Question22:

22.Scenario:

Imagine you are an analyst for a popular online shopping website. Your task is to analyze customer

reviews and provide insights on the average rating and customer satisfaction level for a specific

product category.

Question:

You will use the pandas library to calculate confidence intervals to estimate the true population

mean rating.

You have been provided with a CSV file named "customer\_reviews.csv," which contains customer

ratings for products in the chosen category.

Answer:

import pandas as pd

import numpy as np

from scipy import stats

df = pd.read\_csv(r"C:\Users\jampa\Downloads\customer\_reviews (1).csv")

category = 'Electronics'

category\_data = df[df['category'] == category]

mean\_rating = category\_data['rating'].mean()

std\_dev = category\_data['rating'].std()

n = category\_data['rating'].count()

confidence\_level = 0.95

alpha = 1 - confidence\_level

t\_score = stats.t.ppf(1 - alpha/2, df=n-1)

margin\_of\_error = t\_score \* (std\_dev / np.sqrt(n))

confidence\_interval = (mean\_rating - margin\_of\_error, mean\_rating + margin\_of\_error)

print(f"Category: {category}")

print(f"Number of Ratings: {n}")

print(f"Mean Rating: {mean\_rating:.2f}")

print(f"95% Confidence Interval: {confidence\_interval[0]:.2f} to {confidence\_interval[1]:.2f}")

Output:

