

E-Commerce Sales Analysis

Executive Summary

This report analyzes the sales data of an e-commerce platform operating across multiple Indian cities. The dataset contains 2,000 transaction records with information on customer behavior, product categories, payment methods, and geographic distribution. Key findings indicate a balanced revenue distribution across product categories with Beauty generating the highest revenue (13.5%). January was the most profitable month, and Thursday the most profitable day of the week. The analysis reveals important insights about customer purchasing patterns, discount impact, and payment preferences.

Dataset Overview

The dataset consists of 2,000 orders with 15 variables including:

- Order details (ID, date, status)
- Customer information (ID, location)
- Product information (ID, category, price, quantity)
- Transaction details (payment method, discount, shipping cost)

The data spans January-March 2025, with most orders occurring in January and February.

Sales Performance

Overall Revenue Metrics

- Total Revenue: ₹153,300,141
- Average Revenue Per Transaction: ₹76,650
- Total Units Sold: 6,021

Category Performance

Revenue by Category:

Category	Revenue	Percentage
Beauty	₹20,698,082	13.5%
Electronics	₹19,927,364	13.0%
Books	₹19,701,170	12.9%
Grocery	₹19,554,974	12.8%
Toys	₹19,030,641	12.4%
Clothing	₹18,747,809	12.2%
Home Decor	₹18,593,040	12.1%
Footwear	₹17,047,061	11.1%

The revenue is distributed relatively evenly across all product categories, with Beauty products generating the highest revenue (13.5%).

Temporal Analysis

Monthly Revenue:

- January: ₹75,145,619 (49.0%)
- February: ₹72,044,938 (47.0%)
- March: ₹6,109,584 (4.0%)

Daily Revenue:

- Thursday: ₹24,017,320 (15.7%)
- Wednesday: ₹23,720,192 (15.5%)
- Saturday: ₹23,347,693 (15.2%)
- Sunday: ₹22,574,437 (14.7%)

- Monday: ₹21,413,993 (14.0%)
- Friday: ₹19,399,146 (12.7%)
- Tuesday: ₹18,827,360 (12.3%)

Weekends (Saturday and Sunday) combined account for nearly 30% of total revenue, while midweek (Wednesday and Thursday) generates over 31%.

Customer Analysis

- Total Unique Customers: 807
- Customers with Repeat Purchases: 585 (72.5% of total customers)
- Average Orders per Customer: 2.48

Top 5 Customers by Total Spend:

1. C993: ₹685,624
2. C610: ₹668,151
3. C628: ₹649,731
4. C549: ₹634,846
5. C316: ₹609,904

Geographic Analysis

Revenue by City:

1. Ahmedabad: ₹22,345,864 (14.6%)
2. Delhi: ₹20,102,680 (13.1%)
3. Mumbai: ₹19,420,968 (12.7%)
4. Chennai: ₹18,962,841 (12.4%)
5. Hyderabad: ₹18,950,460 (12.4%)
6. Kolkata: ₹18,242,181 (11.9%)

7. Bangalore: ₹17,912,189 (11.7%)

8. Pune: ₹17,362,958 (11.3%)

Most Popular Categories by Location:

- Ahmedabad: Grocery (43 orders) and Home Decor (40 orders)
- Hyderabad: Electronics (40 orders) and Clothing (39 orders)
- Kolkata: Beauty (39 orders)

Discount Analysis

Average Discount by Category:

1. Toys: 10.44%
2. Footwear: 10.15%
3. Books: 10.12%
4. Beauty: 9.88%
5. Grocery: 9.84%
6. Clothing: 9.74%
7. Home Decor: 9.68%
8. Electronics: 9.44%

Revenue by Discount Level:

- 15% discount: ₹35,317,782 (23.0%)
- 5% discount: ₹33,297,061 (21.7%)
- 0% discount: ₹30,765,075 (20.1%)
- 10% discount: ₹27,117,412 (17.7%)
- 20% discount: ₹26,802,811 (17.5%)

Order Volume by Discount Level:

- 15% discount: 430 orders
- 5% discount: 415 orders
- 0% discount: 408 orders
- 20% discount: 381 orders
- 10% discount: 366 orders

The data shows that moderate discounts (15% and 5%) drive higher order volumes than the highest discount (20%).

Products Sold Without Discount:

- Home Decor: 179 units
- Electronics: 176 units
- Clothing: 166 units
- Grocery: 162 units

Payment Method Analysis

Revenue by Payment Method:

1. UPI: ₹32,291,330 (21.1%)
2. Credit Card: ₹31,155,114 (20.3%)
3. Cash on Delivery: ₹30,590,221 (20.0%)
4. Net Banking: ₹29,698,761 (19.4%)
5. Debit Card: ₹29,564,715 (19.3%)

Most Common Payment Methods:

1. UPI: 413 transactions
2. Credit Card: 408 transactions

3. Debit Card: 401 transactions
4. Net Banking: 392 transactions
5. Cash on Delivery: 386 transactions

Order Status Analysis

Cash on Delivery Cancellation Rate:

- 20.98% of all Cash on Delivery orders were canceled

Cancellation Rates by City:

1. Mumbai: 67 cancellations
2. Bangalore: 66 cancellations
3. Hyderabad: 65 cancellations
4. Ahmedabad: 64 cancellations
5. Delhi: 61 cancellations
6. Chennai: 54 cancellations
7. Pune: 54 cancellations
8. Kolkata: 45 cancellations

Recommendations

1. Category Strategy: Maintain the balanced category approach while exploring ways to further boost Beauty and Electronics categories.
2. Discount Optimization: Focus promotional activities on 15% and 5% discount levels, which generate higher order volumes than 20% discounts.
3. Weekday Promotions: Consider special promotions for Tuesday and Friday, which show lower sales compared to other days.

4. **Payment Method Incentives:** While UPI is the most popular payment method, reducing the high cancellation rate for Cash on Delivery (20.98%) could improve overall conversion rates.
5. **Geographic Targeting:** Develop targeted marketing campaigns for Mumbai, Bangalore, and Hyderabad to address their high cancellation rates.
6. **Customer Retention:** Create loyalty programs targeting the 27.5% of customers who haven't made repeat purchases.
7. **Product Bundling:** Explore bundling opportunities between complementary categories based on city preferences (e.g., Grocery and Home Decor bundles in Ahmedabad).

Conclusion

This analysis provides a solid foundation for data-driven decision making. Moving forward, integrating additional data sources such as customer demographics, website behavior, and seasonal trends would enhance our understanding of customer motivations and enable even more precise targeting. Implementing A/B testing for promotional strategies and checkout processes could further optimize the conversion funnel and reduce cart abandonment.

By acting on these insights, the e-commerce platform is well-positioned to increase customer lifetime value, reduce operational inefficiencies, and accelerate sustainable growth in a competitive marketplace.