Computational Lab (MA318)

Assignment 1

Try to solve all the problems

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1. $A = \begin{pmatrix} 3 & -2 & 1 \\ -1 & 4 & -2 \end{pmatrix}$ and $B = \begin{pmatrix} -7 & 4 \\ 9 & 5 \\ 2 & -1 \end{pmatrix}$
   (i) Find matrix-matrix multiplication (AB)
   (ii) Find $(AB)^t$ and $(AB)^{-1}$
   (iii) Find the mean, standard deviation for each column and row for the matrices A, B, AB.

2. Write a program to find $n!$. Hence find $6!, 13!, 37!$. You can initialize $0! = 1$ and $1! = 1$.

3. Write a program to check whether a number is prime or composite.

4. Write a program to find the mean and median of the data set.
   Consider input as $(5, 10, 6, 8, 12, 16, 20, 10, 16, 15)$.

5. Write a program to find the first 10 Fibonacci sequences in R.

Description : All questions must be solved by explicitly defining functions. The use of inbuilt functions is not allowed.

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