Assignment 0: Solving a System of Equations Visually and Algebraically with Python

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Objective:

To use Python and its libraries to find the intersection of two linear equations both graphically and algebraically.

Prerequisites:

- Basic understanding of linear equations and their representations.
- Python environment with Matplotlib and Sympy installed.

Tasks:

1. Python Script for Graphical Solution:

1. Write a Python script to graph the following system of equations:

$$y = 2x + 3$$

$$y = -x + 6$$

2. Use Matplotlib to plot both equations on the same graph.
3. Highlight their point of intersection.

2. Python Script for Algebraic Solution:

1. Use the Sympy library to define the equations symbolically.
2. Apply the `solve` function to find the point of intersection.
3. Print the solution.

3. Analysis:

- Compare the intersection point obtained graphically with the algebraic solution.
- Explain any differences or discrepancies between the two methods.

Instructions:

- Your script should include comments to explain your code.
- Ensure the graph is properly labeled with axes labels and a title.
- Submit both the script and a screenshot of the graph.

Submission:

Complete the tasks using Google Colab or any Python environment you're comfortable with. Once finished, share the link of your Colab notebook or submit the Python script.

Additional Resources:

1. For assistance with Matplotlib, you can refer to the official documentation at this link.
2. or the short googlecolab tutorial.