Department of Mechanical Engineering
Indian Institute of Technology Kanpur
ME685A: Home Assignment 5

Due: on or before September 11, 2021

This assignment must be your own work. Taking help from others or helping others are not allowed.

The following matrix, known as the Leslie matrix, is an important indicator in ecology research. Find the maximum (in absolute value) and minimum (in absolute value) eigenvalues of the matrix **L**.

$$\mathbf{L} = \begin{bmatrix} 0 & 2.3 & 0.4 \\ 0.6 & 0 & 0 \\ 0 & 0.3 & 0 \end{bmatrix}$$

Write a computer program to numerically evaluate the required eigenvalues.

Power method and inverse power method should be within the same program. If you cannot put two methods within the same program, write two different programs. DO NOT explicitly calculate $\mathbf{A}^{-1}$. Use the technique described in the lecture notes.

Write your name and roll no at the top of each page. Also write your name and roll no in the computer program (duly commented). Put all documents in a folder. Name the folder as $< name > \_ < roll > \_ < hw1 >$. Zip the folder and upload in MooKit.

Your program file must be a plain text file. The file extension should be as per your programming language (*.c, *.cpp,*.f90,*.py etc.)