Mine Automation and Data Analytics Lab Assignments

LAB-2

1.How to get mean up-to n number (i.e. n=7) with following condition:

a) Only for even number up-to n (i.e. mean of 2, 4, 6...n)
b) Only for odd number up-to n (i.e. mean of 1, 3, 5...n)
c) Only for prime number up-to n (i.e. mean of 2,3,5...n)

2. Write a Python program to classify a student's grade based on their score:

a) If the score is 90 or above, print "Grade A".
b) If the score is between 80 and 89, print "Grade B".
c) If the score is between 70 and 79, print "Grade C".
d) If the score is below 70, print "Fail".

3.Write a Python program that accepts a person's age and checks if they are eligible to vote:

a) If age is 18 or more, print "Eligible to vote".
b) If age is below 18 but greater than or equal to 12, print "Too young to vote".
c) If age is below 12, print "Child".

LAB-3&4

1. What is datatype and explain various datatype in brief?

2. Use the basic function of pandas (like df.dtypes/columns/size/shape/values) to fulfill the following requirement:

a) How many records in the data frames?
b) How many elements are there?
c) What are the names of columns?
d) What is the datatype of all columns?

3. Write a Python program to plot a line graph of the following data:

x = [1, 2, 3, 4, 5]
y = [2, 4, 6, 8, 10] Label the axes as "X-axis" and "Y-axis," and give the title as "Basic Line Plot."

4. Write a Python program to create a scatter plot for the following data:

x = [5, 7, 8, 7, 2, 17, 2, 9, 4, 11]
y = [99, 86, 87, 88, 100, 86, 103, 87, 94, 78] Customize the markers (e.g., use circles or triangles) and add a title and labels.

5. Write a Python program to create a pie chart visualizing the distribution of preferences for various sports among a group of students.

Use the following details:

Labels: ['Football', 'Basketball', 'Tennis', 'Cricket', 'Swimming']

Sizes: [35, 25, 15, 20, 5]

Colors: ['blue', 'orange', 'green', 'red', 'cyan']

Explode: Explode the slices for "Football," "Basketball," and "Cricket."

Add a shadow for a 3D effect, percentage labels (autopct='%1.1f%%'), and a border for the slices (wedgeprops= {'edgecolor': 'black'}).

The pie chart should:

- Be titled "Sports Preferences Among Students."
- Include a legend in the upper left corner.
- Have a figure size of 10x10.
- Start the pie chart at an angle of 90 degrees for better alignment.