Form AC-03(00)

Cycle of Experiments

Govt. Engineering College, Thrissur

DEPARTMENT: MCA

Laboratory: 20MCA231 Data Science Lab

| Sl No | Cycle No | Experiment No | Program | Plan | Coverage |
| --- | --- | --- | --- | --- | --- |
| 1 | 1 | 1 | Review of python programming,   1. Write a program in python to check whether an input number is prime or not. 2. Write a program in python to remove all occurrences of a specific item from a list. 3. Write a program in python to count the occurrence of a word in a line of text. | 10-08-2022 |  |
|  |  |  | Programs using Numpy,matrix operations   1. Write a n 2. umpy program to create an array with values ranging from 1 to 15 and do the following operations.   a) Find size of the array  b) Update its 8th element  c) Reverse the array  d) Convert it into 7 x 2 matrix  2) Write a numpy program to create a 5 x 4 matrix with values ranging from 12 to 32. Print its shape, type and data type  3) Write a numpy program to create a 8 x 8 matrix and fill it with a checkerboard pattern  [[0 1 0 1 0 1 0 1]  ..........  [0 1 0 1 0 1 0 1]  [1 0 1 0 1 0 1 0]]  4) Write a numpy program to test whether each element of a 1-D array is also present in a second array.  5) Write a numpy program to   1. Create two arrays 2. Find the common elements in the created two arrays 3. Find the union of created arrays   6) Write a numpy program to get unique elements of an array.  7) Write a program to convert numpy array to python list structure  8) Write a numpy program to access array by column  9) Write a numpy program to compute  a) multiplication of two given matrices.  b) addition of two matrices  10) Write a numpy program to eigenvalues and eigenvectors of a given matrix  11)  Write a program to find transpose, determinant and inverse of a matrix. | 12-08-2022  Programs 1 to 2  programs 3,4,5,6,7 for 17/08/2022  programs 8,9,10,11 for 19/08/2022 |  |
| 2 | 1 | 2 | Programs to handle data using Pandas  1. Write a Pandas program to create and display a one-dimensional array like object containing an array of data  2.Write a Pandas program to add, subtract, multiply and divide two Pandas Series  3.write a panda program to create a single dataframe and save it as a csv file  4.Write a Pandas program to create and display a DataFrame from a specified dictionary data(10 records) which has the fields 1)name 2)Score 3)Attempts 4)Qualify  a)select the 'name' and ‘qualify’ columns from the following DataFrame  b)select the rows where the number of attempts in the examination is greater than 2  c)count the number of rows and columns of the DataFrame  d)select rows where Number of attempts in the examination is less than 2 and score greater than 10  e)select rows where score are missing  5.Write a pandas program to create a dataframe(6 records) which has the fields id,name,age,degree,cgpa  a)insert a new column ‘class’ into the dataframe and populate values  b)Find out total no.of columns in the dataframe  c)select top 3 rows ,last 4 rows  d)delete all rows which have null values  e)drop ‘id’ column  f)select name,cgpa from 2 to 5 records  g)fill null values in the age column with mean value  6)a)Load iris dataset into a dataframe  b)Take its descriptive statistics  c)delete all rows which have null values  d)select the Species classes,Count the no.of datas in each class  e)Map the species classes into 1,2 and 3  f)Print the standard deviation and mean of petal length  g)select all columns except species | 24/08/2022  (1 to 4)  26/08/2022  (5)  31/08/2022 |  |
| 3 | 1 | 3 | Programs using matplotlib / seaborn for data visualisation  a)Write a program to draw univariate visualization plots(line plot,histogram,boxplot,barchart,piechart) with matplotlib for iris dataset  b)Write a program to draw multivariate visualization plots(scatter plots, scatter multiple,scatter matrix,bubble plot) with matplotlib for iris dataset  c)Write a program to draw univariate and multivariate visualization plots with seaborn(line plot, pairplot,jointplot,heatmap) for iris dataset | 14/09/2022 |  |
| 4 | 2 | 4 | Program to implement k-NN classification using the datasets (Breastcancer.csv,Telco-Customer-Churn.csv) and find the accuracy of the algorithm | 16/09/2022  28/09/2022 |  |
| 5 | 2 | 5 | Program to implement Naïve Bayes Algorithm using any standard dataset available in the public domain and find the accuracy of the algorithm | 06/10/2022 |  |
| 6 | 2 | 6 | Program to implement simple linear regression using any  standard dataset available in the public- domain and evaluate its  performance. |  |  |
| 7 | 2 | 7 | Program to implement multiple linear regression using any  standard dataset available in the public domain and evaluate its  performance. |  |  |
| 8 | 3 | 8 | Program to implement text classification using Support vector machine. |  |  |
| 9 | 3 | 9 | Program to implement decision trees using any standard dataset available in the public domain and find the accuracy of the algorithm |  |  |
| 10 | 4 | 10 | Program to implement a boolean AND gate using perceptron |  |  |
| 11 | 4 | 11 | Program on multi layered feedforward network using any standard dataset available in the public domain and find the accuracy of the algorith |  |  |
| 12 | 4 | 12 | Program on convolutional neural network to classify images from any standard dataset in the public domain using Keras framework |  |  |
| 13 | 3 | 13 | Program to implement k-means clustering technique using any standard dataset available in the public domain |  |  |
| 14 | 5 | 14 | Program to implement a simple web crawler and scrapping web pages. |  |  |
| 15 | 5 | 15 | Implement problems on natural language processing - Part of Speech tagging, N-gram & smoothening and Chunking using NLTK |  |  |