Chapter 1: Humans as Decision Makers

# Traveling Salesman Problem

## Corresponding reading: Chapter 1, Page 2

### Purpose: Learning the Traveling Salesman Problem and applying it to a real-world example.

1. Search the internet for the Traveling Salesman Problem and read about it.
2. Imagine your company needs to deliver some goods from Boston, MA to the following cities using an 18-wheeler truck and return to the Boston base.
   * New York, NY
   * Buffalo, NY
   * Indianapolis, IN
   * Washington, DC
   * Charleston, WV
   * Charlotte, NC
   * Pittsburg, PA
3. Assuming your company wants to use the most efficient route, this problem can be formulated as a Traveling Salesman Problem.
4. Propose at least three ways (criteria) you can define the “length” of a route. One obvious choice is the total distance traveled.
5. Propose at least three reasonable routes (list the name of the cities in order and include a map for each route).
6. Calculate the corresponding “length” for each route using each of the criteria defined in part (d) and find the best route based on each criterion.
7. Which route will you choose and why? (note that the best route might be different for each criterion)
8. Explain and elaborate on at least three challenges you faced in applying the Traveling Salesman Problem in a real-world setting.

***Note:*** *Understanding the case and what you need to do is PART OF THE CASE. If you do not understand a specific part, or are not sure what you should do, you need to review the corresponding reading section in the text before asking for help. You might also need to do some search on the internet. That is all part of the case and your learning process.*