The Travelling salesman problem is an algorithmic problem which finds the shortest route between a set of points and locations that must be visited. In this problem, the goal of the salesman is to keep both traveled cost and distance covered low.

It is frequently used in computer science to find efficient route for data to travel between various nodes. Many solutions use heuristics which provide outcomes but it is not always optimal. Other types of solutions use branch and bound method, Monte Carlo algorithm, etc.

Let us consider a graph G = (V, E), where V is a set of cities and E is the set of weighted edges. An edge e (u, v) represents that vertices u and v are connected. Distance between vertex u and v is d (u, v), which is non-negative. We can model the cities as a complete graph of n vertices, where each vertex represents a city and an edge represents the distance between them.

1. **Nearest neighbor heuristic :** When given a choice of vertices, this algorithm selects the least cost. To solve this problem with nearest neighbor heuristic, we need to look at all paths coming out of the city that have not been visited then return to the starting city when all other cities are visited. This algorithm is easy to implement and executes quickly, but it sometimes misses shorter routes which can be easily seen due to its greedy nature.

It is also solved by another approach called Cheapest link algorithm which follows greedy heuristics.

**Cheapest link algorithm :** The cheapest link algorithm is a greedy heuristic algorithm for finding solutions to travelling salesman problem. This algorithm begins by choosing the route which is the shortest distance between any two cities. It continues choosing the next shortest path. After choosing the first two paths, we need to make sure that no link closes the loop until all cities are connected. A circuit is a path that starts and ends at the same point. This method finds best solution but not guaranteed.