Test - 1

Based on Data Analysis

Data related to apple_products

Timing – 2:05 to 2:55

General Instructions:

1. **Total Questions:** 10
2. **Questions to Attempt:** You are required to attempt **8 out of 10** questions.

Question 1 : Using Pandas, filter out all products with a discount percentage greater than 30% and calculate the average star rating for these products.

Question 2: Create a new column called Price Difference that calculates the difference between Mrp and Sale Price for each product. Find the top 5 products with the highest price difference.

Question 3: Sort the dataset by Star Rating and Number Of Ratings in descending order. Select the top 10 products with the highest star ratings and number of ratings.

Question 4: Use NumPy to find the percentage of products where the Star Rating is above 4.5. How many such products exist?

Question 5: Convert the Sale Price and Mrp columns to NumPy arrays and compute the mean and standard deviation of each. How do the sale prices compare to the MRP?

Question 6: Calculate the weighted average star rating of all products, where the weight is the number of ratings (Number Of Ratings). Use the formula:

$$\text{Weighted Average} = \frac{\sum(\text{Star Rating} \times \text{Number Of Ratings})}{\sum \text{Number Of Ratings}}$$

Question 7: Create a scatter plot with Sale Price on the x-axis and Star Rating on the y-axis. Add color based on Brand. What relationship, if any, do you observe between price and star rating?

Question 8: Plot a histogram of the Sale Price column to visualize the distribution of product prices. Are there any noticeable trends or outliers?

Question 9: Create a bar chart showing the number of products per brand. Which brand has the most products listed?

Question 10: Using the formula Discount Percentage = ((Mrp - Sale Price) / Mrp) * 100, create the Discount Percentage column for all products.