Electrical and Computer Engineering
Linear Programming (ECE 236A)
Homework 1

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Problem 1

First we need to define parameters for the problem. Let us assume that days of a week starting from Monday are numerated as $i = 1, 2, ..., 5$ respectively.

- b_i = Buying price defined for the ith day.
- s_i = Selling price defined for the ith day.
- m_i = Number of shares bought on ith day.
- n_i = Number of shares sold on ith day.
- x_i = Number of shares owned at the end of ith day.
- y_i = Amount of money owned at the end of ith day.

The objective is,

$$max\{y_5\} \tag{1.1}$$

such that,

$$\begin{aligned} y_0 &= 100 \\ x_0 &= 0 \\ y_i &= y_{i-1} + s_i * n_i - b_i * m_i \\ x_i &= x_{i-1} + m_i - n_i \\ n_i &\leq x_{i-1} \\ b_i * m_i &\leq y_{i-1} \\ m_i, n_i, x_i, y_i &\geq 0 \end{aligned} \tag{1.2}$$