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 $AX = B$ where A is the coefficient matrix, X is the variable matrix (a column vector), and B 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 d is a flag variable. Your program should have provision to show the intermediate matrices (both A and B) after every sub-steps of the forward elimination if d flag is set to true. By default, d 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 A and B in row major order (as shown in the input below).

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

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