**Analysis Report**

**Basic Insights**

* Change the date to short date as date is not visible properly by changing its format to short date.
* Total No. Of Rows: 5001
* Total No. Of Columns: 7
* Total No. Of Features: 7
* Missing values in dataset: 0 (Uses COUNT and COUNTA to find missing values of each column).
* Duplicates: There are no duplicate values in the dataset. Select all dataset and use remove duplicates.
* Unique Values:

**Date**: 657 distinct values, 406 unique

**Product ID**: 100 distinct values, 0 unique

**Historical Sales Volume**: 426 distinct values, 119 unique

**Price**: 987 distinct values, 974 unique

**Promotional Activity**: 3 distinct values, 0 unique .

**Economic Indicators**: Contains 628 distinct values with 358 unique entries.

**Competitor Price** :Displays 987 distinct values with 974 unique entries.

* Statistical Summary:
* First select all dataset then in data tab go to data analysis select descriptive statistics select range and checked options like labels in the first row, summary statistics, confidence interval for mean, Kth largest, Kth smallest then press OK.
* It gives statistical values for our dataset which helps to find out the distribution of our data or how our data spread out.
* Date column indicates that our data contain is nearly symmetric with a skewness of **0.03**, meaning dates are fairly evenly distributed. The kurtosis (-1.2) suggests a relatively flat distribution (lighter tails than a normal distribution).
* Product ID column indicates that our data contain Negative or Left skewed data because the value of Median is greater than Mean. Kurtosis (-1.21) suggests a flat distribution. The skewness value indicates that our dataset is good for analysis.
* Store ID column indicates that our data contain Negative or left skewed data because the value of mean is less than median. Kurtosis value shows that it contain less outliers because it’s value is less than 3. The skewness value indicates that our dataset is good for analysis.
* Historical sales volume column indicates that our data contain Negative or Left skewed data because the value of median is greater than mean. Kurtosis value Flat kurtosis (-1.17) suggests no heavy-tailed distribution
* Price column indicates that our data contain Positive or Right skewed data because the value of median is less than mean. Kurtosis value shows that it contain less outliers because it’s value is less than 3. The skewness value indicates that our dataset is good for analysis.
* Price per unit column indicates that our data contain Negative or left skewed data because the value of mean is less than median. Kurtosis (-1.20) value shows that it contain less outliers because it’s value is less than 3. The skewness value indicates that our dataset is good for analysis.
* Economic Indicator column indicates that our data contain Negative or Left skewed data because the value of median is greater than mean. Kurtosis (-1.22 )value shows that it contains less outliers because it’s value is less than 3. The skewness value indicates that our dataset is good for analysis.
* Competitor Prices column indicates that our data contain Negative or Left skewed data because the value of mean is less than median. Kurtosis(-1.21) value shows that it contains less outliers because it’s value is less than 3. The skewness value indicates that our dataset is good for analysis.
* Feature Wise Interpretation:
* 1) Date: It gives the date for the sales transaction. It gives time-wise analysis.
* 2) Product ID: A unique value for each product. It is crucial for understanding which product are selling well.
* 3) Historical Sales Volume: It shows quantity of products sold in a transaction. It is essential for understanding the customer demands for a product.
* 4) Price : The price of a single unit of the product. It gives the prices of the different products.
* 5) Promotional Activity: The Activity shows the Product Active High ,Low & Medium.
* 6)Economic Indicator :  A numerical value representing economic conditions affecting sales.
* Transformation:
* From the date column we extract year, month ,month name, quarter, day, and day name. which are used in time-wise analysis of sales data. From this we can analyse how price and historical sales volume changes over time.
* Also change Date into the Short date it is easy to visualize data by day.
* In Product ID we extract number by using replace value. It contains both text and numbers which affect our analysis and also it is not possible to calculate the descriptive statistics as it is calculate only for numeric values.
* We change the data type to whole number because after replacing value it is consider as a text and we need number to calculate descriptive statistics.
* We change the data type to whole price into currency.
* Descriptive Statistics useful to find out how our data is distributed.
* Insights and Patterns:
* Highest Sum of Price in a year = 488936.08 in 2023
* Lowest Sum of Price in a year = 63351.53 in 2025.
* Economic Indicators by Year:2022: 8179.03 , 2023: 8252.95 , 2024: 901.86 , 2025: 1072.11 (major drop).
* Which quarter has the highest no. of historical sales volume = Quarter2 (1298).
* Top 5 Economic Indicators by Product ID:Product-58 has the highest economic value (373.28), possibly the best-performing product,Product-72 has the lowest value (334.08),.
* Which quarter has the lowest no. of historical sales volume = Quarter3(1207).
* Which top 5 product Id shows economical value= product-35,product-58,product-67,product-72,product-95 Which month has the lowest products sold = February.
* How much low active product in 2023 = 1135 low active product in 2023.
* Find historical price volume in 4 Quarter = 1270
* How many historical sales volume in may = 481
* Activity levels are evenly distributed across High (1,645), Medium (1,665), and Low (1,689)
* **Recommendations**
* **Investigate the 2025 drop** in economic indicators and sales. Consider checking if there was a **market disruption, supply chain issue, or competitor impact**.
* **Capitalize on Q2 (April-June)** since it has the highest sales—plan promotions or product launches around this period.
* **Boost sales in February** through discounts, marketing campaigns, or new product offerings.
* **Analyse Product-72’s low economic performance** and identify whether pricing, competition, or demand is the issue.