

Module 01 – Basic 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 products involved in the analysis (id -> name)*
- *Average yearly profit per product*
- *Optional: observe monthly or weekly data, do you notice anything?*

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 variables, objective function, and constraints

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*

Row Labels	Nougat Nook	Sprinkle Street	Taffy Tundra	Toffee Town	Turkish Delight Tundra	Whipped Wonderland	Sent	Capacity
Jelly River Delta	0.00	0.00	0.00	61.00	0.00	128.00	189.00	189
Jellybean Jungle	0.00	0.00	40.00	0.00	131.00	0.00	171.00	171
Choco Volcano	0.00	122.00	10.00	0.00	0.00	0.00	132.00	132
Fruity Gusher Geyser	44.00	0.00	76.00	74.00	0.00	0.00	194.00	194
Received	44.00	122.00	126.00	135.00	131.00	128.00		
Max	117	122.00	126.00	135.00	131.00	128.00		

- *The optimal value with the number of recommended units to product per product*
Fruity Gusher:
Choco Volcano: 132
Jellybean Jungle: 171
Jelly River Delta: 189
Fruity Gusher Geyser: 194
- *Assume that the amount of product being produced is per oz*

Model with Stipulation

Please copy the tab of your original model before continuing with the next part. What happens if you add an additional constraint to the model such that the product being produced the least must produce more. Try constraining the model to add 1 more, than 10 more, etc. and show what you notice. Please include:

- *Details on what constraints you tried*

Subject to the Constraints:

$\$B\$19:\$G\$19 \leq \$B\$20:\$G\20

$\$B\$19:\$G\$19 \geq 45$

$\$H\$15:\$H\$18 = \$I\$15:\$I\18

I added this constraint (Received <45 and it showed a more spread out result where Taffy Tundra produces more varieties of candy

Nougat Nook	Sprinkle Street	Taffy Tundra	Toffee Town	Turkish Delight Tundra	Whipped Wonderland
0.00	0.00	61.00	0.00	0.00	128.00
0.00	0.00	40.00	0.00	131.00	0.00
0.00	122.00	10.00	0.00	0.00	0.00
45.00	0.00	14.00	135.00	0.00	0.00
45.00	122.00	125.00	135.00	131.00	128.00
117	122.00	126.00	135.00	131.00	128.00

- *Its impact on the optimal value*

A change on these constraints had no major effect on my optimal value. The value went from 53.49 to 53.48