Setup and Information Document

Prerequisite Software

1) Anaconda
2) Python
3) Qiskit

Important Anaconda Environment Libraries

1) Qiskit
2) Numpy
3) Pandas
4) Docplex (Only if you implement in local Environment)

Optimizer Results.xlsx - Data from different iterations of the optimizers

plottingOptimizerTimevsIteration.R :- R code to generate graph from OptimizerResult.xlsx

customized_Penalty_func.py :- improved penalty function to handle Indicator Constraint in Docplex Model. Used While creating Ising Hamiltonian for the CPLEX Model.

Final_Solution.py :- Main Code
Task Completed
1) Creating Cplex model
2) Creating Ising Hamiltonian for the model
3) Run By ExactEigenSolver (Solving EigenValues in classical Environment)
3) Running two Optimizers COBYLA (Constraint Optimization By Linear Approximation) and SPSA (Simultaneous Perturbation stochastic approximation)
4) Run By VariationalEigenSolver(Solving EigenValues in a hybrid classical/quantum Environment)