

Amazon Product Sales Data Analysis and Marketing Insights

Executive Summary

This report presents a comprehensive analysis of Amazon sales data to extract actionable marketing insights. The analysis covered data attributes exploration, product sales trends, geographical distribution, customer behavior patterns, and promotional effectiveness. The dataset contained 128,975 records with 24 attributes including order details, product information, and sales metrics. Key findings revealed that "Set" and "kurta" categories dominate sales, Maharashtra and Karnataka are the top-performing states, and promotions increase average order value by 12.44%. The analysis also identified significant sales variations by day of the week, with weekends showing higher sales volumes. These insights can inform targeted marketing strategies, inventory management, and promotional planning to optimize sales performance.

Key Findings

Sales Performance: Total sales of ₹83.65 million across 120,378 orders with an average order value of ₹694.88.

Product Categories: "Set" and "kurta" categories are dominant, accounting for ₹41.3 million and ₹23.3 million in sales respectively.

Geographical Insights: Maharashtra leads with ₹13.3 million in sales, followed by Karnataka (₹10.5 million).

Size Distribution: Medium (M) size has the highest sales (₹13.9 million), followed closely by Large (L) at ₹13.2 million.

Seasonal Patterns: Significant monthly sales variations observed, with potential seasonal peaks.

Fulfillment Strategy: Amazon fulfillment accounts for 69.5% of orders versus 30.5% for merchant fulfillment.

Promotion Impact: Promotions increase average order value by 12.44% (₹674.22 vs ₹599.65).

Business Model: B2C dominates with 99.3% of total sales versus only 0.7% for B2B.

Detailed Analysis

1. Data Overview and Initial Inspection

The analysis was conducted on an Amazon sales dataset containing 128,975 records with 24 attributes. The dataset includes information about order details, product information, sales figures, geographical data, and fulfillment methods. Some key columns include Order ID, Date, Status, Category, Size, Amount, and ship-state. Initial data inspection revealed missing values in several columns, particularly in promotion-ids (49,153 missing), fulfilled-by (89,698 missing), and Courier Status (6,872 missing).

2. Sales Performance and Distribution

The dataset recorded a total sales amount of ₹83,648,214.92 across 120,378 orders with 116,649 total units sold. The average order value was ₹694.88. The sales amounts showed significant variation, with values ranging from very small amounts to as high as ₹5,584.

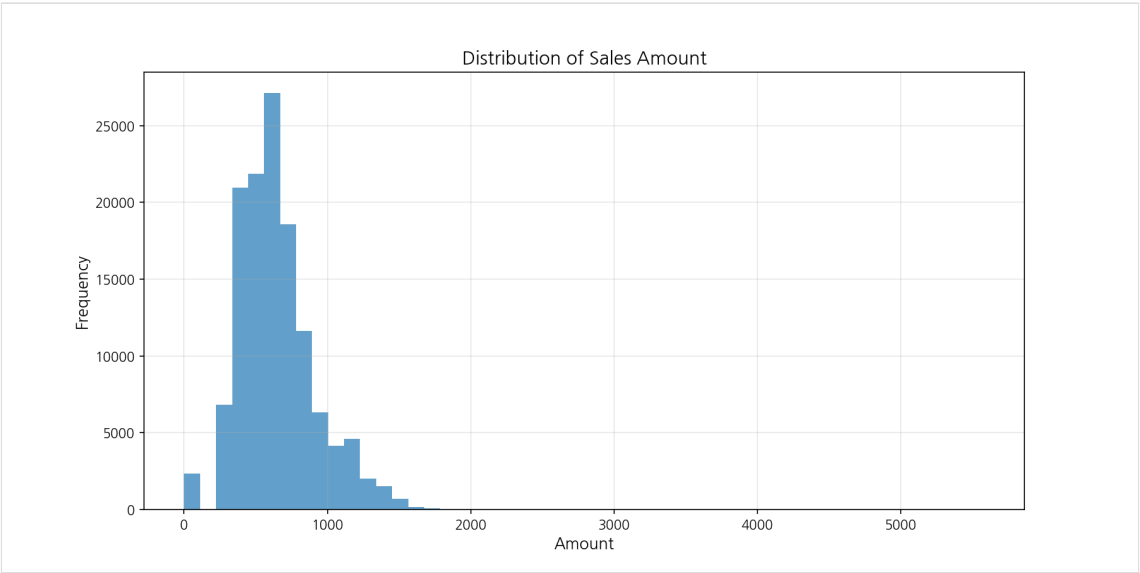


Figure 1: Distribution of sales amounts showing concentration around ₹449-788 range

The daily sales trend shows significant day-to-day fluctuations, with several notable peaks and troughs throughout the period. This pattern suggests potential seasonality or promotional impacts on sales.

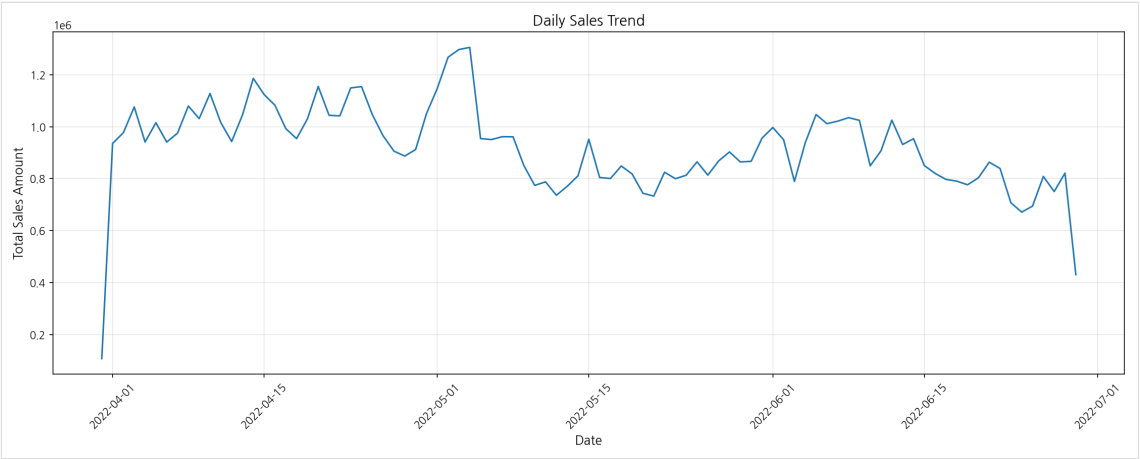


Figure 2: Daily sales trend showing fluctuations and potential seasonal patterns

3. Product Category Analysis

Analysis of product categories revealed that "Set" and "kurta" are the dominant categories, accounting for ₹41.3 million and ₹23.3 million in

sales respectively. These two categories alone represent approximately 77% of total sales, indicating significant market concentration.

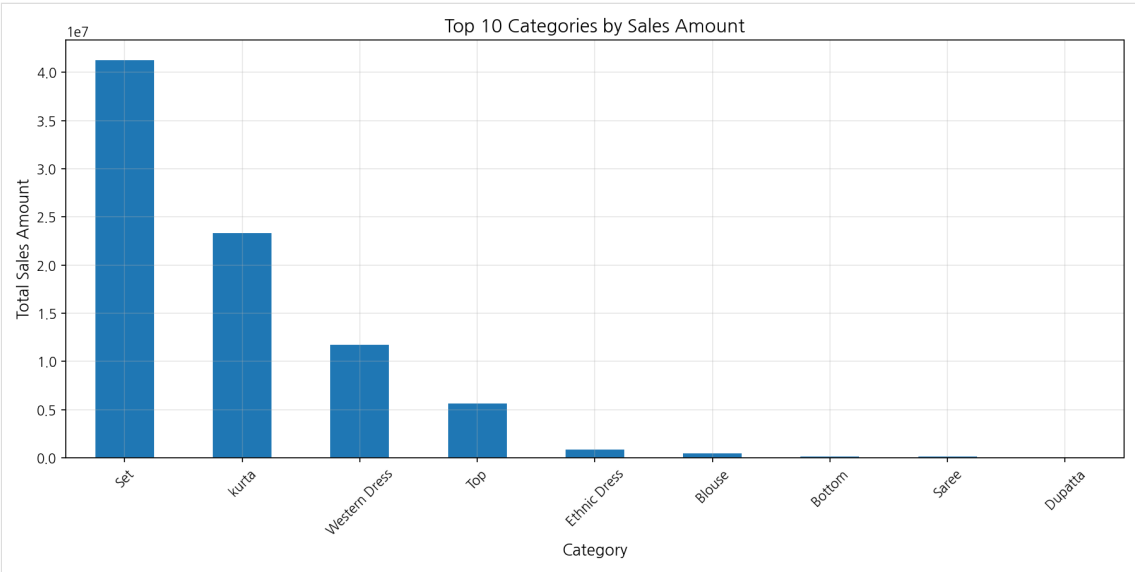


Figure 3: Top 10 product categories by sales amount showing dominance of "Set" and "kurta"

The category performance over time indicates varying sales patterns for different product categories. The "Set" category consistently outperforms other categories across most time periods.

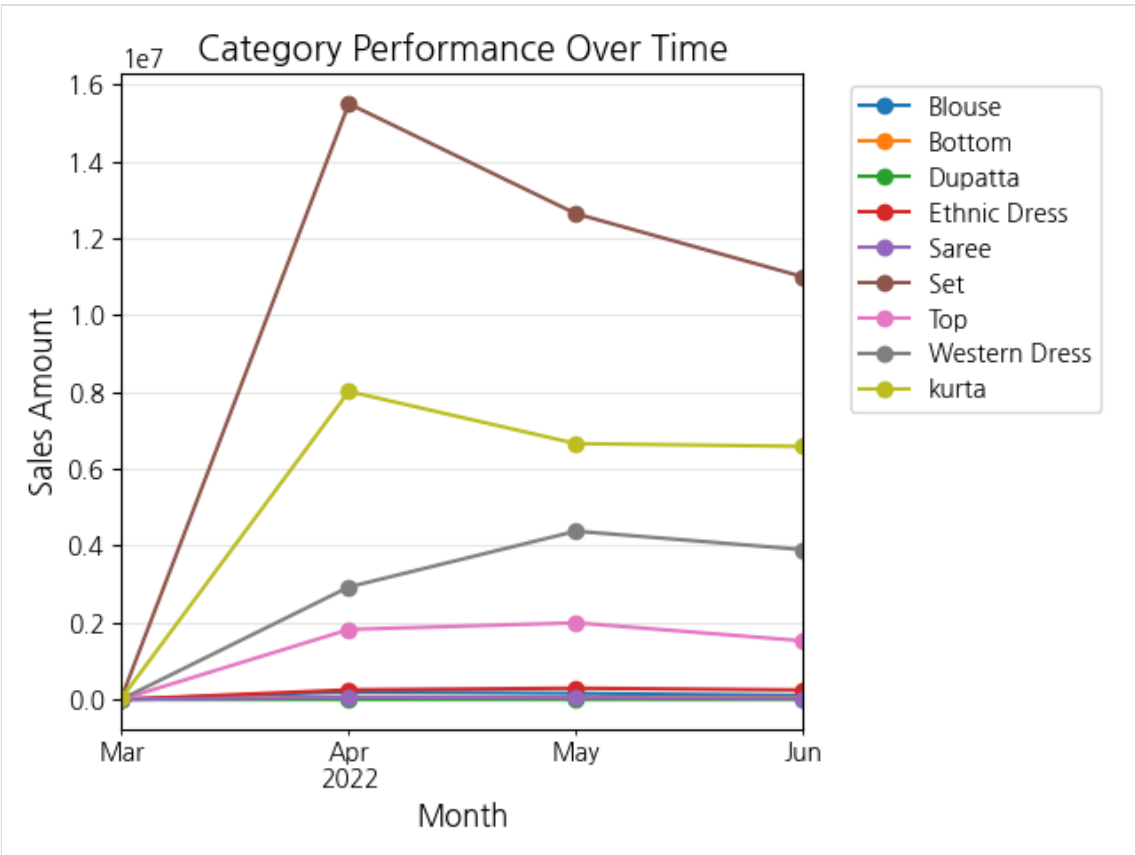


Figure 4: Category performance trends over time showing relative sales by category

Marketing Insight: The significant dominance of "Set" and "kurta" categories suggests that marketing efforts should be focused on these high-performing categories, potentially through featured placement, special promotions, or bundle offers with complementary products.

4. Geographic Distribution of Sales

Sales analysis by geography revealed that Maharashtra leads with ₹13.3 million in sales from 21,073 orders, followed by Karnataka (₹10.5 million from 16,394 orders) and Telangana (₹6.9 million from 10,637 orders). These three states account for approximately 37% of total sales.

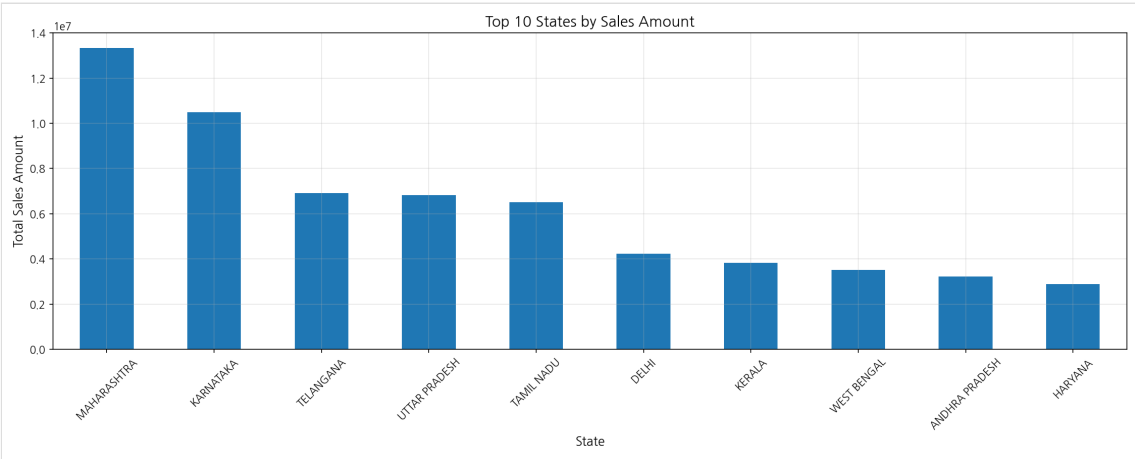


Figure 5: Top 10 states by sales amount showing Maharashtra's dominant position

Interestingly, when analyzing average order value by state, smaller states/UTs like Bihar, Ladakh, and Sikkim show the highest average order values, potentially indicating different purchasing behaviors or product preferences.

Marketing Insight: Targeted regional marketing campaigns should be considered for Maharashtra, Karnataka, and Telangana to reinforce high sales volumes, while focused campaigns in states with high average order values could potentially increase overall purchase amounts.

5. Product Size and Style Analysis

Analysis of sales by product size revealed that Medium (M) size has the highest sales at ₹13.9 million, followed closely by Large (L) at ₹13.2 million and XL at ₹12.5 million. The relatively balanced distribution among these sizes suggests widespread demand across standard sizing options.

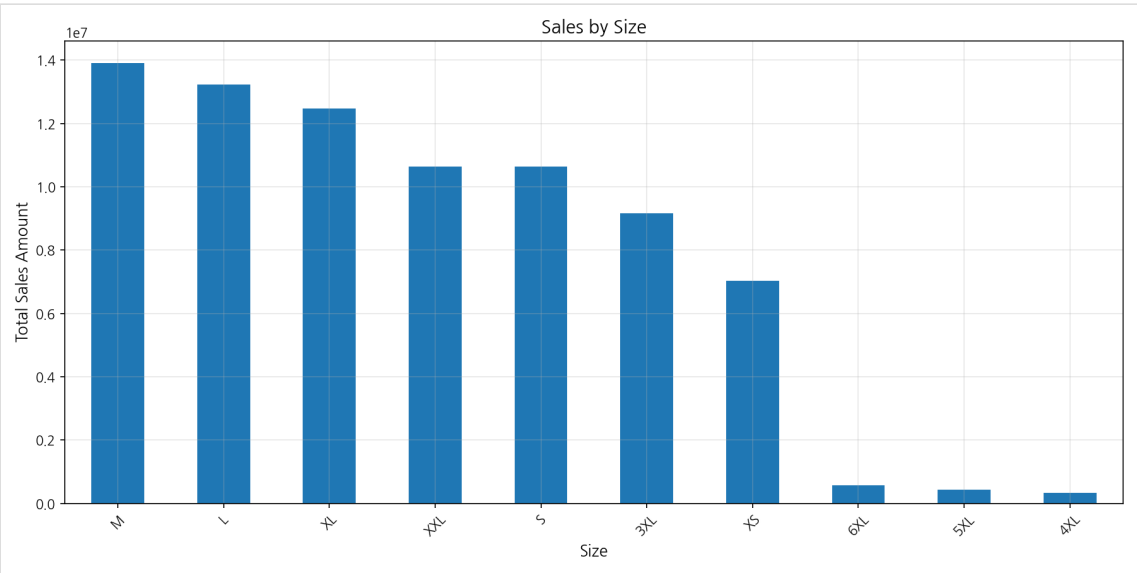


Figure 6: Sales distribution by product size showing balanced demand across M, L, and XL sizes

Style analysis identified the top-performing styles, with JNE3797 leading at ₹2.93 million in sales, followed by J0230 (₹1.94 million) and SET268 (₹1.30 million).

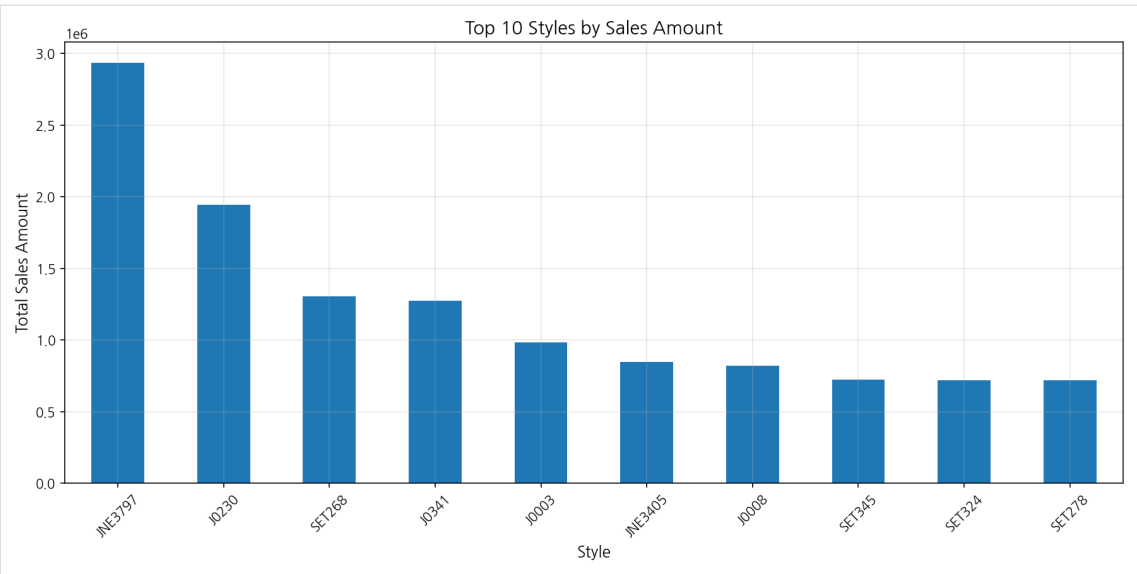


Figure 7: Top 10 styles by sales showing strong performance of specific product lines

Marketing Insight: Inventory planning should ensure adequate stock levels for M, L, and XL sizes across product categories. The top-performing styles (JNE3797, J0230, SET268) should be highlighted in marketing materials and could be candidates for expansion into additional variations.

6. Order Status and Fulfillment Analysis

Analysis of order status revealed that "Shipped" was the most common status (77,804 orders), followed by "Shipped - Delivered to Buyer" (28,769 orders). Notably, "Cancelled" orders represented a significant 18,332 orders (approximately 15% of total orders), suggesting potential opportunities for improvement in order fulfillment and customer satisfaction.

Cancellation rate analysis by category showed that "Set" and "kurta" categories, despite being top sellers, also had the highest cancellation rates at 14.6% and 14.5% respectively. This could indicate inventory issues, quality concerns, or pricing factors affecting these categories.

Fulfillment method analysis revealed that Amazon fulfillment accounts for 69.5% of orders versus 30.5% for merchant fulfillment.

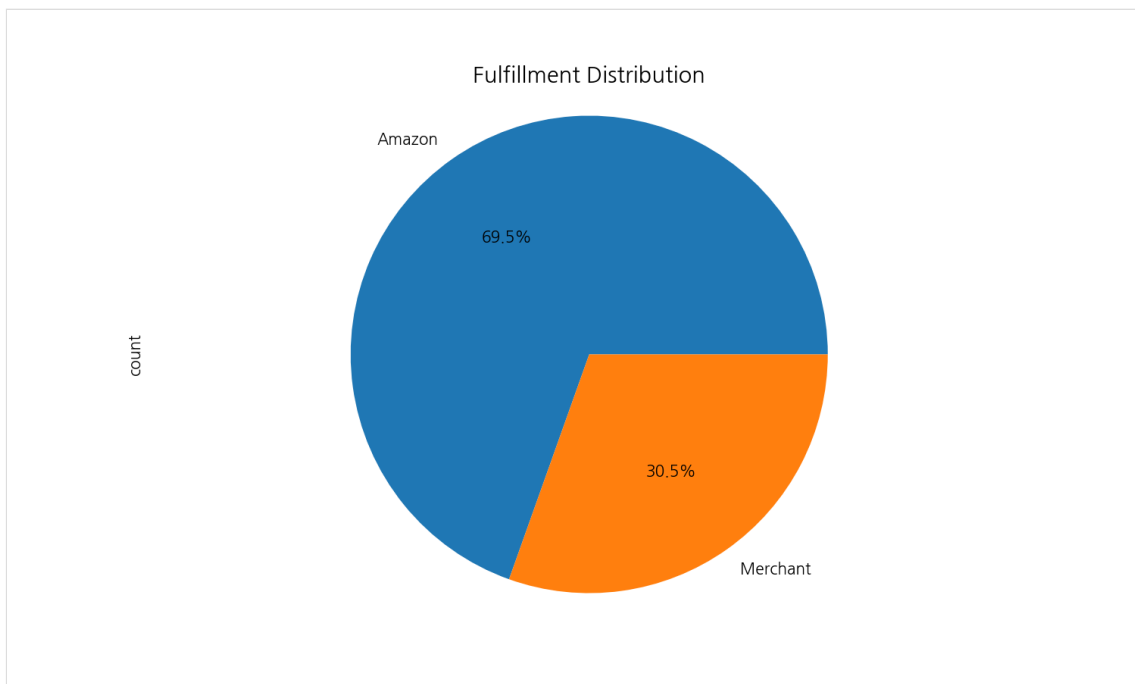


Figure 8: Distribution of fulfillment methods showing Amazon's dominant role in order processing

Marketing Insight: The high cancellation rates in top-selling categories warrant investigation. Customer feedback analysis and post-cancellation surveys could help identify causes and reduce

cancellation rates. Additionally, the preference for Amazon fulfillment suggests that highlighting "Fulfilled by Amazon" in product listings could potentially increase customer confidence and sales.

7. Sales Trends and Seasonality

Monthly sales analysis revealed significant variations, suggesting potential seasonal patterns in purchasing behavior. The standard deviation of monthly sales was ₹13.2 million, indicating substantial month-to-month differences.

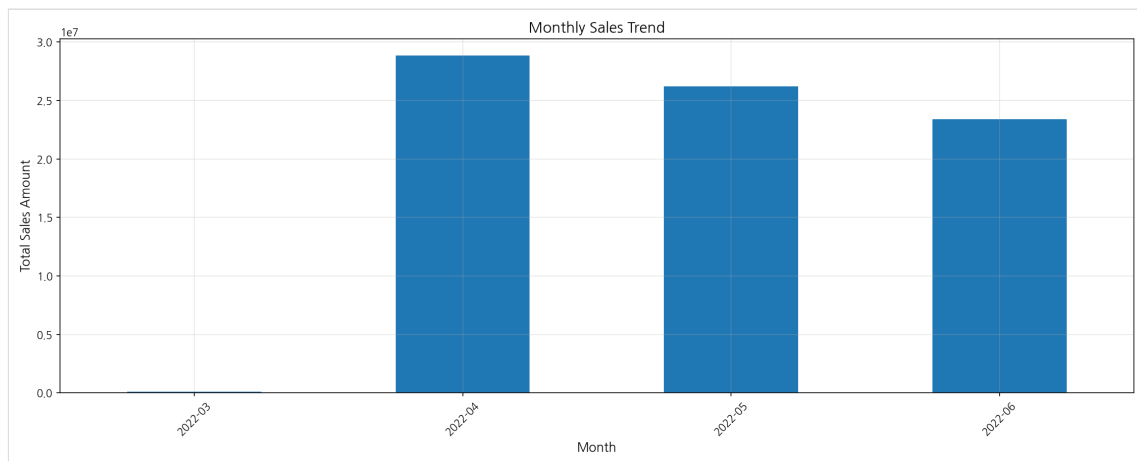


Figure 9: Monthly sales trend showing significant variations in sales volume by month

Day-of-week analysis showed that weekend sales were slightly higher, with Sunday recording the highest sales (₹12.03 million), followed by Tuesday (₹11.49 million) and Monday (₹11.32 million).

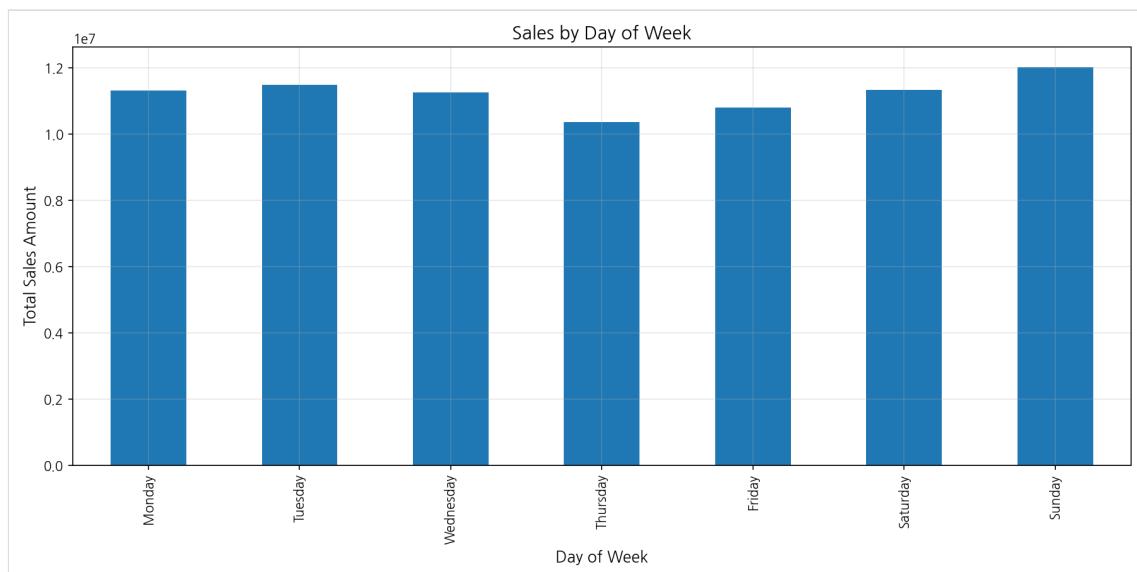


Figure 10: Sales distribution by day of week showing stronger weekend performance

Marketing Insight: Marketing campaigns should be aligned with observed seasonal patterns, with increased promotional activities during historically high-performing months. Weekend promotions, particularly on Sundays, could potentially maximize sales during peak shopping days.

8. Customer Purchasing Behavior

Analysis of order quantities revealed that single-item orders were overwhelmingly dominant, with 115,780 orders for a quantity of 1, representing approximately 90% of all orders. Orders with quantity 0 (possibly indicating cancelled or non-fulfilled orders) accounted for 12,807 instances, while orders with quantity 2 or more were relatively rare (382 orders).

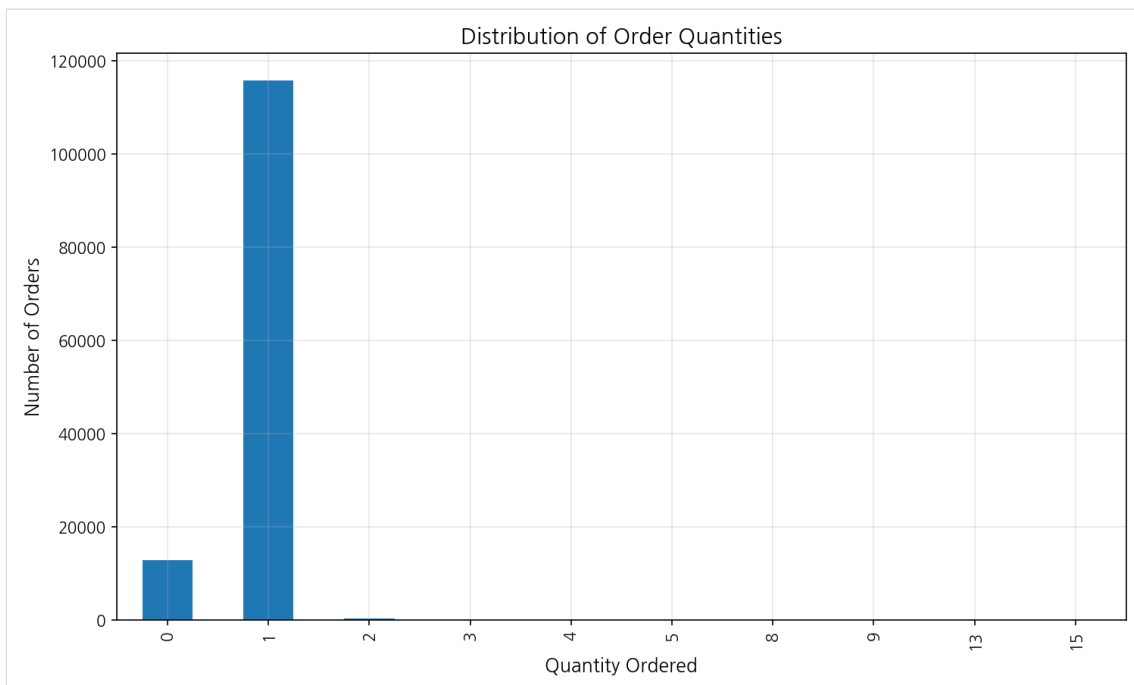


Figure 11: Distribution of order quantities showing strong preference for single-item purchases

Marketing Insight: The strong preference for single-item purchases suggests opportunities for cross-selling and bundle promotions to increase items per order. Implementing "Frequently Bought Together" recommendations or volume discounts could encourage multiple-item purchases.

9. Business Model and Channel Analysis

Analysis of business models showed that B2C sales dominated with 99.3% of total sales (₹83.04 million), while B2B represented only 0.7%

(₹609,380.51). This suggests minimal penetration into the business market segment.

Marketing Insight: The extremely low B2B sales percentage indicates a potential untapped market opportunity. Developing specific B2B marketing strategies, volume discount programs, or business-focused product lines could help expand into this market segment.

10. Promotion Effectiveness Analysis

Promotion analysis revealed a positive impact on average order value, with orders using promotions averaging ₹674.22 compared to ₹599.65 for non-promotion orders - a 12.44% increase. The most successful promotion was "IN Core Free Shipping", which generated ₹31.82 million in sales across 45,762 orders.

Marketing Insight: The significant positive impact of promotions on average order value justifies further investment in promotional strategies. The success of free shipping promotions suggests that shipping costs may be a pain point for customers, and addressing this through strategic promotions could drive increased sales.

Conclusions and Recommendations

Conclusions

The analysis of Amazon sales data reveals several key patterns and opportunities:

- Product category concentration is significant, with "Set" and "kurta" categories dominating sales
- Regional sales show strong performance in Maharashtra, Karnataka, and Telangana
- Medium (M), Large (L), and XL sizes show balanced demand, with M slightly leading
- Single-item purchases dominate consumer behavior (90% of orders)
- Promotions effectively increase average order value by 12.44%
- Weekend sales, particularly on Sundays, outperform weekday sales
- High cancellation rates (15% overall) present an opportunity for improvement
- B2B market penetration is minimal at only 0.7% of sales

- Amazon fulfillment is strongly preferred over merchant fulfillment

Strategic Recommendations

1. Product Category Optimization

Recommendation: Focus inventory expansion and marketing efforts on "Set" and "kurta" categories while exploring complementary products to cross-sell with these high-performers.

Implementation: Develop featured collections around top-selling styles (JNE3797, J0230), create bundle offers combining top-selling categories, and ensure adequate inventory across popular sizes (M, L, XL).

2. Regional Marketing Strategy

Recommendation: Create targeted regional campaigns for top-performing states (Maharashtra, Karnataka, Telangana) while developing specialized marketing for states with high average order values (Bihar, Ladakh, Sikkim).

Implementation: Deploy state-specific promotions during festival seasons, optimize delivery options for high-value states, and consider localized content highlighting regional fashion preferences.

3. Cancellation Reduction Plan

Recommendation: Address the high cancellation rates (15% overall) through targeted improvements in product information, inventory management, and customer experience.

Implementation: Implement post-cancellation surveys to identify root causes, enhance product description accuracy (particularly for "Set" and "kurta" categories), and improve inventory synchronization to prevent overselling.

4. Promotion Strategy Enhancement

Recommendation: Expand promotional programs given their proven 12.44% positive impact on average order value, with particular focus on free shipping offers.

Implementation: Create tiered free shipping thresholds to encourage larger purchases, develop weekend-specific promotions (especially Sunday), and create category-specific promotions for "Set" and "kurta" products.

5. B2B Market Development

Recommendation: Develop a dedicated B2B strategy to expand beyond the current minimal 0.7% market penetration.

Implementation: Create bulk purchase options for business customers, develop tiered pricing for volume purchases, establish a B2B customer outreach program targeting boutiques and retail establishments.

6. Order Value Expansion

Recommendation: Address the single-item purchase behavior by implementing cross-selling and upselling strategies.

Implementation: Enhance product recommendation algorithms, create coordination guides for complementary products, and develop "complete the look" promotions that suggest matching items.