

SA/TS Assignment

- This report is **NOT mandatory**. Those who submit the report will have extra bonus.
- Upload your report (in one WORD file) to the Moodle system before **11:00pm on May 14 (Tuesday)**.

Develop either a Simulated Annealing or Tabu Search algorithm to solve a 10-node Travel Salesman Problem (TSP): find the shortest tour which starts from node 1, visits each node once, and returns to node 1 with the shortest distance. Your distance matrix is provided in the attached EXCEL file: SA TS Problems.xls. Please [use the same question number](#) assigned to you when preparing the GA and PSO homeworks. This problem is symmetric so the distance from city i to city j is the same as that from city j and city i.

Your report should include the following

- Distance matrix of the problem
- Which algorithm did you develop, SA or TS?
- According to the metaheuristic, indicate any special modification you make and the algorithmic parameters, such as cooling schedule and number of iterations at specific temperature in SA, and tabu tenure and frequency penalty in TS
- Optimization result (optimal tour and the shortest distance) and convergence history.
- How many times was the objective function (total distance computation) evaluated to find the optimal solution?
- Use exhaustive enumeration (try all the possible combinations) to find out the global optimal solution. How close is your result compared to the global optimal solution?

Hint: you may use nested loops to perform exhaustive enumeration.

- Program code (**with sufficient explanations**)