Lab 6 Assignment

Due on 06/12 at noon on Blackboard.

Submit your m-file and a diary that shows how you tested the code. Modify `csolve.m` so that it outputs `pivot` and `free`. Then call upon this function in `csolvefull.m`. Submit the m-file for `csolvefull.m`, but not `csolve.m`.

Create a function `csolvefull.m` with input matrix A and a column vector $\mathbf{b}$ and no output. The function should display the rank, the pivot and free variables of A, the particular solution to $A\mathbf{x} = \mathbf{b}$, and the special solutions for A. Test it using the system below.

$$A = \begin{pmatrix} 17 & 1 & 10 & 3 & 6 \\ 5 & 13 & 4 & 4 & 11 \\ 12 & 8 & 3 & 1 & 14 \\ 22 & 34 & 11 & 9 & 36 \end{pmatrix}, \quad \mathbf{b} = \begin{pmatrix} 11 \\ 9 \\ 3 \\ 21 \end{pmatrix},$$

Your display should be precisely the following:

```
>> csolvefull(A,b)
The rank of the coefficient matrix is 3.
Pivot variables: 1 2 3
Free variables: 4 5
The particular solution is:
xp =

   -0.3889
    0.3095
    1.7302
         0
         0


The special solutions are:
xs =

    0.2014   -0.8681
   -0.1935   -0.8065
   -0.6230    0.9563
    1.0000         0
         0    1.0000
```