PREDICTING WEEKLY SALES WITH AI-POWERED INSIGHTS

FINAL PROJECT

By Michael Los

INTRODUCTION

- Accurate **sales forecasting** and effective customer support are critical for retail success.
- **Reduction** of food waste
- **Demand-driven** availability

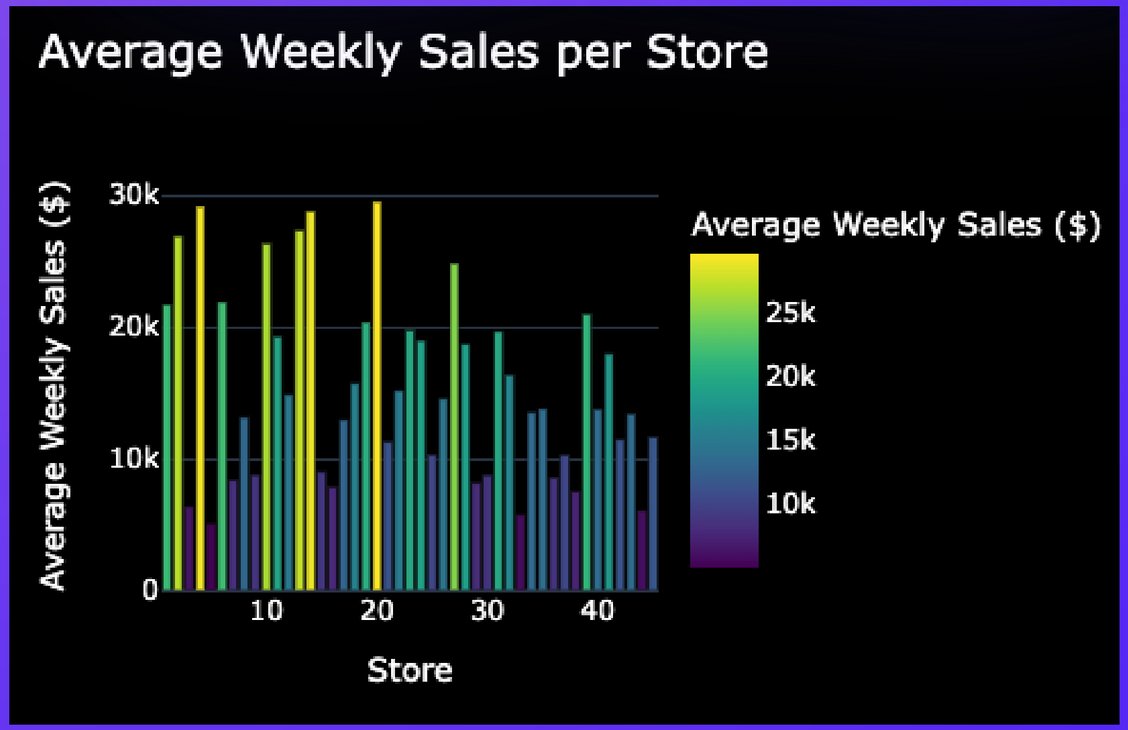
Tools and Technologies

- Machine Learning
- Streamlit
- AI Chatbot

OUT-OF-STOCK

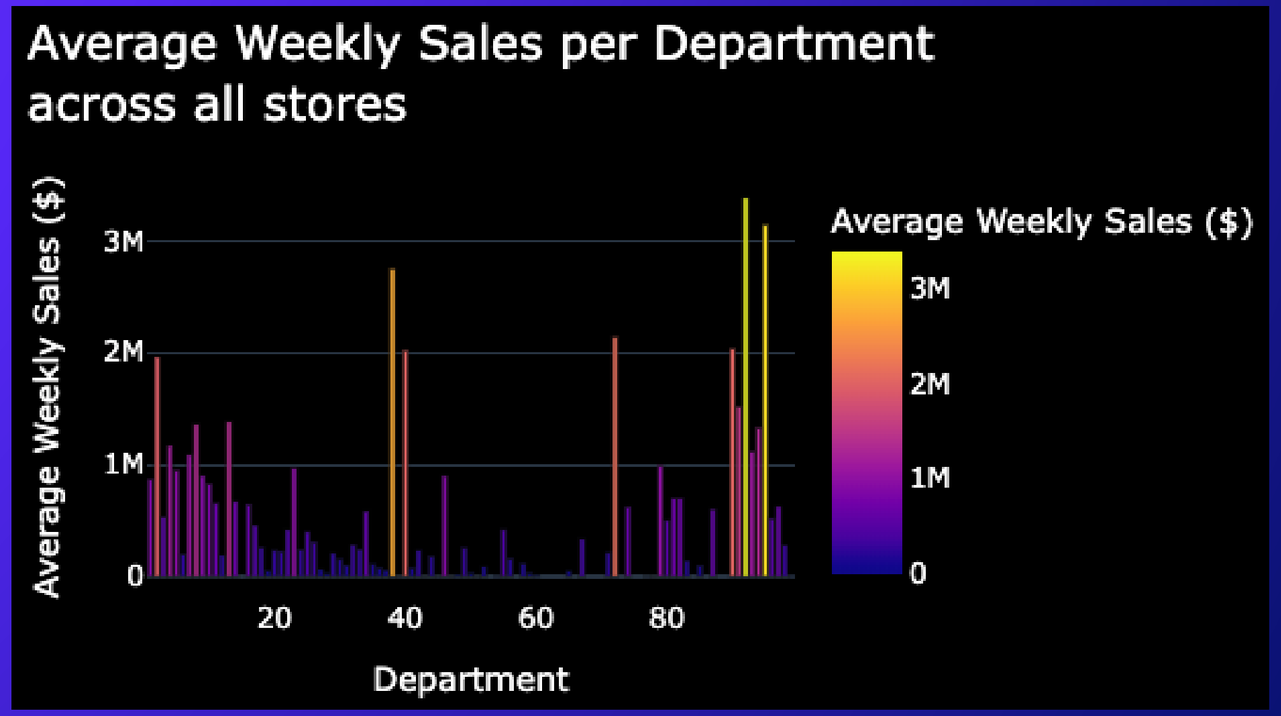
CUSTOMER RETENTION THROUGH DEMAND-ORIENTED AVAILABILITY

PROBLEM STATEMENT & OBJECTIVES



Problem

- **Challenges** in managing inventory and promotions
- **Manual customer** service is time-intensive and less scalable.



Objectives

- Develop a **machine learning** model to forecast weekly sales for retail stores.
- **Streamlit app** with an AI-powered chatbot

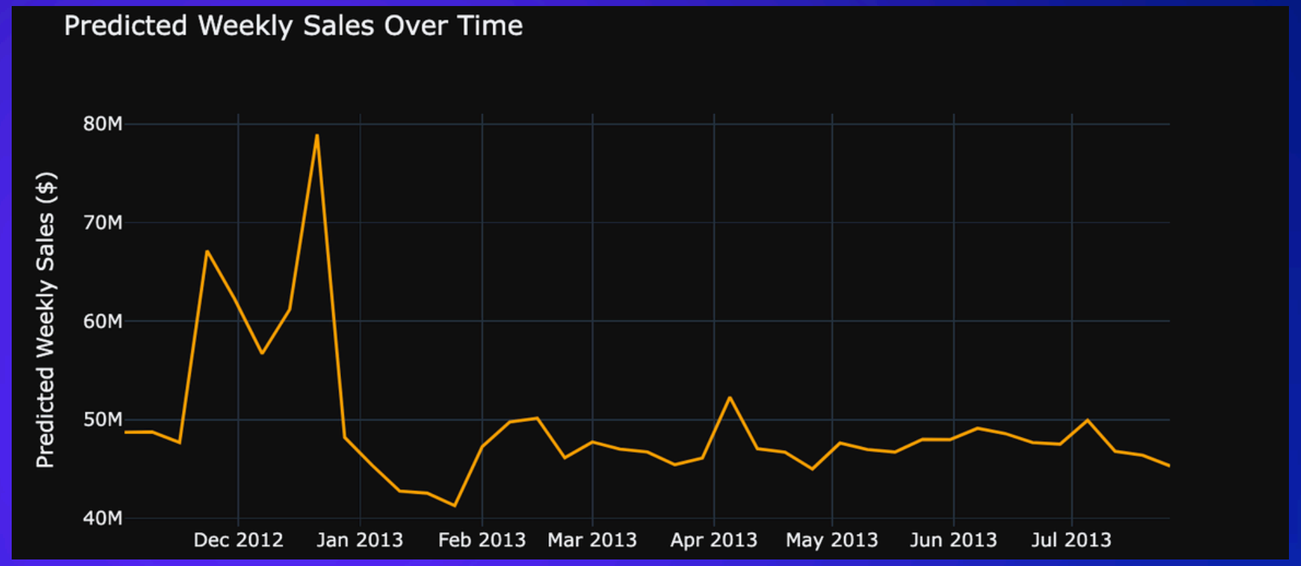
METHODOLOGY

Structured Approach to Forecasting Weekly Sales

KEY RESULTS & INSIGHTS

FINAL MODEL TESTING PERFORMANCE

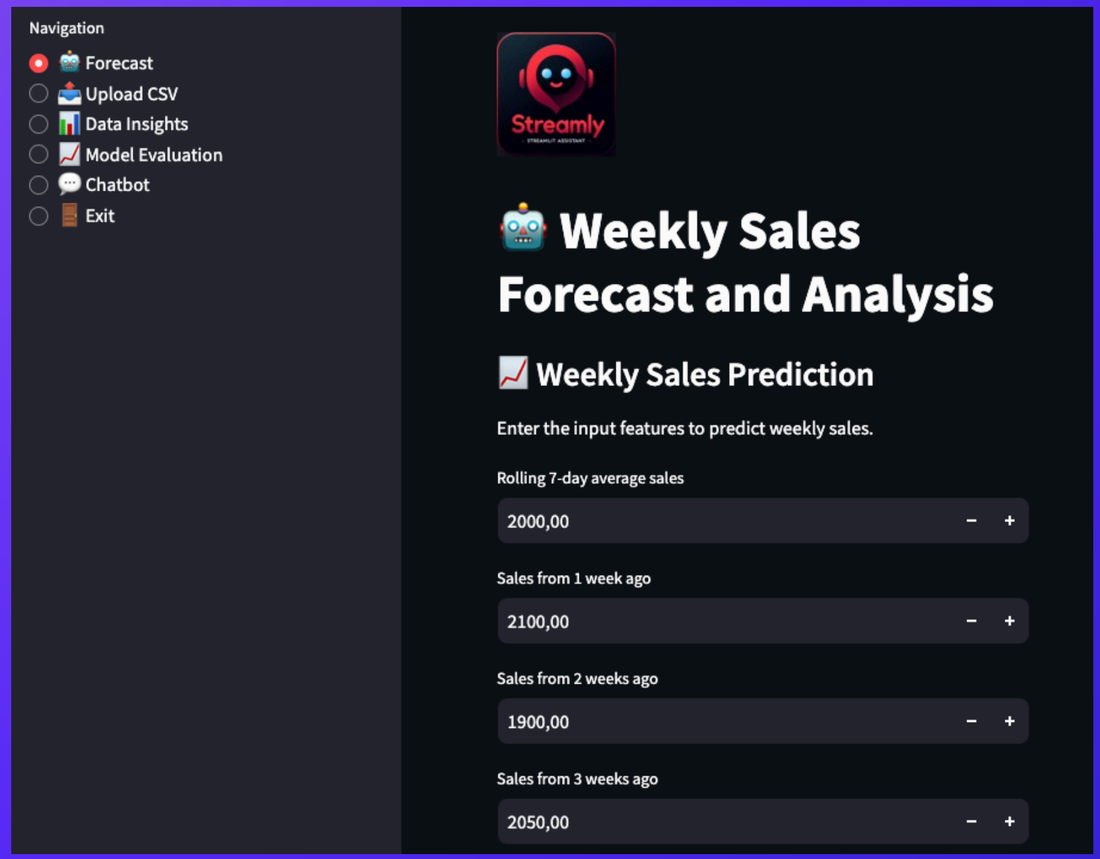
- RMSE: 265.3630
- MAE: 112.0616
- R^2: 0.9995
- Test Percentage **Error:** 1,84%



BUSINESS IMPACT

- Improved inventory planning and promotion strategies.
- Reduced overstock and stockouts.

DEMO & FEATURES



APP DEVELOPMENT

- **Streamlit** for an interactive user interface.
- Interactive Forecasting by **adjusting** features
- **Data Insights Section:** Includes tools for data exploration.
- Developed an **AI chatbot** to address user inquiries about the app

CONCLUSION & FUTURE WORK

01

- Developed a robust **forecasting system** integrated with AI-driven user support.
- **Demonstrated** the power of **machine learning** and AI in real-world applications.

02

- How much **improvement** (in stockouts, overstock, waste reduction and reduction in manual customer service time) is achieved
- Extend the solution to **other retail datasets** and industries.Enhance
- Enhance **chatbot** capabilities to provide deeper insights and advanced interactivity.