UNIVERSITY OF KASDI MERBAH, OUARGLA
DEPARTMENT OF COMPUTER SCIENCE AND IT
MODULE : MATHEMATICS FOR DATA SCIENCE

LAB1 :

1 Required Work

Write a python class **Mat()** which includes the following functions:

- **matMulCheck(A,B)** to check if the product of two given matrices **A and B** is possible in a single line of code. Test it with a defined and an undefined case.
- **matMul(A,B)** to calculate the dot product of two given matrices only when possible (handle the error using **matMulCheck(A,B)**.) in maximum two lines of code and without using element wise multiplication.
- **augmentedMat(A,b)** to construct the augmented matrix in two different ways.
- **solveLinearSystem(A,b)** to solve a linear system of equations Ax = b given A and b then use **np.linalg.solve()** to check your solution.
- **isSubspace(S)** to check if a given set of vectors **S** is a subspace of $\mathbb{R}^3$ use the Gaussian elimination.
- **det(A)** to calculate the determinant of a matrix and test it using **np.linalg.solve()**

2 Intructions

- Use ***numpy*** arrays instead of python lists.
- Do not use ***numpy*** pre-implemented functions.
- Any confirmed copied answer results in a zero.