm, greedy algorihtm and divide and conqueror aproach for the solution of this TSP.

Results

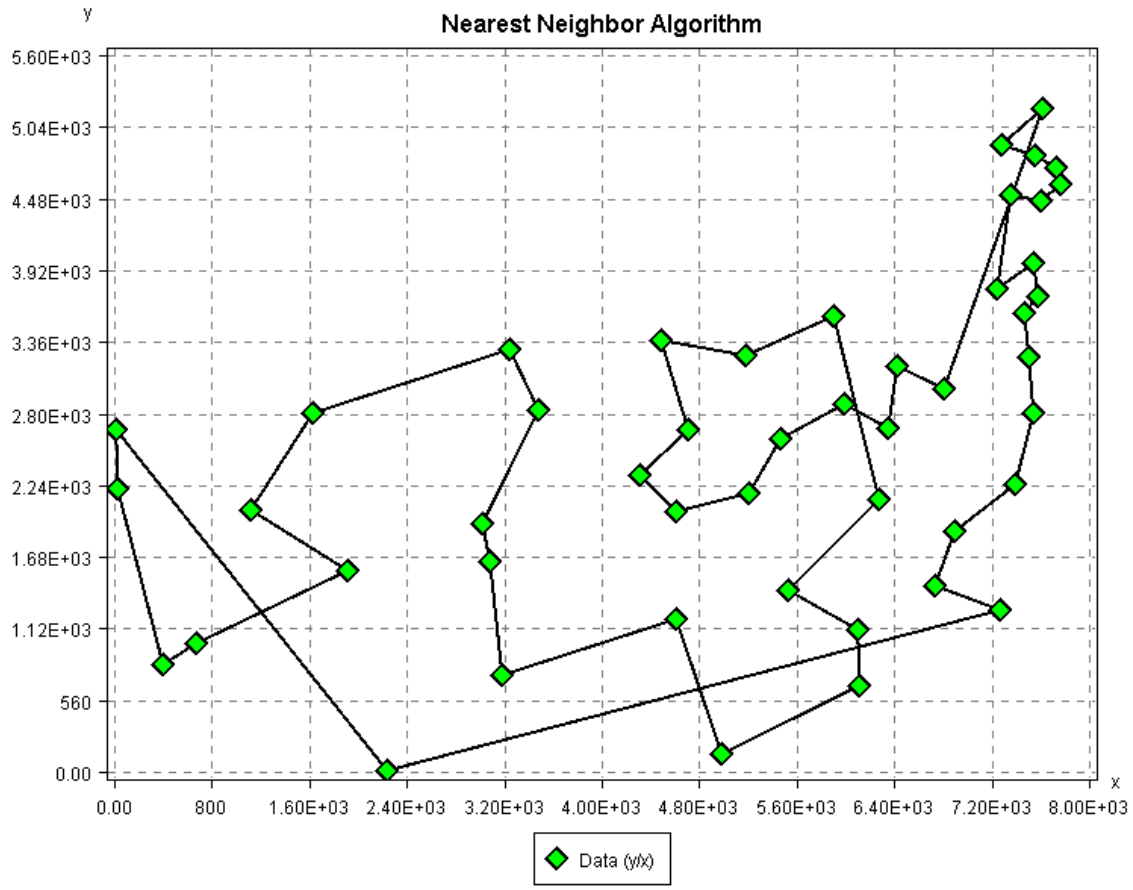
Nearest Neighbor Algorithm:

- Tour : 1- 9- 38 -31- 44 -18 -7 -28 -36 -30 -6 -37 -19 -27 -43 -17 -46 -33 -15 -12 -11 -23 -14 -25 -13 -21 -47 -20 -40 -3 -22 -16 -41 -34 -29 -5- 48 -39 -32 -24 -10 -42 -26 -4 -35 -45 -2 -8 -1

- Length :40503

- Time : `0.024 seconds`

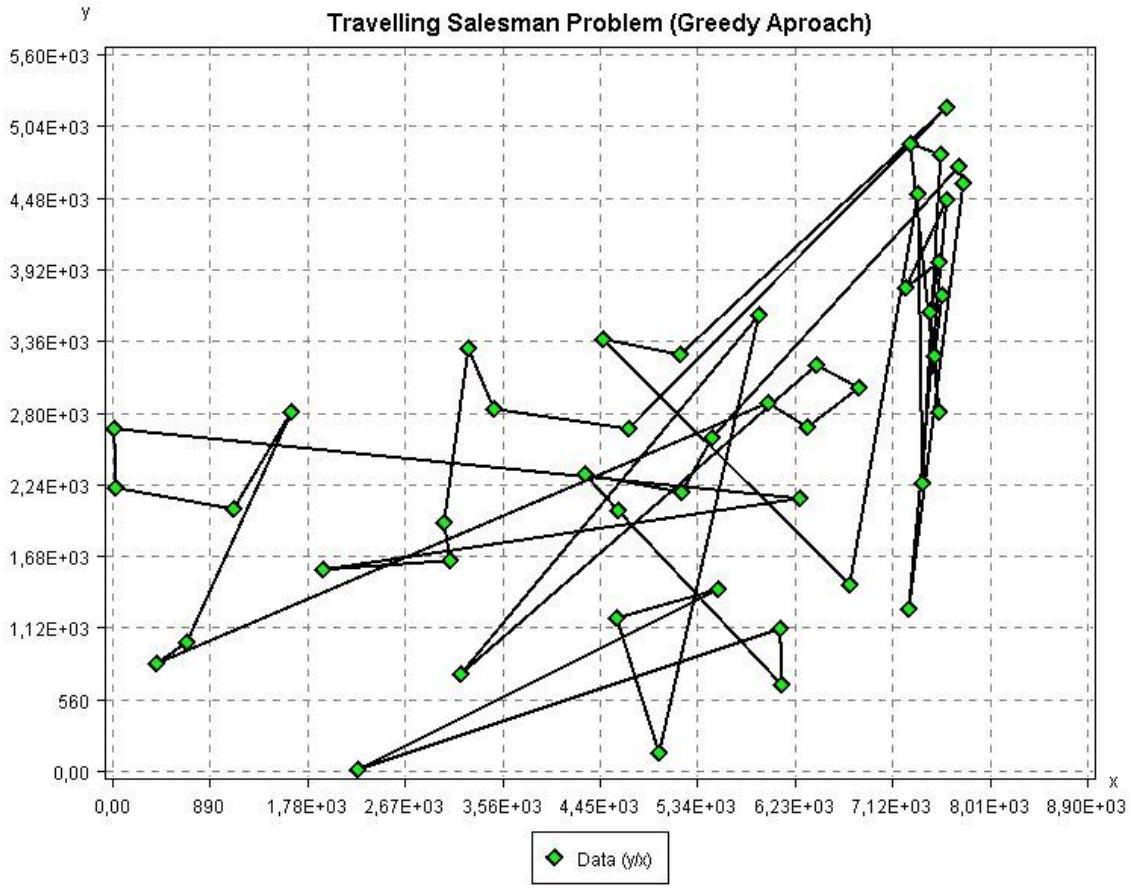
- Visualization :



Greedy Algorithm:

- Tour : 0, 8, 29, 37, 26, 42, 30, 43, 6, 17, 27, 35, 5, 7, 36, 18, 10, 22, 24, 13, 15, 21, 1, 2, 33, 40, 19, 28, 32, 45, 14, 11, 3, 25, 23, 9, 34, 44, 39, 41, 4, 47, 31, 38, 12, 16, 46, 20, 0

- Length : 60086
- Time : 0.203 seconds
- Visualization :



Divide and Conquer Strategy:

- Tour : 1, 40, 15, 41, 2, 0, 24, 12, 10, 33, 21, 7, 44, 14, 30, 34, 22, 37, 23, 38, 11, 9, 13, 39, 3, 25, 28, 8, 4, 47, 35, 27, 5, 46, 20, 31, 29, 36, 18, 42, 26, 16, 19, 17, 6, 32, 45, 43, 1

- Length : 77775
- Time : 0.429 seconds
- Visualization :