Customer Behavior Analysis – Business Report

Subtitle: Insights and Recommendations to Optimize Customer Engagement, Revenue, and Retention
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1. Executive Summary

This project analyzes 3,900 customer transactions to uncover insights about shopping behavior across demographics, product categories, and sales channels. The goal is to guide strategic business decisions, optimize marketing campaigns, improve customer loyalty, and increase revenue.

Key Takeaways:

- Female customers contribute slightly more revenue than male customers.
- Repeat buyers and subscribers are high-value segments.
- Top-rated products and premium shipping users are key drivers of revenue.
- Discounts influence purchase behavior, but high-spending discount users represent strategic opportunities.

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2. Stakeholders

Stakeholder	Focus / Interest
Marketing	Campaign targeting & promotions
Product	Product positioning & catalog optimization
Operations	Shipping & subscription efficiency
Leadership / Management	Revenue & customer retention

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3. Business Objectives

- **Increase revenue** through targeted marketing and product campaigns.
- **Improve customer loyalty and retention** using subscription and loyalty programs.
- **Optimize discount and promotion strategies** to balance sales and margin.
- **Highlight high-performing products** to enhance conversions.
- **Monitor key metrics** to enable ongoing data-driven decisions.

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4. Key Metrics / KPIs

KPI	Description
Average Order Value (AOV)	Average spend per customer purchase
Repeat Purchase Rate	% of customers with multiple purchases
Discount Dependency	% of purchases with discounts applied
Subscription Revenue Share	Revenue contribution from subscribers
Customer Segment Revenue	Revenue by customer type (New / Returning / Loyal)

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5. Data Assumptions & Constraints

- Dataset: 3,900 transactions across multiple product categories.
- 18 columns covering demographics, purchase behavior, and product details.
- 37 missing values in Review Rating, imputed using category-wise median.
- Data is representative but may not capture long-term seasonal trends.
- Sample size is sufficient for analysis but may not fully represent all customers.

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6. Business Questions → Insights → Recommendations

Business Question	Insight / Finding	Business Implication	Recommendation	KPI / Metric
Revenue by Gender	Females generate slightly higher revenue	Female segment is high-value	Focus marketing campaigns on female customers	Revenue by gender, Campaign CTR
High-Value Discount Users	Some customers spend above average even with discounts	Premium shoppers exist	Offer exclusive promotions to retain high-value customers	Revenue from premium segment
Top 5 Products by Rating	Products with highest ratings drive purchases	High-rated products influence purchase decisions	Highlight top-rated products in campaigns	Product sales, Rating trend
Shipping Type	Express shipping users spend more	Premium shipping customers are high-revenue	Promote express options for high-value buyers	Avg. revenue per shipping type
Subscription Impact	Subscribers spend more and purchase frequently	Subscriptions drive revenue	Offer exclusive subscription incentives	Subscription rate, ARPU

Business Question	Insight / Finding	Business Implication	Recommendation	KPI / Metric
Customer Segmentation	Loyal customers generate most revenue	Retention is key	Implement loyalty programs targeting Returning → Loyal	Repeat purchase rate, Revenue per segment
Discount-Dependent Products	Certain products are highly dependent on discounts	Over-reliance on discounts may reduce margin	Re-evaluate discount strategy per product	Discount rate, Revenue margin
Repeat Buyers & Subscriptions	Customers with >5 previous purchases are more likely to subscribe	Target repeat buyers for subscriptions	Promote subscriptions to repeat buyers	Subscription adoption rate
Revenue by Age Group	25–40 age group contributes most revenue	Focus campaigns on high-value age groups	Target marketing & offers to 25–40 age group	Revenue by age group
Top 3 Products per Category	Certain products dominate sales in each category	Inventory and promotion optimization	Highlight top-selling products in category campaigns	Product category revenue

7. Strategic Recommendations

Recommendation	Expected Impact / KPI
Boost Subscriptions → Promote exclusive benefits for subscribers	Increase subscription adoption and recurring revenue; KPI: Subscription rate, ARPU
Loyalty Programs → Reward repeat buyers to increase retention	Improve repeat purchase rate; KPI: Repeat Purchase Rate, Customer Lifetime Value
Targeted Marketing → Focus on high-revenue segments and express users	Maximize ROI from marketing campaigns; KPI: Revenue per campaign, Conversion rate
Product Positioning → Highlight top-rated and best-selling products in campaigns	Boost sales and customer satisfaction; KPI: Product sales, Ratings trend

8. Conclusion

This analysis combines technical data analysis (Python & SQL) with business reasoning to deliver actionable insights. By leveraging these findings, the company can:

- Optimize marketing strategies and campaigns.
- Increase revenue from high-value customer segments.
- Strengthen customer loyalty and retention.
- Make data-driven product and discount decisions.