PROJECT REPORT: RETAIL SALES FORECASTING & ANALYSIS

Internship Domain: Machine Learning
Task Name: Task 1 – Sales Forecasting Dashboard
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1. EXECUTIVE SUMMARY
The goal of this project is to provide a data-driven sales forecast for the Sample Superstore dataset. By utilizing the FB Prophet algorithm, we transformed historical sales patterns into a 12-month future outlook, achieving an accuracy of 88.50%.

2. TECHNICAL METHODOLOGY
• Data Preprocessing: Raw sales data was aggregated to a monthly level (Month Start) to remove daily noise and focus on long-term trends.
• Machine Learning Model: We used the FB Prophet model, which is highly effective for retail data as it handles yearly and weekly seasonality automatically.
• Integration: The Python-generated forecast was exported and integrated into Power BI for user-friendly interaction.

3. PERFORMANCE EVALUATION
The model's reliability was validated using standard statistical metrics:
• Accuracy: 88.50%
• MAE (Mean Absolute Error): $5,203.24 (Shows average deviation from actuals)
• RMSE (Root Mean Squared Error): $6,762.71 (Shows variance in predictions)

4. DASHBOARD COMPONENTS
• KPI Summary: 4 key cards showing the high-level financial impact of the forecast.
• Sales Trend Visual: A clear graphical view of forecasted sales for 2018.
• Monthly Breakdown: A Donut chart showing how sales are distributed across the forecast period.
• Detailed Table: A row-by-row view of exact predicted numbers for accuracy.

5. BUSINESS INSIGHTS & CONCLUSION
The analysis reveals a steady growth trend with clear seasonal peaks in the latter half of the year. This dashboard enables management to optimize inventory levels and prepare marketing campaigns in advance for peak months.

End of Report