Simplex Solver

November 10, 2017

Problem

Given the following linear system and objective function, find the optimal solution.

$$\max x_0 + x_1 \tag{1}$$
$$\begin{cases} 2x_0 + x_1 = 4 \\ x_0 + 2x_1 = 3 \end{cases}$$

Solution

Add slack and artificial variables to turn all inequalities to equalities.

$$\begin{cases} 2x_0 + x_1 + x_2 = 4 \\ x_0 + 2x_1 + x_3 = 3 \\ -x_0 - x_1 = 0 \end{cases}$$

Thus, the initial tableau is as follows.