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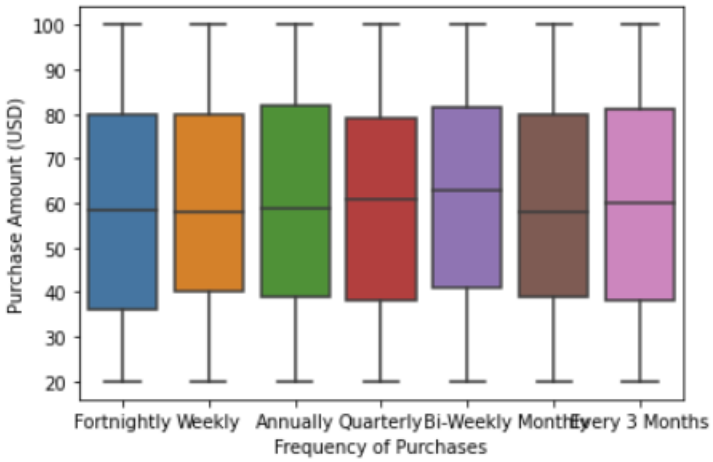
Final report

Title: Customer shopping trends

Main Figure

The Purchase amount for the Frequency of Purchases

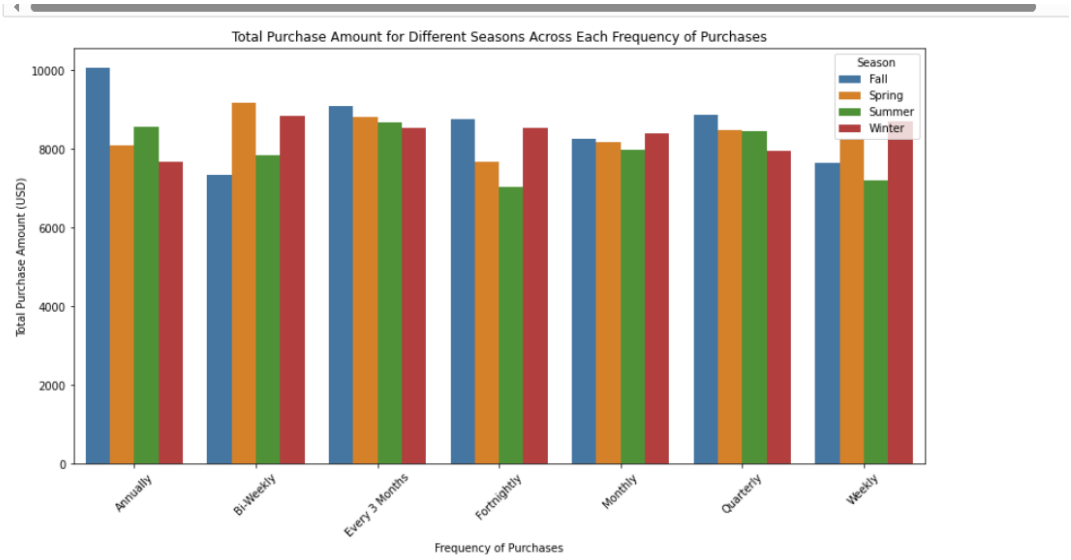


Legend description:

1. each section represents the minimum purchase amount of the customer, maximum purchase amount of the customer, and mean value of the purchase amount.
2. Blue section represents the purchase amount for the customers of the ‘fortnightly’
3. Yellow section represents the purchase amount for the customers of the ‘weekly’
4. Green section represents the purchase amount for the customers of the ‘Annually’
5. Red section represents the purchase amount for the customers of the ‘Quarterly’
6. Purple section represents the purchase amount for the customers of the ‘Bi-Weekly’
7. Brown section represents the purchase amount for the customers of the ‘Monthly’
8. Pink section represents the purchase amount for the customers of the ‘Every 3 Months’

Figure 2

Total Purchase Amount for Different Seasons Across Each Frequency of Purchases

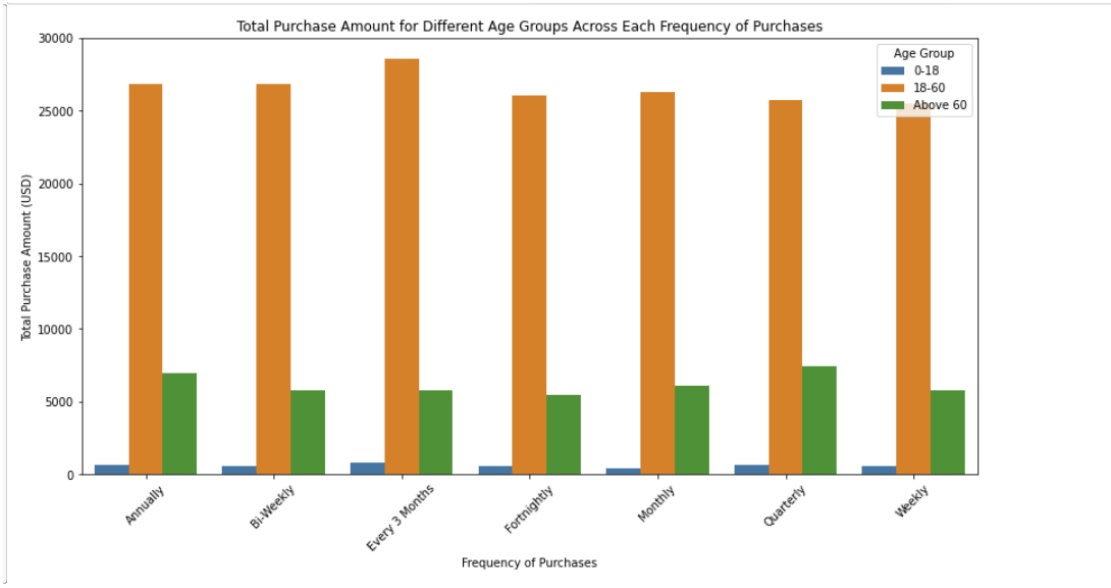


Legend description:

1. Blue bar represents the purchase amount in fall across each frequency of purchases
2. Yellow section represents the purchase amount in spring across each frequency of purchases
3. Green section represents the purchase amount in summer across each frequency of purchases
4. Red section represents the purchase amount in winter across each frequency of purchases

Figure3

Total Purchase Amount for Different Age Groups Across Each Frequency of Purchases



Legend description:

1. Blue bar represents the purchase amount between 0 and 18 across each frequency of purchases
2. Yellow section represents the purchase amount between 18 and 60 across each frequency of purchases
3. Green section represents the purchase amount above 60 across each frequency of purchases

Findings:

Main figure:

1.The scale of section increases, the range between maximum purchase amount and minimum amount increase

2.The line within each box represents the median purchase amount. All categories have their median values within a relatively close range, mostly between $50 to $70

3.This is the figure that represents the customers purchase amount for the frequency of purchases of customers;

Figure 2:

1.The chart is divided into seven categories based on the frequency of purchases: Annually, Bi-Weekly, Every 3 Months, Fortnightly, Monthly, Quarterly, and Weekly.

2. The vertical axis represents the total purchase amount in USD, which ranges from 0 to 10,000 USD.

3. At a glance, the highest purchase amounts appear to be made in the Fall season across all purchase frequencies. Winter or Spring season tend to have lower purchase amounts in

comparison.
Figure 3:
1.The age group '18-60' has the highest total purchase amount across all frequencies of purchases, with the bars reaching the highest values on the chart.
2.The '0-18' age group has the lowest purchase amounts, which are considerably lower than the other two age groups across all frequencies.
3.The 'Above 60' group have the highest purchase amount in the ‘Every 3 Months’ frequency of purchases

Data and method text describing the data and method used in this process:
Data sourced from https://www.kaggle.com/datasets/iamsouravbanerjee/customer shopping-trends-dataset.
Data Consists of: Customer ID, Age. Gender, Item Purchased, Category, Purchase Amount (USD), Location, Size, Color, Season, Review Rating, Subscription Status Payment Method Shipping Type, Discount Applied, Promo Code Used, Previous Purchases, Preferred Payment Method, Frequency of Purchases
Utilized Python with libraries: Pandas for data manipulation, Matplotlib and Seaborn for visualization, and NumPy for numerical operations.

Significance Statement:
Boxplot (Frequency of Purchases vs. Purchase Amount): This figure is crucial for understanding the variability and distribution of purchase amounts among different shopping frequencies. It can highlight patterns like whether frequent shoppers tend to spend more or less per transaction, and the extent of variability in spending within each frequency group.
Bar Plot (Total Purchase Amount by Season): This visualization is significant for identifying how seasonal variations affect consumer spending. By comparing total purchase amounts across different seasons for each frequency of purchases, businesses can gain insights into seasonal trends.
Bar Plot (Total Purchase Amount by Age Group): This plot provides a detailed look at the spending patterns across different age groups, segmented by their shopping frequency. It's essential for understanding which age groups contribute most to sales in different frequency categories

Link to Github Page:
https://github.com/QZC-qzc/infsci_2415_final_project