Spring 2023: CS5710 – Machine Learning

In-Class Programming Assignment-3

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]]

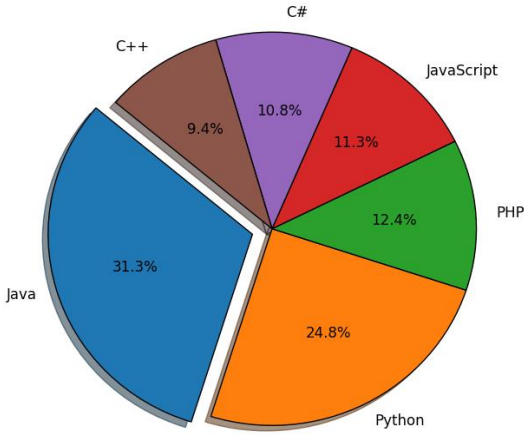
Reshape 2x3:

[[1 2 3]

[4 5 6]]

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



** Follow the rubric guidelines.

Submission Guidelines:

1. Once finished document your code and make sure all parts if the assignments are completed.
2. Push your code to your GitHub repo and update the ReadMe file, add your info.
3. Submit the assignment.
4. Present your work in class time to proof the execution and complete submission.

After class submission:

1. Once finished document your code and make sure all parts if the assignments are completed.
2. Push your code to your GitHub repo and update the ReadMe file, add your info.
3. Submit the assignment before the deadline.
4. Record a short video (1~3) minute, proof of execution and complete assignment.
5. Add video link to ReadMe file.