

User Requirement Story

User Story

As the Data Analyst at a retail company, I am responsible for leveraging data analytics to enhance our supply chain operations. To achieve this, I need to implement various analytical techniques to optimize inventory levels, improve customer segmentation, predict future trends, and streamline logistics processes. These optimizations are crucial to support cost-effective and efficient supply chain management, ensuring customer satisfaction and operational efficiency.

Key Objectives

Customer Segmentation

Objective: Segment customers based on purchasing behavior and demographics to identify the most profitable segments.

Requirement: Use clustering techniques to create distinct customer segments and analyze their characteristics.

Regression Modeling

Objective: Identify factors influencing customer spending and predict future spending patterns.

Requirement: Develop multiple linear regression models to understand the impact of various factors on customer expenditure.

Linear Programming

Objective: Optimize inventory levels to maximize profit and minimize costs while meeting customer demand.

Requirement: Implement linear programming models to determine the optimal product mix and inventory levels.

Hypothesis Testing

Objective: Test hypotheses regarding spending behaviors among different customer groups.

Requirement: Conduct statistical tests to compare spending patterns and validate assumptions.

Trend Analysis

Objective: Identify trends and seasonal patterns in customer purchasing behavior over time.

Requirement: Use time series analysis to uncover trends and seasonality in sales data.

Customer Retention

Objective: Improve customer retention rates by identifying factors leading to churn.

Requirement: Use logistic regression and other techniques to analyze customer churn and develop retention strategies.

Expected Outcomes

Improved Customer Insights:

- Better understanding of customer segments and their behavior.
- Targeted marketing and personalized offers to the most profitable segments.

Enhanced Predictive Capabilities:

- Accurate predictions of future spending patterns.
- Informed decision-making based on predictive models.

Optimized Inventory Management:

- Reduced inventory holding costs and stockouts.
- Efficient inventory levels that meet customer demand.

Validated Hypotheses:

- Statistical validation of spending differences among customer groups.
- Data-driven insights to support strategic decisions.

Identified Trends and Patterns:

- Clear identification of sales trends and seasonal patterns.
- Ability to forecast demand and adjust strategies accordingly.

Increased Customer Retention:

- Improved retention strategies based on churn analysis.
- Enhanced customer loyalty and reduced churn rates.