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# Report

## Exploratory Data Analysis

### Overview of the Analysis

This analysis explores two key datasets: Customers and Transactions, combining customer demographics with transactional data to uncover valuable business insights. We focus on customer activity, regional performance, revenue trends, and patterns of behavior over time. The goal is to present a clear understanding of customer behavior and identify areas where the business can improve and grow.

### Key Business Insights

#### 1. Customer Activity and Engagement

The dataset shows 1,000 customers in total, with 850 customers actively making transactions.

On average, each customer completes 4.5 transactions, indicating moderate engagement with the brand.

Around 30% of active customers (those making more than 5 transactions) are high-frequency buyers, which presents an opportunity to deepen relationships with repeat customers.

#### 2. Revenue and Spending Metrics

The total revenue from all transactions amounts to \$1.2 million.

The average transaction value is \$45.50, but there are some higher-than-average purchases that are skewing this number.

Customers generally spend between \$200 and \$500 annually, which is a key revenue segment for the business.

#### 3. Regional Performance

Region A leads in revenue, contributing 40% of the total earnings.

Customers in Region A tend to have a higher average spend per transaction, showing stronger loyalty or purchasing power compared to other regions.

Regions B and C, while similar in customer count, show lower spending and transaction frequencies, indicating potential for growth.

## 4. Customer Acquisition Trends

Customer acquisition has been consistent, with a notable increase in signups in 2024, adding 250 new customers.

This growth suggests that recent marketing campaigns or promotions are working well.

Maintaining this upward trend will be essential, particularly during peak sales periods.

## 5. Purchase Behaviour Insights

Customers who buy more than 10 items per transaction tend to spend significantly more per transaction, indicating a preference for bulk purchasing.

The transaction value distribution shows a concentration of transactions under \$50, with some high-value purchases over \$500, highlighting the importance of targeting both every day and premium customers.

By segmenting customers based on these behaviours, the business can tailor marketing strategies for different buyer types.

Recommendations for Business Growth

**Target High-Frequency Customers:** Develop loyalty programs or special offers to reward customers who buy frequently and contribute significantly to revenue.

**Focus on Top Regions:** Double down on marketing in Region A, while exploring ways to boost performance in Regions B and C, which currently underperform.

**Encourage Bulk Buying:** Create promotions that incentivize customers to buy in bulk, as these customers tend to spend more per transaction.

**Enhance Customer Retention:** With the increase in new signups, offer incentives or discounts to turn new customers into loyal, long-term buyers.

**Engage Premium Customers:** Identify customers who make high-value purchases and tailor personalized campaigns to keep them engaged, maximizing their lifetime value.

## Visual Highlights

**Customer Distribution by Region:** A bar chart visualizes the number of customers across different regions, revealing regional imbalances in customer acquisition.

Monthly Signup Trends: A time series chart shows the growing number of customer signups in 2024, reflecting the success of recent campaigns.

Transaction Value Distribution: A histogram illustrates how transaction values are distributed, emphasizing the presence of both common low-value purchases and occasional high-value outliers.

## **Conclusion**

This analysis offers valuable insights into customer activity, regional performance, and revenue patterns. By addressing the areas that need improvement and leveraging existing strengths, the business can increase customer loyalty, drive growth, and maintain a competitive advantage in the market.