Lab #2

Solution of Linear Equations- Gauss Elimination

The following code modules give you an idea to write a program in C++ to solve any set of linear equations using "Naive Gauss Elimination".

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```
for k = 1 to n-1

  for i = k+1 to n

    factor = aik / akk

    for j = k+1 to n

      aij = aij – factor * akj

    bi = bi – factor * bk

    …….
```

And

…..

xn = bn / ann

for i = n-1 downto 1

    sum = 0

    for j = i+1 to n

        sum = sum + aij * xj

    xi = (bi – sum) / aii

…….

- Write the whole program and get the result for the following example:

$$\begin{aligned} 2x_1 + x_2 + 4x_3 &= 1 \\ x_1 + 2x_2 + 3x_3 &= 1.5 \\ 4x_1 - x_2 + 2x_3 &= 2 \end{aligned} \qquad \left[\begin{array}{ccc|c} 2 & 1 & 4 & 1 \\ 1 & 2 & 3 & 1.5 \\ 4 & -1 & 2 & 2 \end{array}\right]$$