CHRIST (Deemed to be University)
DEPARTMENT OF MATHEMATICS
LA-II
December-2018
MAT-451 Mathematical Models Using Python Programming

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1. Find the inverse of the following matrix
$$M = \begin{bmatrix} 1 & 4 & 4 & 1 \\ 0 & 1 & -2 & 2 \\ 3 & 3 & 1 & 4 \\ 0 & 1 & -3 & -2 \end{bmatrix}$$
2. Find the determinant and the eigen values of the above matrix .
3. Using Matrix inversion, solve the following system of equations
$3x - y + 2z = 3$
$2x + y - z = 3$
$x + 3y - 5z = -8$ and verify your answer.
4. Plot $x^2 + y^2 + z^2 = 25$.
5. Plot $z = sin\ x + sin\ y$ using imshow from -4π to 4π for both x and y