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>.pdf** (e.g. HWA4_karin_tenne.pdf)
Should include all the relevant calculation needed to perform the assignment's tasks along with the chart output.

Good Luck!

BACKGROUND

A store has requested a manufacturer to produce pants and sports jackets.

For materials, the manufacturer has $1125m^2$ of cotton textile and $1500m^2$ of polyester. Every pair of pants (1 unit) needs $1.5m^2$ of cotton and $3m^2$ of polyester. Every jacket needs $2.25m^2$ of cotton and $1.5m^2$ of polyester. The price of the pants is fixed at \$75 and the jacket, \$60. What is the number of pants and jackets that the manufacturer must give to the stores 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 along with presentation of an equation, 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 along with presentation of inequalties, 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!