Assignment # 2 – Due Jul 19, 2020 before Noon

1. Identify how MATLAB, C or FORTRAN access matrix; i.e., row-major or column-major or else.
2. To compute the multiplication between an $m \times n$ matrix A and a $n \times n$ matrix B.
   (a) Write a algorithm or flowchart for computing the above problem.
   (b) Write a program using a "Loop" for computing the above problem and compare your result with built-in function.
3. Given
$$A = \begin{pmatrix} 2 & 3 & 5 \\ 6 & 2 & 1 \end{pmatrix}$$
   (a) Find matrices E and U such that $EA = U$, where U is an upper triangular matrix obtained by using Gauss Elimination.
   (b) Determine which pairs of the following vectors in Nullspace, Row space, Left Nullspace or Column space are orthogonal.
   Hint: show the dot products of these vectors are zero.
4. Determine whether the following system of equations has solution, if so find all solutions.
$$2x - y = -4$$
$$2x + 4y = 6$$
$$3x - y = -1$$