**CSE218**

**Home Assignment 2**

**Topic: Gaussian Elimination**

In this assignment, you will implement the Gaussian Elimination method for solving a system of linear equations. A system of linear equations is often represented in matrix form as where is the coefficient matrix, is the variable matrix (a column vector), and is the right-hand side constant matrix (also a column vector).

You should write a python function *GaussianElimination(A,B,d)* to implement the task. The function returns the solution as a column vector. The input is a flag variable. Your program should have provision to show the intermediate matrices (both and ) after every sub-steps of the forward elimination if flag is set to true. By default, should be true. A sub-step of forward elimination is a single row operation done to set the leftmost element of the row to zero (0).

**Sample input/output:**

The first integer in the sample input denotes the number of unknown variables in the system. This is also the number of linear equations given. Next inputs will be matrices and in row major order (as shown in the input below).

Your program should output the solution vector and intermediate matrices (if flag is set programmatically). The elements of the solution vector should be printed up to four (4) decimal places.

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| --- | --- |
| **Sample input** | **Sample output** |
| 3  25 5 1  64 8 1  144 12 1  106.8  177.2  279.2 | 0.2905  19.6905  1.0857 |