

Problem 1

Given the following knapsack problem:

$$\begin{array}{llllll} \max & 9x_1 & +10x_2 & +9x_3 & +45x_4 & +9x_5 \\ \text{s.t.} & 8x_1 & +5x_2 & +6x_3 & +15x_4 & +4x_5 & \leq 20 \end{array}$$

Demonstrate the execution of the branch and bound method, using linear relaxation as a heuristic, traversing the search tree in the order defined by Least Discrepancy.