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### Travelling Salesman Problem

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#### Problem

Given a set of cities and distance between every pair of cities, the problem is to find the shortest possible route that visits every city exactly once and returns to the starting point.

#### Abstract

Travelling Salesman Problem falls under **NP complete** class of problems. Thus, there is no **polynomial time** algorithm known till now that solves this problem.

The TSP has many applications such as logistics, planning and the manufacture of microchips, also is also a sub-problem in **DNA sequencing**. This is also used in astronomy, as astronomers observing many sources will want to minimize the time spent moving the telescope between the sources.

So, in this report, we present two existing algorithms for **TSP**. They are:

- Genetic Algorithm.
- Brute Force