Linear Programming

Computer Systems Lab I

November 10, 2023

1 Experiment 1

Plot the given linear programming problem and fill the feasible area using matplotlib.

$$\begin{aligned} \text{Objective: } & C = 3x + 5y \\ \text{Subject to: } & 2x + 3y \leq 12 \\ & -x + y \leq 3 \\ & x \leq 4 \\ & y \geq 3 \end{aligned} \tag{1}$$

$$\begin{aligned} \text{Objective: } & C = 2x + y \\ \text{Subject to: } & x + y \geq 6 \\ & x - y \geq 3 \\ & x \leq 0 \\ & y \geq 0 \end{aligned} \tag{2}$$

2 Experiment 2

Find the maximum and minimum of two problems in Experiment 1 using *Pulp* library

- install pulp: pip install pulp

3 Experiment 3

Find the maximum and minimum of two problems in Experiment 1 by solving the linear equation

- Solve all the constrainst and find their intersection point using *sympy* library
- From all the intersection point find the maximum and minimum values.

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