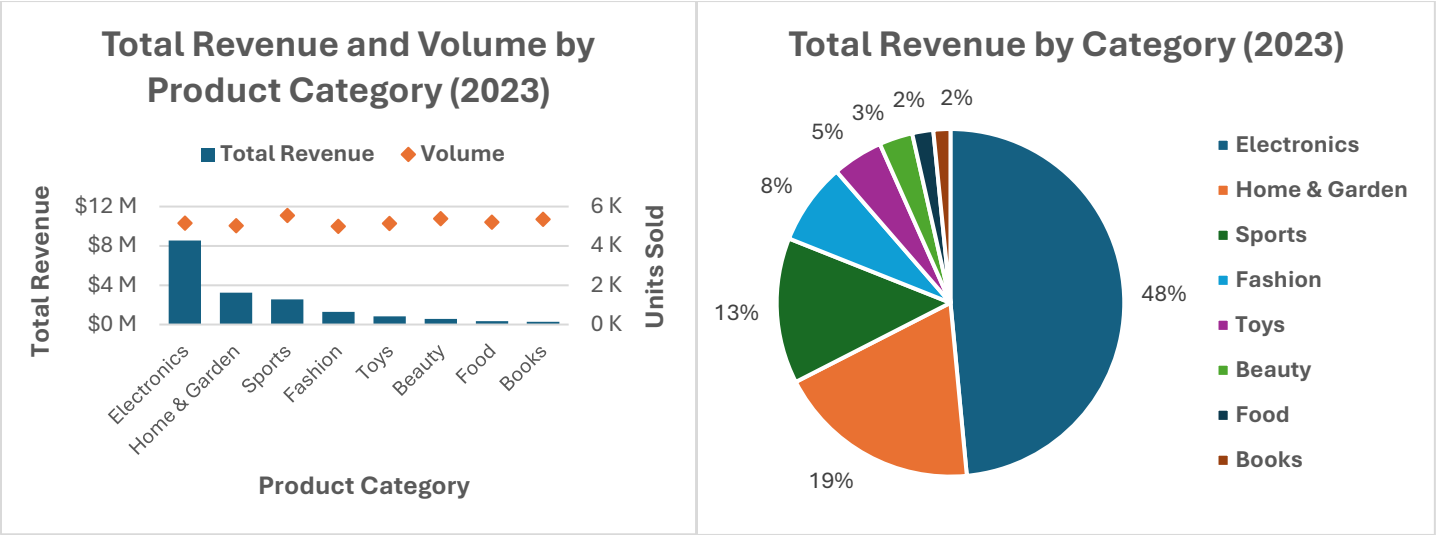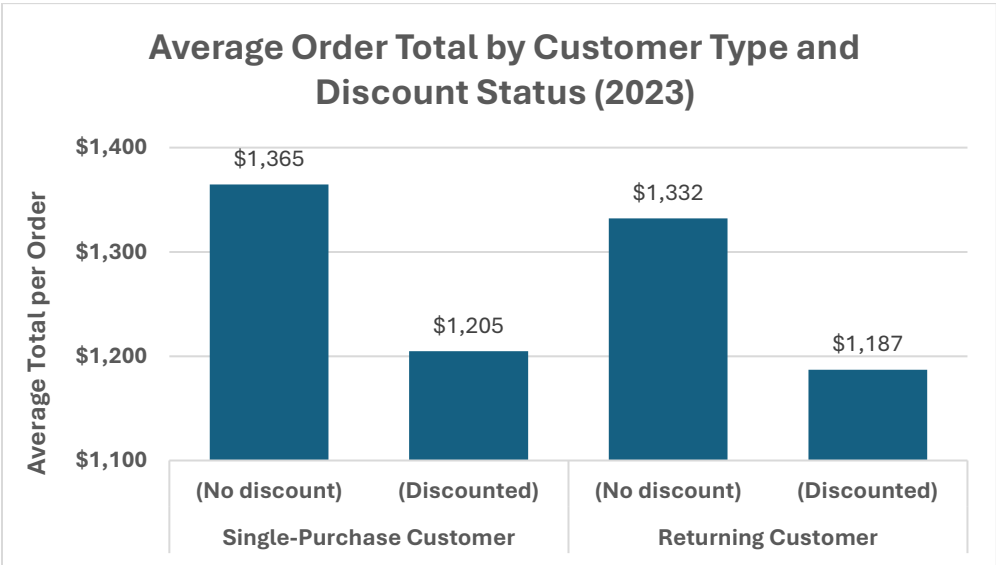This project analyzes 2023 e-commerce transaction data to evaluate revenue drivers and customer behavior across five business questions. The findings show that revenue is concentrated in Electronics, Home Garden, and Sports products and is driven primarily by customer retention rather than discounts, device choice, or delivery speed. Overall, the results suggest that long-term growth efforts should prioritize repeat purchasing behavior over short-term tactical optimizations.

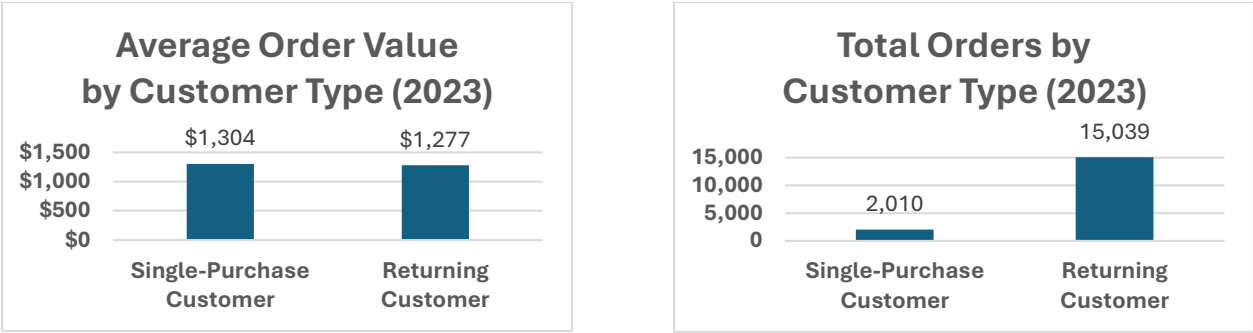**1. Which product categories drive the most revenue vs. order volume?**

Revenue in 2023 was highly concentrated among a small number of product categories. Electronics, Home Garden, and Sports accounted for 81% of total revenue despite representing only 38% of total units shipped. In contrast, Beauty, Food, and Books shipped nearly identical unit volumes but together they contributed just 7% of total revenue.

Notably, these lower-revenue categories generated a similar amount of revenue to Fashion, despite Fashion shipping the fewest units overall. Overall, the data reveals a clear split between high-value categories that drive revenue efficiency and lower-value categories that rely on volume without a proportional impact on annual revenue.

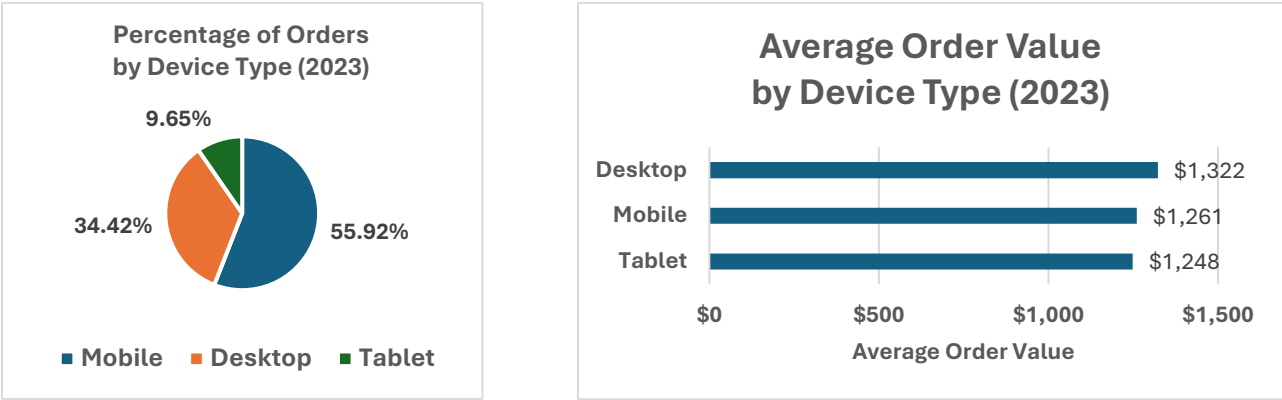**2. Do higher discounts actually lead to higher total revenue per order?**

Across single-purchase customers and returning customers, discounted orders generated lower average order values than non-discounted orders. For single-purchase customers, discounted orders average approximately $160 less per order, while returning customers show a similar decline of roughly $145 per order. This pattern suggests that discounting does not increase revenue per order, regardless of customer type.

3. How do returning customers differ from new customers in spend and order frequency?

Average Order Value by Customer Type (2023)

Single-Purchase Customer	Returning Customer
$1,304	$1,277

Total Orders by Customer Type (2023)

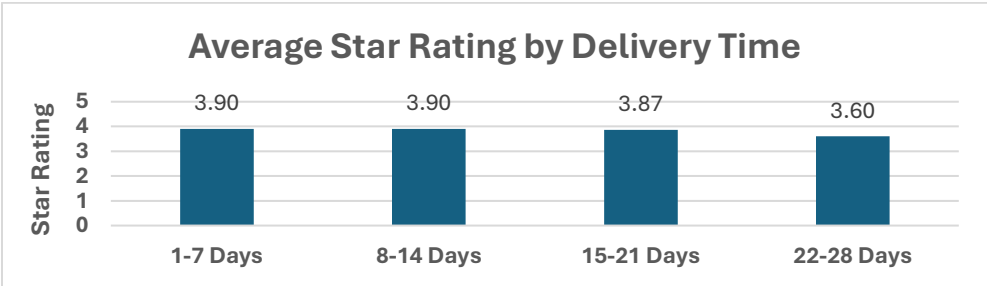| Single-Purchase Customer	Returning Customer
2,010	15,039

Returning customers differ from single-purchase customers primarily in purchasing frequency. Given that returning customers place nearly 7.5 times more orders, the small $27 difference in average order value between customer types indicates that revenue growth is driven by customer retention rather than higher per-order spend.

4. Does device type affect purchasing behavior and order value?

Percentage of Orders by Device Type (2023)

- Mobile: 55.92%
- Desktop: 34.42%
- Tablet: 9.65%

Average Order Value by Device Type (2023)

Device	Average Order Value
Desktop	$1,322
Mobile	$1,261
Tablet	$1,248

Device type shows a clear relationship with purchasing behavior but only a modest impact on order value. Mobile devices account for the majority of orders, while Desktop orders have an average order value approximately $61 higher than Mobile orders. Tablet usage remains relatively low across both order volume and value. Overall, these results suggest that device choice primarily influences purchasing frequency rather than spend per transaction, with Mobile devices serving as the dominant channel for engagement and Desktop devices providing a small advantage in per-order value.

5. Is faster delivery associated with higher customer ratings?

Average Star Rating by Delivery Time

1-7 Days	8-14 Days	15-21 Days	22-28 Days
3.90	3.90	3.87	3.60

Faster delivery is not strongly associated with higher customer satisfaction. Average customer ratings remain relatively consistent across delivery time ranges, with only a slight decline as delivery time increases. This suggests that delivery speed alone is not a strong driver of customer satisfaction. Given the minimal variation in ratings, investments aimed at reducing delivery times are unlikely to yield meaningful improvements in customer satisfaction.