STA 5106: Homework Assignment #2

(Thursday, September 5)
Due: Thursday, September 12

1. Write a Matlab program to implement *backsub* and test your program by solving the following system of equations:

$$\begin{pmatrix} 6 & 3 & 9 & 2 \\ 0 & 4 & 6 & 1 \\ 0 & 0 & 8 & 8 \\ 0 & 0 & 0 & 5 \end{pmatrix} \begin{pmatrix} b_1 \\ b_2 \\ b_3 \\ b_4 \end{pmatrix} = \begin{pmatrix} 1 \\ 4 \\ 6 \\ 1 \end{pmatrix}$$

2. Write a Matlab program to implement *house* and execute it with x = $(1.4, 5.8, 2.3, 8.1, 9.0)^T$.

3. Write a Matlab program to implement *rowhouse* and execute it with

$$X = \begin{pmatrix} 1.4 & 4.5 & 6.5 \\ 5.8 & 3.2 & 7.3 \\ 2.3 & -2.6 & 8.2 \\ 8.1 & -5.8 & -8.0 \\ 9.0 & 0.3 & 1.5 \end{pmatrix}$$

and *v* generated from problem 2.

4, 5, 6: (Optional) Use Python program to finish Problems 1, 2, 3.