MSPA 400: Session 3 Python

Reading

Investigate the Canopy Doc Manager. Review the portion dealing with Matplotlib. Review the gallery and look at the code used.

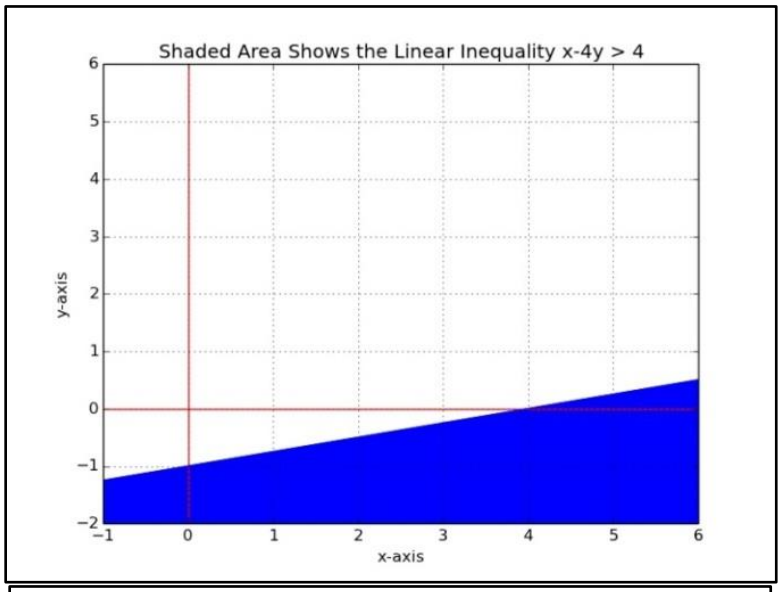
Module 1

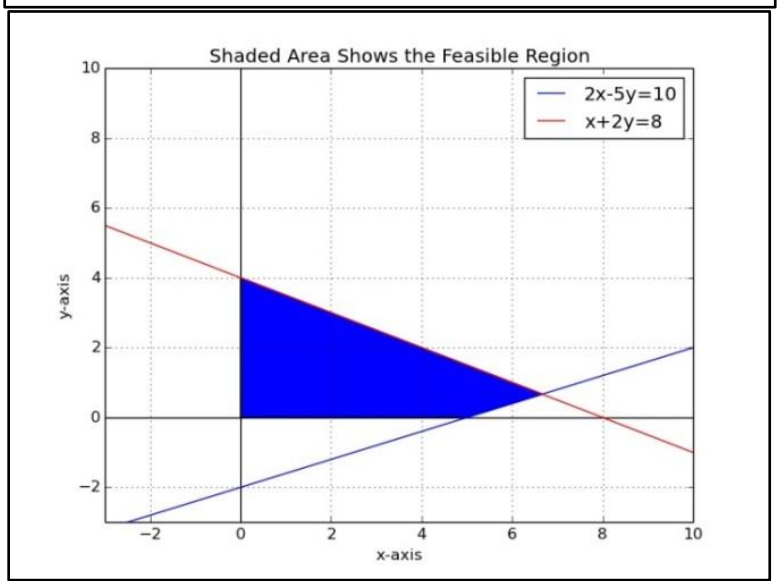
(Session 3 Module 1.py)

Objectives:

1. Plot inequalities using Matplotlib.
2. Demonstrate how to show feasible regions.

Output from Module 1.py:





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Exercise:

1. Refer to Lial Section 3.1 page 118. Write the code to reproduce Figure 10. Compare your code and the resulting plot to the answer sheet.

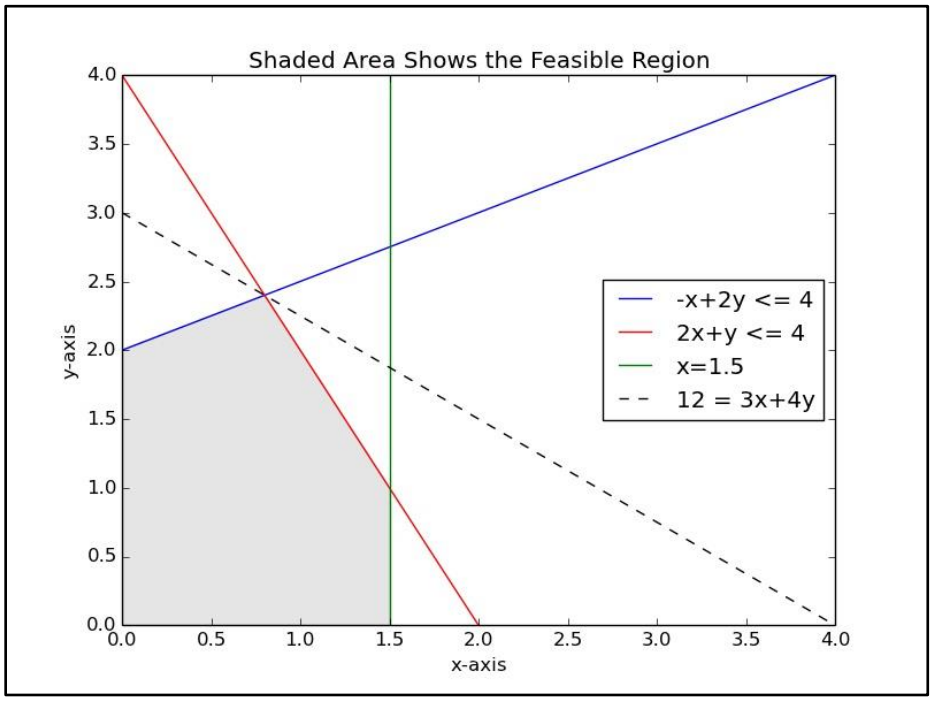
Module 2

(Session 3 Module 2.py)

Objectives:

1. Plot inequalities.
2. Show feasible regions.
3. Solve a linear programming problem.

Output from Module 2.py



(The dashed black line represents the objective function.)

Value of Objective Function at Each Corner Point:

[[0.]
[8.]
[12.]
[8.5]
[4.5]]

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Exercise:

1. Refer to Lial Section 3.2 Example 3. Using matrix methods, evaluate the objective function at each corner point and determine both the maximum and the minimum. Compare your code and solutions with the answer sheet.

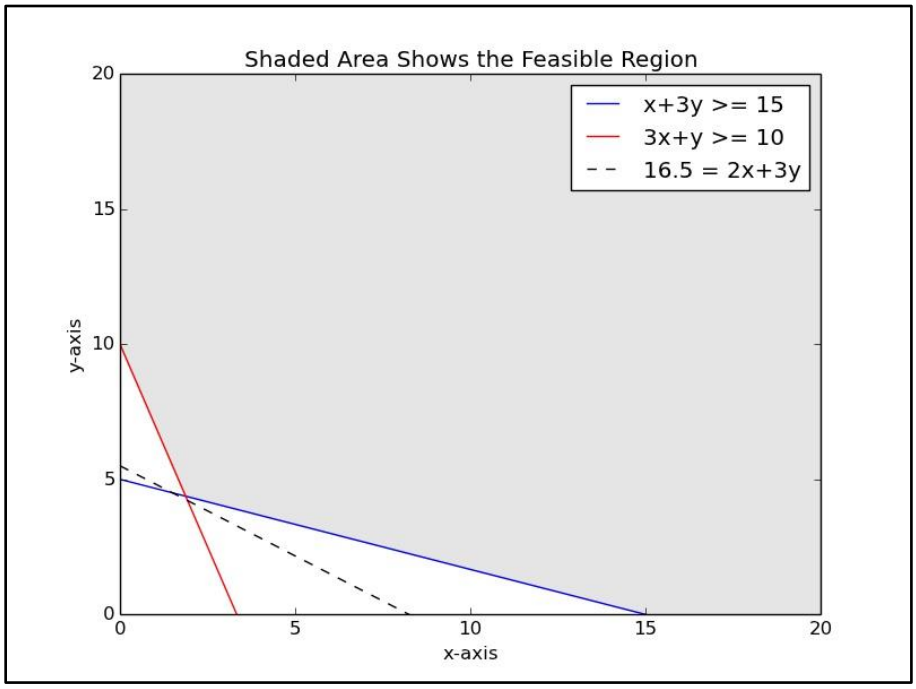
Module 3

(Session 3 Module 2.py)

Objectives:

1. Plot inequalities.
2. Show feasible regions.
3. Solve a linear programming minimization problem.

Output from Module 3.py



Note that the dashed line passes through the optimum point.

Value of Objective Function at Each Corner Point: [[30.] [16.5] [30.]].

Exercise:

1. Using the matrix methods, verify the calculations in Lial Section 4.3 Example 1. Compare your code to the answer sheet.