**Bahria University, Lahore Campus**

Department of Computer Sciences

 Lab Journal 04

**(Spring 2023)**

|  |  |  |
| --- | --- | --- |
| Course: | **Introduction to Data Science** | Date: 14-03-2023 |
| Course Code: |  | Max Marks: 30 |
| Faculty’s Name: | Dr Khawaja Qasim | Lab Engineer: Usman Anwer |

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enroll No: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objectives:**

To understand the basics of image manipulations using Numpy.

**Task 1: Numpy**

Do the following tasks:

 1D, 2D and 3D Matrix Manipulation:

1. Create a list containing 10,000 random values**. (2 marks)**
2. Reshape the list into 2D of dimension 100x100. . **(3 marks)**
3. Convert 2D list into 3D such that each cell contains a color (RR, GG, BB) where the range of each color must be between 0-255 ( the numbers must be generated as random and should be in threshold of 0-255). The dimension of list becomes 100x100x3. **(5 marks)**

**Task 2:** Image Read and Manipulation

Write a code to read an image (Any image is fine) and to reshape it into 100x100x3. **(Marks = 5)**