Question 1:

from matplotlib import pyplot as plt

import numpy as np

import json

f = open("C:/Users/fredl/Desktop/stat1129/number.txt", "r")

data = f.read()

data\_into\_list = data.replace('\n', ',').split(',')

for i in range(0, len(data\_into\_list)):

data\_into\_list[i] = int(data\_into\_list[i])

numbers\_sorted = sorted(data\_into\_list)

print(numbers\_sorted)

frequency = {}

# iterating over the list

for item in numbers\_sorted:

# checking the element in dictionary

if item in frequency:

# incrementing the counr

frequency[item] += 1

else:

# initializing the count

frequency[item] = 1

for key, value in frequency.items():

print ("% d : % d"%(key, value))

print('explanation: here ', end = '')

for key, value in frequency.items():

print (f'{key} occurs {value} times,', end = '')

mylist = [key for key, value in frequency.items() for \_ in range(value)]

plt.hist(mylist, bins=11)

plt.show()

with open('C:/Users/fredl/Desktop/stat1129/data.json', 'w') as fp:

json.dump(frequency, fp)

Question 2:

import matplotlib.pyplot as plt

import numpy as np

import pandas as pd

df = pd.read\_csv('C:/Users/fredl/Desktop/stat1129/amazon\_orders.csv')

df = df.fillna(0)

df = df.drop(0)

df["Item Total"] = df["Item Total"].str.replace('$','').astype(float)

df["Item Subtotal Tax"] = df["Item Subtotal Tax"].str.replace('$','').astype(float)

df["Item Subtotal"] = df["Item Subtotal"].str.replace('$','').astype(float)

df['Order Date'] = pd.to\_datetime(df['Order Date'])

df

#statistical analysis

df["Item Total"].sum()

df["Item Total"].mean()

df["Item Total"].median()

df["Item Total"].max()

df["Item Total"].min()

df["Item Total"].std()

df["Item Subtotal Tax"].sum()

df["Item Subtotal Tax"].sum() / df["Item Total"].sum()

#barchart

daily\_orders = df.groupby('Order Date').sum()["Item Total"]

print(daily\_orders)

daily\_orders.plot.bar(x='Order Date', y='Item Total', rot=90)

#pie chart

sum\_by\_seller = df.groupby(['Seller']).sum().plot(kind='pie', y='Item Total')

plt.legend(title = 'Payment to each Seller', bbox\_to\_anchor=(1.5,1.0),loc = 'upper left')

plt.show()

#multiple line comparison

df1 = df[['Item Subtotal Tax', 'Item Total']]

plt.figure(figsize=(50,40))

df1.plot()

plt.legend()