Homework Assignment 5 Due on Friday 11/2

Programming Problems:

1. Down load the code $\mathbf{GE_sp_pivot.m}$ from the web-site. Modify the code to get a code that gives the LU decomposition of A by Gaussian elimination with scaled partial pivoting. You code should take A as input and give L, U, r as outputs. Verify $L^*U = A(r,:)$ in Matlab by yourself. submit your code to num ana@math.nthu.edu.tw

Hint: You may find commands triu, tril and eye useful.

Writing Problems:

Do the following exercise problems in the text book by Bradie,

Sec 3.5: 1*, 3, 7*, 9*, 11, 15

Sec 3.6: 4, 6*, 8*

Sec 3.7: 1, 3, 5*, 6*, 7*, 9*, 10(a), 14(b)

Do 4, 6 in Sec 3.6 and 10(a), 14(b) in Sec 3.7 by hand without using codes. You can use your codes to solve 11 and 15 in Sec. 3.5. However, please provide the intermediate steps and results to show how you get the final answer instead of giving it only.

We only discuss * problems in discussion section.