

Instance: ftv47.atsp
optimal objective value: 1.776000000000e+03
the solution time: 1.114s
the number of nodes explored in the branch-and-bound tree: 3411
the root relaxation objective value: 1.655816e+03

Instance: sil75.atsp
optimal objective value: 2.173000000000e+04
the solution time: 300.0s
the number of nodes explored in the branch-and-bound tree: 6541
the root relaxation objective value: 2.025148e+04
the ending optimality gap: 2.2365%

[Most fractional]
optimal objective value: 1.776000000000e+03
the solution time: 180.0s
the number of nodes explored in the branch-and-bound tree: 1013749
the root relaxation objective value: 1.655816e+03
the ending optimality gap: 0.6194%

[Strong branching]
optimal objective value: 1.776000000000e+03
the solution time: 2.164s
the number of nodes explored in the branch-and-bound tree: 2408
the root relaxation objective value: 1.655816e+03

[Turn off all cuts]
optimal objective value: 1.776000000000e+03
the solution time: 0.663s
the number of nodes explored in the branch-and-bound tree: 3197
the root relaxation objective value: 1.655816e+03

[Summary]
From the first test. We know that, the time it takes to solve the problem is related to the scale of the data. Exponential rise.
From the second test. We can find that for the 'ftv47.atsp' instance. If I choose BFS(Breath First Search) to explore the entire tree, it will take a lot of time, because the search space for this problem is very huge. If I choose DFS(Deep First Search), with the help of heuristic algorithm it will quickly solve it.