

Programming Assignment 6: Linear Equation System Solver

1. Explain the experience of programming and development of this assignment.

The project start with building the essential matrix operations within the ``Matrix`` class. This class was responsible for handling all the basic matrix functionalities like creating, copying, and deleting matrices. We also added operations for matrix addition, subtraction, and multiplication.

Then, I handling square matrices, which are essential for solving linear systems. This class was calculating the determinant of a matrix. Then I implemented this using a recursive function, which involved handling smaller submatrices and performing cofactor expansion.

Vectors are basically matrices with one column, so I extend the ``Matrix`` class to create the ``Vector`` class. This class added specific functionalities for vectors, creating a vector from a particular column of a matrix and performing vector-specific operations such as subtraction.

In ``linear_equation_system_solver.cpp``. This involved reading the size of the system from the user, generating random matrices and vectors, and solving the system using matrix operations.

In the main function, I maintain all the header and let the user to to input the rank, print out matrices, vectors, linear equation, solution and verifications.