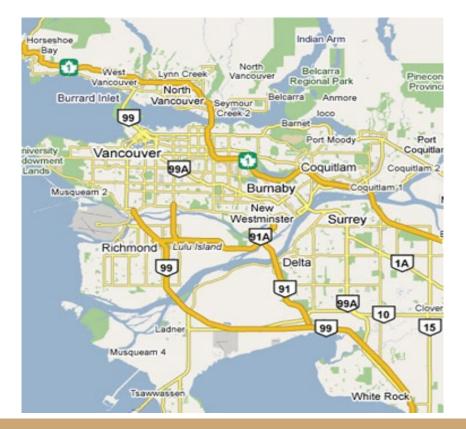
Programming, Problem Solving, and Algorithms

CPSC 203, 2024 W2 (January – April 2025) Ian M. Mitchell 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)

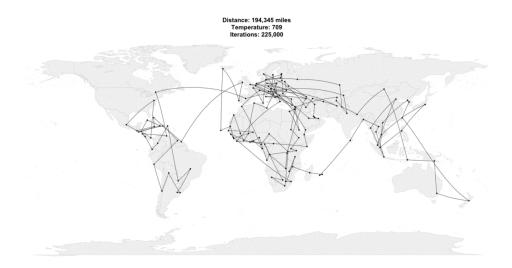
TSP how many routes?

R

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

Example (Heuristic) Solution

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



Plan for Code

- Steps to assemble our solution:
- 1. Make a list of nodes

4.

- 2. Make a table of distances between nodes
- 3. Make a list of all possible circuits
 - Loop through circuits to find the shortest one
 - Create a visual and the second and t

parking runnes i	
Oceanside (19	A) and
North Island R	outes
VICTORIA TO:	
SIDNEY	- 35 min
SOOKE	- 25 min
DUNCAN	- 45 min
NANAIMO	- 1 hr 30 min
PORT ALBERNI	- 2 hr 30 min
UCLUILIT	- 4 hr 30 min
TOFINO	- 5 kr.
PARKSVILLE	- 2 hr
COMOX VALLEY -	-3h
CAMPBELL RIVER -	- 3 hr 30 inin
GOLD RIVER	- 5 hr 30 min
ZEBALLOS	- 6 hr
PORT HARDY	- 6 hr 30 min

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