# OMGTSP

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## Problem Statement

Given a complete weighted graph G = (V,E,w), return a cycle containing all $|V|$ nodes with minimal weight.

## Why the TSP?

I've chosen to study the TSP because it lies at the intersection of the many diverse fields I encountered while an undergraduate student. Understanding this problem and building a good solver requires a subtle understanding of optimization, linear algebra, graph theory and of course, computer science. Furthermore, at the time of writing, there is no efficient solution to the TSP. It is whats known as a NP-Hard problem (More on that later). Even so, there exists modern software that can solve the TSP quite quickly. The TSP lies on the boundary of what is and is not possible to do with a modern computer. For all these reasons and more, I believe the TSP is an excellent starting point for any student wanting to learn more about CS.