AI-Powered Sales Forecasting Dashboard

Machine Learning Task 1 | Future Interns

Project Overview

This project applies machine learning-based time series forecasting to predict future retail sales using historical transaction data. Facebook Prophet is used to capture trends and seasonality, and results are visualized through an interactive Power BI dashboard to support data-driven business decisions.

Objectives

• Analyze historical sales data • Identify trends and seasonality • Forecast future sales • Visualize actual vs forecasted performance

Dataset

Superstore Sales Dataset with Order Date, Sales, Category, Region, and Segment. Monthly aggregated sales were used for forecasting.

Methodology

Data cleaning and preprocessing were performed using Python. Sales data was aggregated monthly and modeled using Facebook Prophet to forecast the next 12 months. Forecast outputs were visualized in Power BI.

Tools & Technologies

Python (Pandas, Prophet), Jupyter Notebook, Power BI Desktop.

Key Features

• Actual vs forecasted sales trend • Monthly and yearly comparison • Category and region-wise analysis • KPI cards and slicers

Business Insights & Results

The model identified seasonal sales patterns and forecasted consistent growth. The dashboard supports inventory planning and strategic decision-making.

Conclusion

This project demonstrates the practical application of machine learning and BI tools to build an industry-ready sales forecasting solution.