Programming, Problem Solving, and Algorithms

CPSC 203, 2024 W2
(January – April 2025)
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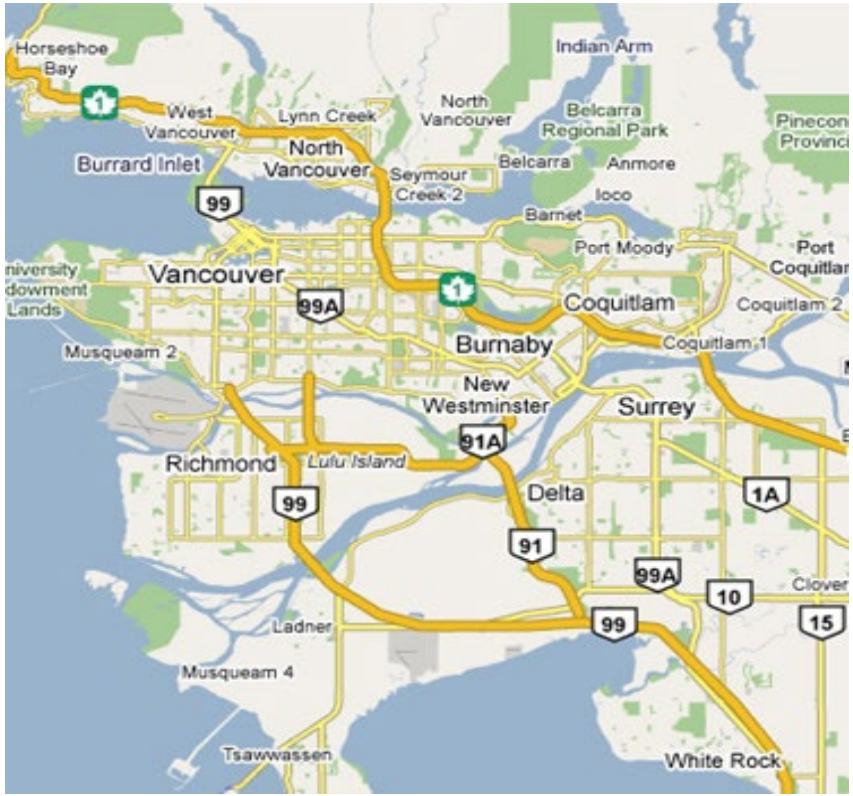
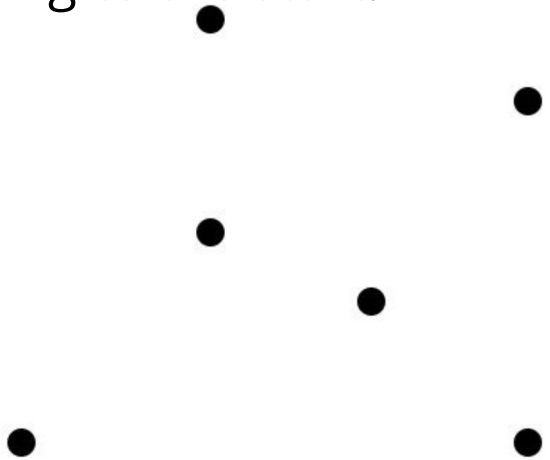
Lecture 12B

Slides from the Assigned Videos

Running Errands



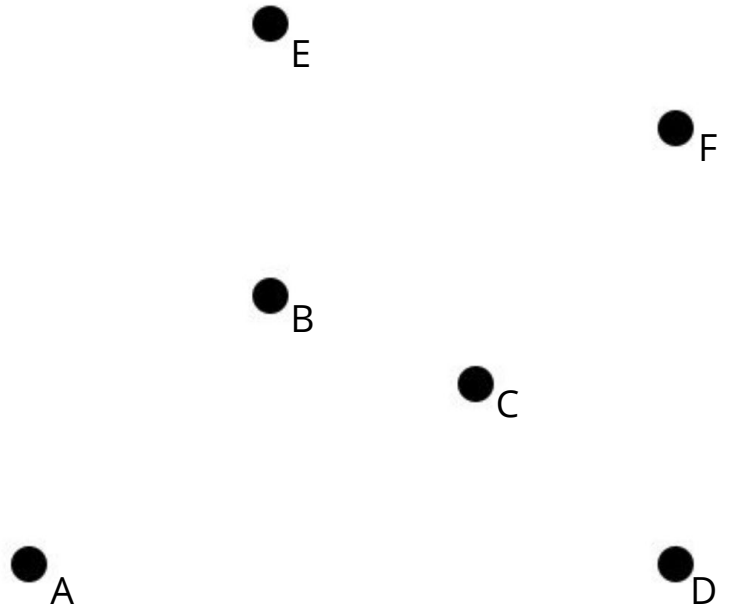
Determine the least cost route through a set of given locations, returning to the start.



Called the “Travelling Salesperson Problem” (TSP)

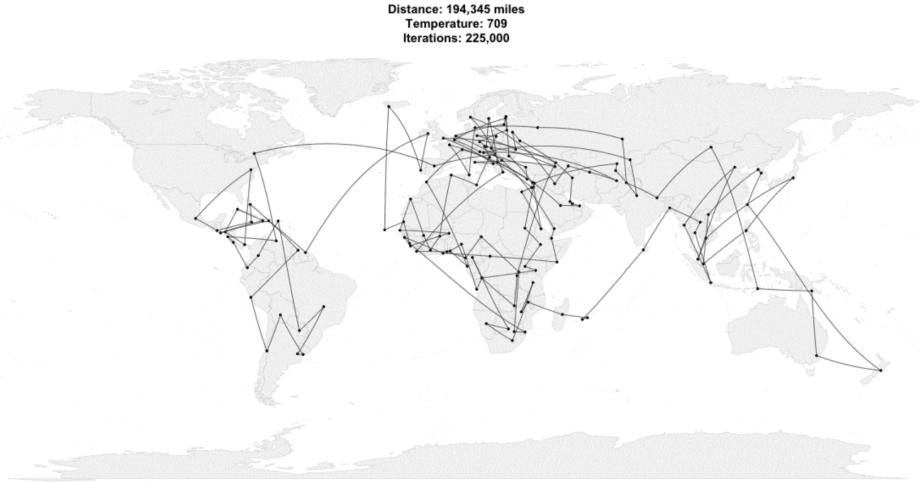
TSP how many routes?

Suppose you have 6 locations. How many different candidate solutions are there? Generalize to k locations?



Example (Heuristic) Solution

https://toddwschneider.com/posts/traveling-salesman-with-simulated-annealing-r-and-shiny/#/



Plan for Code

Steps to assemble our solution:

1. Make a list of nodes
2. Make a table of distances between nodes
3. Make a list of all possible circuits
4. Loop through circuits to find the shortest one
5. Create a visualization