S No.	Practical List
1.	Introduction to Data Analytics using Python • **Six Steps of Data Analysis Process** • **Different Sources of Data for Data Analysis**
2.	Introduction to Python Libraries: NumPy, Pandas, SciPy, Scikit-learn, Matplotlib, Seaborn.
3.	Introduction to Python Programming • Datatypes • Operators • Loops • Central Tendency Measures • MATRIX OPERATIONS: o Write a Python program to do the following operations: o Library: NumPy o a) Create multi-dimensional arrays and find its shape and dimension o b) Create a matrix full of zeros and ones o c) Reshape and flatten data in the array o d) Append data vertically and horizontally o e) Apply indexing and slicing on array o f) Use statistical functions on array - Min, Max, Mean, Median and Standard Deviation • LINEAR ALGEBRA ON MATRICES o Write a Python program to do the following operations: o Library: NumPy o a) Dot and matrix product of two arrays o b) Compute the Eigen values of a matrix o c) Solve a linear matrix equation such as $3 * x_0 + x_1 = 9$, $x_0 + 2 * x_1 = 8$ o d) Compute the multiplicative inverse of a matrix o e) Compute the rank of a matrix o f) Compute the determinant of an array
4.	UNDERSTANDING DATA Write a Python program to do the following operations: Data set: brain_size.csv Library: Pandas a) Loading data from CSV file b) Compute the basic statistics of given data - shape, no. of columns, mean

	c) Splitting a data frame on values of categorical variables d) Visualize data using Scatter plot
5.	CORRELATION MATRIX Write a python program to load the dataset and understand the input data Dataset : Pima Indians Diabetes Dataset Library : Scipy a) Load data, describe the given data and identify missing, outlier data items b) Find correlation among all attributes c) Visualize correlation matrix
6.	Discretization (Binning) and normalization DATA PREPROCESSING – HANDLING MISSING VALUES Write a python program to impute missing values with various techniques on given dataset. a) Remove rows/ attributes b) Replace with mean or mode c) Write a python program to perform transformation of data using Discretization (Binning) and normalization (MinMaxScaler or MaxAbsScaler) on given dataset.
7.	Regression: Linear Regression, Logistic Regression
8.	Apriori Algorithm
9.	KNN Dataset: The data set consists of 50 samples from each of three species of Iris: Iris setosa, Iris virginica (Exploratory Data Analysis on Iris Dataset) and Iris versicolor. Four features were measured from each sample: the length and the width of the sepals and petals, in centimetres. Libraries: import numpy as np Write a python program to a) Calculate Euclidean Distance. b) Get Nearest Neighbors c) Make Predictions.
10.	K-means Clustering Dataset: Diabetes
11.	Decision Tree Classification