Problem Set 1—Burrito Game Championship and Product Mix Model

MSIS 504—Professor Hillier

Individual Submission due Sunday, June 29, 11:59pm

Team Submission due Monday, June 30, 11:59pm

Instructions

1. Follow the instructions for the Burrito Game Championship (Q1) including submitting your final score.
2. Set up and solve Q2 in Excel. It is fine (even encouraged) to discuss and/or get help from classmates. Any help provided should be via discussion only and should *not* include sending or copying of files or portions of files. Everything in your individual submission should be entered by you, based on your understanding of the material.
3. Submit your individual solution to Q2 on Canvas no later than the date and time shown above.
4. Meet with your study team. Compare and discuss your various solutions to Q2. Help teammates who struggled, as needed. Create a single submission for the team (Q2 only). At this stage (after everyone on the team has submitted their individual submissions), sharing of files is permitted. One member of your team should submit it to Canvas no later than the due date and time shown above.

1. The Burrito Game Championship

Play the Burrito Game again (like in class), but this time in "Championship Mode". The parameters (e.g., demand and truck locations) will be different than when we played in class, but the same for everyone in your cohort (Purple or Gold). You will be competing against your classmates! **The top score in each cohort will receive a Chipotle Gift Card!** (In the event of a tie, the *first* to submit the highest score wins.)

a. Go to www.burritooptimizationgame.com
b. Click on *Play the Game* and enter your registered email and password (same as in class).
c. On the next screen, choose *Championship Mode.*
d. Enter Match Code: Use *Purple2025* (note this is case sensitive with no spaces). Also enter your display name (Last Name then First Initial, e.g., HillierM; min 5 characters so add extra characters to first initial if needed) and click *Join Match*.
e. Play all five days of the game. **Be sure to click *Submit Score* after you finish.**
f. You will see a leaderboard to see how you compare with others that have finished the game. **You should see some of your classmates (and/or my HillierM $0 Profit submission). If you don't, you have likely entered the match code incorrectly.**
g. You can see an updated leaderboard by starting a new game in Championship Mode and clicking on *Championship Purple2025* in the red box to the left of the city map.

2. Kavya Woodworking

Kavya founded a company that specializes in hand-crafted wooden furniture. She is planning to devote their production capacity this week to producing up to three different products: a dining table, a dining chair, and a sleigh bed. The machine-hours required for each unit of the respective products, along with the available capacity of the machines, are summarized in the table below. The unit profits would be $350, $150, and $400 for the table, chair, and bed, respectively. How many of each product should Kavya produce so as to maximize profits? Build a linear programming spreadsheet model and solve it using Solver.

	Machine-Hours Required per Unit			Available Time
	Dining Table	Dining Chair	Sleigh Bed	(machine-hours per week)
Milling Machine	1.5	0.5	2	945
Lathe	2	1.5	0	1200
Grinder	0	0.5	2	540