School of Computer Science Engineering and Technology

Course-BTech
Course Code - CSET211
Year - Second

Type - AI Core-1
Course Name - Statistical Machine Learning
Semester - ODD
Batch - CSE 3rd Semester

Lab Assignment - 1: Performing basic operations using NumPy and Pandas package

CO- Mapping

Section	CO1	CO2	CO3	CO4
Section 1: Q1-Q12	√			
Section 2: Q1-Q7	√			

Section 1: Numpy

1. Import numpy as np and check its version.
2. Write the command to create a 1D array with >= 15 items and print the odd numbers.
3. Write a command to create a boolean array where values are True if the element is greater than 5.
4. Write a script to create a 1D array with random integers and find the maximum value.
5. Write a script to find the index of the minimum value in a 1D array.
6. Write a script to create a 2D array of shape (3, 3) with random floats between 0 and 1.
7. Write a script to create a 2D array of shape (4, 4) and fill the diagonal with 5.
8. Write a script to create a 2D array of shape (3, 4) and find the sum of each row.
9. Write a script to create a 2D array and flip it horizontally.
10. Write a script to create a 2D array and compute the cumulative product of each row.

Section 2 : Pandas

1. Write a script that reads a csv file from a specified source and print the first 10 rows using the pandas package.
   Link to the data file:
   https://raw.githubusercontent.com/mwaskom/seaborn-data/master/diamonds.csv
2. Write a script to select a particular column from the Diamonds DataFrame and print their content.
3. Create a new column '**Quality-merge'** by combining the 'cut' and 'color' columns of the DataFrame.

4. Write a script to determine the number of unique values in each column of the Diamonds DataFrame.
5. Write a script to summarize only the numerical columns of the Diamonds DataFrame.
6. Write a script to reset the index of the Diamonds DataFrame after dropping rows where price >= 400.
7. Write a script to plot a histogram of the ‘price’ column of the Diamonds DataFrame using pandas.

Platform Required: Anaconda, Editor: Jupyter/Spyder/Pycharm/Google Colab

Submission Instructions:

- Submit the .ipynb files only
- Submission is through LMS only.