**Lab Week 2**

Part A: Math and Statistics

Topic 1: Python Syntax, numpy, scipy, Mean, Median and Mode

1. Assign 10 into ‘num1’.
2. Print the output for ‘num1’.
3. Request user input for num1.
4. Request user input for num2.
5. Calculate the addition total for num1 and num2.
6. Print the statement “The addition of num1 and num2 is ” and the sum of num1 and num2.
7. Speed = 33, 67, 89, 56, 32, 12, 11, 90, 67, 45, 37, 27, 98, 99, 56, 45, 40, 87.

Based on information stated above. Find:

* 1. Mean (Hint: use mean from numpy library)
  2. Median (Hint: use median from numpy library)
  3. Mode (Hint: use mode from scipy library)

1. Find the standard deviation based on the following speed = 32, 111, 138, 28, 59, 77, 97.

Part B: Graph

Topic 1: Plotting Graph using matplotlib

Purpose: to draw the straight-line graph from position x (0,0) and y (0,0). The plot function is used to draw the points (markers) in a diagram The function takes parameters for specifying points in the diagram.

* Parameter 1 is an array containing the points on the x-axis.
* Parameter 2 is an array containing the points on the y-axis.

1. Plot line graph based on the following coordinates

x-axis = 0, 7

y-axis = 0, 340

1. Plot data point with the shape ‘x’ based on the following coordinates

x-axis = 1, 8

y-axis = 3, 10

1. Plot multiple line graph based on the following coordinates

x-axis = 1, 2, 6, 8

y-axis = 3, 8, 1, 10

Topic 2: Create Label and Title

1. Plot a line graph based on the following coordinates.

x-axis = 80, 85, 90, 95, 100, 105, 110, 115, 120, 125

y-axis = 240, 250, 260, 270, 280, 290, 300, 310, 320, 330

1. Set the x-axis label as “Average Pulse”.
2. Set the y-axis label as “Calories Burnage”.
3. Set the title as “Sports Watch Data”.

Topic 3: Varieties of plots/graph

1. Scatter plot: Use scatter() function to draw a scatter plot.

x-axis = 5, 10, 12, 3, 21, 8, 7, 19

y-axis = 16, 13, 4, 2, 9, 7, 2, 6

1. Bar graph: Use bar() function to draw bar graph.

x-axis = A, B, C, D

y-axis = 3, 8, 1, 10

1. Based on question 2, form a horizontal bar using barh() function.
2. Histogram plot: Use hist() function to draw a histogram with the following distribution

np.random.normal(170, 10, 250)

1. Pie chart: Use pie() function to draw a pie chart

y = 47, 16, 22, 15

label = Apple, Banana, Orange, Mango