Module 06 – Transshipment Problem

Exploratory Data Analysis

A diagram of different types of food

AI-generated content may be incorrect.

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.*

*Hint: This one differs a bit from the sample problem in terms of Balance-of-Flow*

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AI-generated content may be incorrect.

Model Optimized for Minimal Transportation Cost

This model shows the optimal way to fill most of the demands from the nodes we were given while reducing the total transportation costs.



Model with Stipulation

*Please copy the tab of your original model before continuing with the next part to avoid messing up your original solution.*

*Follow these steps to complete this section:*

1. *Describe the necessity of the Balance-of-Flow for this problem type -* Balance-of-Flow condition is crucial to ensure that the total supply from all sources matches the total demand at all destinations. This condition prevents infeasible or inefficient solutions by maintaining a proper distribution of goods across the network. Here’s why it’s necessary
2. *What happens when you change your model to make Total Supply > Total Demand (i.e. add 115 units to one of the sources)* The model requires that all goods be allocated, but there are more goods available than needed. This lack of balance makes it impossible to satisfy both supply and demand constraints simultaneously.
3. *What happens when you rerun your model? The solver could not find a feasible solution.*
4. *What do you need to change to make your model work again?* Change it so Demand>Supply
5. *Make the changes and report on your findings.* The total transportation cost increases.