Module 02 – Transportation Modeling

Exploratory Data Analysis

*In this section, you should perform some data analysis on the data provided to you. Please format your findings in a visually pleasing way and please be sure to include these cuts:*

* *The locations involved in the analysis (id -> name) and specify if they are a source or a destination*
* *A table of the average cost between source and destination (for the sake of this assignment, we are dealing with sugar-miles similar to the bushel-mile example from the textbook)*

Model Formulation

*Write the formulation of the model into here prior to implementing it in your Excel model. Be explicit with the definition of the decision variables, objective function, and constraints.*

Decision Variable: $F$15:$K$18

Objective: =SUMPRODUCT (F6:K9,F15:K18)

Constraints: $F$19:$K$19<=$F$20:$K$20 $L$15:$L$18=$M$15:$M$18

Model Optimized for Profit

*Implement your formulation into Excel and be sure to make it neat. This section should include:*

* *A screenshot of your optimized final model (formatted nicely, of course)*
* A screenshot of a spreadsheet

  AI-generated content may be incorrect.*A text explanation of what your model is recommending*

This model is recommending for the lowest cost and maximized profit to receive 110, 125, 126, 119, 68, 115 products to each destination like the excel model above. The amount shipped out 170, 121, 189, 183 to each source.

Model with Stipulation

*Please copy the tab of your original model before continuing with the next part to avoid messing up your original solution. What happens if you add an additional constraint to the model such that all demand MUST be met. Is the solution still feasible? If not, please explain why.*

If you add an additional constraint to the model that demand is met, the model becomes unfeasible. The demand is larger than the capacity, therefore, it is impossible to meet demand with the current capacity. The solution can be solved with demand fully met if capacity was to increase.