Assignment 2

Due Date: 19 February 2021 at 23.59 Hrs

1. Build a class/library in C++ which can be used by anybody in numerical computing using C++. The following features can be there in your library.
    a. A generic class which can be used for complex numbers of any type, such as, int, float, double, long int, long long int, long double, long long double
    b. A generic class for matrix operations, such as addition, subtraction, multiply (Matrix-Vector and matrix-matrix multiply both), transpose, determinant, inverse, etc. It's upto you how many diverse operations you can use for your library. More features will lead to more marks.
    c. A generic class for system of matrix solutions using Gauss-Jacobi, Gauss-Seidel (under relaxation and over relaxation both), Gauss Elimination and Conjugate Gradient only.
    d. A class for function evaluations using algorithms like Newton-Raphson, Forward Euler, Backward Euler, Trapezoidal, Gear2, Gear3 methods etc.

2. Assume that you own a Bank having 10 ATMs in a city. Design a Banking solution in C++ using all the features including STLs to mimic a real life bank.

3. Assume that you have to start your own eCommerce company like Flipkart. Design a toy eComm platform in C++ to mimic basic (or as many as you can) operations.

4. Design a software for warehouse in inventory management in C++.

5. Build your own Text Editor like VIM in C++.