Quantum computing is a new field of computer science that seeks to introduce a new paradigm for computing faster than classical computers. Research into algorithms that are uniquely efficient on quantum computers has been ongoing since the introduction of Shor’s algorithm for integer factorization in 1994. In particular, the intractable algorithms in NP are desperate for a more efficient solution that could be provided by a quantum computer – so much so that the P = NP problem is currently the most important question in theoretical computer science.

One such NP problem to be examined is the Travelling Salesman Problem. Precise solutions of the TSP can be calculated in no better than O(n22n), becoming intractable at impractically small values of n; even the best approximation algorithms are limited to values of n in the thousands – requiring potentionally hundreds of CPU days to complete. Thus is it critical to explore the capabilities of a quantum algorithm in solving the TSP. Such algorithms can currently be simulated using the Qiskit Aqua library, an open source project that provides applied science researchers the ability to utilize these quantum algorithms to advance their work. It is the intent of this project to contribute to the Qiskit library with the code and documentation of a TSP algorithm based on the algorithm proposed by Srinivasan et al [1].