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'''
    Experiment No 1 : Matrix (NMCP)
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'''
# Program for matrix operations
import numpy as np
from numpy import linalg as LA
# Input section matrix
M1 = np.array([[1,4],[5,6]])
M2 = np.array([[1,-4],[3,-2]])
# Output section matrix
# Matrix Addition
print("[M1]+[M2]=",M1+M2)
# Matrix Subtraction
print("[M1]-[M2]=",M1-M2)
# Matrix Multiplication
print("[M1][M2]=",M1.dot(M2))
# Matrix Transpose
print("Transpose of [M1]=",M1.transpose())
# Matrix Inverse
print("Inverse of [M1]=",np.linalg.inv(M1))
# Matrix Eigen Values and Vectors
w, v = LA.eig(np.array(M1))
print("Eigen Values of [M1]=",w)
print("Eigen Vectors of [M1]=",v)
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[M1]+[M2]= [[2 0]
 [8 4]]
[M1]-[M2]= [[0 8]
 [2 8]]
[M1][M2]= [[ 13 -12]
 [ 23 -32]]
Transpose of [M1]= [[1 5]
 [4 6]]
Inverse of [M1]= [[-0.42857143  0.28571429]
 [ 0.35714286 -0.07142857]]
Eigen Values of [M1]= [-1.62347538  8.62347538]
Eigen Vectors of [M1]= [[-0.83619408 -0.46462222]
 [ 0.54843365 -0.885509  ]]
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