



Group 8

Maverik Store Sales Prediction

By Pankhuri, Hasitha, Meghana, Spencer



Overview

- Business Problem
- Objective
- EDA & Findings
- Model Building
- Recommendations



Business Problem

- Maverik is currently facing challenges for predicting the expected sales performance for new stores in their first year.
- The challenge involves understanding factors shaping sales trends.
- Maverik wants us to provide insights to enhance financial planning and initial ROI.



Objective

- Focus:

To predict daily store sales by building predictive models using machine learning, aiming for a desired RMSE.

- Target Variables:

Inside Sales, Food Sales ,Unleaded, Diesel

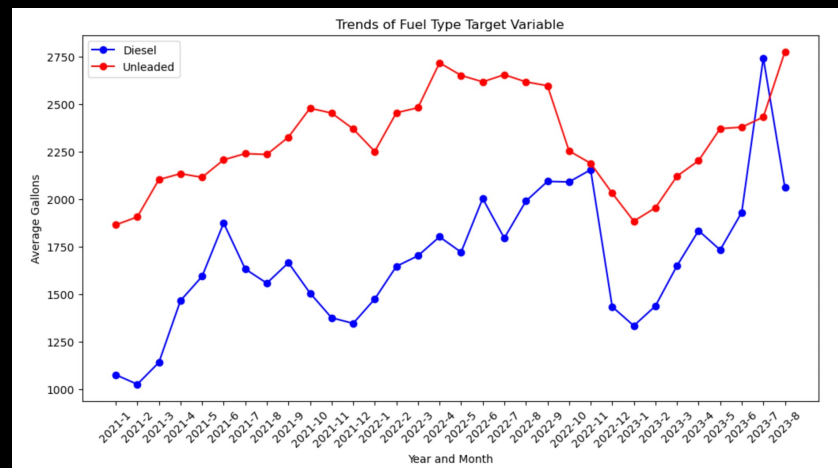
- Prediction Models:

Using ML models to forecast sales of target variables

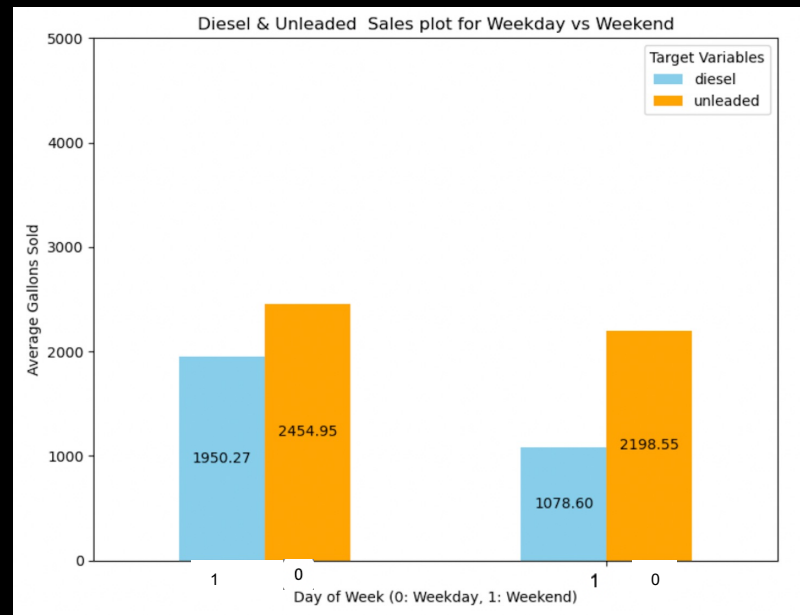




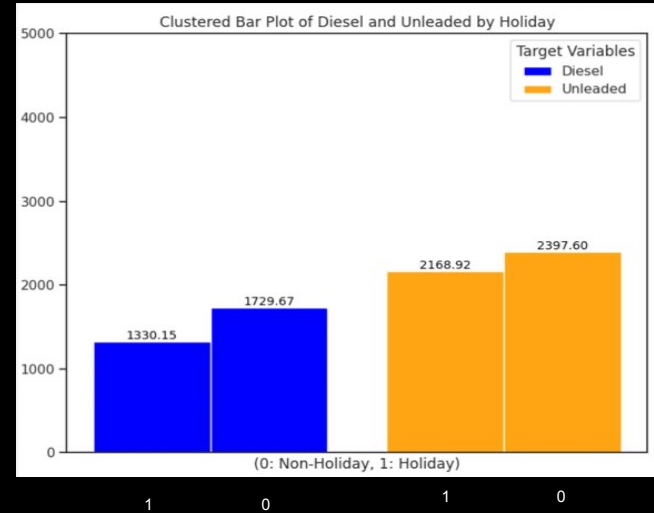
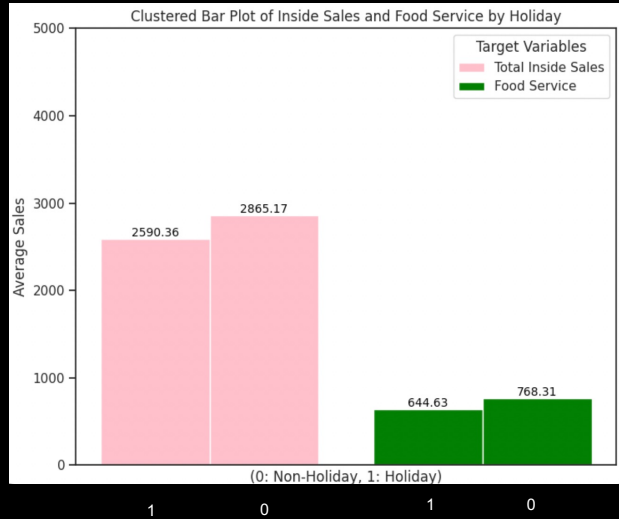
EDA & Findings



Weekday vs Weekend

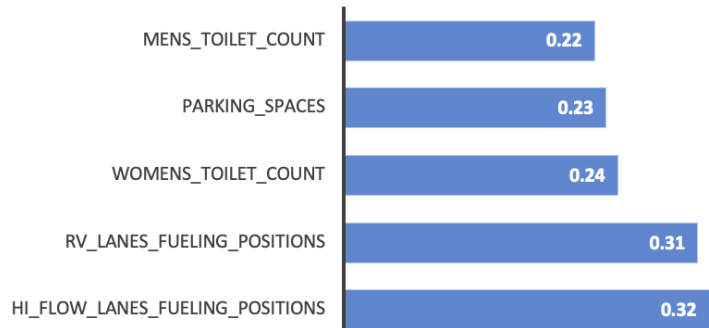


Holiday vs Non-Holiday Sales

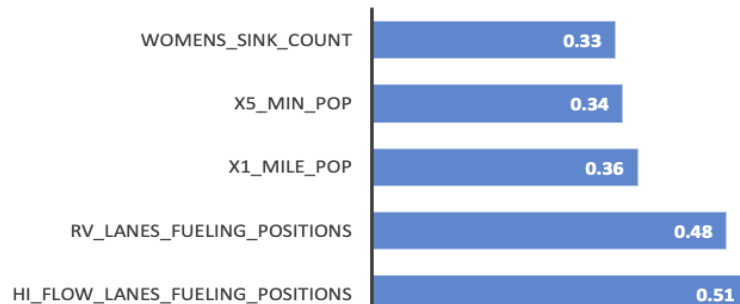


Top Contributing Factors - Inside Sales & Food Sales

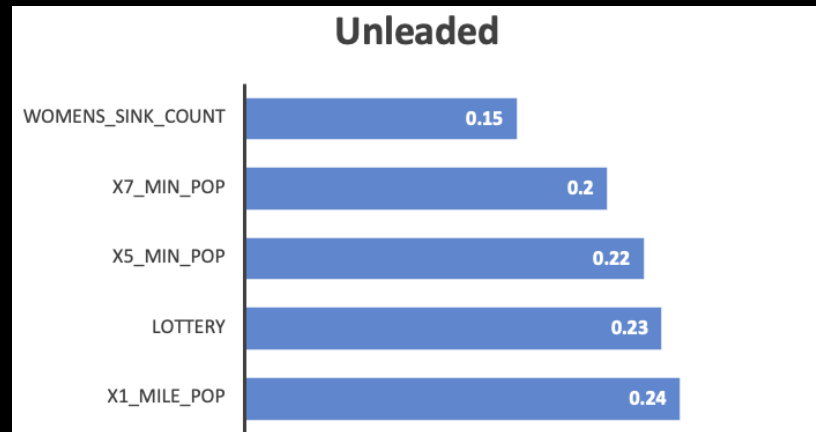
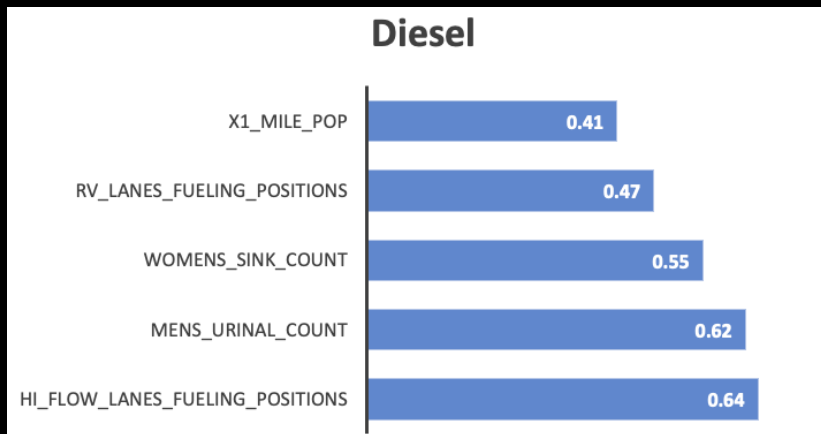
Inside Sales



Food Sales



Top Contributing Factors - Diesel & Unleaded

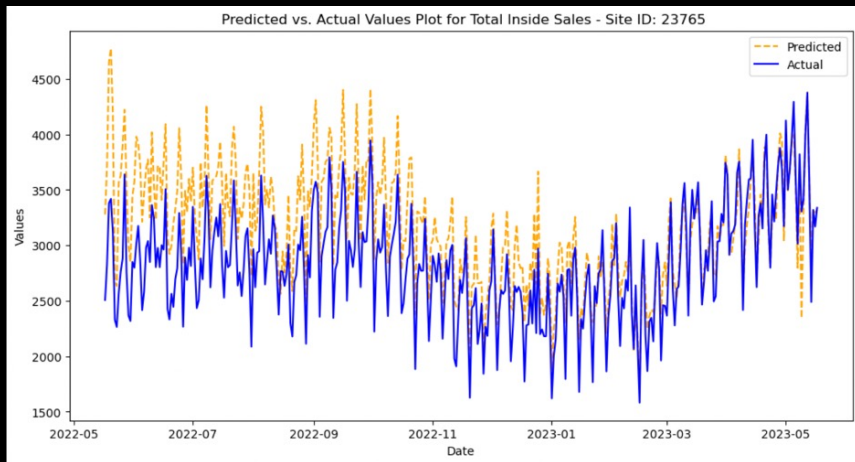


Model Building

- XGB Regressor
- Prophet Model
- Exponential Triple Smoothing(ETS)



Inside & Food Sales - Actual vs Predicted

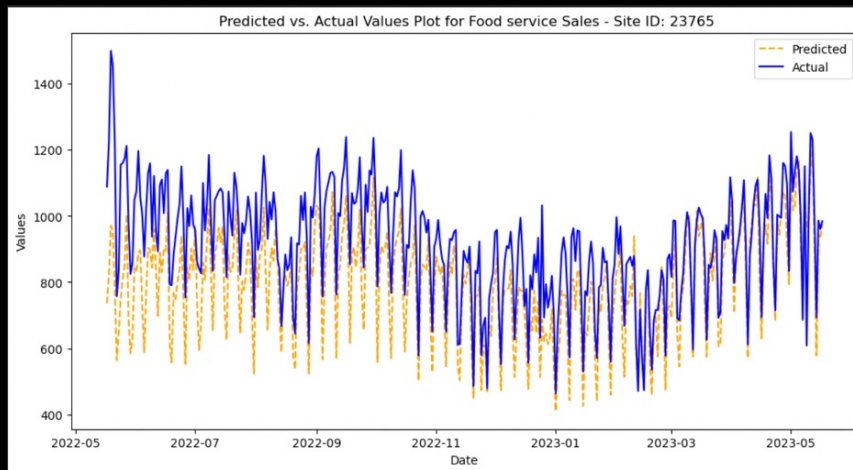


Inside Sales

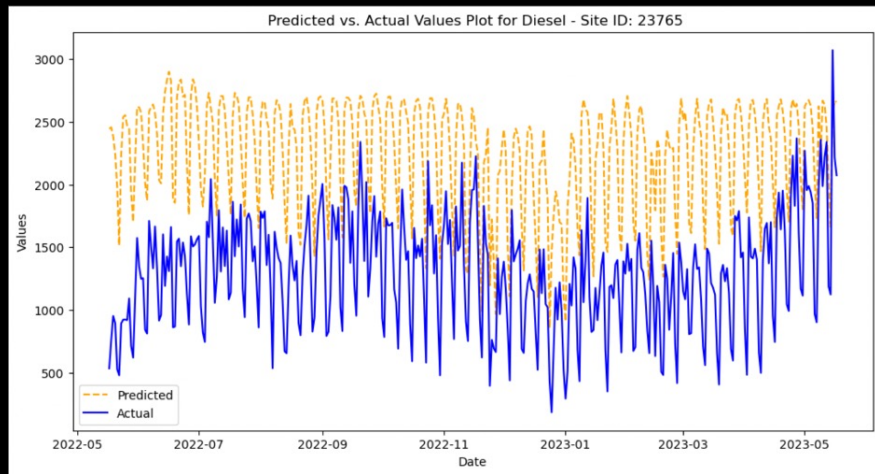
RMSE: 901

Food Sales

RMSE: 317



Diesel & Unleaded - Actual vs Predicted

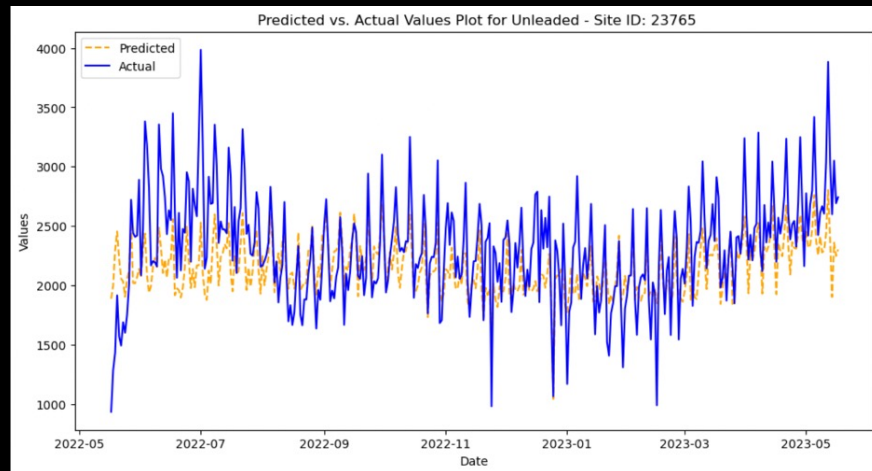


Diesel

RMSE: 1258

Unleaded

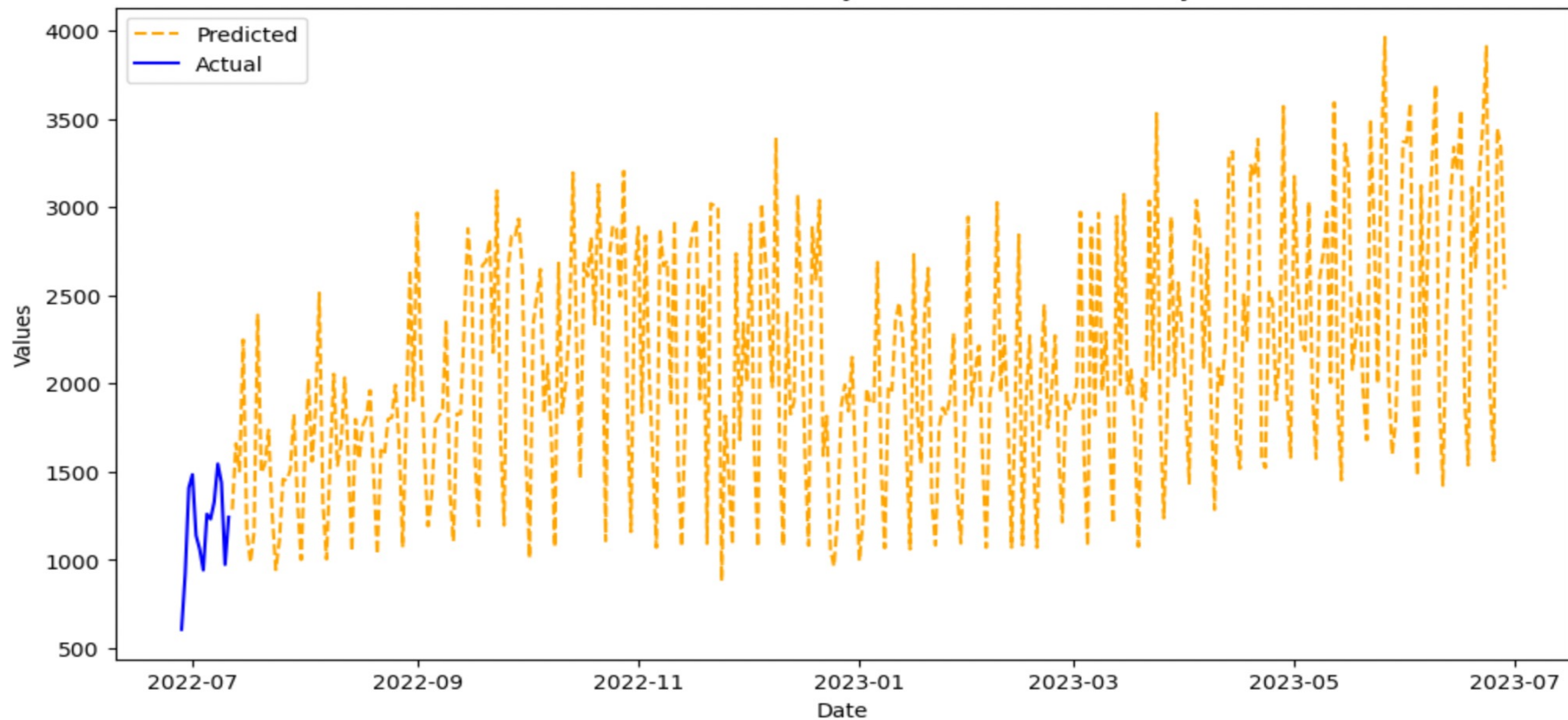
RMSE: 998



Performance Metrics

| | Inside Sales | Food Sales | Diesel | Unleaded |
|------------------------------------|--------------|------------|--------|----------|
| Inside Two Weeks Pred RMSE | 95366 | | | |
| Inside Three Weeks Pred RMSE | 93827 | | | |
| Food Service Two Weeks Pred RMSE | | 37165 | | |
| Food Service Three Weeks Pred RMSE | | 36022 | | |
| Unleaded Two Weeks Pred RMSE | | | 152135 | |
| Unleaded Three Weeks Pred RMSE | | | 145979 | |
| Diesel Two Weeks Pred RMSE | | | | 234339 |
| Diesel Three Weeks Pred RMSE | | | | 233710 |

Food Sales for Actual 14 days & Forecated for 351 days



Recommendations

Parking spaces

Population around the stores

High Flow Lanes Fueling Positions

Restrooms

Rewards Points



Any Questions???