



# MAXIMIZING SALES, MARKETING, AND ADVERTISING ROI WITH DATA

**CASE STUDY**

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# SYNOPSIS



## Key Benefits

- Targeted Marketing Strategies:** Personalized offers and re-engagement campaigns based on segmentation, increasing engagement and reducing churn.
- Improved ROI:** The recommendation system and optimized discount strategy boosted conversion rates and overall profit, with over 200% improvement in profitability.
- Increased Customer Satisfaction:** Personalized offers enhanced the shopping experience, leading to higher customer loyalty.

## Challenge

To improve product recommendations and online offers on the client's ecommerce website by segmenting customers based on purchasing behavior and developing targeted strategies for different customer groups. Additionally, addressing profitability challenges due to high discount rates was essential.

## Solution

Conducted customer segmentation analysis using K-Means clustering to categorize customers into three distinct clusters based on key metrics such as Recency, Total Transactions, and Average Transaction Value. Built a recommendation system tailored to each cluster, optimizing marketing strategies. Additionally, time series analysis with SARIMAX was applied to forecast sales trends and simulate discount scenarios, leading to a refined discount strategy that significantly improved profitability.

# CHALLENGE

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1- The client, faced difficulties in identifying the most effective promotional strategies. The need to understand customer behavior at a granular level—beyond basic sales statistics—was crucial for tailoring product recommendations and optimizing marketing efforts.

2- The client faced as well a consistent issue with negative profit margins. After further investigation, we discovered that discounts over 30% were directly contributing to these losses. This prompted the need to explore the impact of discounts on profitability through a time series approach.

Key questions included:

- Which customer segments are most profitable and responsive to promotions?
- How can product recommendations be personalized based on customer purchasing behavior, demographic information, and seasonal trends?

Key questions included:

- How can we optimize discount strategies to prevent negative profits while maintaining sales volume?
- How can future sales trends be forecasted to better inform promotional strategies and inventory planning?

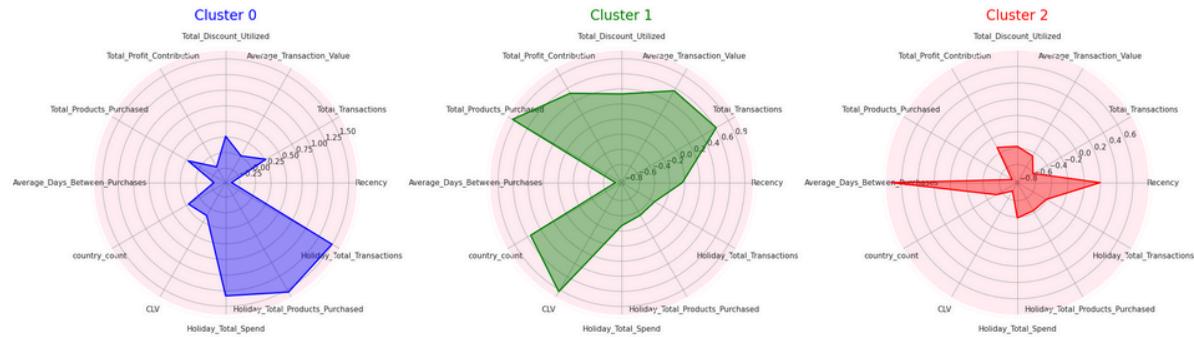
# SOLUTION

The team in **FALCON INFORMATICS** worked on a detailed customer segmentation analysis, which categorized customers into distinct segments based on metrics like Recency, Total Transactions, Average Transaction Value, Discount Utilization, Profit Contribution, and more. This segmentation informed the creation of a recommendation system tailored to each customer group, enhancing the relevance and impact of marketing efforts.

In the other hand, the team applied time series analysis using the SARIMAX model to forecast future sales and profitability trends. This allowed us to simulate different discount scenarios and evaluate their effects on overall performance.



# SOLUTION



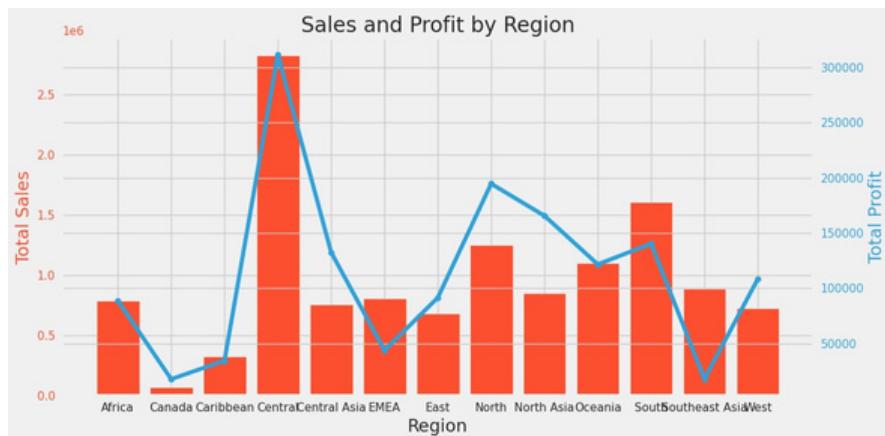
## KEY BENEFITS

- **Targeted Marketing Campaigns:** Tailored offers to specific customer segments improved engagement and reduced churn.
- **Improved ROI:** The recommendation system, based on segmentation insights, boosted sales by delivering relevant product suggestions to the right customers.
- **Higher Customer Satisfaction:** Personalized offers aligned with customer behavior enhanced satisfaction and loyalty.
- **Significant Profit Increase:** Optimizing the discount strategy led to a 200% profit boost without affecting sales.
- **Predictive Accuracy:** The SARIMAX model accurately forecasted sales trends, enabling better planning for promotions and inventory.
- **Informed Discount Strategy:** Clear discount thresholds ensured a balance between driving sales and maintaining profitability.

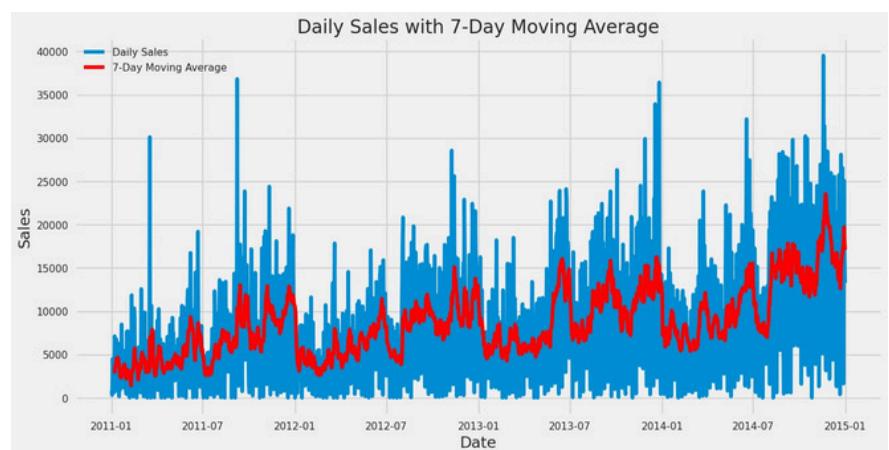
# SOLUTION

## Visual Analysis

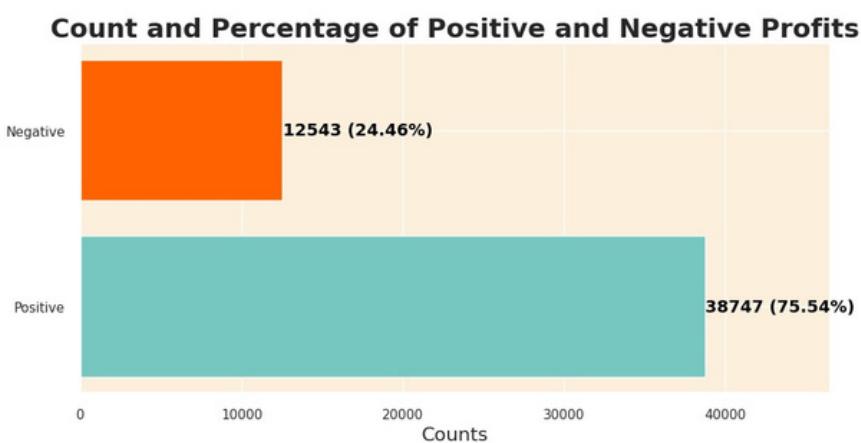
### SALES AND PROFIT BY REGION



### DAILY SALES WITH AVERAGE



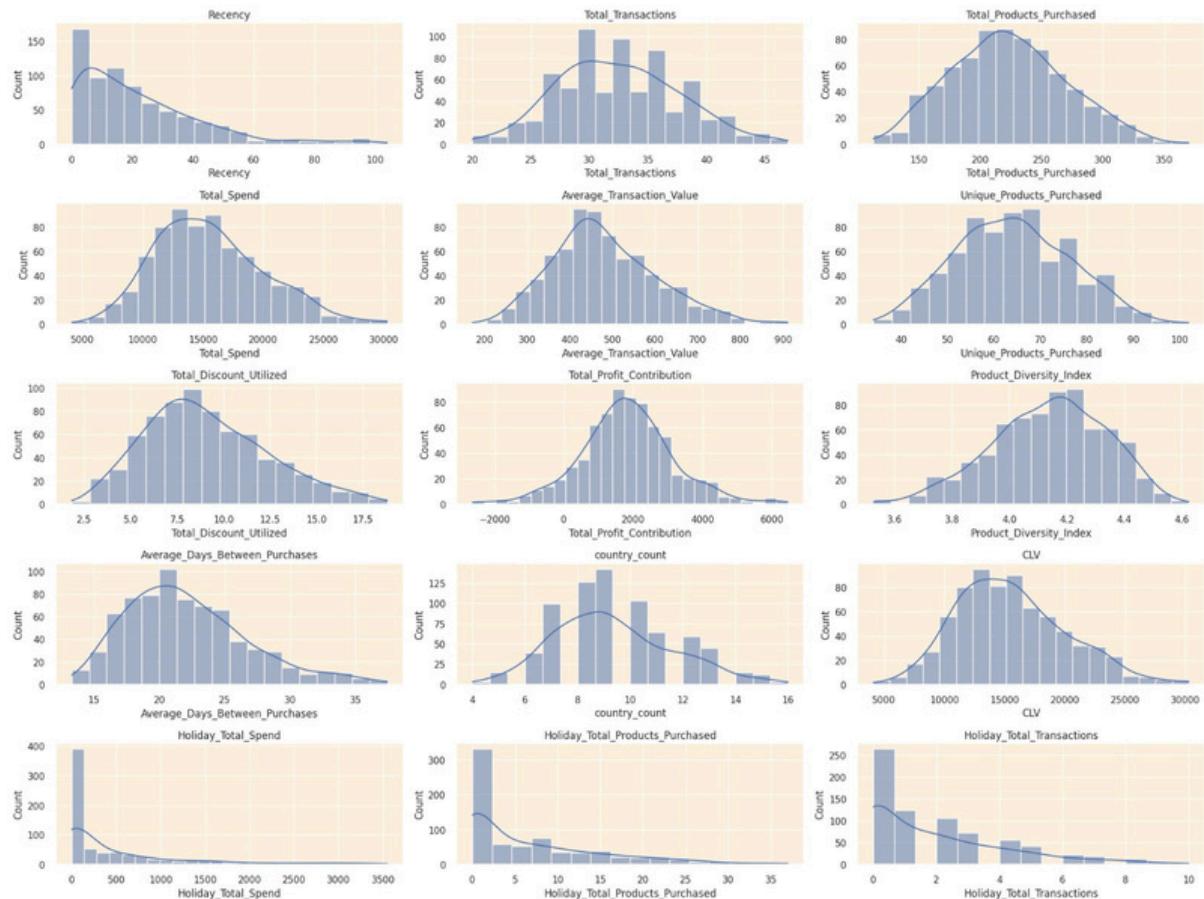
### PROFITS PERCENTAGE



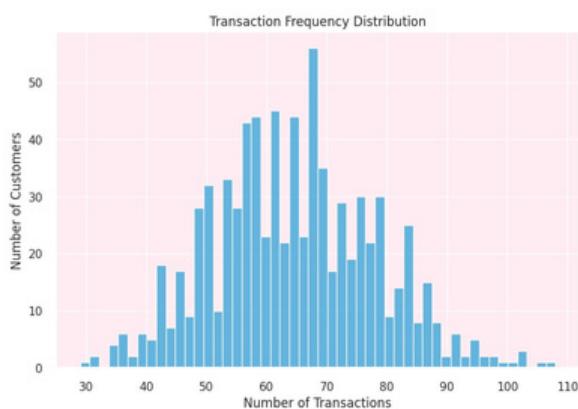
# SOLUTION

## Visual Analysis

### CUSTUMER STUDY



### TRANSACTION FREQUENCY DISTRIBUTION



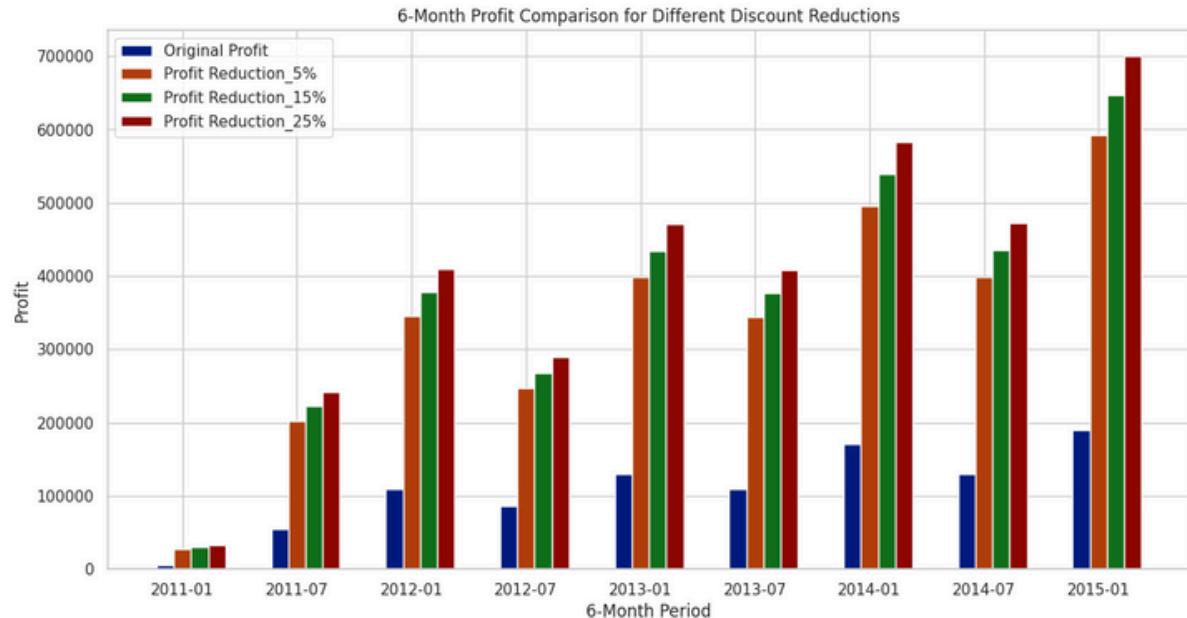
### OREDER PRIORITY DISTRIBUTION



# SOLUTION

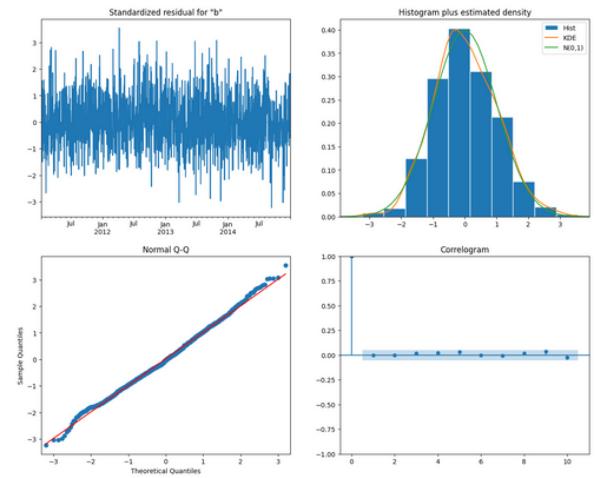
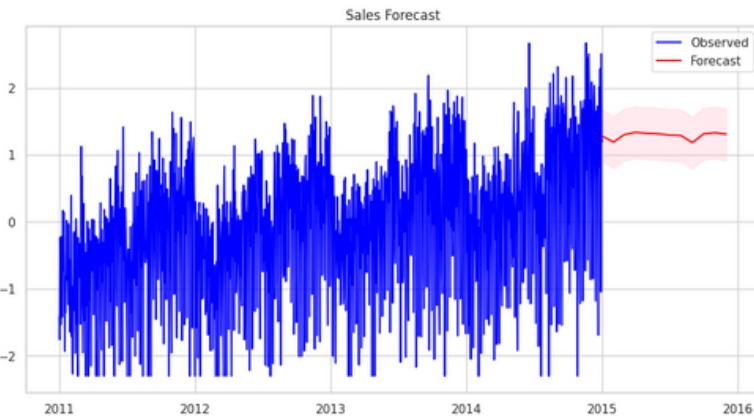
## Visual Analysis

### 6-month profits after reduction



### Model results

### sales forecasting





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