Shelly Masih - CSCI 335 Report for Project #3

Nearest Neighbor:

Country	**# of Cities**	**Length of Tour**	**Time in MS**	**Optimal Tour Length *(from website)***	**Time to Find Optimal *(from website)***
Argentina	9,152	1.03177e+06	297	837,479	24301 seconds
Djibouti	38	9,730	0	6,656	0.24 seconds
Egypt	7,146	218,636	233	172,387	N/A
Qatar	194	11,798	1	9,352	2.09 seconds

My Findings:

- ★ Despite the number of cities, the Nearest Neighbor algorithm was able to find and provide a quick solution of the length of the tours.
- ★ Looking at the table, I can see that the Nearest Neighbor method generated a length of tour higher than the optimal.
- ★ The time to find the optimal is much longer compared to my calculations.
- ★ Based on my findings, I don't think this approach allowed me to find the shortest path possible since a heuristic algorithm prioritizes speed. This is proven from the data in my table.
- ★ One thing I found interesting was that the optimal time can change based on what type of computer it is being run on. For example for Argentina, “Dinh Nguyen using a hybrid genetic algorithm, starting from the 837,583 tour described above.

The running time was 24301 seconds on a single processor of a Sun Ultra 80 (450 MHz).”

★ The Nearest Neighbor algorithm is a quick heuristic, however, it is not the best way to find the shortest tour length.