…………………………………………………………………….assignment…………………………………………………………………..

1. Lab1: Write a Pandas program to split the following data frame into groups based on Class and count the number of students in that particular class. Also generate a bar chart based on the result and explain the conclusion.

Input:

student\_data = pd.DataFrame({

'school\_code': ['s001','s002', 's003','s001','s002', 's004"],

'class': ['V', 'VI', 'VI', 'VI', 'V', 'VIJ,

'name': ['Alberto Franco', 'Gino Mcneill', 'Ryan Parkes', 'Eesha Hinton', 'Gino Mcneill',

'David Parkes'].

'age': [12, 12, 13, 13, 14, 12],

'height': [173, 192, 186, 167, 151, 159],

'weight': [35, 32, 33, 30, 31, 32],

'address': ['street1', 'street2', 'street3', 'street1', 'street2', 'street4']},

)

//code

import pandas as pd

import matplotlib.pyplot as plt

# Creating the DataFrame

student\_data = pd.DataFrame({

'school\_code': ['s001', 's002', 's003', 's001', 's002', 's004'],

'class': ['V', 'VI', 'VI', 'VI', 'V', 'VI'],

'name': ['Alberto Franco', 'Gino Mcneill', 'Ryan Parkes', 'Eesha Hinton', 'Gino Mcneill', 'David Parkes'],

'age': [12, 12, 13, 13, 14, 12],

'height': [173, 192, 186, 167, 151, 159],

'weight': [35, 32, 33, 30, 31, 32],

'address': ['street1', 'street2', 'street3', 'street1', 'street2', 'street4']

})

# Grouping by 'class' and counting number of students in each class

class\_counts = student\_data.groupby('class').size()

# Plotting a bar chart

class\_counts.plot(kind='bar', color='skyblue', edgecolor='black')

# Adding labels and title

plt.xlabel('Class')

plt.ylabel('Number of Students')

plt.title('Number of Students in Each Class')

# Displaying the plot

plt.tight\_layout()

plt.show()

# Optional: Print the counts for clarity

print("Number of students in each class:")

print(class\_counts)

output:

Number of students in each class:

class

V 2

VI 4

dtype: int64

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2. Write a Pandas program to split the following data frame into groups and calculate monthly purchase amount. Also generate a bar chart based on the result and explain the conclusion.

Input:

df=pd. DataFrame{(

'ord\_no: [70001,70009,70002,70004,70007,70005,70008,70010,70003,70012,70011, 700131. 'purch amt [150.5,270.65.65.26,110 5,948.5.2400 6,5760,1983.43,2480 4.250.45, 75.29.3045.6]. 'ord date

[05-10-2012,09-10-2012 05-10-2012-08-17-2012, 10-09-2012 07-27-2012-10-09- 2012.10-10-2012 10-10-2012-06-17-2012 107-08-2012, 04-25-2012), customer id 13001,3001,3005.3001,3005.3001,3005.3001,3005.3001,3005,3005]

salesman id: [5002,5005,5001,5003,5002.5001.5001.5006.5003.5002,5007,5001)}

//code

import pandas as pd

# Corrected input data

data = {

'ord\_no': [70001, 70009, 70002, 70004, 70007, 70005, 70008, 70010, 70003, 70012, 70011, 70013],

'purch\_amt': [150.5, 270.65, 65.26, 110.5, 948.5, 2400.6, 5760.0, 1983.43, 2480.4, 250.45, 75.29, 3045.6],

'ord\_date': ['05-10-2012', '09-10-2012', '05-10-2012', '08-17-2012', '10-09-2012', '07-27-2012', '10-09-2012', '10-10-2012', '10-10-2012', '06-17-2012', '07-08-2012', '04-25-2012'],

'customer\_id': [13001, 3001, 3005, 3001, 3005, 3001, 3005, 3001, 3005, 3001, 3005, 3001],

'salesman\_id': [5002, 5005, 5001, 5003, 5002, 5001, 5001, 5006, 5003, 5002, 5007, 5001]

}

# Creating DataFrame

df = pd.DataFrame(data)

# Converting 'ord\_date' to datetime format

df['ord\_date'] = pd.to\_datetime(df['ord\_date'], format='%m-%d-%Y')

# Extracting month from 'ord\_date' and creating 'month' column

df['month'] = df['ord\_date'].dt.month

# Calculating monthly purchase amount

monthly\_purchase = df.groupby('month')['purch\_amt'].sum()

# Printing monthly purchase amounts

print("Monthly Purchase Amounts:")

print(monthly\_purchase)

print()

# Plotting a bar chart

monthly\_purchase.plot(kind='bar', color='skyblue', edgecolor='black')

# Adding labels and title

plt.xlabel('Month')

plt.ylabel('Purchase Amount')

plt.title('Monthly Purchase Amount')

# Displaying the plot

plt.tight\_layout()

plt.show()

output:

Monthly Purchase Amounts:

month

4 3045.60

5 376.31

6 250.45

7 75.29

8 110.50

9 270.65

10 12122.83

Name: purch\_amt, dtype: float64

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