EXPERINMENT-22

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..

Code:

```
import pandas as pd
import math
data = pd.read_csv("customer_reviews.csv")
ratings = data["rating"].dropna().astype(float)
n = len(ratings)
mean_rating = ratings.mean()
std_dev = ratings.std(ddof=1)
confidence = float(input("Enter confidence level (e.g., 0.95): "))
z_values = {0.90: 1.645, 0.95: 1.96, 0.99: 2.575}
z = z_values.get(round(confidence, 2), 1.96)
margin_error = z * (std_dev / math.sqrt(n))
lower = mean_rating - margin_error
upper = mean_rating + margin_error
print("Number of ratings:", n)
print("Mean Rating:", round(mean_rating, 3))
print(f"{confidence*100}% Confidence Interval: [{round(lower,3)}, {round(upper,3)}]")
```

Output: