Module 02 – Transportation Modeling

Exploratory Data Analysis

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

The goal is to ensure that all demand values are met while minimizing the shortfall. The decision variables representing the allocation values in the table.
The objective function: calculating the total shortfall(sum product) . While the constraints are the row and column sums that should not exceed given capacities, along with the non-negativity enforced through solver.

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 text explanation of what your model is recommending*

- ***Total Demand:*** *644 units.*
- ***Total Allocated:*** *582 units.*
- ***Unmet Demand:*** *62 units at* ***Rock Candy Ridge****.*
- ***Capacity Constraints are Respected****: No source exceeds its available capacity.*
- ***Overall Fulfillment Rate: 92.53%*** *(as shown in the total value).*

		Mallow Melt Mountains	Snickerdoodle Slopes	Pixie Stix Plateau	Rock Candy Ridge	Pudding Peaks	Smores Summit		
		D3d03c41	D48b24ce	D662583f	D7c2a294	Da7cec12	Db51b0fe	sum	capacity
	S2c3208f(Cotton Candy Clouds)	113	0	0	39	0	0	152	152
	S3d335c4(ButterRum Reef)	0	0	104	0	54	0	158	158
	S611909d(Eclair Empire)	0	113	0	0	0	51	164	164
	Sb5c3a67(Frozen Fudge Fjords)	0	0	0	0	53	55	108	108
sum:		113	113	104	39	107	106		
demand		113	113	104	101	107	106		
					total:	92.52999			

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.*