Subject: Statistical Analysis and Computing using Python Lab

1. a) Write a program to check whether the given number is prime or not.
   b) Write a program to create a dynamic dictionary and display list of keys, list of values and list of items.
   c) Write a program to create a text file and print all the unique words in the file in descending order.

2. a) Write a program to check whether the given year is leap year or not using nested if.
   b) Write a program to implement linear search
   c) Write a program to create DataFrame using dictionary of list and display it.

3. a) Write a program to find the area of a triangle whose sides are read by command line arguments.
   b) Write a program to implement binary search
   c) Writ a program to create Nympy array and calculate, mean, standard deviation, variance, minimum and maximum.

4. a) Write a program to convert the temperature in degree centigrade to Fahrenheit using command line arguments
   b) Write a program to display the given integer in a reverse manner and check for number palindrome.
   c) Write a program to find the largest number and smallest number in a list without using built-in function.

5. a) Write a program to find the circumference and area of a circle by reading radius from command line.
   b) Write a program to find the sum of the digits of an integer using a while loop.
   c) Write a program to implement a calculator to do basic Arithmetic operations using functions.

6. a) Write a program to create a dataframe using student CSV file(CSV file must contain SName, SRollNo, SAge, SMobile as column labels) and display it.
   b) Write a program to display all integers within the range 100-200 whose sum of digits is an odd number.
   c) Write a program to find the factorial of a given integer number with and without recusrion.

7. a) Write a program to find the roots of a quadratic equation and display the nature of roots.
   b) Write a program named copyfile.py. This file should prompt the user for the names of two text files. The contents of the first file should be copied into the second file.
   c) Write a program to find the circumference and area of a circle by reading radius from user.

8. a) Write a python program to define a module with two functions and import all thefunctionsof that module into to another python program.
   b) Write a program to find the Nth term of the fibionacci series using recursion.
   c) Create Employees CSV file with EName, EId, EDept, ESal, as column labels. Load a CSV file into a Pandas DataFrame and display a line plot and bar plot for Eid and ESal.

9. a) Write a python program to create a dynamic NumPy array and calculate the mean value, standard deviation, or maximum/minimum.
   b) Write a program to find the factorial of number using recursion and for loop.
   c) Load a CSV file into a Pandas DataFrame and display a histogram and box plot.

10. a) Write a Program to create two sets and display union, intersection, difference, and symmetric difference of the two sets
    b) Write a program to display all integers within the range 200-300 whose sum of digits is an even number
    c) Load a CSV file into a Pandas DataFrame and display a histogram

11. a) Write a program to create a list and display the sum of list members, average and display the list in ascending order.
    b) Write a python program to create two 3 dimensional arrays using NumPy and perform matrix multiplication.
    c) Write a python program to create a file and copy some text into it. Then open the created file and copy the content into another file.

12. a) Write a program that inputs a text file and prints all the unique words in the file in alphabetical order.
    b) Create a DataFrame with pandas and display and plot line graph and histogram from the data
    c) Write a program to create 2 dynamic sets and implement mathematical set operations.