School of Computer Science Engineering and Technology
Assignment-01

Course- B.Tech	**Type-** Core
Code-23CS106	**Course Name-** Artificial Intelligence & Machine Learning
Year- 2024-2025	**Semester-** Even, **Instructor:** Prof. E.L.N. Kiran
Date– 10-01-2024	**Batch-** AIML-A,B

Lab Exercise - Python Libraries and Packages

Part 1 – Implement Basic Data Structures using Numpy, Pandas

1. Lists
2. Arrays
3. Identify their type using `type()`
4. Perform mathematical operations on these datasets created - multiplication, division, poweroff
5. Combine text with Numpy fuction to generate a textual output - "Addition of Two: array1 +array 2
6. Implement `np.sin(), log(), log2(), np.exp())`

Part 2 – Visualization of Data using matplotlib, pyplots Packages

1. Generate a Data set for Health Care using the following:
   people = ['kiran', arun', 'vijay', 'varun']
   age =[25, 30, 35, 40, 45]
   height =[145, 151, 165, 173]
   weight=[45, 55, 65, 75]
2. Using the generated dataset given above. Generate the following graphs and justify the relationships among the vectors.
3. Scatter Plot
4. Bar Chart
5. Histogram
6. Provide Graph Title, labels for X, Y axis with proper justification and explanation of the graph.

Part 3 – Access Data from Various Data Sources using builtin Function of Numpy, Pandas

1. Generate your own dataset using MS Excel and Notepad to prepare the dataset. Save it in Google Drive and access it in Google Colab.
2. Upload the text file using tab seperated value(.tsv) and access the data from the file.
3. Upload the text file using comma seperated value(.csv) and access the data from file.
4. Access the excel file using .xlsx
5. Access the text from the URL