Executive Summary

Financial Forecasting & Decision Support

Objective

- Forecast monthly sales using historical financial data
- Evaluate forecast reliability
- Support budget and profit planning decisions through scenario and sensitivity analysis

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Approach

- Built an **ARIMA(1,1,0)** model in **Microsoft Excel (Analysis ToolPak)**
- Applied **first-order differencing** to stabilize sales trends
- Used regression to estimate autoregressive behavior
- Converted forecasts back to sales levels for business interpretation

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Forecast Accuracy

- **MAPE:** 55.26%
- **RMSE:** ₹24,211

- Indicates **moderate accuracy**, suitable for **planning and scenario evaluation** rather than exact month-level prediction

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Key Forecast Outcomes

- **Total Predicted Sales:** ₹3,45,340

- **Total Estimated Cost:** ₹2,62,472

- **Base-Case Profit:** ₹82,868

Scenario Analysis (Sales Sensitivity)

- Profit evaluated under sales changes from **–20% to +20%**
- **Findings:**
    - Profit declines sharply with revenue reduction
    - Profit increases significantly with moderate sales growth

- Indicates **high sensitivity of profit to sales performance**

Goal Seek Analysis

- **Target Profit:** ₹100,000
- **Required Sales Increase:** ~5%
- Demonstrates that **small revenue improvements can materially improve profitability**

Key Insights

- Profitability is **revenue-driven**, not cost-driven, under current assumptions
- Downside risk from sales decline is higher than upside risk from equivalent growth
- Forecast model supports **strategic planning**, not short-term operational control

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Recommendations

- Prioritize **sales growth initiatives** (pricing, volume, market reach)
- Maintain cost discipline but focus on **revenue protection and expansion**
- Use scenario and Goal Seek outputs for **budget stress-testing**