

Based on the statistical analysis of outliers and inliers in customer purchase behaviour, several key business insights can be derived:

1. **Customer Segmentation:**
Outliers tend to have a age range with a higher standard deviation (20.67) compared to inliers (14.46). This suggests that outliers include both younger and older customers, which could indicate unique segments that behave differently from the majority.
2. **Purchase Frequency:**
Both outliers and inliers exhibit similar mean purchase frequencies (25.8 for outliers and 25.2 for inliers), but outliers show a higher variation (std of 18.65) compared to inliers (13.71). This suggests that some outliers either purchase very frequently or very rarely.
3. **Days Before Purchase:**
Outliers have a more negative mean in "DaysBeforePurchase" (-894.21), indicating that their purchases are more likely to be delayed compared to inliers (-884.25). There's also significant variability, with some outliers taking much longer to make a purchase. This could imply a need for better engagement strategies for outliers who delay their purchases.
4. **Customer Rating:**
Outliers have a slightly lower mean CustomerRating (2.95) compared to inliers (3.03). This could indicate dissatisfaction or unmet expectations among outliers.
5. **Purchase Amount:**
The average purchase amount of outliers (\$249.04) is slightly lower than that of inliers (\$254.08), though the difference is marginal. Businesses may want to investigate if promotional strategies or product recommendations could encourage outliers to increase their average spend.
6. **Promotional Impact:**
Outliers may respond well to promotions or incentives, given the lower average purchase amount and higher variability in purchase frequency. Personalized promotions could be tested to see if they can lift outlier spending closer to or beyond the inlier average.

Conclusion:

While outliers only represent a small percentage of total transactions and have a slightly lower average purchase amount, their diverse behaviour suggests untapped potential. Targeted marketing strategies and improvements in customer satisfaction could help turn outliers into more consistent and valuable customers to increase revenue.