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CS335 Assignment 3 Report

Statistics:

Input	Algorithm	Average Time (ms)	Distance
dj38	Nearest Neighbor	0.09	9,745
	GreedyTSP		
	Optimal		6,656
qa194	Nearest Neighbor	1.2	11,640
	GreedyTSP		
	Optimal		9,352
zi929	Nearest Neighbor	18	113,926
	GreedyTSP		
	Optimal		95,345
ja9847	Nearest Neighbor	825	665,821
	GreedyTSP		
	Optimal		491,924

Looking at the table I can see that Nearest Neighbor seems in practice to be in the range of 1.2 - 1.5 times greater in distance than the optimal tour. However this probably cannot be guaranteed as it is a heuristic algorithm and there might be some inputs that can throw it off. I recall in class we discussed that Worst case NN, if not constrained by the triangle inequality, can return the worst possible tour.