Assignment 2 *(Numerical Methods-Scott Zhang)*

Given a system of 7 linear equations represented using the following matrix equation

$$AX = B$$

where

$$A = \begin{bmatrix} 2 & 1 & -3 & -2 & 4 & 1 & 5 \\ 5 & -1 & 2 & 7 & -2 & 6 & -3 \\ 2 & 4 & -1 & 1 & 5 & -3 & -2 \\ 1 & -2 & 3 & -1 & -5 & -1 & 6 \\ 3 & 1 & 2 & -4 & 7 & 2 & 3 \\ 4 & 5 & -1 & 3 & 9 & -3 & -5 \\ -9 & 1 & -3 & 5 & 4 & -2 & 8 \end{bmatrix} \quad X = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \\ x_5 \\ x_6 \\ x_7 \end{bmatrix} \quad B = \begin{bmatrix} 2 \\ 20 \\ -3 \\ 2 \\ 34 \\ 2 \\ 4 \end{bmatrix}$$

1. Write a program using a language of your choice to solve this system of linear equations by Gauss-Jordan elimination. Demonstrate and show your solution. A correct solution entitles you to obtain 55% of this assignment mark.

2. At demonstration, you will be given a new system of 7 linear equations to solve using the same program. A correct solution entitles you to obtain the rest of this assignment mark (i.e. 45%).

Demonstration date: September 27, 2012