Assignment (2)

Applications of Linear Programming Problems Using Spreadsheets & Julia Optimization

Golden Electronics manufactures several products, including 45-inch GE45 and 60-inch GE60 televisions. It makes a profit of $50 on each GE45 and $75 on each GE60 televisions. It makes a profit of $50 on each GE45 and $75 on each GE60 television produced. During each shift, Golden allocates up to 300 man-hours in its production area and 240 man-hours in its assembly area to manufacture the televisions. Each GE45 requires two man-hours in the production area and one man-hour in the assembly area, whereas each GE60 requires two man-hours in the production area and three man-hours in the assembly area. Using Excel solver ***and*** JuMP (Julia), answer the following:

1. What production levels of GE45 and GE60 television sets optimize the expected profit per shift?
2. What is the optimal expected profit per shift?
3. Without re-solving the problem, would the optimal solution change if the unit profit for GE60 televisions were increased to
    a. $I35?
    b. $300?

P.S. It is required to submit the Excel file as well as the code using JuMP.

Main References:

- Section 2.5 in *Applied management science: Modeling, spreadsheet analysis, and communication for decision making*. John Wiley & sons, 2001.
- https://www.juliaopt.org/JuMP.jl/stable/quickstart/