

Supermarket Sales Performance and Customer Insights Report

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Tableau Dashboard link: [Dashboard](#)

Tools Used: Python (Customer Segmentation), Tableau (Visualization), Excel (Pivot Analysis)

1. Executive Summary

This report analyzes customer behavior and sales performance for a supermarket with a focus on Fast-Moving Consumer Goods (FMCG). By leveraging segmentation algorithms in Python and interactive Tableau dashboards, the report identifies actionable insights into gender-based purchasing trends, customer satisfaction and loyalty, hourly sales flow, and category performance.

The primary goal is to develop data-driven strategies for:

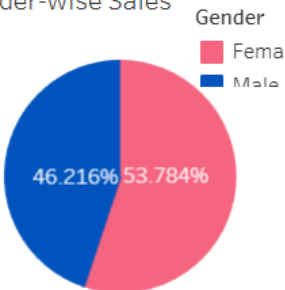
- Improving customer retention and targeting,
- Enhancing inventory and labor management,
- Reducing costs associated with demand uncertainty,
- Increasing revenue through personalized marketing.

2. Gender-Wise Purchase Behavior Analysis

Gender	Invoices	Total Quantity	Total Sales (₹)	Avg. Basket Value (₹)	Avg. Quantity per Order
Female	533	2,996	₹173,485.68	₹325.49	5.62
Male	458	2,427	₹141,209.63	₹308.32	5.30

- **Key Insight:** Female customers are more engaged, purchasing larger quantities and spending more per order than male customers. Female customers purchase more than males. They account for 53.78% of buyers, and 55.1% of Total sales.

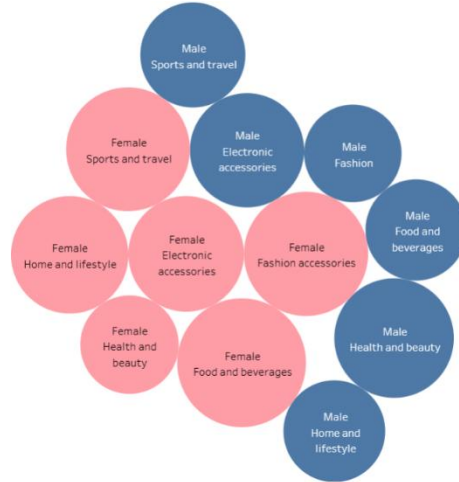
Gender-wise Sales



(Figure – Gender-wise sales Distribution)

Recommendation:

- Prioritize targeted campaigns for women.
 - Promote female-centric popular product categories like Food Beverages, Fashion accessories, Sports & Travel, and Home and lifestyle.



(Figure– Sales by Product Category & Gender)

- Introduce seasonal campaigns for Fashion, Food & Beverages, and Travel aligned with customer behavior.
- Use point-of-sale promotions and featured sections to increase visibility.

3. Customer Segmentation Strategy (Python-Based)

Customers are classified into four segments based on purchase quantity and satisfaction rating:

Segment	Invoice Count
Happy High Spenders	247
Happy Low Spenders	238
Unhappy Low Spenders	266
Unhappy Loyal Spenders	240

Segment Characteristics and Campaign Strategy:

Segment	Strategy
Happy High Spenders	Reward programs, early access to new products, and exclusive bundles
Happy Low	Cross-selling, volume discount coupons, personalized

Segment	Strategy
Spenders	recommendations mail campaign.
Unhappy Low Spenders	Re-engagement via surveys, small value trials, and targeted discounts
Unhappy Loyal Spenders	Improve service quality (try to improve their shopping experience), gather feedback, and offer retention incentives

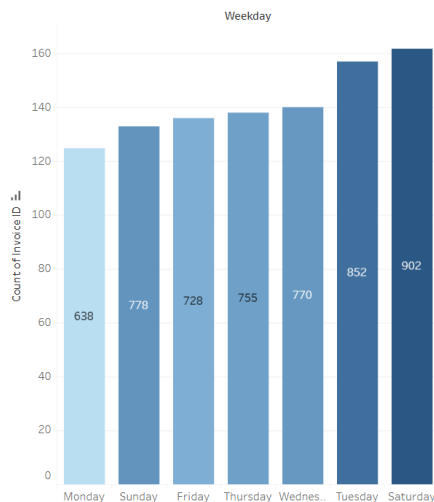
4. Hourly Sales Pattern Analysis

Footfall distribution by Hours:

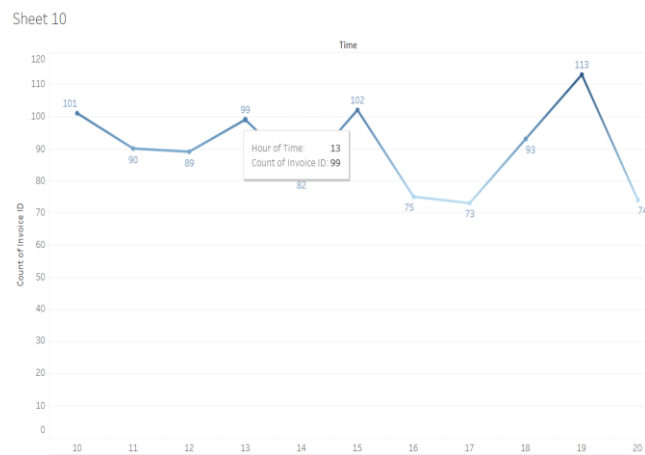
- Peak hours: 10 AM to 3 PM
- Low hours: 2 PM to 4 PM and post-4 PM

Weekly Footfall by Day (Invoice Count):

- Saturdays and Tuesdays experience the highest customer traffic.
- Monday is the slowest day, indicating potential for weekday promotions or internal operations.



(Figure – Footfall distribution by days)



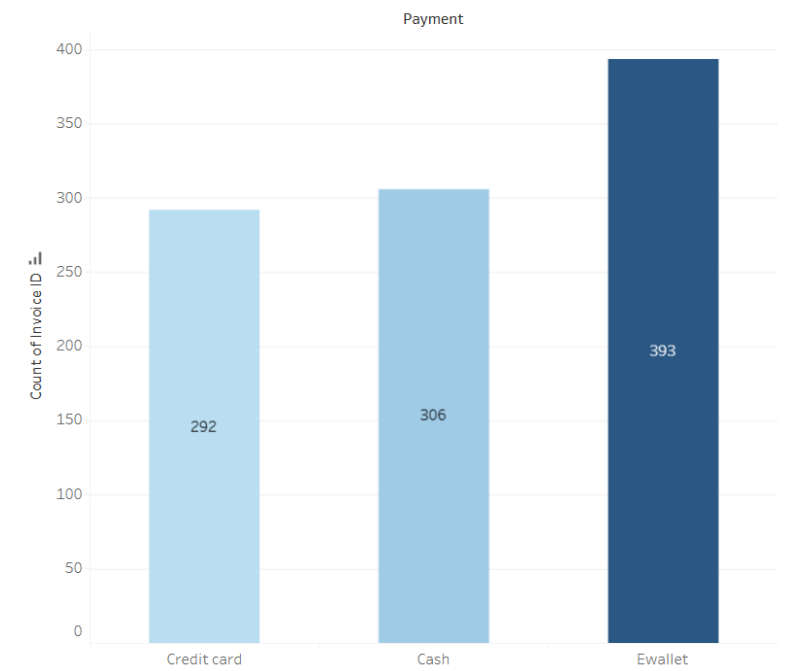
(Figure – footfall distribution by hours)

Recommendation:

- Optimize staffing during peak hours and high-footfall days (Tue & Sat). Instead of hiring too many full-time employees, the company can hire some part-time employees (along with full-time), specifically for the rush days and rush hours.
- Use low-traffic periods for restocking and cleaning.

- Launch “Flash Sales” during slower hours: Schedule time-sensitive offers during slower hours and low customer days like Monday and Sunday to increase footfall and redistribute traffic.
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5. Payment Method Preferences and Checkout Experience



(Figure – Payment options and their popularity)

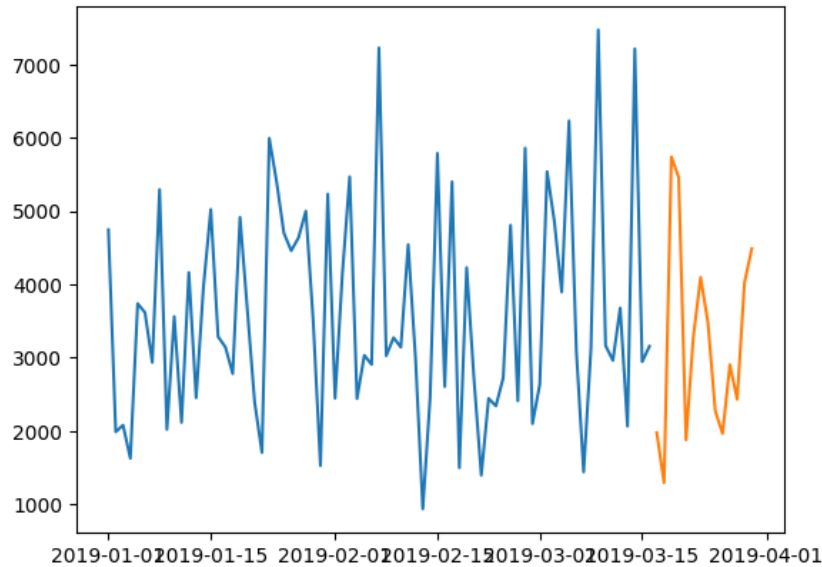
Insight:

- E-wallet is by far the most popular choice, with nearly 40% of customers preferring it over cash and credit.

Recommendation:

- Encourage E-wallet usage further by offering small discounts or loyalty points on digital payments.
- Set up dedicated express checkout counters for E-wallet users.
- Train staff to assist with wallet setup and promote digital literacy among customers.
- Invest in user-friendly and reliable POS systems to reduce queue time and improve the overall experience.

6. Demand Uncertainty and Inventory Management



Issue:

- Sales variability results in stockouts and excess inventory.

Solution:

- Implement SARIMA or LSTM forecasting models.
- Set reorder thresholds and maintain safety stock for high-variance products. Use the periodic model for inventory management.

7. Conclusion

This data-driven report outlines key strategies to improve supermarket sales performance:

- Focused marketing towards high-value female shoppers.
- Segment-specific campaigns to boost retention and satisfaction.
- Forecast-driven inventory to reduce costs and stockouts.
- Improved staffing efficiency based on peak hours.
- Category-based product optimization for sales uplift.

By executing these recommendations, the supermarket can enhance customer experience, improve operational efficiency, and achieve sustained revenue growth.