

Title: Lot-sizing problem

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Abstract: In the present work, we define the basic concepts of lot-sizing. We introduce Wagner-Whitin's dynamic lot size problem and derive a dynamic programming algorithm for the solution. Next we look at the case of PCLSP (Profit maximizing capacitated lot size problem) problem with fixed prices and negligible setup costs and solve it using specialized linear programming algorithm. Everything we try to explain with concrete examples. In the end we verify the efficiency of those algorithms by numerical study on random data comparing the performance of programmed algorithms with the professional optimization solver Gurobi.

Keywords: Lot-sizing, dynamic programming, linear programming