Reichman University

Introduction to Data Science

Homework Assignment 4 – Linear Programming

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GENERAL INSTRUCTIONS

In the current assignment, you will solve an optimization problem using the Graphical method of linear programming.

SUBMISSION:

Through the assignment box within the course Moodle, submit a **PDF file named HWA4_<student name>.ipynb** (e.g. HWA4_avia_malka.pdf)
Should include all the relevant calculation needed to perform the assignment's tasks along with the chart output.

Good Luck!

BACKGROUND

A chain of restaurants has requested a very familiar chef to prepare salads and pizzas.

For ingredients, the chef has 67500 grams of cheese and 90000 grams of tomatoes.

- Every salad needs 90 grams of cheese and 180 grams of tomatoes.
- Every pizza needs 360 grams of cheese and 90 grams of tomatoes.

The price of the salad is fixed at $20 and the pizza, $22. What is the number of salads and pizzas that the chef must prepare for restaurants so that these items obtain a maximum sale?

TASK 1: UNDERSTAND THE PROBLEM

1. Write in your own words what is the **objective function** (Provide a verbal answer, no calculations needed).
2. Write in your own words what are the **decision variables** (Provide a verbal answer, no calculations needed).
3. Write in your own words what are the **constraints** (Provide a verbal answer, no calculations needed).

TASK 2: SOLVE THE PROBLEM GRAPHICALLY

Use your handwriting to solve the optimization problem using the Graphical Method.

4. Draw the area of **feasible solutions**.
5. Write down the problem's **optimum solution**.

Good Luck!