**Variance Analysis**

**Project Overview**

This project involved the creation of a **Variance Analysis Report** using Power BI to assess the sales performance of different products by comparing actual sales against budgeted targets over multiple time periods. The report provides crucial insights to help the business understand where variances occur, enabling more informed decision-making.

**Objective**

The primary objective of this project was to develop an interactive dashboard that:

* Highlights the variance between actual sales and budgeted figures.
* Analyzes sales performance across different products.
* Tracks performance over time to identify trends and areas for improvement.

**Data Sources**

The dataset used for this analysis included the following columns:

* **Date:** The time period for sales data (e.g., Year, Quarter, Month).
* **Product:** The specific product being analyzed (e.g., Aspen, Carlota, Quad).
* **Budget:** The budgeted sales figures for each product and time period.
* **Actual Sales:** The actual sales figures recorded.
* **Variance:** The difference between actual sales and budgeted figures.
* **Variance %:** The percentage variance, calculated as (Actual Sales - Budget) / Budget×100\text{(Actual Sales - Budget) / Budget} \times 100(Actual Sales - Budget) / Budget×100.

**Analysis Steps**

1. **Data Profiling:**
   * Conducted an initial assessment of the dataset to understand its structure, completeness, and integrity. Key statistics and distributions were reviewed to ensure the data was suitable for analysis.
2. **Data Cleaning:**
   * Identified and resolved any inconsistencies, missing values, and errors in the dataset. Ensured that all figures were accurate and reliable for analysis.
3. **Data Processing:**
   * Calculated key metrics such as variance and variance percentage. Organized the data into a format that aligns with the analysis objectives, ensuring that each product’s performance could be compared accurately.
4. **Data Analysis:**
   * Analyzed the data to identify trends, patterns, and significant variances. The analysis focused on understanding which products met, exceeded, or fell short of their budgeted targets.
5. **Data Visualization:**
   * Developed a dynamic Power BI dashboard that visually represents the data through various charts and KPIs:
     + **Total Budget by Product:** A bar chart that shows the budget allocated to each product.
     + **Total Actual Sales and Total Budget by Year and Quarter:** A line graph that tracks sales performance over time.
     + **Total Sales by Product:** A bar chart comparing actual sales across products.
     + **Variance Analysis Indicators:** KPIs that summarize the total budget, total actual sales, and overall variance.

**Key Findings**

* **Total Budget vs. Total Actual Sales:**
  + The overall variance across all products was -$193.22K, or -0.42%, indicating a slight underperformance compared to the budget.
* **Product Performance:**
  + **Aspen:** Showed a significant negative variance of $281,247 (-1.56%), indicating underperformance.
  + **Carlota:** Outperformed with a positive variance of $73,222 (+0.48%).
  + **Quad:** Was nearly on target with a slight positive variance of $14,801 (+0.12%).
* **Trend Analysis:**
  + A spike in sales was observed in Q3 2019, followed by a dip in the subsequent quarters. Understanding the drivers behind this spike could provide insights for future planning.

**Conclusion**

The **Variance Analysis Report** provides a comprehensive view of how well each product performed relative to its budget. By identifying variances early, the business can make informed decisions on resource allocation, sales strategies, and budgeting for future periods. The interactive dashboard serves as a valuable tool for continuous monitoring and strategic planning.