Solving a System of Linear Equations Using NumPy

1. Task Description

The objective of this task was to solve a system of linear equations using NumPy's linear algebra functions. The task involved implementing a Python program to input the coefficients and constants of the equations, process them using NumPy, and calculate the solutions. The program also gracefully handles cases where the system may be singular or have no unique solutions.

2. Screenshot of Output

```
Enter the number of variables (e.g., 3 for three equations): 3
Enter the coefficients of the equations (row by row) and constants:
Equation 1 (separate coefficients by space, constant last): 2 3 1 1
Equation 2 (separate coefficients by space, constant last): 4 1 -2 2
Equation 3 (separate coefficients by space, constant last): -6 2 3 3

Solution:
Variable 1 = -1.00
Variable 2 = 1.71
Variable 3 = -2.14
```

3. Algorithm Used in Task

- **Libraries and Algorithms:**
  - **NumPy Library:**
    - Used for efficient numerical computations and handling multidimensional arrays.
    - The np.linalg.solve() function was employed to solve the linear equations. This function internally uses optimized algorithms to find the unique solution to the system of equations, assuming the matrix is non-singular.

4. Add Report in Your Task Zip File

The task report has been added to the zip file. This includes:

1. The Python script (Data Science & Machine Learning_Task_5.ipynb).
2. A text version of this report (Task_5_Report.pdf).

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