Price Optimization

Introducing AI-Driven Price Optimization

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Project Overview

The Problem

In the retail sector, the difficulty lies in pinpointing the most effective prices due to ever-changing consumer trends, market competition, and economic shifts. Traditional fixed pricing methods often miss out on potential revenue opportunities, highlighting the need for a dynamic approach that optimally balances customer appeal with profit maximization.

Our idea

This project aims to optimize pricing strategies for diverse product categories using historical sales
data. By develop a pricing optimization model to make informed decisions based on patterns, trends, and key factors influencing pricing and demand

Market opportunities

Real-Time Responsiveness

Quickly adapt prices based on demand, inventory levels, and market changes, ensuring optimal revenue and competitiveness.

Strategic Insights

Gain valuable intelligence on competitors' pricing strategies, enabling informed decisions for better market positioning.

Precision Online

Dynamically optimize prices on e-commerce platforms to capture sales, attract customers, and boost conversion rates.

Confident Pricing

Determine ideal launch prices using data-driven analysis of market trends, competition, and customer expectations.

Analysis Insights

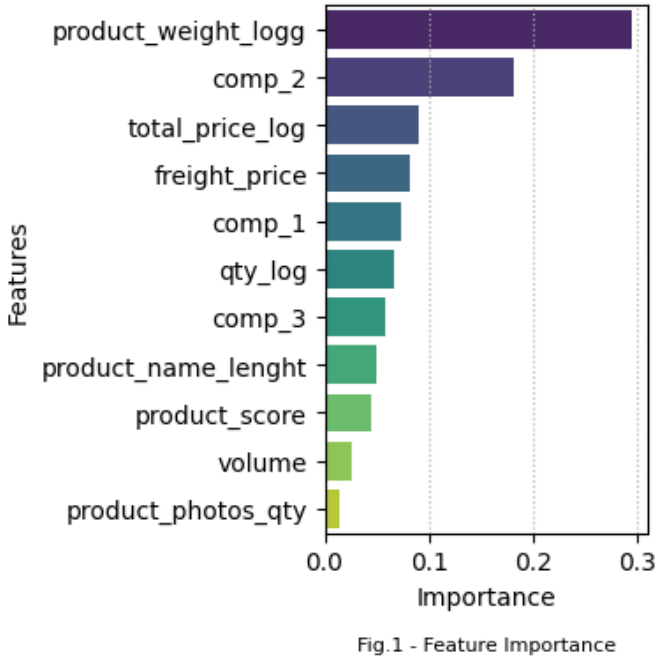


Fig.1 - Feature Importance

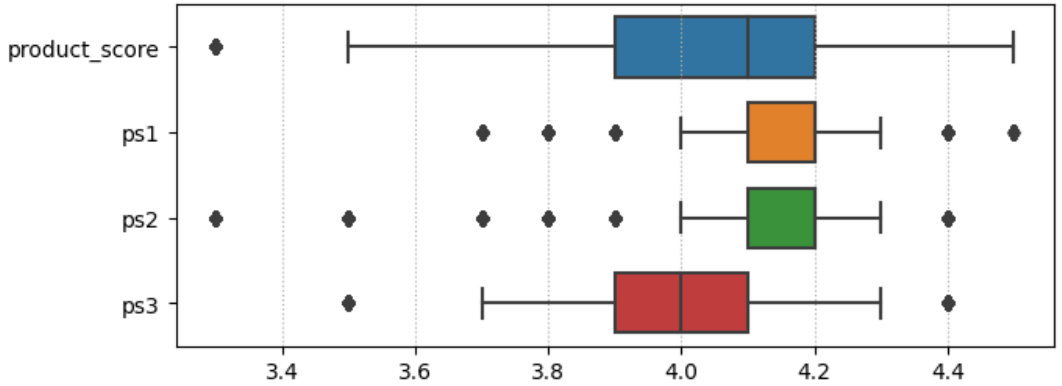
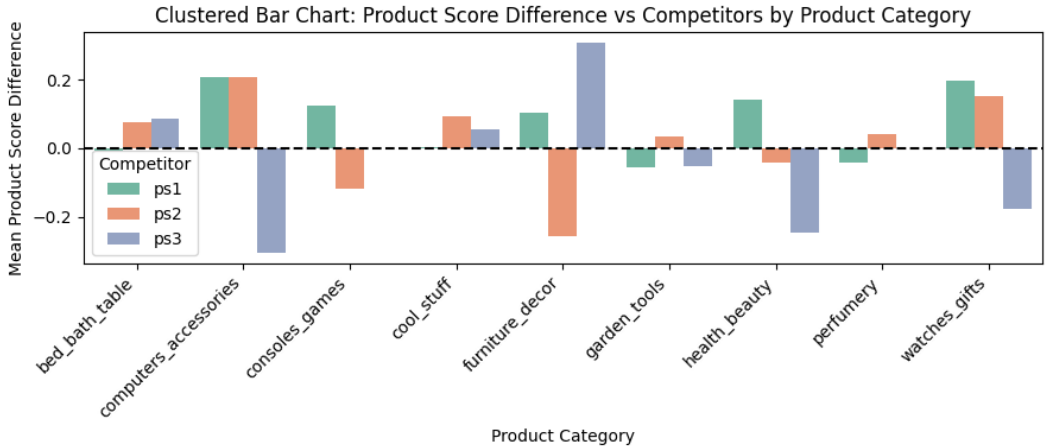
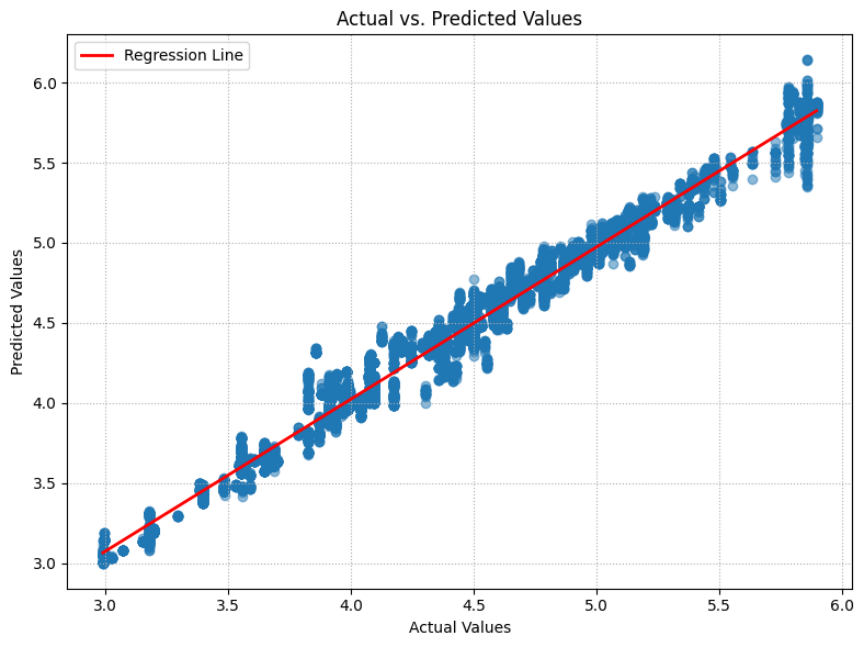


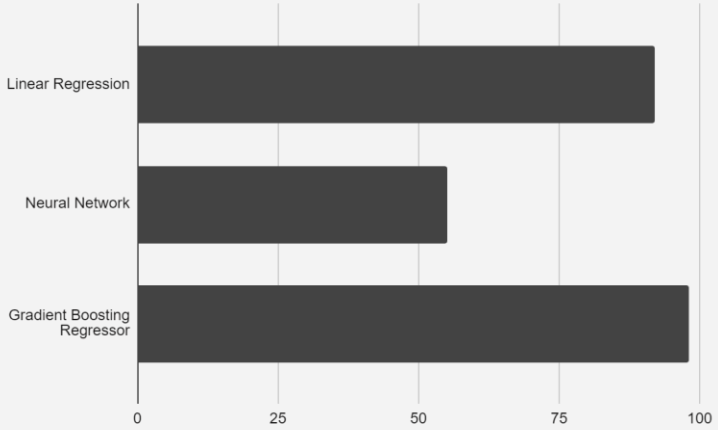
Fig.7 - Product score distribution vs competitors



Model Performance



GBR Model Predictions



Linear Regression	Neural Network	Gradient Boosting Regressor
92%	52%	98%

Input Features	Output Price
freight_price	16.644286
product_name_length	54.000000
product_photos_qty	1.000000
product_score	4.200000
customers	22.000000
weekday	23.000000
weekend	8.000000
holiday	1.000000
month	3.000000
s	17.417417
volume	15750.000000
comp_1	4.605070
ps1	4.200000
fp1	16.644286
comp_2	4.867458
ps2	4.300000
fp2	18.778750
comp_3	4.605070
ps3	4.200000
fp3	16.644286
total_price_log	7.270968
qty_log	2.733124
product_weight_logg	7.090077

Solution Demo

The input values represent a combination of key product attributes, customer behavior, and market factors. By leveraging advanced machine learning techniques, our model accurately predicts the optimal unit price, providing a data-driven strategy for maximizing revenue and profitability. As displayed in the table, the model generates a predicted output

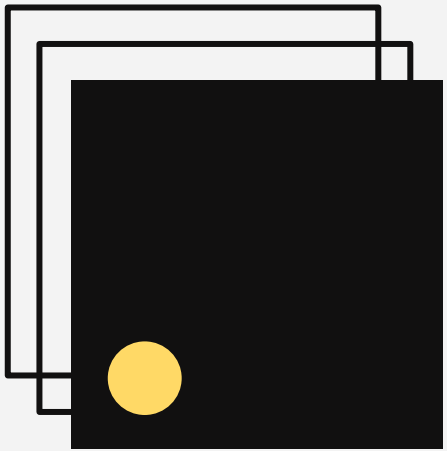
Predicted unit price: [4.63388669]

Future Enhancements

Increase Data size

Integrate external data sources

Develop a dynamic model



https://docs.google.com/document/d/1wy7Y9LNP1drjlLvw2oUC6DMOJyjkaRp6fDNPKC-ZEWM/edit

DATA ANALYSIS REPORT

Thank You!