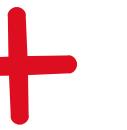


# **Optimizing Business Efficiency with INVENTORY MANAGEMENT PROFICIENCY**

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## BDM CAPSTONE PROJECT



# About the Project

### **Intro to Business:**

TVS Anjana Motors, established in 2016 by Mr. Rajeev Jha, is a leading TVS two-wheeler dealership in Darbhanga, Bihar. The business specializes in providing Motorcycles and Scooters to a diverse Customer base.

### **Objective:**

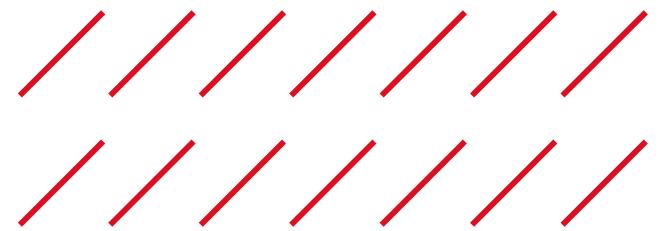
This project analyzes Inventory Management at TVS Anjana Motors to improve efficiency. Effective inventory control minimizes costs and enhances sales. The study period is from April 2024 to August 2024.

### **Key Focus:**

Analyzed past sales data to identify trends and optimize inventory levels. Implemented demand forecasting to balance stock availability and reduce excess inventory.



Figure 1: Shop's Front View



# Problem Statements



### 1. Stockouts of High-Demand Models:

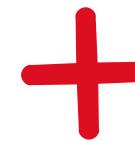
Running out of popular models results in missed sales opportunities, dissatisfied customers, and potential loss of market share. This also impacts brand reputation and customer loyalty, driving them to competitors.

### 2. Ineffective Sales Forecasting:

Poor demand predictions lead to imbalanced inventory, either overstocking or stock shortages. This affects cash flow, operational efficiency, and the ability to meet customer demand.

### 3. Overstocking of Less Popular Models:

Keeping excess inventory of slow-moving models results in tied-up capital and increased storage costs. This affects cash flow and limits the ability to invest in high-demand products.



## Structured Approach

### 1. Data Collection:

Collected purchase and sales records from April to August 2024, including item details and transaction values.

### 2. Data Cleaning:

Removed duplicates, corrected inconsistencies, and standardized model names for uniformity. Ensured clean and structured data for analysis.



### 3 . Methodology:

- Used Excel for data analysis and visualization, leveraging pivot tables for detailed insights and charts for trend representation.
- **ABC Analysis:** Categorized inventory into A, B, and C groups based on value and frequency, prioritizing high-value items. Helped optimize stock management and resource allocation.
- **Regression Analysis:** Examined relationships between sales and influencing factors like price and seasonality. Provided insights for data-driven decision-making and sales prediction.
- **Predictive Analysis:** Analyzed historical sales data to identify patterns and trends over time. Used for predicting future demand and optimizing inventory planning.





# Monthly Sales and Purchase Trends

- 1. Declining Trend (Apr–Jul):** Sales dropped from 24 to 10 units, and purchases fell from 20 to 4 units.
- 2. Seasonal Demand Fluctuation:** Market activity or customer preferences likely caused lower sales.
- 3. Inventory Management Issues:** Declining purchases suggest delays in restocking, affecting sales.
- 4. August Recovery:** Sales rose to 11 units, and purchases increased to 8 units.
- 5. Promotional Impact:** Possible new marketing efforts or better inventory management led to growth.
- 6. Overall Insight:** The trend highlights the importance of demand forecasting and efficient inventory control.

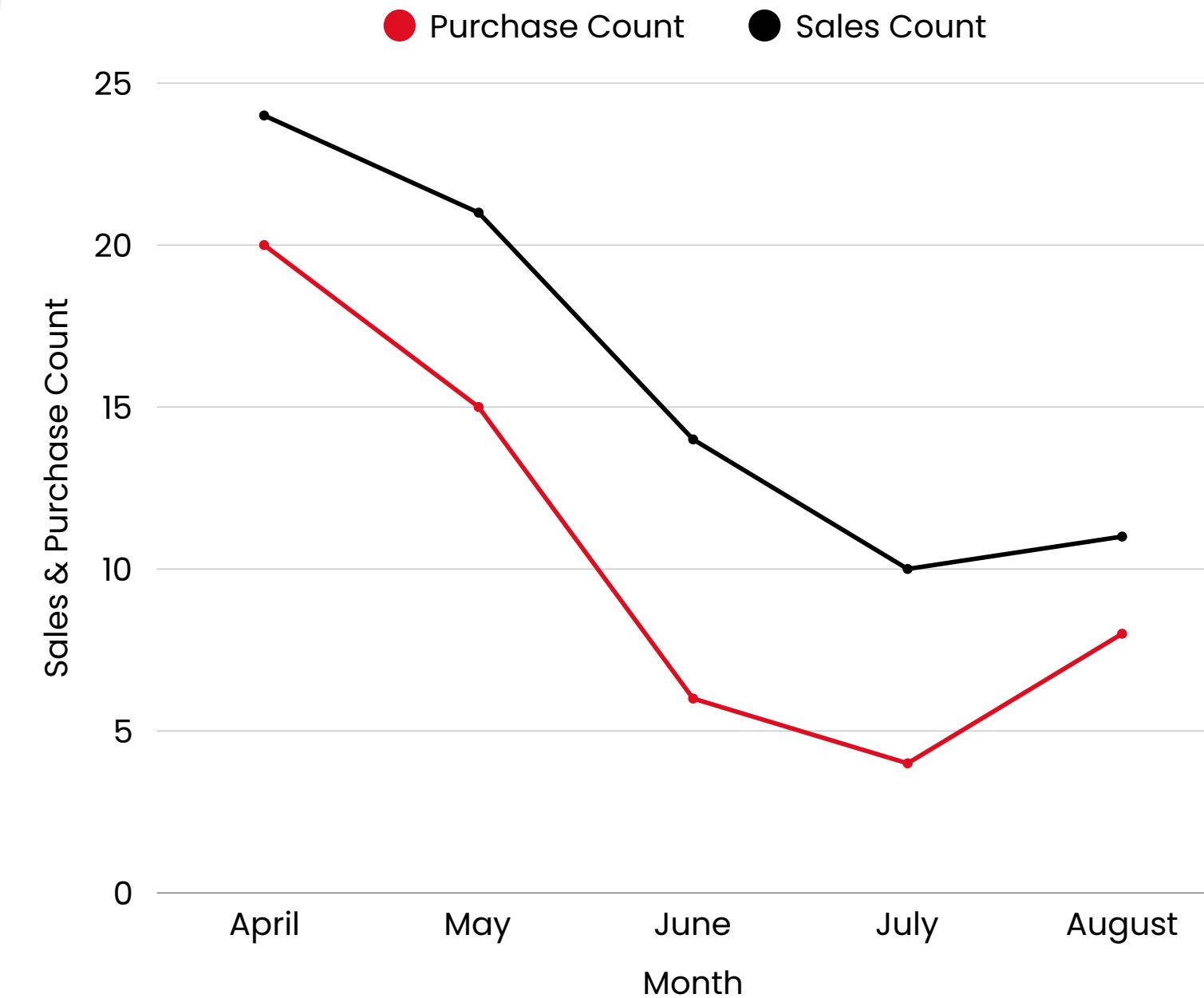


Figure 2: Monthly Sales & Purchase trends



# Revenue Contribution by Models

- 1. Top Performer – Apache 160:** Leads in revenue with ₹44,16,590.50, showcasing strong market demand.
- 2. Second Place – Raider 125:** Generates ₹15,57,769, maintaining a solid market position.
- 3. Moderate Revenue – XL 100:** Contributes between ₹5,00,000 and ₹10,00,000, popular among rural and small business owners.
- 4. Lower Revenue – TVS Sport:** Slightly above ₹5,00,000, performing steadily in the entry-level commuter segment.
- 5. Least Revenue – Jupiter 125:** Contributes under ₹5,00,000, indicating weak market traction.
- 6. Overall Insight:** Apache 160 dominates, while other models cater to niche segments with varying revenue levels.

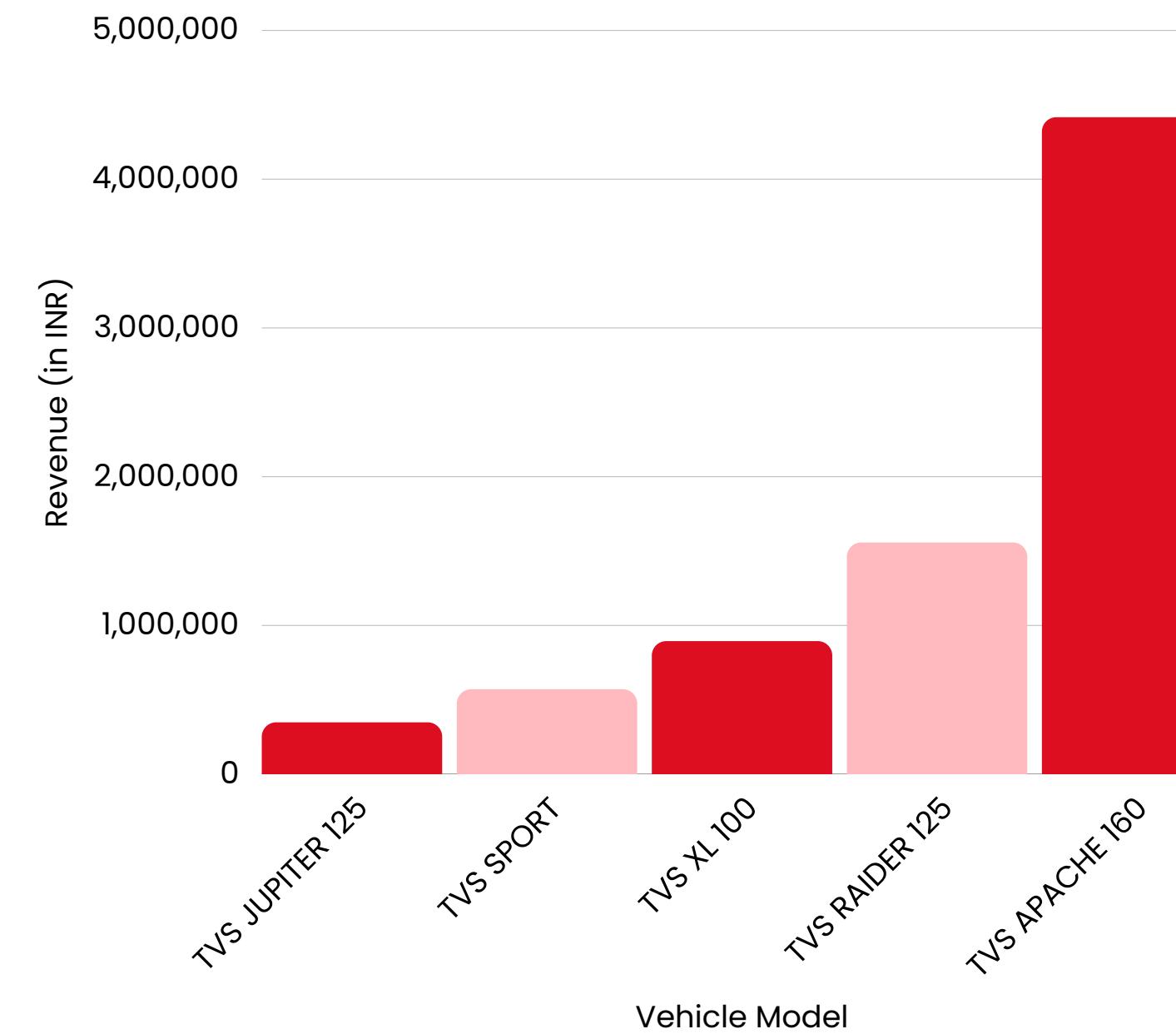


Figure 3: Revenue Contribution by Models



# ABC Analysis - Cumulative Contribution

- 1. Category A – High-Value, High-Priority:** TVS Apache-160 & Raider-125 contribute 68% of purchasing value, requiring strict monitoring of reorder levels & safety stock.
- 2. Category B – Moderate-Value, Medium-Priority:** TVS XL-100 & Sport make up 24% of purchasing value, needing balanced order size & frequency to reduce carrying costs.
- 3. Category C – Low-Priority Model:** TVS Jupiter-125 accounts for 18% of purchases, requiring minimal stock due to slow movement.
- 4. Inventory Control Strategy:** High-priority models need frequent replenishment, while low-priority ones should have limited stock.
- 5. Seasonal Demand Consideration:** Stock levels of Category B models should adjust based on seasonal demand fluctuations.
- 6. Optimized Procurement:** Efficient purchasing reduces holding costs while ensuring availability for high-demand models.

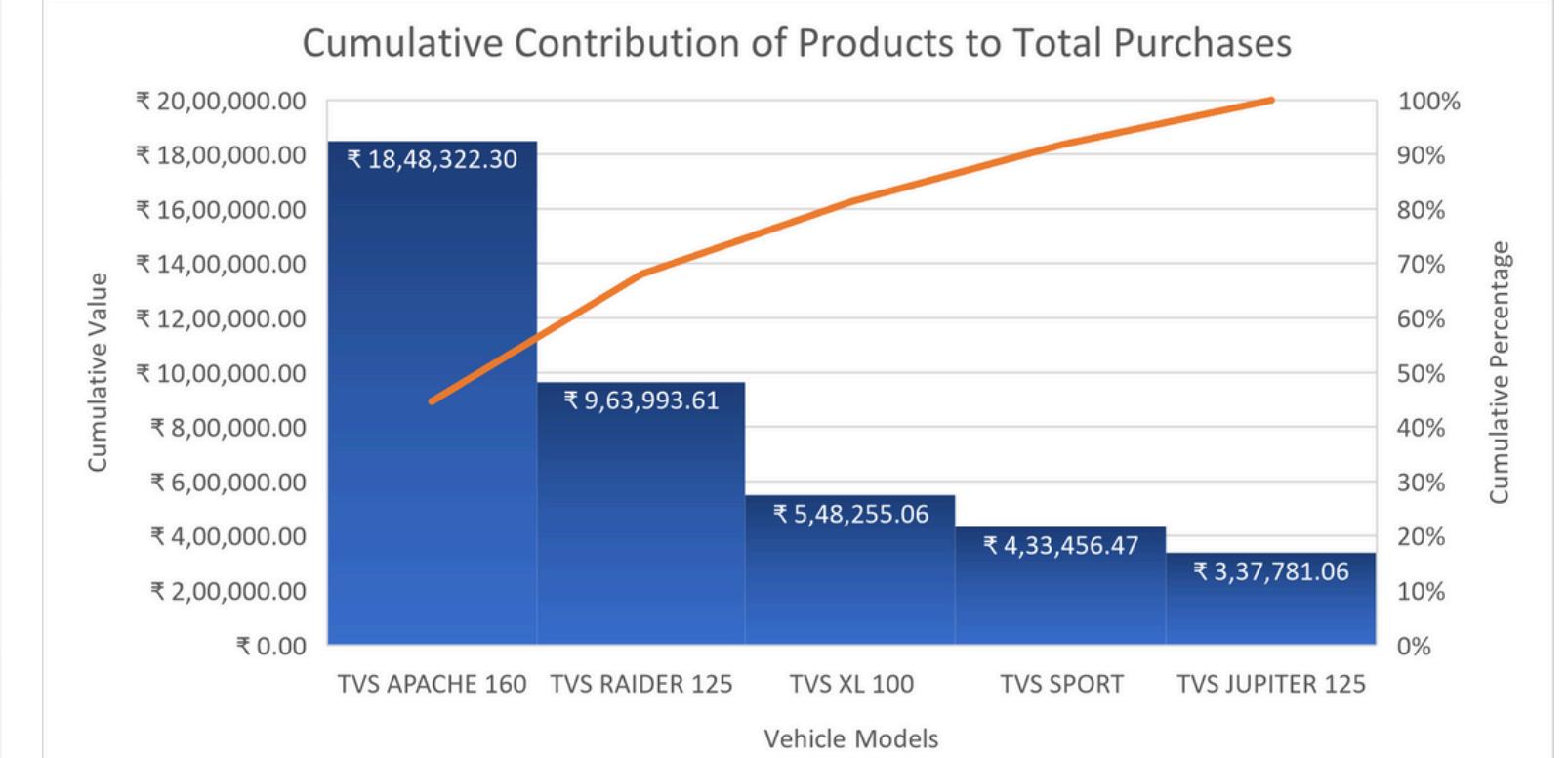


Figure 4: Cumulative Contribution of Products to Total Purchases



# Sales vs Purchases Regression Line

### 1. Why Linear Regression?

- A linear trend helps in identifying consistent patterns that aid in inventory planning.
- The high  $R^2$  value (0.9161) confirms a strong relationship between purchases and sales, making linear regression a suitable choice.

**2. Strong Positive Correlation:** Sales and purchases show a direct linear relationship ( $R^2 = 0.9161$ ), indicating that increases in purchases lead to predictable increases in sales.

**3. Regression Insight:** The equation  $y = 0.8873x + 6.5949$  suggests sales rise proportionally with purchases, with a slight offset.

**4. Inventory Planning:** Understanding this trend helps optimize stock levels, preventing under-stocking or over-stocking.

**5. Sales Forecasting:** The linear trend enables accurate sales predictions based on expected purchase quantities.

**6. Business Impact:** Proper inventory management enhances storage efficiency, reduces holding costs, and improves customer satisfaction.

Scatter Plot: Sales vs Purchases with Regression Line

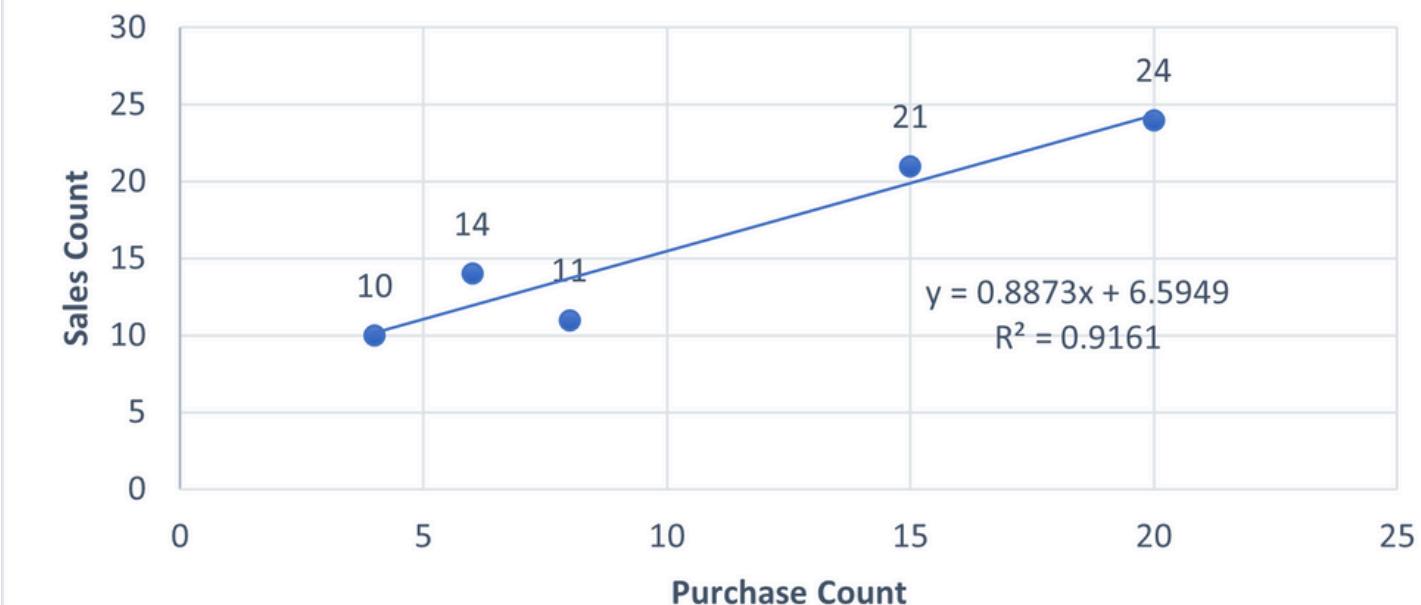
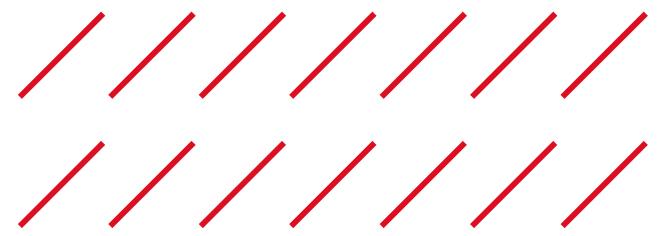


Figure 5: Sales vs Purchases with Regression line



# Recommendations

### RECOMMENDATION 01

#### Supply Chain Improvements:

- Strengthen supplier relationships.
- Reduce procurement delays.
- Optimize logistics to minimize transportation costs and delays.

### RECOMMENDATION 02

#### Inventory Optimization:

- Just-in-time inventory for high-demand models.
- Regular stock level forecasting.
- Implement automated inventory tracking for better accuracy.

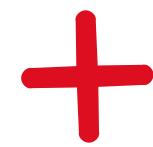
### RECOMMENDATION 03

#### Marketing Strategies:

- Focus promotions on underperforming models.
- Align campaigns with seasonal demand.
- Leverage digital marketing and social media for wider reach.



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# CONCLUSION

### **Effective Inventory Management Can Improve Sales & Profitability**

- Maintaining optimal stock levels ensures product availability, reducing lost sales opportunities.
- Avoiding excess inventory minimizes holding costs and financial strain, increasing overall profitability.

### **Data-Driven Decisions Can Prevent Stockouts & Overstocking**

- Analyzing past sales trends helps predict demand accurately, preventing shortages.
- Regular monitoring and forecasting help avoid excess stock, reducing waste and storage costs.

### **TVS Anjana Motors Can Optimize Resources for Better Growth**

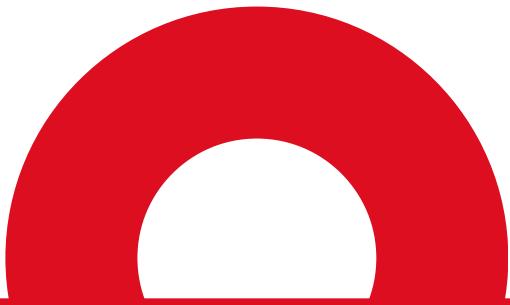
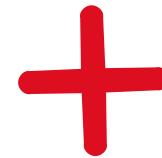
- Efficient use of inventory, marketing, and supply chain strategies can enhance operational efficiency.
- Strategic resource allocation enables sustainable business growth and competitive market positioning.





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# Thank You



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