LAB ASSIGNMENTS
PYTHON PROGRAMMING LAB
MCA 1st Year 1st Semester, 2023
Subject Code: MCA1152

Day 6

1. [100 NumPy Exercises](#) *by Nicolas P. Rougier*. [Only submit those scripts where your code differs from the solved one.]

2. The popularity of programming languages as given by TIOBE index for November 2023:

   Programming language: Python, C, C++, Java, C#, JavaScript, PHP, Visual Basic
   Ratings: 14.16, 11.77, 10.36, 8.35, 7.65, 3.21, 2.30, 2.10

   For the given data, create

   (i)   a bar chart.

   (ii)   a horizontal bar chart.

   (iii)   a pie chart.

   [*Note: the TIOBE index is not about the best programming language or the language in which most lines of code have been written.*]

3. Create a scatter plot for the following data

   math_marks = [88, 92, 60, 89, 100, 80, 63, 95, 80, 46, 77, 56, 74, 71, 48]

   science_marks = [75, 79, 59, 68, 100, 88, 72, 75, 70, 35, 52, 68, 86, 70, 66]

   From the scatterplot, what can you roughly infer about the relationship between the two variables?

4. Use NumPy to randomly generate an array with 500 values,

   (i)   uniformly over the interval [30, 100) and plot the histogram.

   (ii)   where the mean is 75, and the standard deviation is 6 and plot the histogram.