TSP-Competition Lab Report-Group 8

Simulated Annealing:

Simulated annealing (SA) is a probabilistic technique for approximating the global optimum of a given function.This notion of slow cooling implemented in the simulated annealing algorithm is interpreted as a slow decrease in the probability of accepting worse solutions as the solution space is explored.

c-current path, n-next path
ΔE=eval(n) - eval(c)
In our TSP code for implementing Simulated Annealing eval(a)= - distance(a) where a is a path. We are obtaining the next node by 2 city swapping to generate a neighbour. Probability of choosing the next path is P(c,n)=1/(1+ $e^{-\Delta E/T}$) where T is temperature.In our program we took initial_temperature=50000, cooling_rate=0.0000002.

Simulated Annealing only tracks one solution in the space of possible solutions, and at each iteration considers whether to move to a neighboring solution or stay in the current one according to some probabilities (which decays over time). This is different from a heuristic search (say greedy search) in that it doesn't suffer from the problems of local