**Machine Learning Programming Assignment – 1**

**1. Numpy:**

a. Using NumPy create random vector of size 15 having only Integers in the range 1-20.

1. Reshape the array to 3 by 5

2. Print array shape.

3. Replace the max in each row by 0

Create a 2-dimensional array of size 4 x 3 (composed of 4-byte integer elements), also print the shape, type and data type of the array.

b. Write a program to compute the eigenvalues and right eigenvectors of a given square array given below: [[ 3 -2] [ 1 0]]

c. Compute the sum of the diagonal element of a given array. [[0 1 2] [3 4 5]]

d. Write a NumPy program to create a new shape to an array without changing its data.

Reshape 3x2: [[1 2] [3 4] [5 6]] Reshape 2x3: [[1 2 3] [4 5 6]]

A picture containing text, screenshot, software, multimedia software

Description automatically generated

**Output:**

**A screen shot of a computer

Description automatically generated with medium confidence**

**A screen shot of a computer

Description automatically generated with medium confidence**

**OUTPUT:**

**A screenshot of a computer program

Description automatically generated with low confidence**

A picture containing text, screenshot, font, software

Description automatically generated

**OUTPUT:**

**A black screen with white text

Description automatically generated with low confidence**

**A screenshot of a computer program

Description automatically generated with medium confidence**

**OUTPUT:**

**A screenshot of a computer program

Description automatically generated with medium confidence**

**2. Matplotlib**

1. Write a Python programming to create a below chart of the popularity of programming Languages. 2. Sample data: Programming languages: Java, Python, PHP, JavaScript, C#, C++ Popularity: 22.2, 17.6, 8.8, 8, 7.7, 6.7

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**GitHub URL:** [**https://github.com/SucharithaAeluri/ProgrammingAssignment1.git**](https://github.com/SucharithaAeluri/ProgrammingAssignment1.git)

**Video URL:**

<https://drive.google.com/file/d/19C8wZNPB5msejDtINqpCPq8pB3JnWFMO/view?usp=sharing>