

# Sales Performance Analysis Report

Comprehensive Sales Performance, EDA Findings, and Dashboard Evidence

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## Executive Summary

This project demonstrated how to take raw sales, order, and target data and transform it into meaningful insights. While not tied to a specific company, the analysis process reflects how real businesses could act on sales performance, variance vs. targets, seasonal trends, and regional dynamics. The recommendations outline the type of strategies companies typically implement based on such findings.

## Business Objective

The primary goal of this project is to evaluate the company's sales and profit performance across multiple dimensions — time (monthly, yearly), product categories, and geographic regions — and to translate those findings into clear, actionable insights.

This analysis will:

- Identify which products and categories contribute most to revenue and profit.
- Evaluate how actual sales compare to targets, highlighting significant gaps or overperformance.
- Uncover seasonal and monthly sales trends to support forecasting and planning.
- Highlight high-performing and underperforming states or cities for more focused regional strategies.
- Measure profit margins to understand where profitability is being boosted or dragged down

## Data Sources

This dashboard is based on publicly available datasets obtained from Kaggle.

The following three datasets were used:

- List of Orders – includes order-level information such as (Order\_ID, Order\_Date, Customer, State, City).
- Order Details – contains line-level transaction details including (Order\_ID, Amount, Profit, Quantity, Category, Sub\_Category).
- Sales Target – captures planned performance benchmarks, segmented by Month\_of\_Order\_Date, Category, Target.

These datasets were joined together using SQL queries to create a consolidated dataset named Query1

- Query1 – Order\_ID, Order\_Date, Customer, State, City, Amount, Profit, Quantity, Category, Sub\_Category, Month\_of\_Order\_Date, Target.

Dataset: <https://www.kaggle.com/code/flaviocavalcante/e-commerce-data-analysis/input>

## Methodology

- Data: Orders, Order Details, and Sales Targets joined into a single analytical table.
- Preparation: Date parsing, missing/duplicate checks, feature engineering (Profit Margin, Variance, Variance%).
- EDA Flow: Univariate → Bivariate → Time Series → Category/Sub-Category → Geography → Variance vs Target.
- Validation: Cross-checked results with the dashboard to ensure consistency.

## Findings & Analysis – Dashboard

### Figure 1. KPI Overview & Geographic Concentration

What you see: Core KPIs (Sales, Target, Profit, Quantity) and a geographic snapshot. How to read: Compare headline KPIs to plan; the map/pins reveal state concentration. Key takeaway: Sales are far under plan, and revenue is concentrated in a few states.

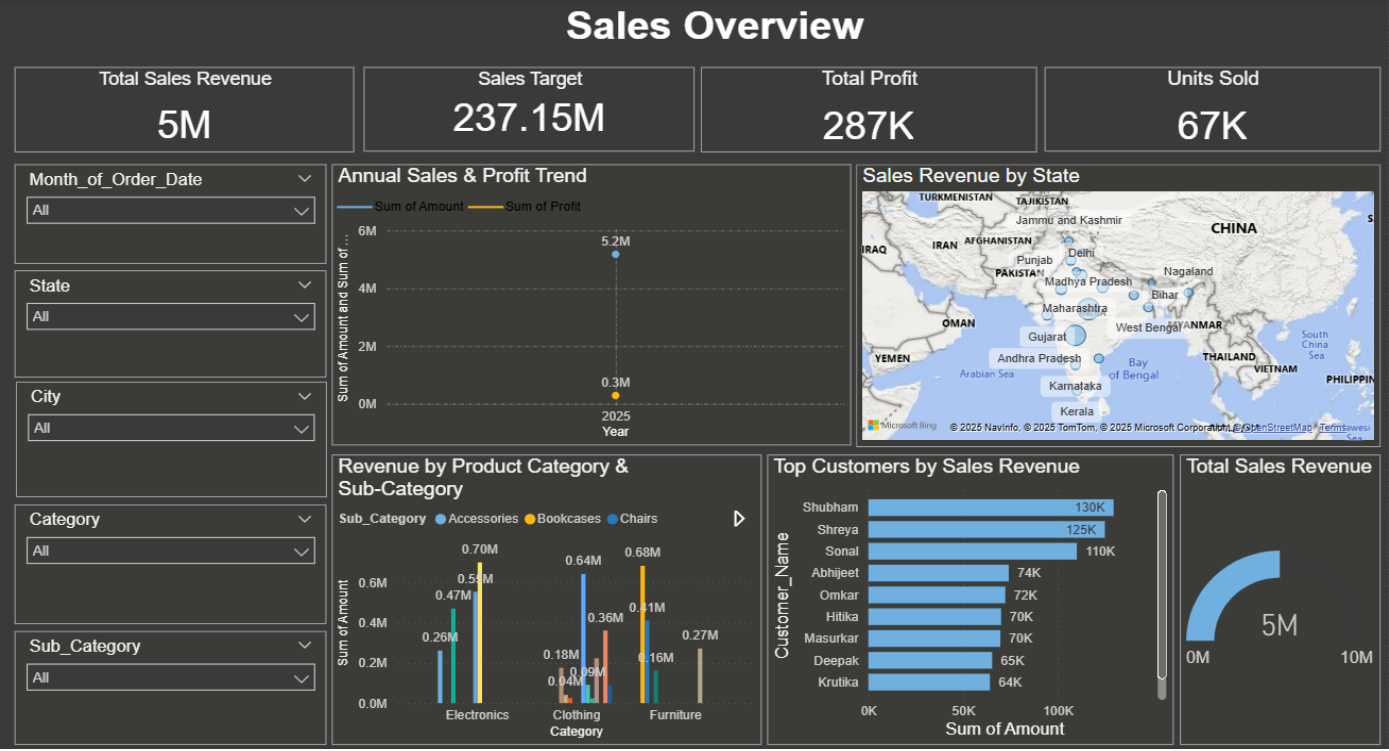


Figure 2. State Ranking & Contributions

What you see: A ranked list of states by sales. How to read: Identify top quartile states and the long tail.

Key takeaway: A few states (e.g., MP, Maharashtra) dominate; many trail significantly.

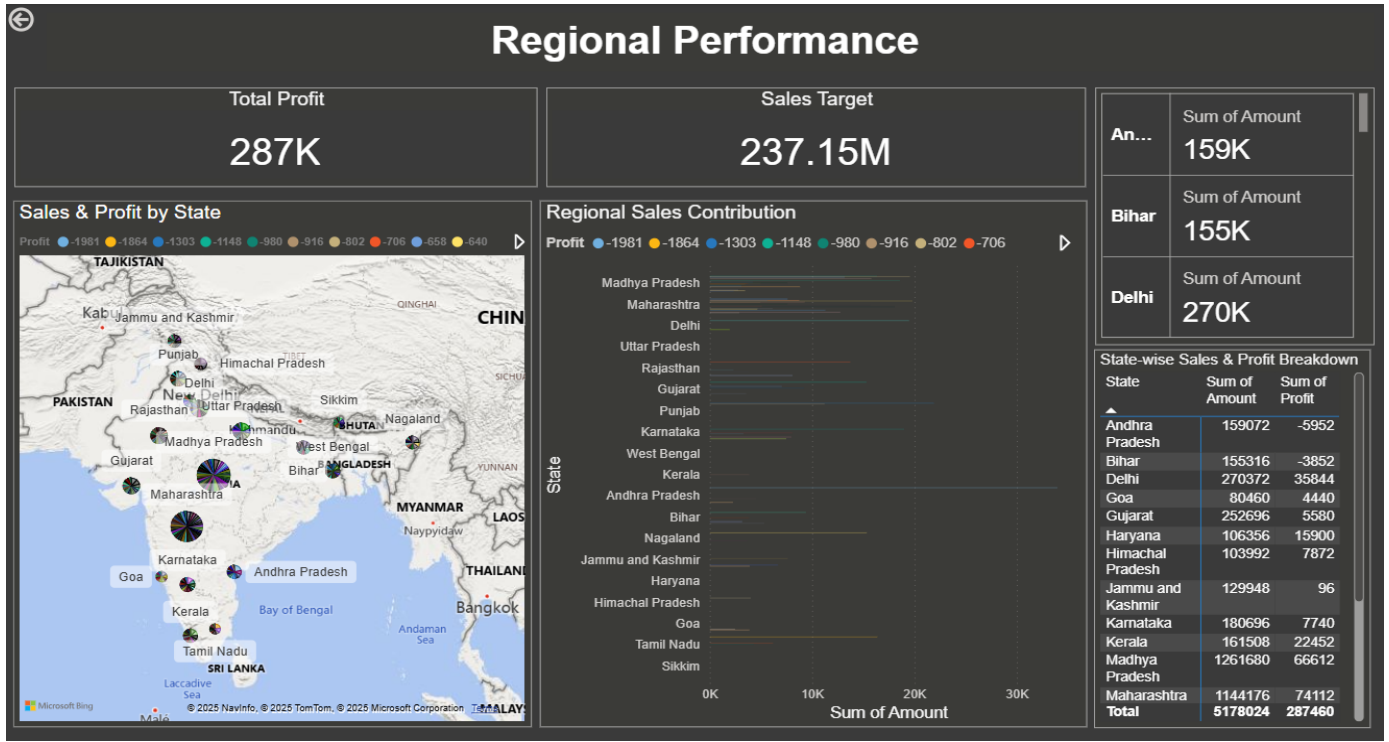


Figure 3. Customer Distribution & Top Contributors

What you see: Active customer count and a leaderboard. How to read: Note skew toward top accounts.

Key takeaway: Revenue is concentrated; dependence on a small cohort increases volatility.

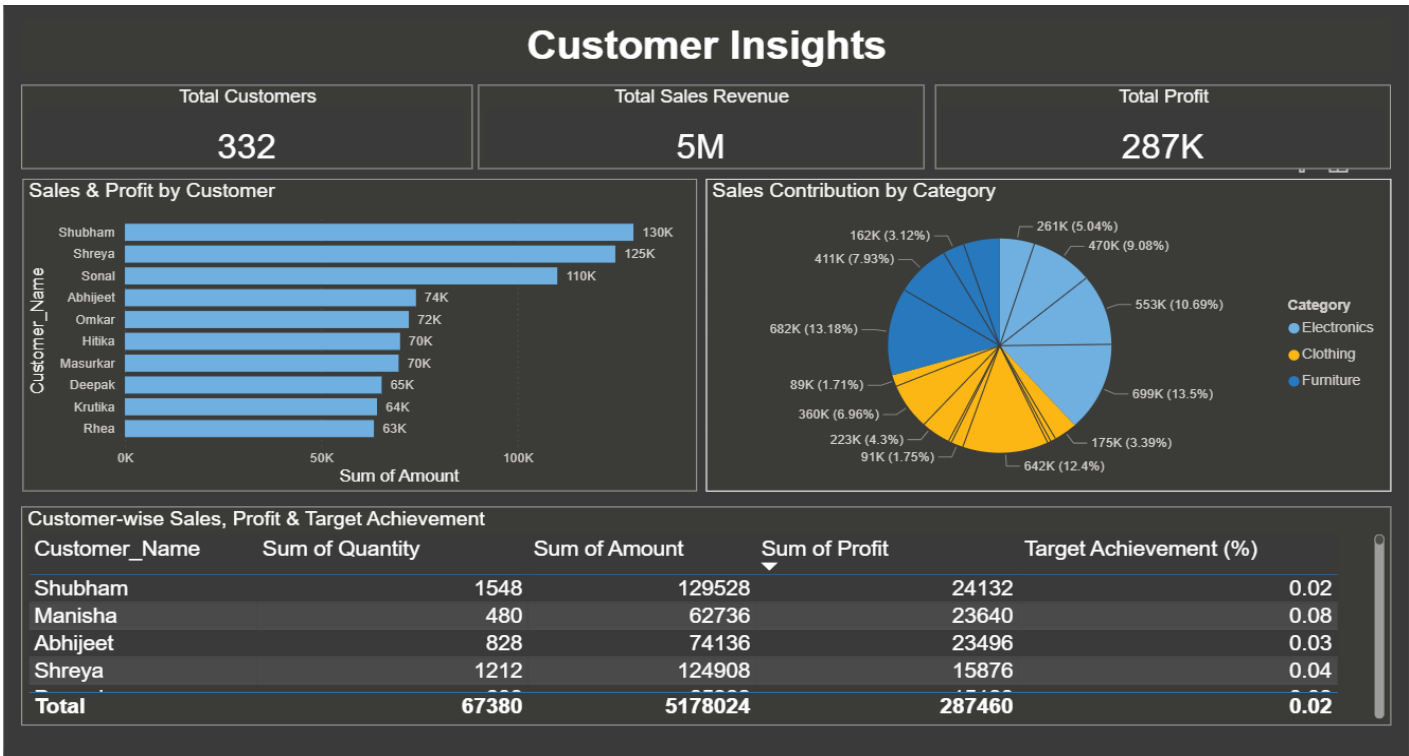
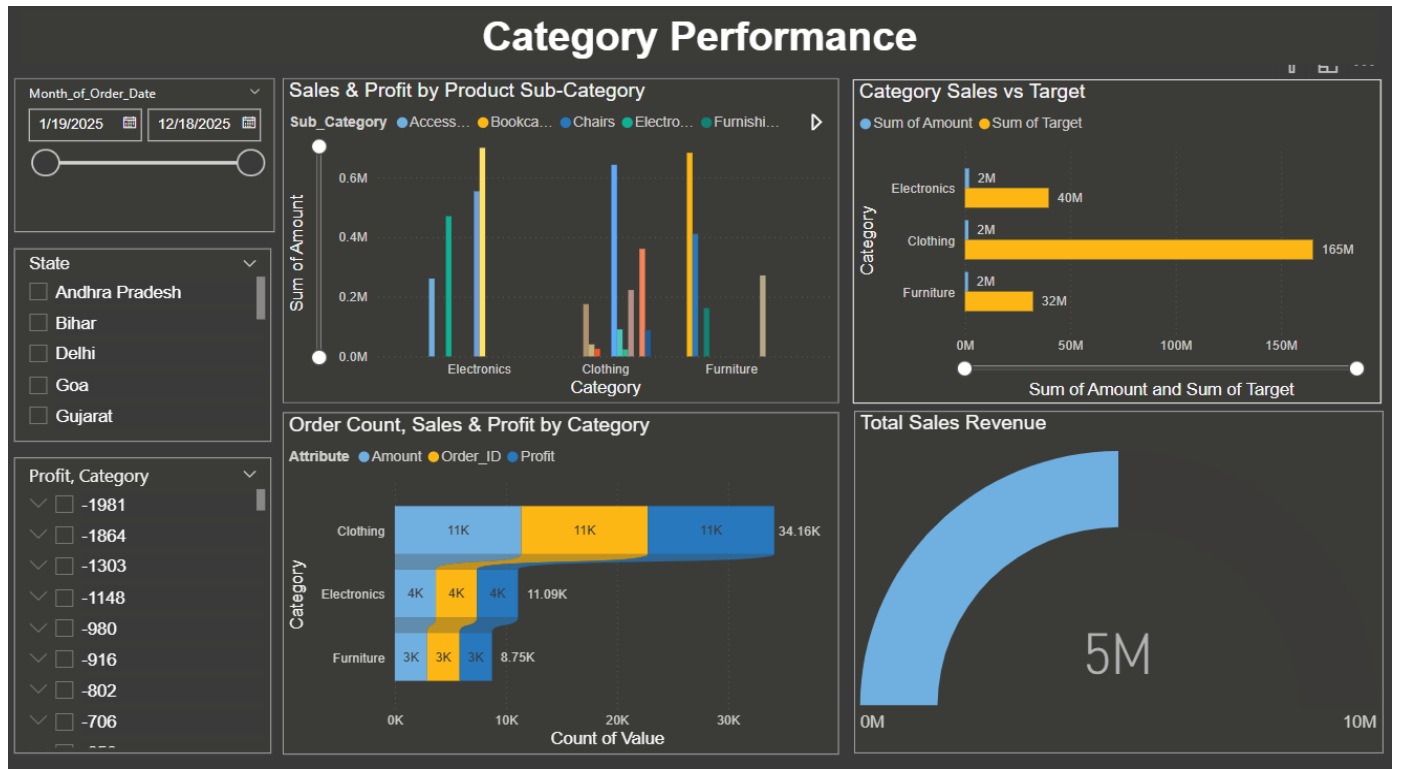


Figure 4. Category Performance Overview

What you see: Category metrics and variance hints. How to read: Compare actuals vs target by category. Key takeaway: Heavy-weight categories under-attain and drive most of the plan gap.



Findings & Analysis - SQL

Figure 5. Sales vs Profit Trend Diagnostics

What you see: Sales and profit trends. How to read: Look for consistent growth vs flat or choppy pacing. Key takeaway: Pacing is inconsistent; margins remain tight across months.

Result Grid			Filter Rows:
	Category	count_per_category	
▶	Furniture	48	
	Clothing	51	
	Electronics	12	

**Figure 6. Target vs Actual Deep-Dive by Category**

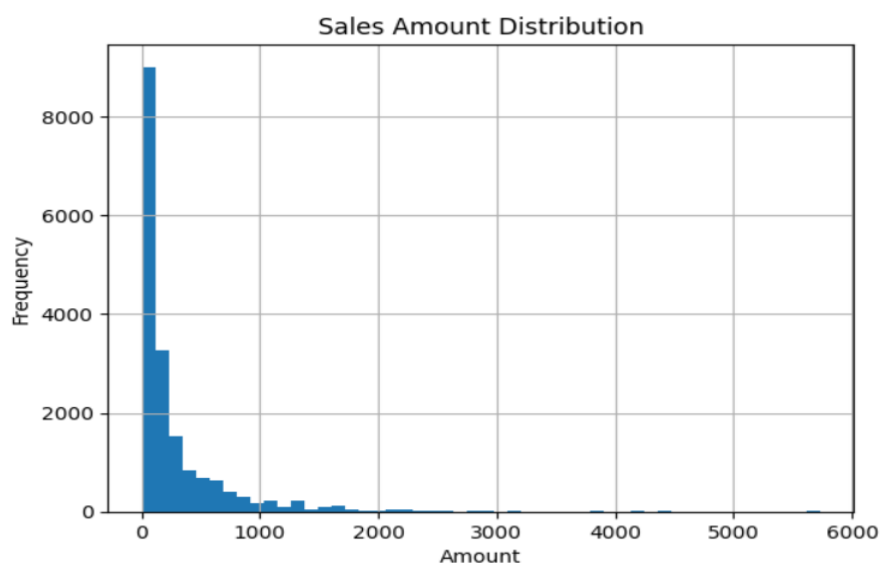
What you see: Category-level actual vs target and variance views. How to read: Identify worst-gap categories first. Key takeaway: Interventions should start where variance is deepest.

Result Grid						Filter Rows:	Export:	Wrap
	Category	Sales	Profit	Target	Target_Attainment			
▶	Furniture	37668	-36504	531600	7.09			
	Clothing	10338	321	714000	1.45			
	Electronics	9260	2252	150000	6.17			

## Findings & Analysis – EDA

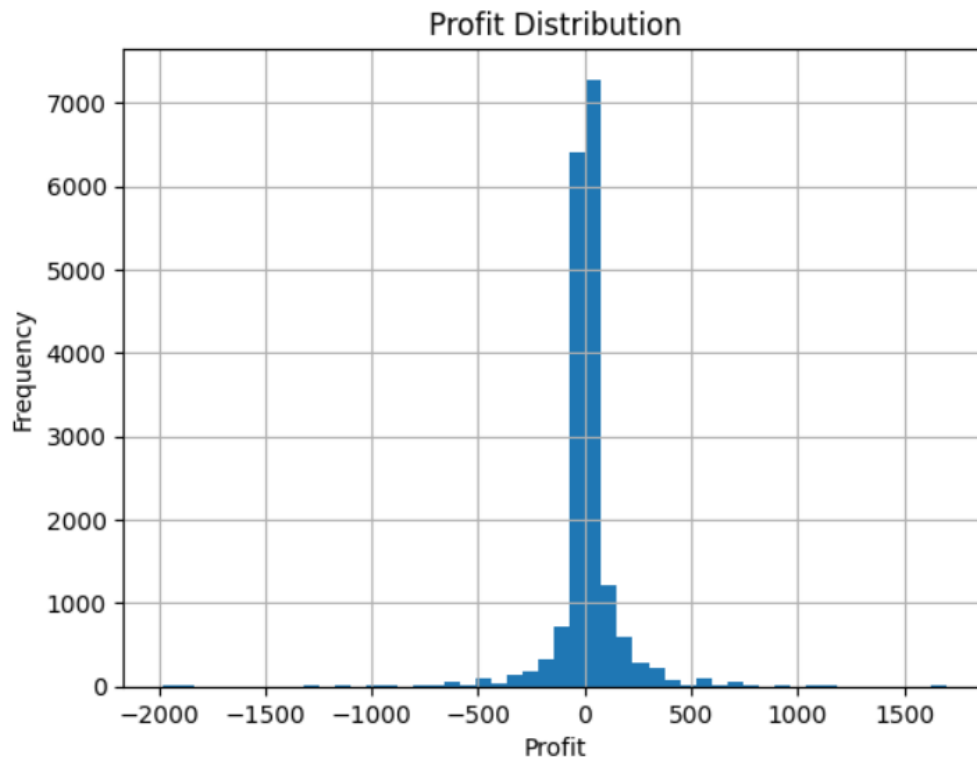
**Figure 7. Sales Amount Distribution**

Shows order value spread with a right tail; a few large orders influence totals. Implication: plan for tail-driven volatility.



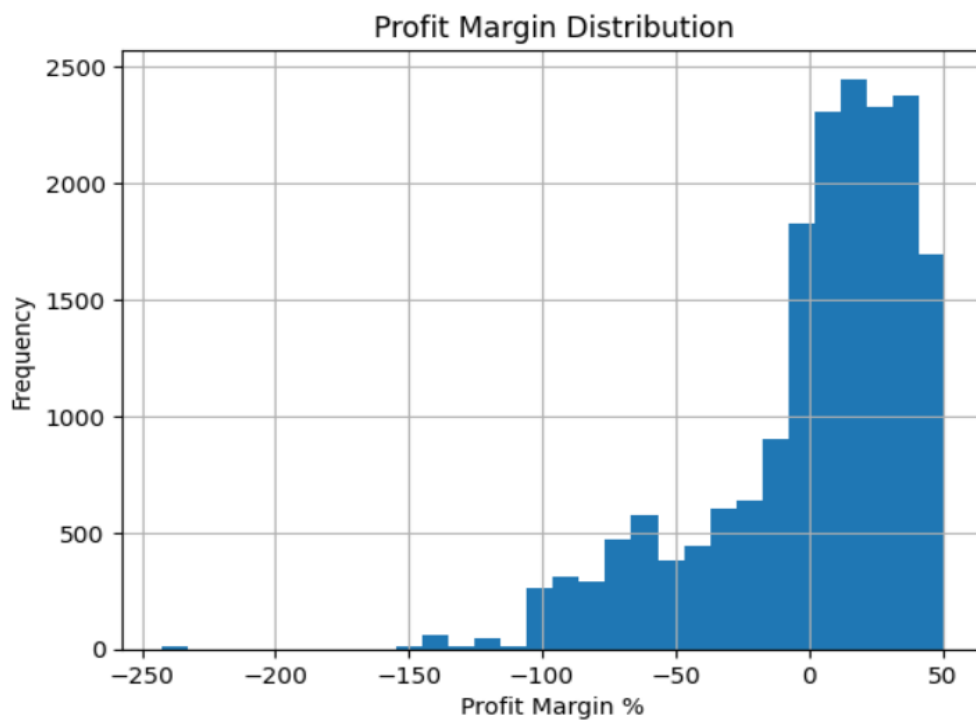
**Figure 8. Profit Distribution**

Exposes low and negative profit transactions; leakage likely from discounts/returns/costs. Action: tighten discount guardrails.



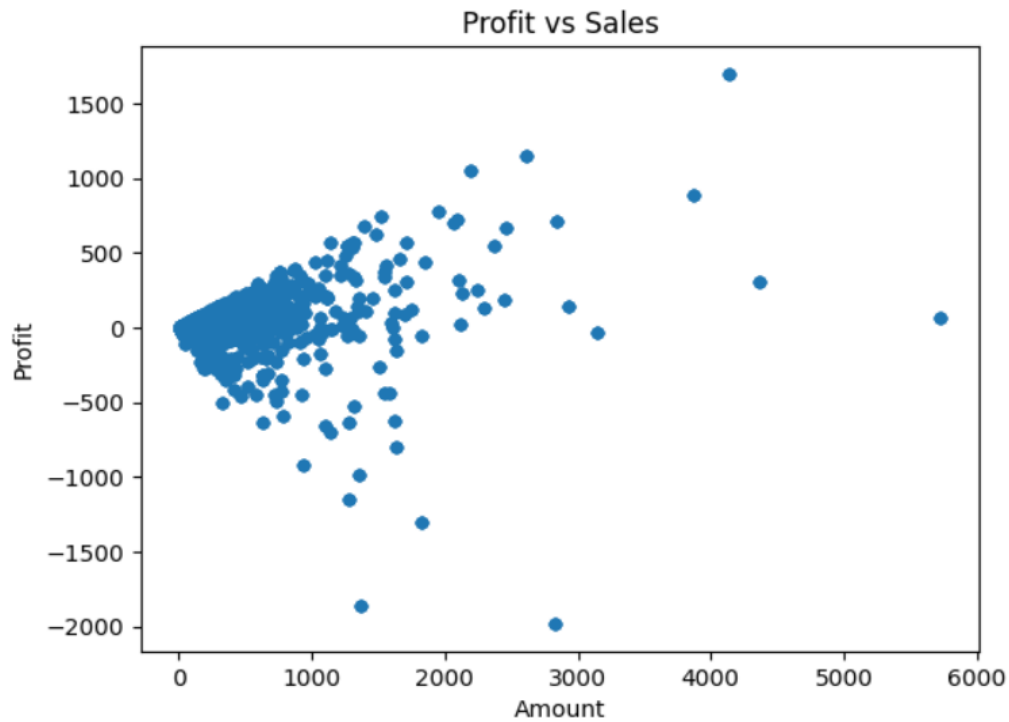
**Figure 9. Profit Margin Distribution**

Margins cluster low; price headroom limited. Action: focus on cost efficiencies and mix optimization.



**Figure 10. Profit vs Sales (Scatter)**

Profit rises only modestly with sales; wide spread at similar values. Implication: mix and pricing > volume for profit.



**Figure 11. Correlation / Relationship Matrix**

Weak link between quantity and profit; margin relates more to profit. Action: assortment and pricing discipline.

	Amount	Profit	Quantity	Target	Year	Month	\
Amount	1.000000	0.242045	0.352052	-0.270494	0.013041	0.007931	
Profit	0.242045	1.000000	0.002441	-0.023608	0.141277	-0.010850	
Quantity	0.352052	0.002441	1.000000	-0.014762	-0.001382	-0.000030	
Target	-0.270494	-0.023608	-0.014762	1.000000	0.002363	0.017987	
Year	0.013041	0.141277	-0.001382	0.002363	1.000000	-0.803458	
Month	0.007931	-0.010850	-0.000030	0.017987	-0.803458	1.000000	
Profit_Margin	0.067355	0.516490	-0.042610	0.060957	0.309692	-0.046710	
Variance	0.422440	0.062835	0.072963	-0.986870	-0.000037	-0.015604	
Variance%	0.975304	0.238526	0.331504	-0.380580	0.016410	0.004906	

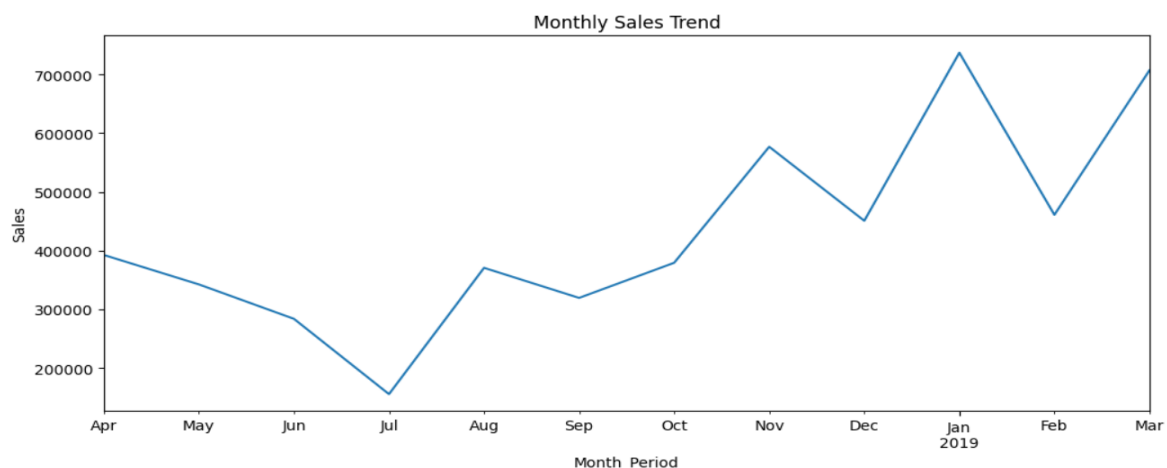
**Figure 12. Monthly Sales Trend**

Fluctuations indicate seasonality/campaign effects. Action: embed seasonality into monthly targets and inventory.

	Profit_Margin	Variance	Variance%
Amount	0.067355	0.422440	0.975304
Profit	0.516490	0.062835	0.238526
Quantity	-0.042610	0.072963	0.331504
Target	0.060957	-0.986870	-0.380580
Year	0.309692	-0.000037	0.016410
Month	-0.046710	-0.015604	0.004906
Profit_Margin	1.000000	-0.046090	0.060354
Variance	-0.046090	1.000000	0.521941
Variance%	0.060354	0.521941	1.000000

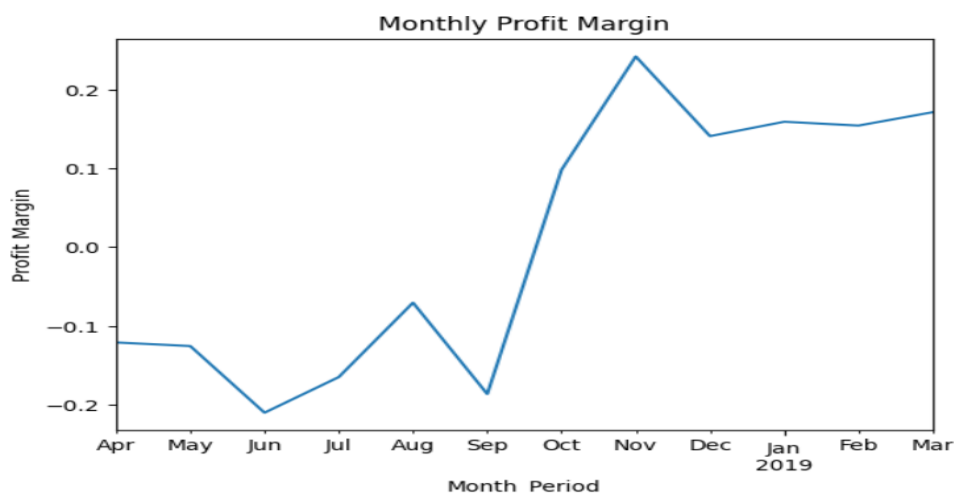
**Figure 13. Monthly Profit Margin Trend**

Flat/constrained margins across months. Action: supplier terms, promo mix, logistics optimization.



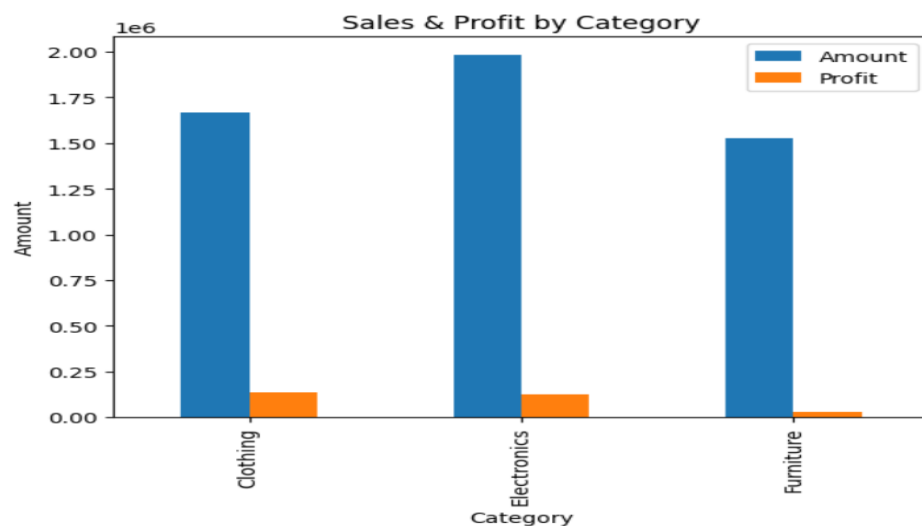
**Figure 14. Sales & Profit by Category**

Uneven category economics; some sell without profit. Action: rebalance toward high-margin categories; fix laggards.



**Figure 15. Top 10 States by Sales**

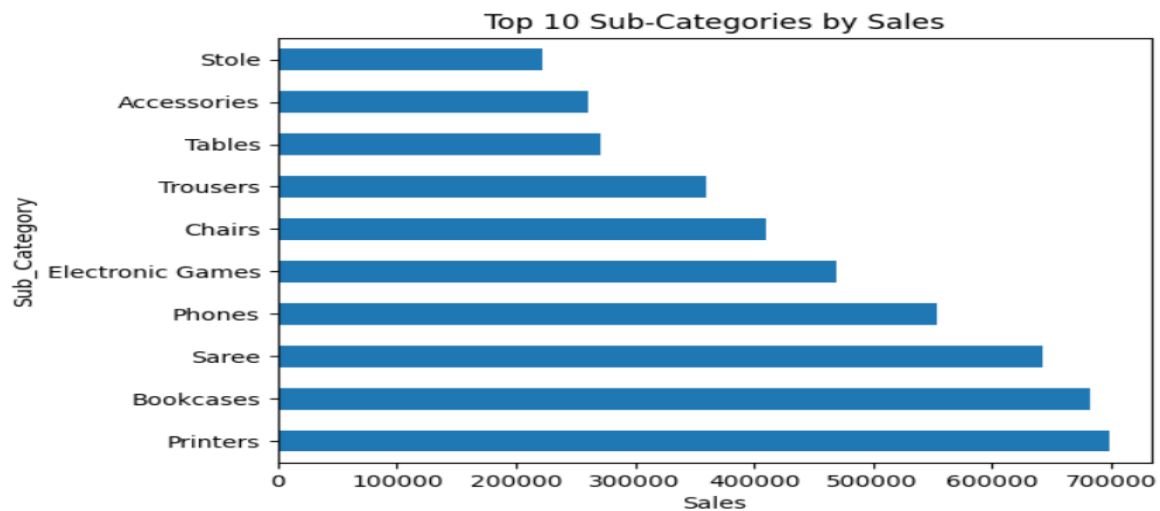
Few states dominate; long tail trails. Action: localized offers and channel execution in trailing states.





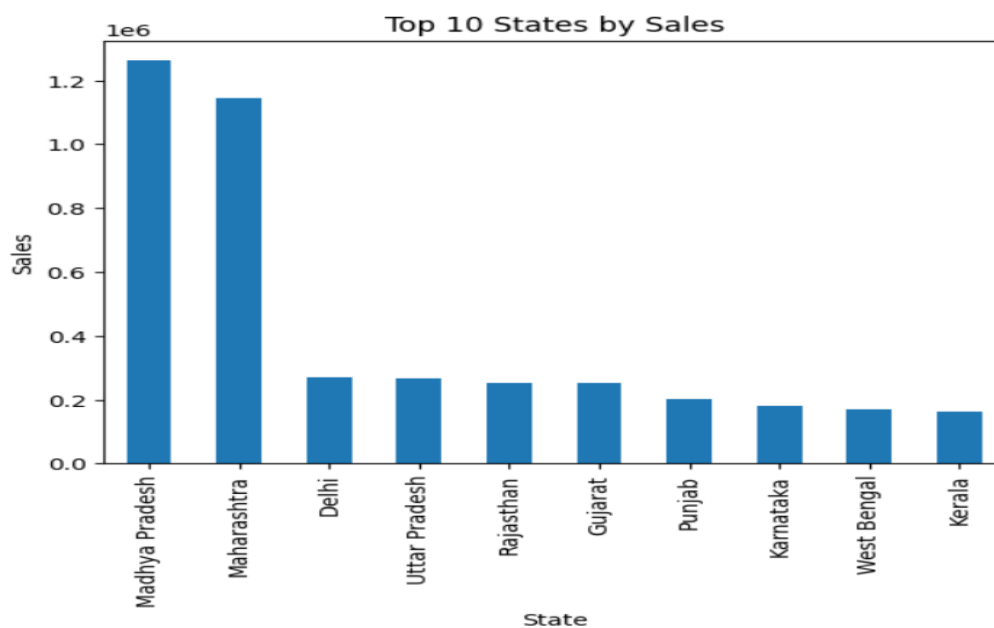
**Figure 16. Category – Actual vs Target**

Heavy-weight categories miss plan most. Action: re-baseline and intervene where gaps are deepest



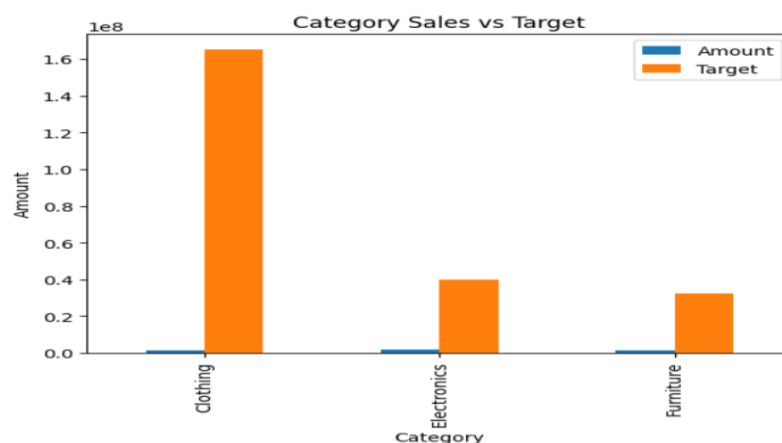
**Figure 17. Average Variance % by Category**

Variance% isolates priority categories. Action: root-cause analysis and corrective actions.



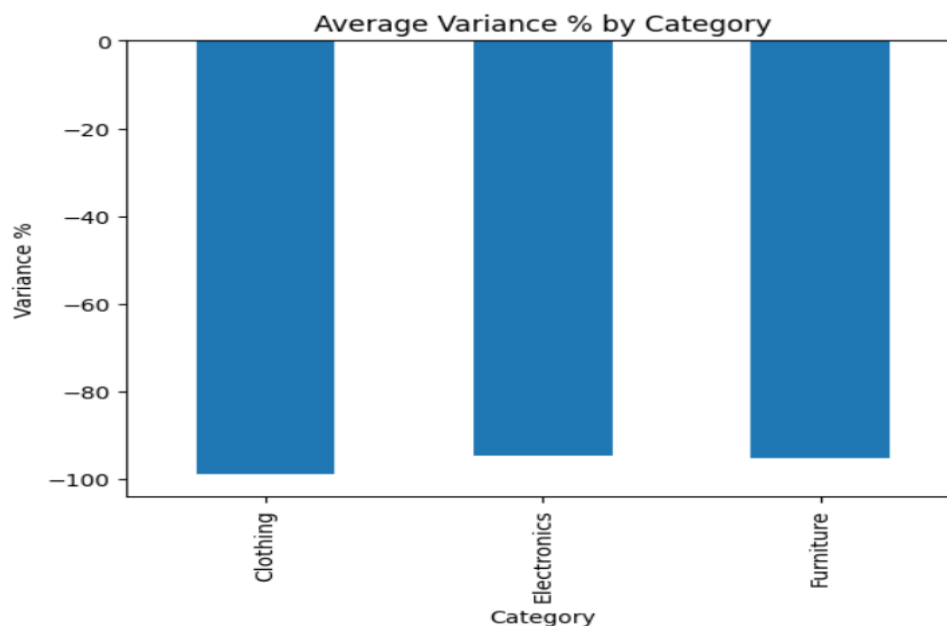
**Figure 18. EDA Visualization 13**

Interpretation: connect observed pattern to mix, pricing, geography, or target variance.



## Figure 19. EDA Visualization 14

Interpretation: connect observed pattern to mix, pricing, geography, or target variance.



### Key Insights

- The target gap is concentrated in a few heavy-weight categories; start interventions there.
- Profitability is fragile due to low/negative transactions; enforce discount governance and review cost-to-serve.
- Volume alone won't improve profit; product mix and pricing discipline are decisive levers.
- Pacing is uneven and margins constrained; plan seasonality and tighten promotion policy.
- Geographic and sub-category concentration create risk but also clear targets for growth plays.

### Conclusion

This final report explains, with evidence, where performance diverges from plan and which levers will move results fastest. By optimizing portfolio mix, enforcing pricing/discount discipline, and running targeted regional plays, the organization can close the gap to plan and strengthen margins in the next cycle.