



DATA EXPLORATION- BIZ VIZ DATA

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BIZ VIZ BATTLE



Exploratory Data Analysis for Biz Viz Dataset.

Introduction

The Biz Viz Battle competition provided a dataset containing 200 customer transactions, encompassing demographic information, purchasing behavior, and satisfaction metrics. The goal of this analysis was to uncover key trends, identify customer behaviors, and provide actionable insights to enhance business decision-making.

Data Overview

- Total Records: 200 customer transactions
- Key Variables: Customer demographics, purchase details, satisfaction scores, repeat customer status
- Demographics: Age, Gender, Region, City, State
- Purchase Data: Product Category, Purchase Amount, Discount Applied, Payment Method
- Customer Engagement: Customer Satisfaction (scale of 1-5), Repeat Customer Status.

Data Insights:

1. Across different customer ages, 43 is the age who spends the most amount of money to purchase products. Following the line graph in the dashboard, there is not necessarily a trend between customer age and purchasing amount.
2. The mean age of the customer was 42.7 with a high of 65 and low of 18. This age is very close to our most spending customer age which is good as this is better for the sales.
3. Repeating customers are spending around 53693\$ which is around 55% of the total sales. So, this suggests that while more than half of the sales are generated through our repeating customers, we also have good flow of sales generated via non-repeating customers.
4. Paypal is the payment method that has generated the most amount of sales with 30% of total sales. This is followed by credit card purchases at 26% and then cash purchases with 23%. A good cash flow is always necessary to operate a business. So, 23% cash purchases is good.
5. Clothing is the most sold category with 291 items being sold. It is followed by sports and then home goods. Most purchasing amount are also spent on clothing. Clothing covers 25% of the total sales followed by sports with 21%.
6. Females and non-binaries spend most on clothing where as males spend most on home goods.
7. Across different regions, east is the region with most purchase_amount of 25494\$ and it is followed by a close West's 25269.
8. West has the most amount of customers both repeating and non-repeating.
9. Repeating customers has a higher average satisfaction of 2.85 than that of the non-repeating customers. This is good because regular customers are very important in business.

10. The people who have the customer satisfaction as 1 has bought the greatest number of items which is a little odd. And the people who have rated the customer satisfaction of 4 has bought the least number of items.
11. When the discount was applied, purchasing amount was 4000\$ more than when it was not applied.
12. California is the state with the most purchasing amount. It has a lot of cities.
13. Repeating customers were most happy from the books' product category with the average customer satisfaction of 3.52. However, among the non-repeating customers electronics had the most customer satisfaction average.

Actionable Decisions Based on Data Insights

Customer Age & Spending Patterns

- Action: Since the age group around 43 years old spends the most, marketing efforts should be tailored to attract and retain this demographic.
- Implementation:
 - Create personalized promotions and loyalty programs targeted at customers aged 40-45.
 - Use email marketing and social media ads focused on this age group's interests.

Repeat Customers & Sales Contribution

- Action: Since repeat customers contribute 55% of total sales, we should enhance customer retention strategies.
- Implementation:
 - Introduce exclusive loyalty discounts and rewards for repeat buyers.
 - Implement a subscription model or membership program offering special benefits.
 - Offer priority customer support to increase customer satisfaction.

Payment Methods & Cash Flow

- Action: Since PayPal generates 30% of total sales, focus on maintaining and improving online payment experiences.
- Implementation:
 - Offer cashback incentives for PayPal and credit card users to encourage higher spending.
 - Optimize the checkout process for seamless digital payments.
 - Continue promoting cash purchases to ensure good liquidity.

Product Category Performance

- Action: Since clothing contributes 25% of total sales, focus on maintaining inventory and enhancing product variety.
- Implementation:
 - Offer seasonal clothing promotions to maximize sales.
 - Introduce a customer feedback system to understand trends in clothing preferences.
 - Expand the sports category as it has the second-highest contribution.

Gender-based Purchasing Trends

- Action: Since females and non-binary individuals prefer clothing, and males spend more on home goods, tailor marketing efforts accordingly.
- Implementation:
 - Create gender-specific marketing campaigns.
 - Offer specialized product bundles (e.g., home goods bundles targeting male customers).
 - Use influencer partnerships to promote clothing among female and non-binary buyers.

Regional Sales Trends

- Action: Since East and West regions contribute the highest sales, focus on strengthening these areas.
- Implementation:
 - Open regional warehouses to improve logistics and reduce delivery time.
 - Run localized promotions for top-performing regions.
 - Analyze underperforming regions and adjust marketing strategies accordingly.

Customer Satisfaction & Purchase Behavior

- Action: Since customers who rated satisfaction as 1 bought the most items, investigate the cause of dissatisfaction.
- Implementation:
 - Conduct customer surveys to identify pain points.
 - Improve post-purchase service and return policies.
 - Train customer support teams to handle bulk-order customers better.

Discounts & Purchase Behavior

- Action: Since discounts led to \$4000 higher spending, optimize promotional campaigns.
- Implementation:
 - Implement limited-time discounts to create urgency.
 - Offer loyalty-based discounts to retain high-spending customers.
 - Provide personalized discount codes based on purchase history.

State-wise Performance

- Action: Since California has the highest sales, expand presence there.
- Implementation:
 - Open new fulfillment centers to improve delivery speed.
 - Introduce exclusive state-based promotions.
 - Partner with local influencers for better brand reach.

Product Satisfaction by Customer Type

- Action: Since repeat customers are most satisfied with books (3.52) and non-repeat customers with electronics, adjust product offerings accordingly.
- Implementation:
 - Offer book-related subscription services to retain repeat customers.
 - Improve electronics product quality and post-sale service to convert non-repeat customers into loyal buyers.

Conclusion:

By implementing these targeted strategies, the business can enhance sales, customer satisfaction, and retention while optimizing marketing and inventory management.