Retail Performance Data Analysis Report

Abstract

The dataset is sourced from Kaggle and consists of transaction-level records. Each row represents a customer purchase capturing demographic details, product information, purchase amount, ratings, seasons, and shipping preferences. From the data, we can see that customers vary widely in age, but most purchases are concentrated among adults between 25 and 45—an age group that tends to spend more on clothing, footwear, and accessories. Customer reviews are mostly positive, indicating overall satisfaction with the products and shopping experience. A large portion of customers also opt into subscription services, showing a preference for loyalty benefits and streamlined shopping. Shipping choices reveal that many customers prefer free or 2-day shipping, indicating that delivery speed and cost strongly influence purchasing decisions. Payment is diversified across credit cards, PayPal, and digital options, confirming the shift toward cashless shopping. Overall, the dataset tells a story of a dynamic retail environment where customer preferences are shaped by demographics, seasonality, delivery convenience, and product categories. These insights can help businesses optimize inventory, refine marketing strategies, and improve customer experience.
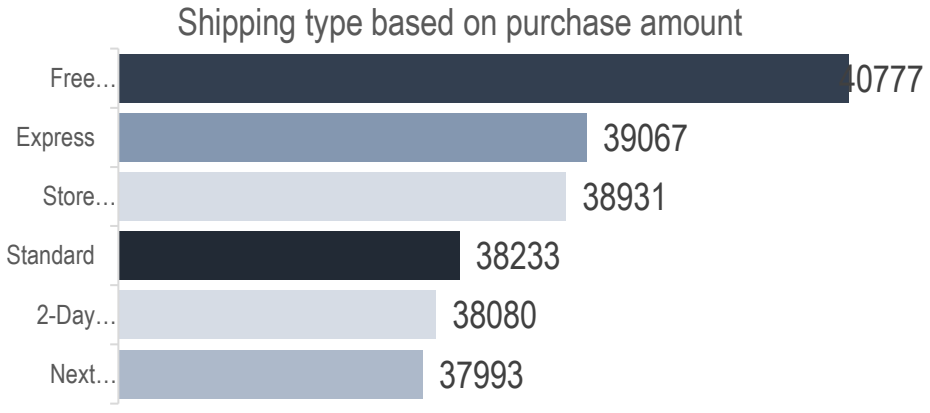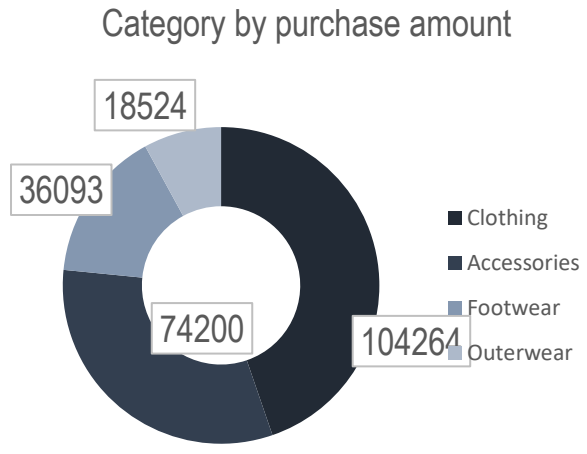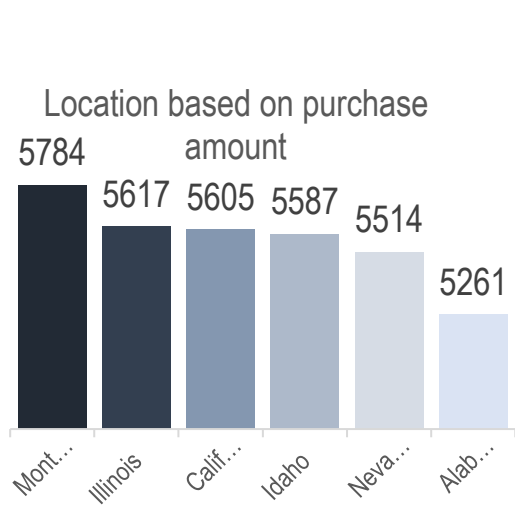
Introduction

This report analyzes supermarket retail performance, focusing on customer behavior, sales trends, and operational insights. It explores how product categories, locations, payment methods, shipping options, and seasonal factors influence revenue and customer engagement. The goal is to derive insights that support inventory optimization, marketing decisions, and enhanced customer experience.

Methodology

The dataset was explored to understand its structure, quality, stakeholders, and business goals. Variables were categorized into dependent and independent types, enabling examination of relationships across demographics, purchasing behavior, shipping, payment, and product preferences. Several questions were formulated to guide analysis, including identifying category performance, shipping trends, discount impact, and purchase frequency. This leads to the visualization of some of the variables using pivot tables and charts

Results

Location based on purchase amount

5784 Mont…
5617 Illinois
5605 Calif…
5587 Idaho
5514 Neva…
5261 Alab…

Category by purchase amount

18524
36093
74200
104264

- Clothing
- Accessories
- Footwear
- Outerwear

Shipping type based on purchase amount

Shipping type	Purchase amount
Free…	40777
Express	39067
Store…	38931
Standard	38233
2-Day…	38080
Next…	37993

Discussions

Category & Customer Preference

Clothing is the top-performing product category with purchase amount of 104,264, accounting for about 45% of total purchases. It also has the highest review ratings. Clothing and Accessories remain strong revenue contributors, showing consistent customer interest in these categories. This helps in planning targeted restocking and marketing efforts.

Location-Based Performance

States such as **Montana, Illinois, California, and Idaho** show higher purchase volumes, indicating regional demand variations and opportunities for localized promotions or store expansion.

Preferred Payment Methods

Although Credit Card is the most used payment method, contributing 40,310 in purchase amount, Customers heavily favor **PayPal, Credit Cards, and Debit Cards**, reflecting a shift toward digital payment systems and highlighting the need to improve cashless payment infrastructure.

Seasonal Purchase Trends

Peak purchases occur in **Spring and Fall**, indicating stronger activity during warmer periods. Retailers can leverage this by optimizing promotions and inventory scheduling.

Shipping Influence on Spending

Free Shipping and Express Delivery attract high-value purchasers, confirming that speed and delivery cost strongly impact purchase decisions.

Customer Type Contribution

Wholesale customers contribute higher purchase volumes than regular customers, emphasizing the strategic value of B2B relationships and bulk purchasing incentives

Recommendations

- Leverage high-performing categories (Cosmetics, Groceries) for targeted promotions and inventory decisions.
- Offer seasonal discounts year-round to reduce seasonal purchase decline, especially during summer.
- Optimize digital payment channels and offer reward-based incentives to promote cashless transactions.

- Negotiate express delivery partnerships to manage shipping costs while maintaining customer attraction.

Conclusion

Retail performance in supermarkets is strongly influenced by product category, location, payment methods, seasonal behavior, shipping preferences, and customer type. Understanding these factors enables smarter decision-making, improves customer satisfaction, and increases profitability.