Proposed Extensions to the Planning Problem framed as a TSP by Liu et al.

(Ranked by increasing difficulty)

1. Just use a different solver from CPLEX
2. Find the variable most sensitive to changes, while keeping others constant
   1. How to deal with matrices & 3-tensors?

Modify entries of matrices randomly one at a time, and sample multiple times?

1. Variable processing rate

Currently static, but the existing model can be easily modified to take into account variable processing rates

1. Add raw material / ingredients constraint
   1. Currently, production is not constrained by the amount of raw ingredients; i.e. Production never runs out of raw materials
   2. For simplicity, assume ONE ingredient for each product?
   3. Need to make COHERENT data from scratch - the maximum amount of raw ingredients that can be stored, and this is HARD
2. Add constraints about the ordering of the production of products
   1. Constraints are in the form [(A, B), (B, D), (A, C), ...]

which means A is a prerequisite of B, B is a prerequisite of D, etc.

* 1. The problem becomes a Topological Sort Problem
     1. I can only solve Topological Sort Problems using Python/PyOMO, but my code is currently written in GAMS
  2. Roadmap to solution
     1. Solve the Topological Sort Problem first and generate all possible order combinations of production, in the form of [(A, B, C, D), (A, C, B, D), ...
     2. Calculate the maximum profits for each order, and find the max among these.