

Retail Price Optimization

DYNAMIC PRICING SYSTEM USING MACHINE LEARNING

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Problem Statement

- ▶ Retailers often use static pricing which fails to react to demand shifts.
- ▶ Leads to revenue leakage from overpricing or underpricing.
- ▶ Goal: build intelligent system that adjusts prices dynamically using ML.

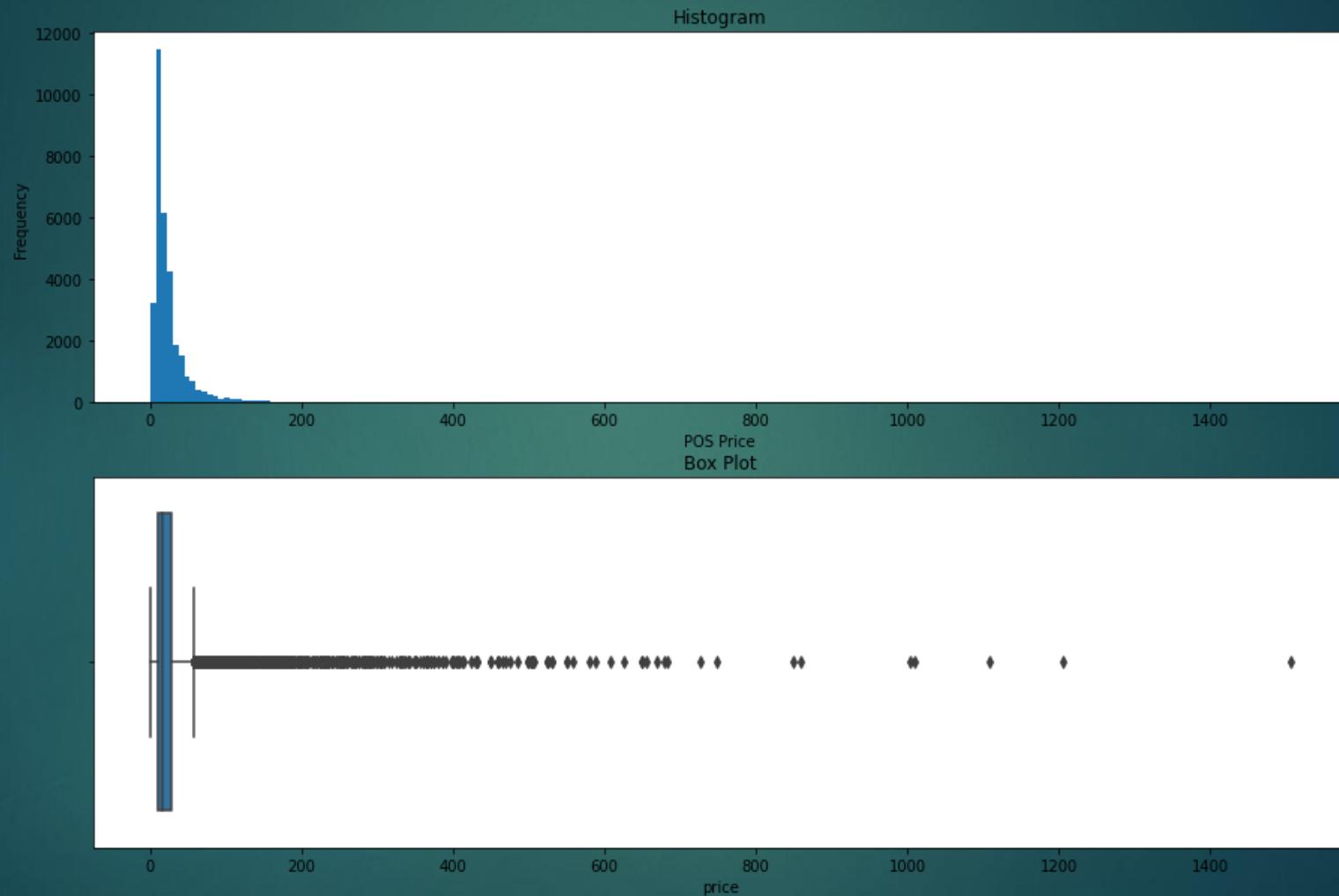
Solution Overview

- ▶ Developed an ML-driven pricing engine.
- ▶ Forecasts demand and computes optimal price point.
- ▶ Integrates data-driven elasticity and revenue maximization logic.

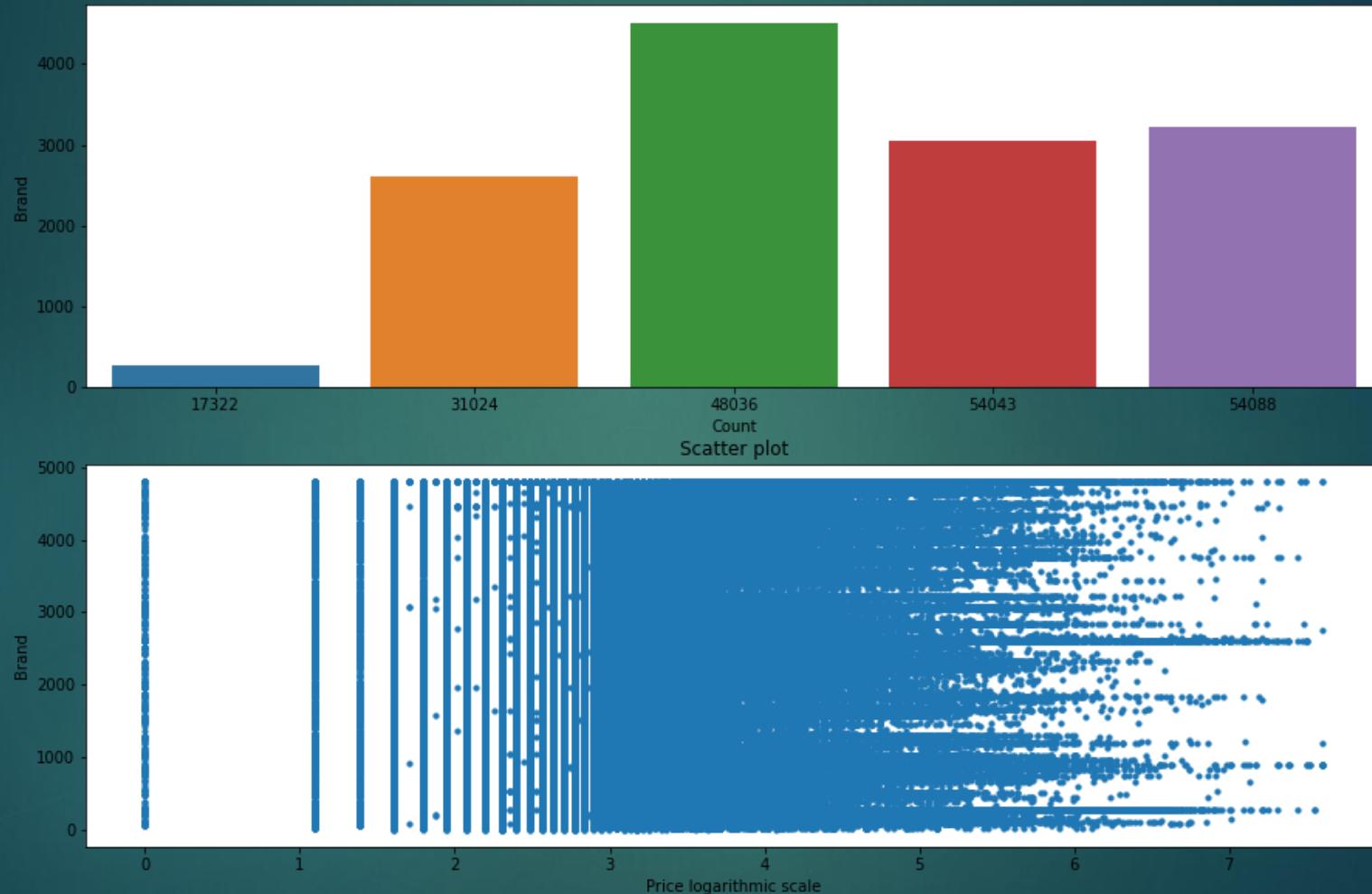
Core Methodology

- ▶ Performed data cleaning, outlier removal, and log-scaling of prices.
- ▶ Analyzed trends, seasonality, and key demand drivers.
- ▶ Trained ML models to predict item demand under different price scenarios.
- ▶ Applied dynamic pricing formula to maximize expected revenue.

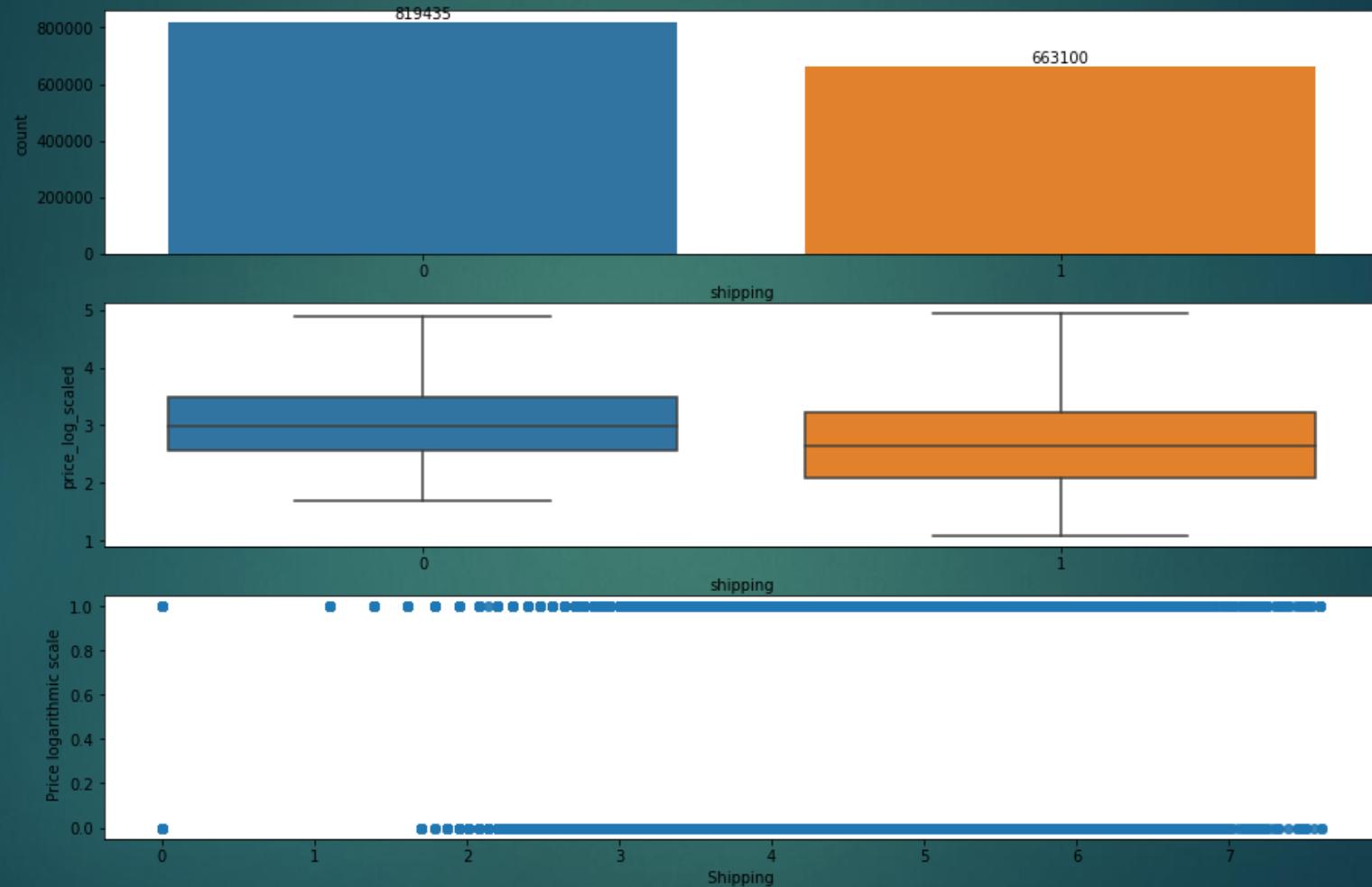
Visualization 1



Visualization 2



Visualization 3



Impact & Results

- ▶ Dynamic pricing improves predicted revenue over static models.
- ▶ More accurate demand forecasts enable optimized inventory rotation.
- ▶ Scalable architecture suitable for real-time retail environments.