

AI-Augmented Sales Performance & Forecasting Dashboard

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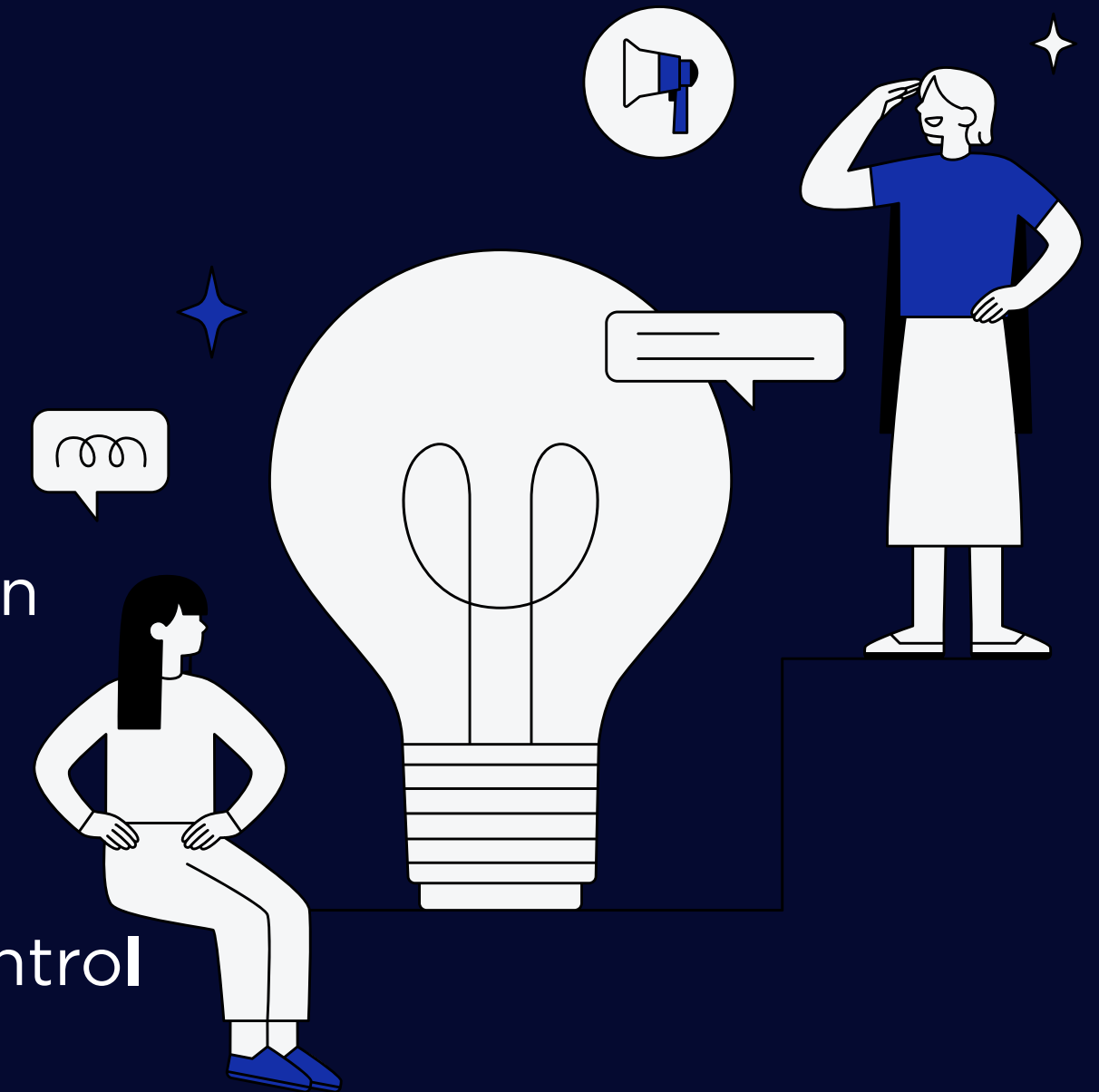
Role: Data Analyst | AI-Augmented Analytics



BUSINESS PROBLEM

Business Problem

- Sales growth in 2017 did not fully convert into profit
- Heavy discounting raised concerns around margin erosion
- Leadership lacked visibility into:
 - Which products are losing money
 - How discounts impact profitability
- Short-term forecasting was required for planning and control



Key Insight:

“The problem was not sales volume — it was profitability and control.”

DATA OVERVIEW

Data Overview

- Time period: 2017
- Dimensions analyzed:
- Region, Category, Sub-Category, Discount Level, Time
- Key metrics:
- Revenue, Profit, Profit Margin, Discount Loss
- Forecast horizon:
- Next 3 months (Jan-Mar)

Key Insight:

“The dataset was sufficient to analyze profitability drivers and support short-term forecasting.”



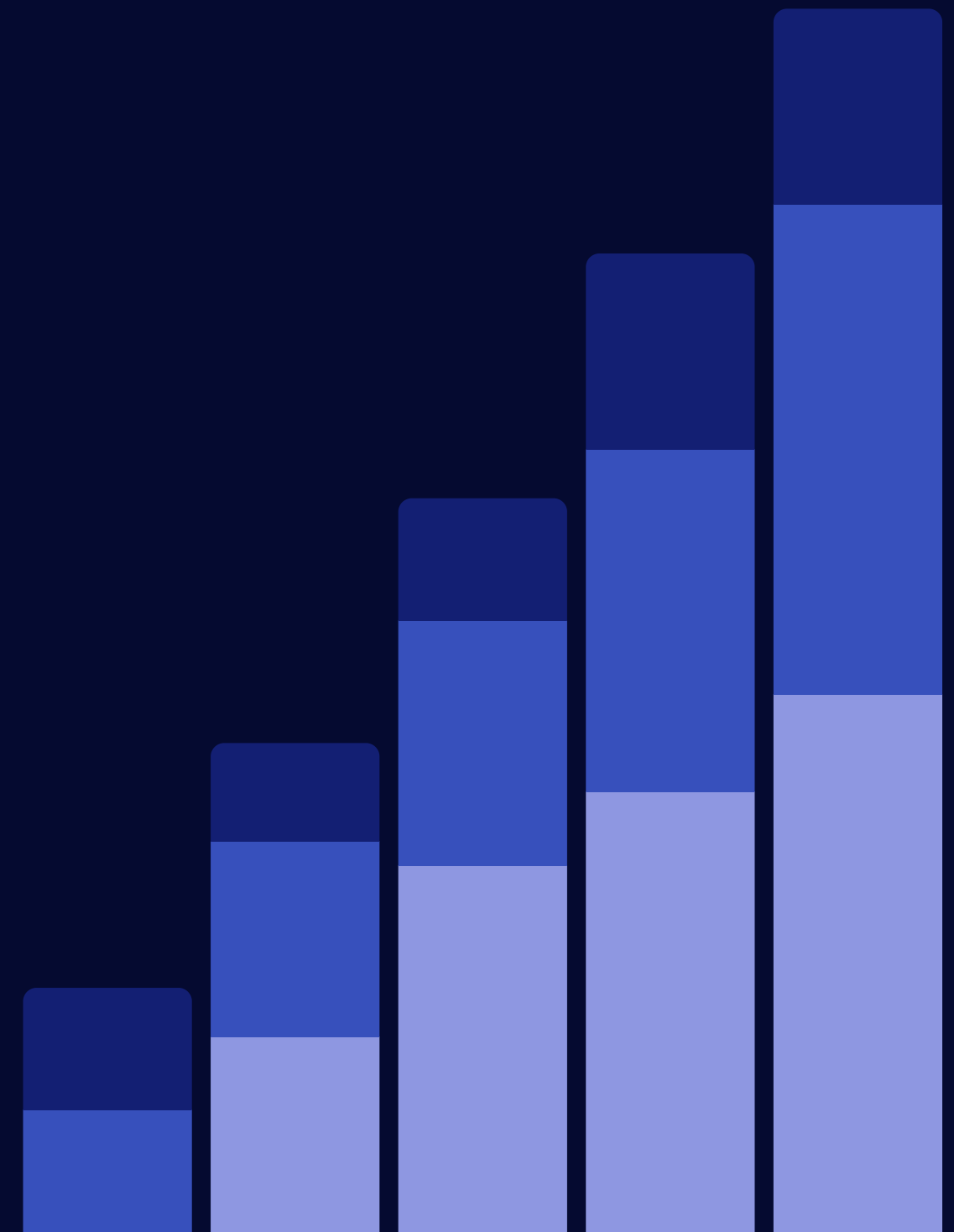
2017 PERFORMANCE SNAPSHOT

2017 Business Performance

- Total Revenue: 733.22K
- Total Profit: 93.44K
- Discount Loss: 48.07K
- Avg Profit Margin: 12.74%
- Forecasted Sales (Next 3 Months): 902.42K

Key Insight:

“Discount losses alone account for over half of total profit.”



FINDING #1: PRODUCT PROFITABILITY

Product-Level Profitability

Loss-Making Sub-Categories :

- Tables: -8.1K
- Machines: -2.9K
- Supplies: -1.0K
- Bookcases: -0.6K

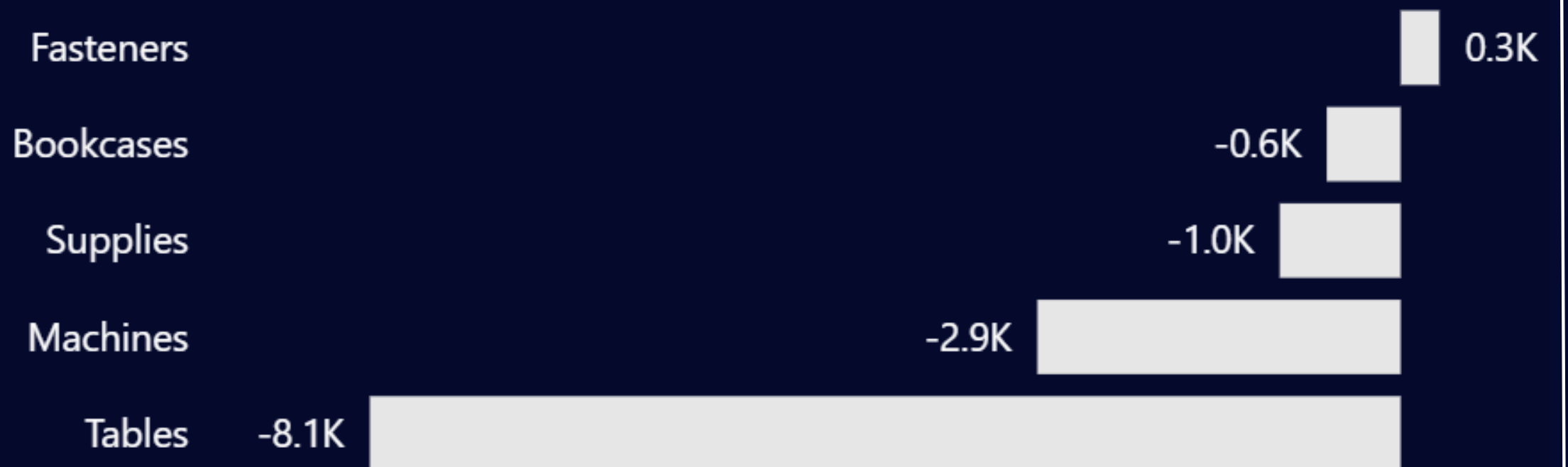
Profitable Sub-Category:

- Fasteners: +0.3K

Key Insight:

Profit losses are concentrated in specific sub-categories, indicating structural pricing or cost issues rather than overall business failure.

Total Profit by Sub-Category



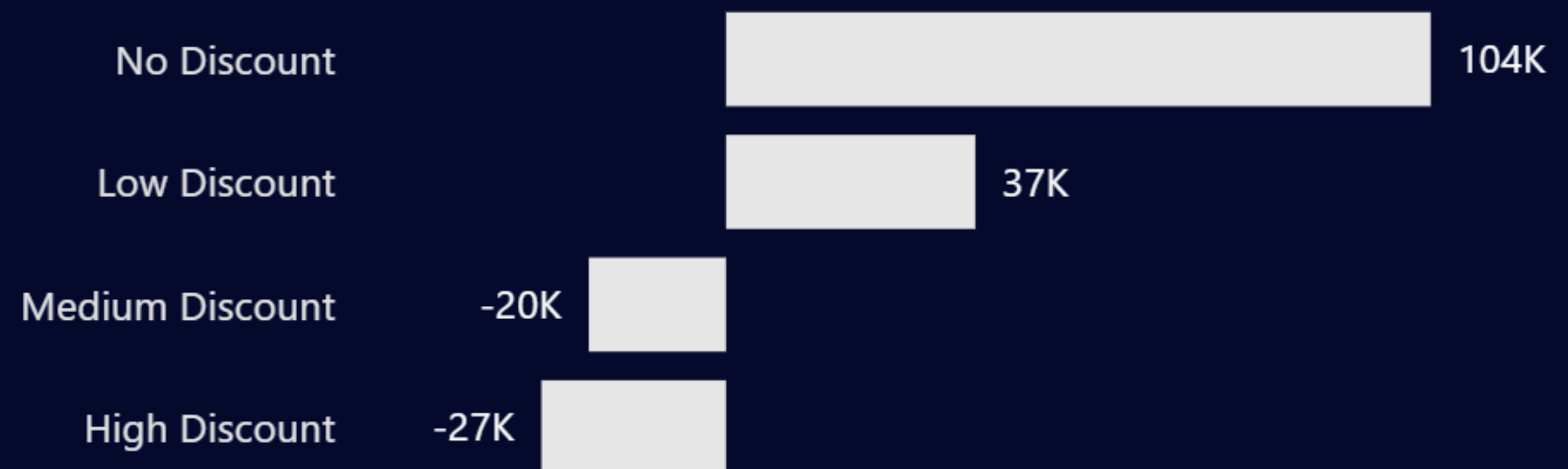
FINDING #2: DISCOUNT IMPACT

Impact of Discounting on Profit

Profit by Discount Level :

- No Discount: +104K
- Low Discount: +37K
- Medium Discount: -20K
- High Discount: -27K

Profit by Discount



Key Insight:

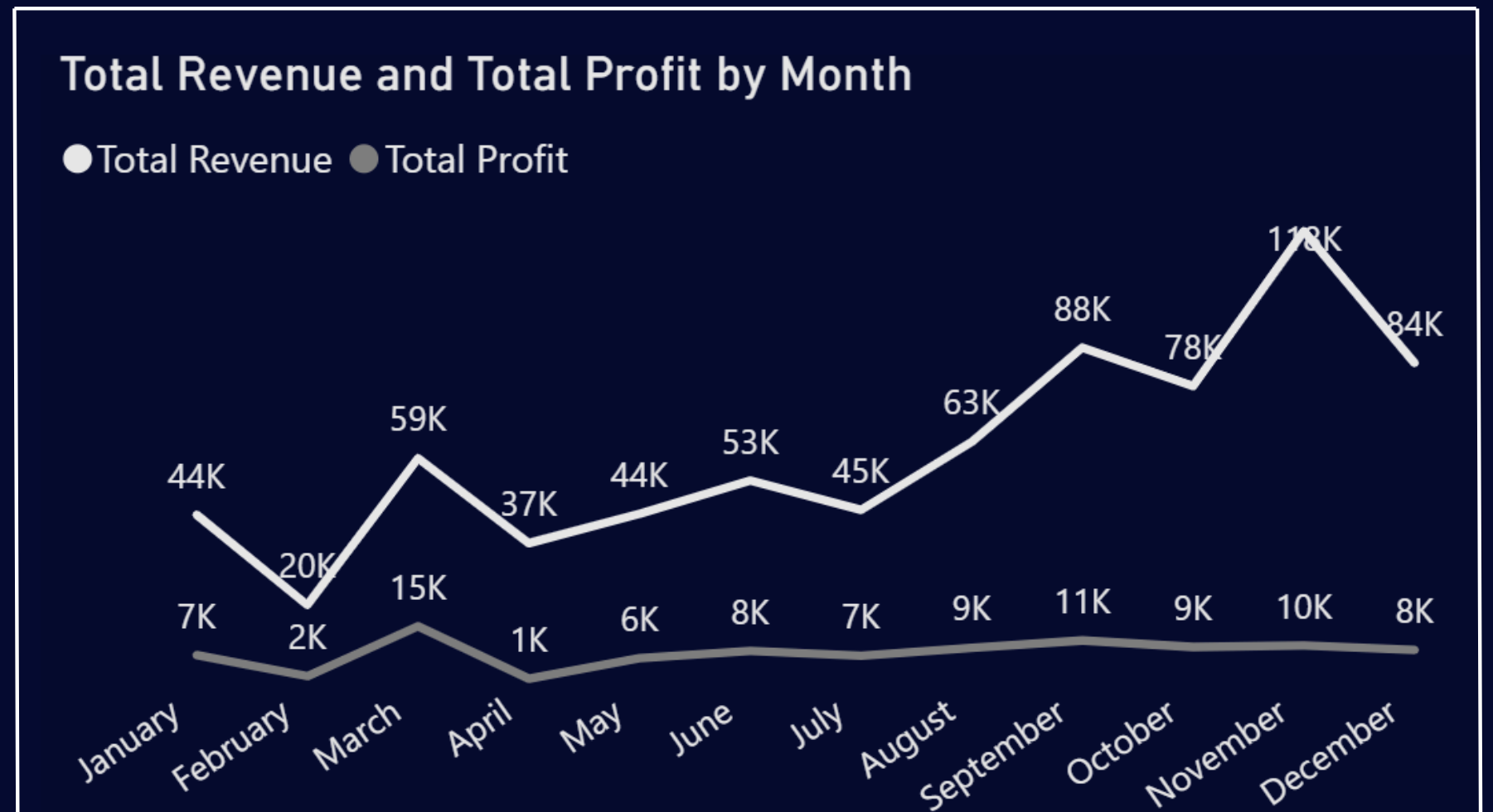
Medium and high discounts increase sales volume but destroy overall profitability.

FINDING #3: TIME TREND PERFORMANCE

Revenue vs Profit Trend (2017)

What the Trend Shows:

- Revenue increases toward the end of the year
- Profit does not grow at the same pace
- Margin pressure intensifies during high-sales periods



Key Insight:

Growth exists, but margin discipline weakens during peak sales periods.

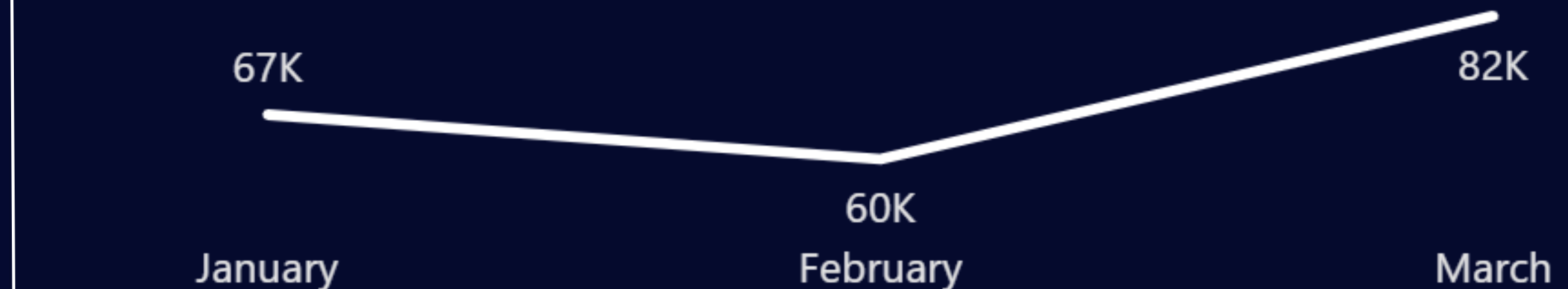
FORECAST RESULTS (NEXT 3 MONTHS)

3-Month Sales Forecast

Forecasted Sales

- January: 67K
- February: 60K
- March: 82K

Forecast Next 3 Month Sales



Key Insight

The forecast indicates a short-term dip followed by recovery, supporting proactive planning rather than reactive discounting.

BUSINESS RECOMMENDATIONS

Key Business Recommendations

1. Restrict Medium & High Discounts
2. Limit aggressive discounting on loss-making sub-categories to protect margins.
3. Redesign Pricing for Tables & Machines
4. Review cost structure and pricing strategy for structurally loss-making products.
5. Use Forecast for Inventory Planning
6. Plan stock and operations based on forecasted demand instead of pushing discounts.
7. Track Margin Alongside Revenue
8. Make profit margin a core KPI, not just total sales.



TECHNICAL APPROACH



Technical Approach

- Python → data cleaning and exploratory analysis
- pandas & NumPy → aggregation, transformations, feature preparation
- H2O AutoML → 3-month sales forecasting model
- Power BI → interactive dashboards and business storytelling



Thank You

Karan Ramesh

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