Lab:1

INTRODUCTION TO PYTHON FOR LINEAR ALGEBRA AND MATRIX OPERATIONS

(NumPy)

1. Create the below two matrices:

   (i) $A = \begin{bmatrix} 1 & -1 & 3 \\ 5 & 7 & 9 \\ -4 & 2 & 8 \end{bmatrix}$, $B = \begin{bmatrix} 5 & 7 & 4 \\ -1 & 2 & 5 \\ 0 & 8 & 4 \end{bmatrix}$

2. Find $AB - B^2A$,

   (i) Display the second row and third column of $AB - B^2A$.

   (ii) Find the max and min entry of $AB - B^2A$.

   (iii) Compute the sum of the diagonal entries of $AB - B^2A$.

3. Show that
$$A^3 - 16A^2 + 70A - 228I = O.$$

4. Write a Python function that takes two matrices as input, then check whether they are compatible with matrix multiplication. If yes, then find their product. {Do it first by using in-build function and then without using in-build function (means explicitly).}