



# E-Commerce Consumer Behavior in the US

# Background

## E-Commerce Retail Sales 2013 – 2023 (Millions of Dollars)



## E-Commerce Retail Sales as a Percent of Total Sales 2013 – 2023 (Percent)

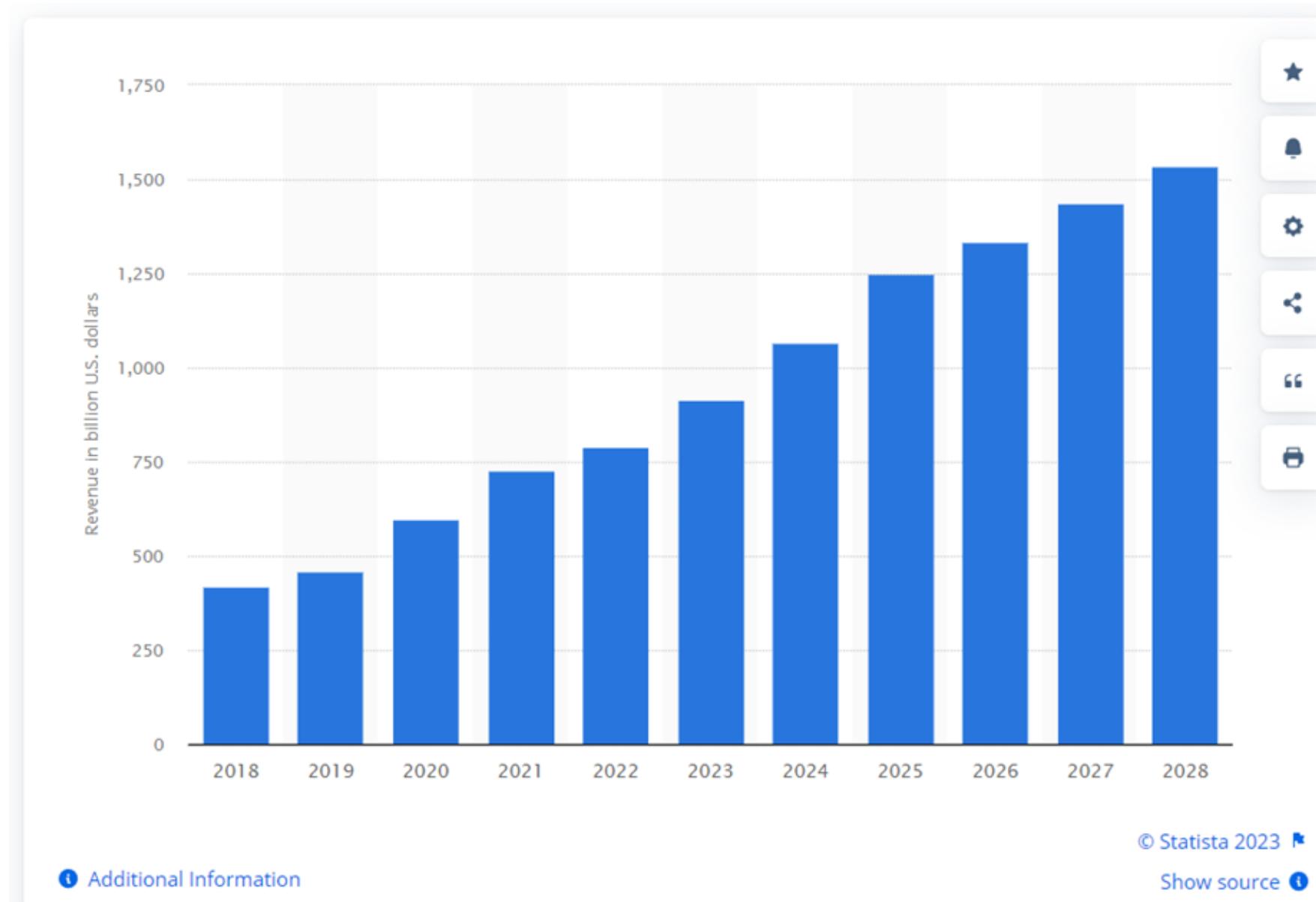


- According to the US Census Bureau, **E - Commerce sales** have experienced a **positive trend** over the last decade.
- Entering the era of the **Internet of Things** (IoT), it is not surprising that internet-based commerce will continue to increase
- Apart from that, post-pandemic has also given a **big boost** to **E-Commerce** compared to **offline retail places**.

### Source:

<https://fred.stlouisfed.org/series/ECOMPCTSA>  
<https://fred.stlouisfed.org/series/ECOMSA>

# Revenue Forecast of the E-commerce industry in the U.S.



According to the **Statista Research Department**, it is estimated that revenue from sales in e-commerce will **continue to increase** even in the **next 5 years (2028)**.

**Source:**

<https://www.statista.com/statistics/272391/us-retail-e-commerce-sales-forecast/>



**Based on these data,  
isn't the opportunity to  
sell on E-Commerce  
very tempting?**

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**BUT THERE ARE SEVERAL ISSUES  
TO BE AWARE OF**

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# Purchased Item Amount & Frequency of Purchase

Although sales trends in US E-Commerce continue to increase, there are **several issues** that E-Commerce Merchants **still need to pay attention to**:

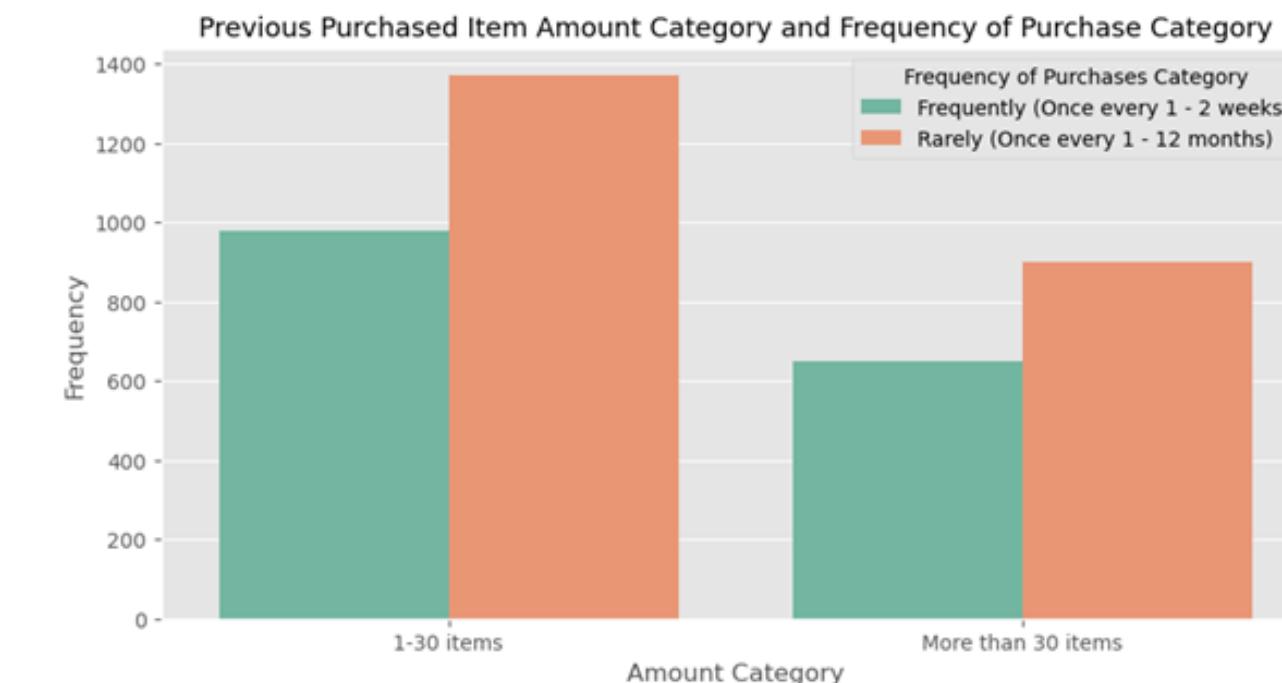
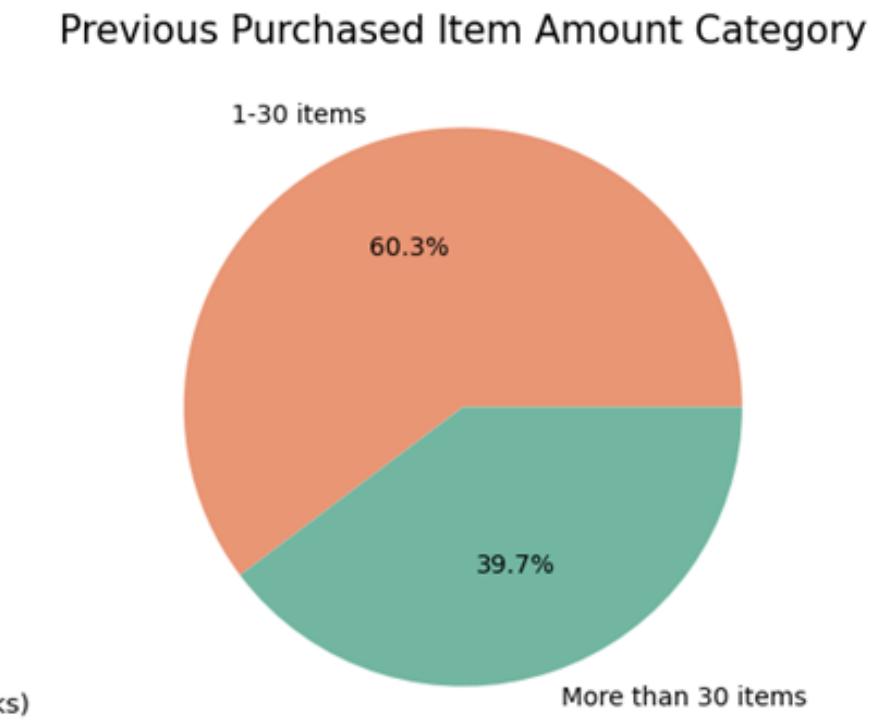
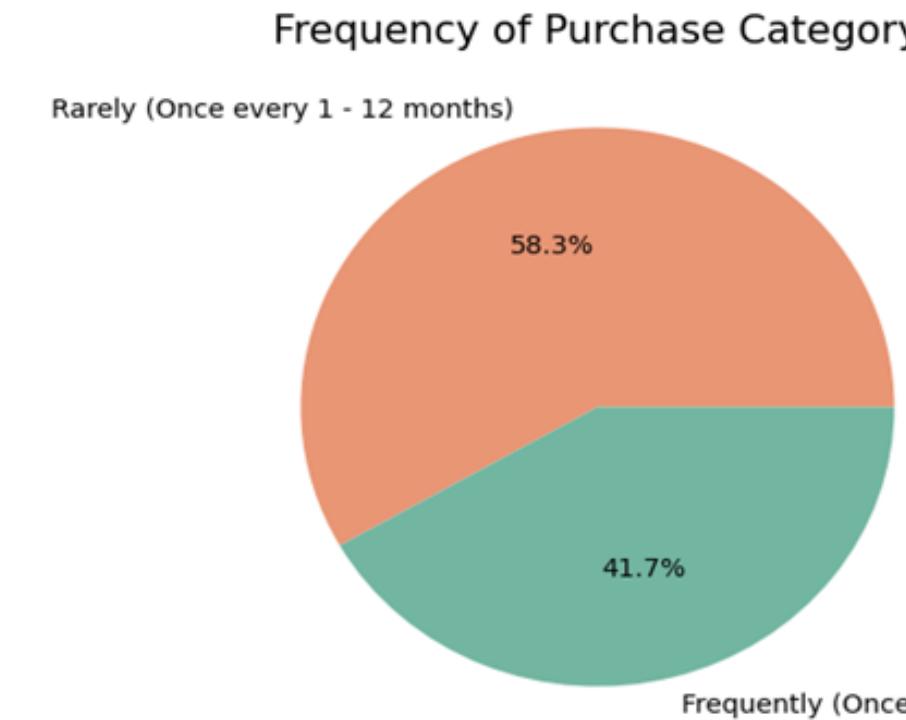
## ● Frequency of Purchases

From a total of **3900** data observations, **58.3%** of E Commerce users (**2272**) still rarely make transactions.

## ● Number of items purchased

The **majority** of items purchased by users are in the range **1 - 30 items** (60.3%).

With an average number of items purchased of **25 items**.



Source:

<https://www.kaggle.com/datasets/zeesolver/consumer-behavior-and-shopping-habits-dataset>

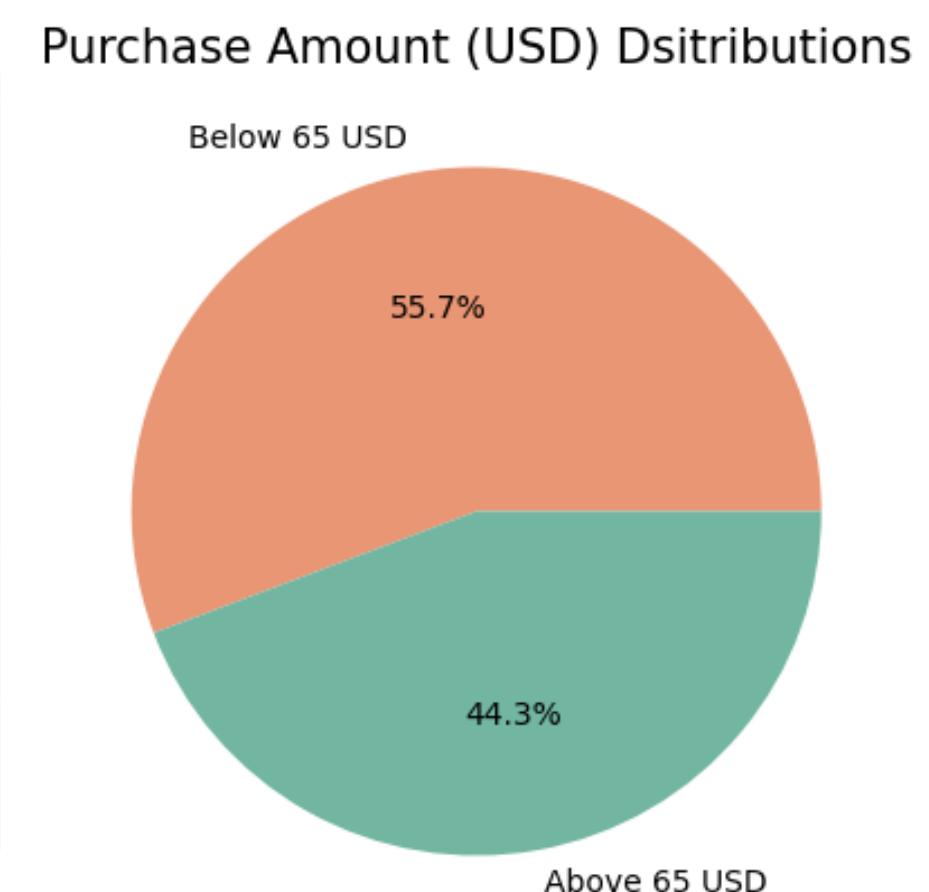
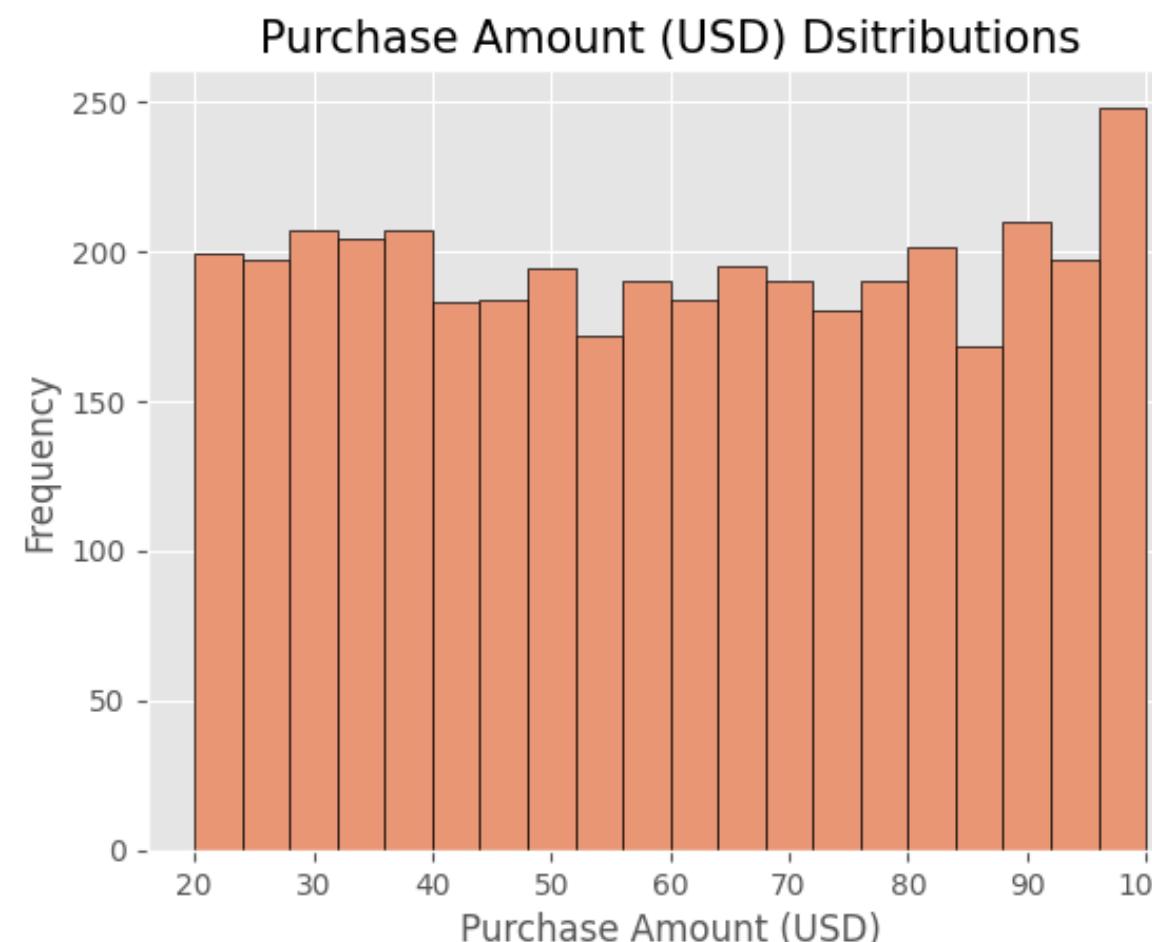
# Distribution & Average of Purchase Amounts

## ● The Amount of Money Spent

Currently the average purchase amount is **around \$60**

From a total of **3900** observation data, **55.7%** of E-Commerce users (2174) still shop **under \$65**.

How do we **increase** the average purchase **from \$60 to \$65 or more?**



Source:

<https://www.kaggle.com/datasets/zeesolver/consumer-behavior-and-shopping-habits-dataset>

# SO HOW DO WE OVERCOME THIS?

- How to make **customers shop frequently?**
- How to get **customers to buy more items?**
- How to **increase the Average of Purchase Amount?**



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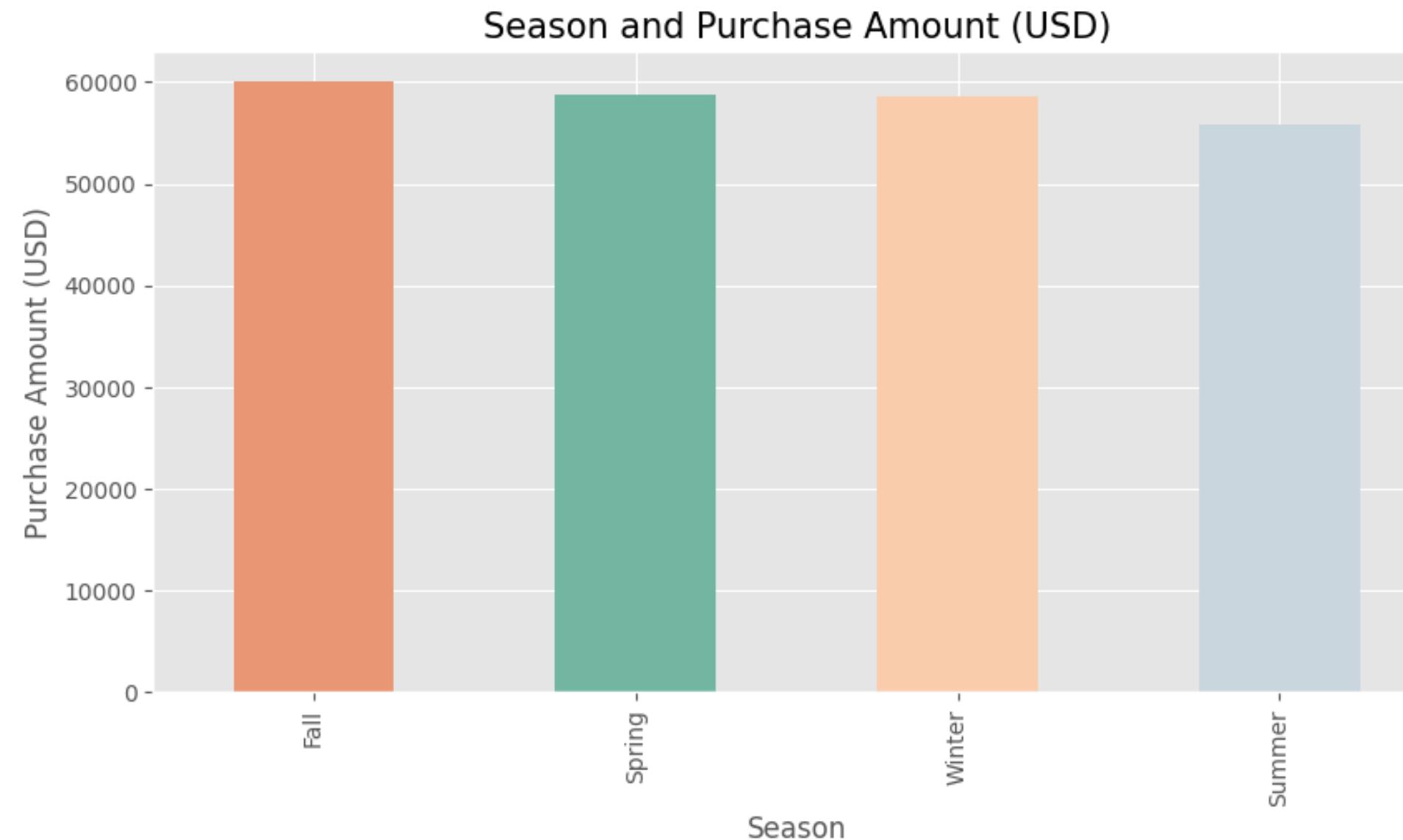
# **KNOWING YOUR CUSTOMERS CHARACTERISTICS**

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# Season & Purchase Amount

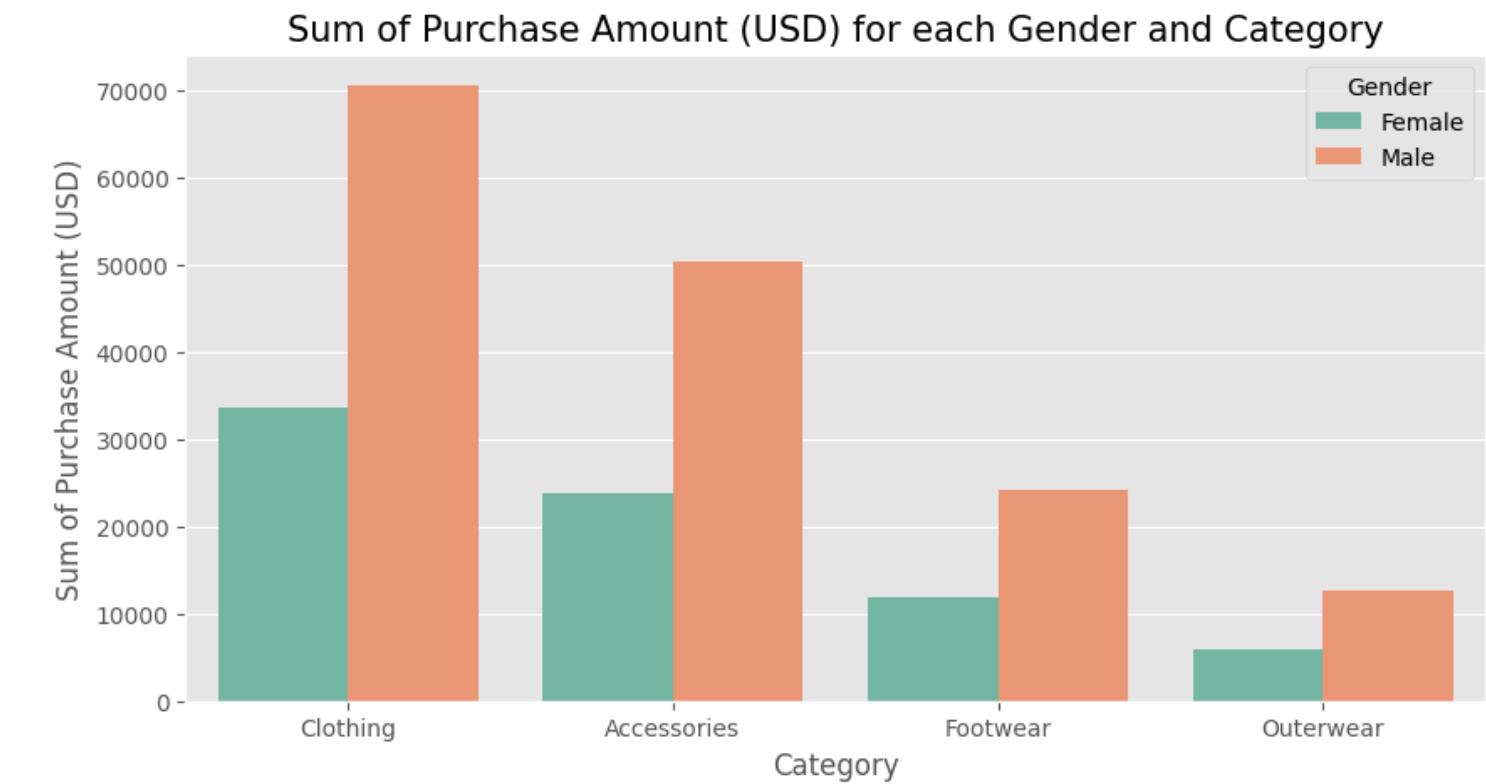
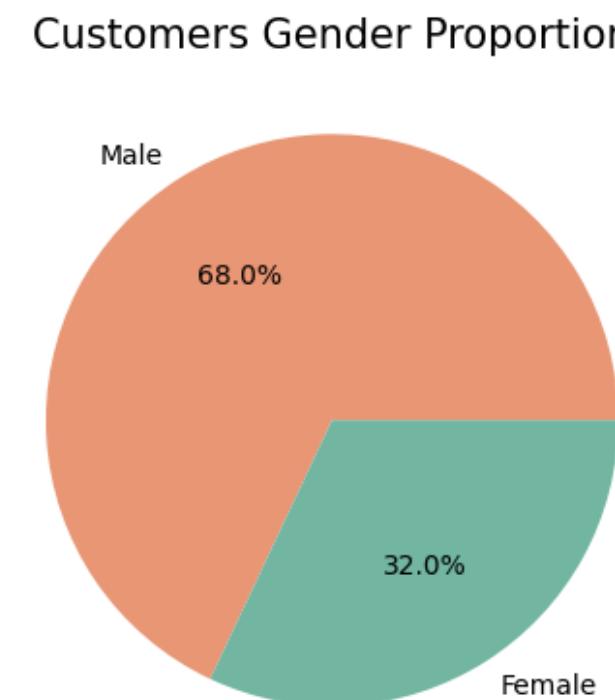
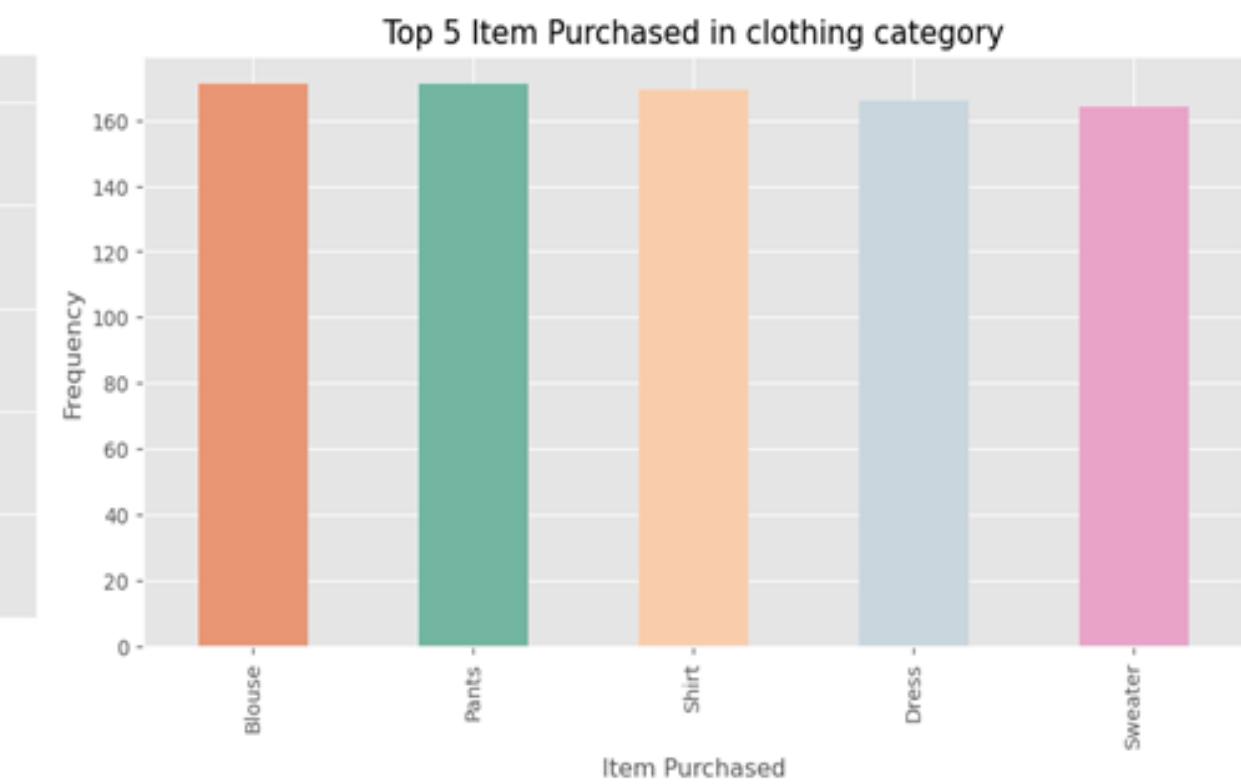
## Peak Season

If you look at the data on **how much money is spent** each season, it can be concluded that the peak season occurs in the **fall**



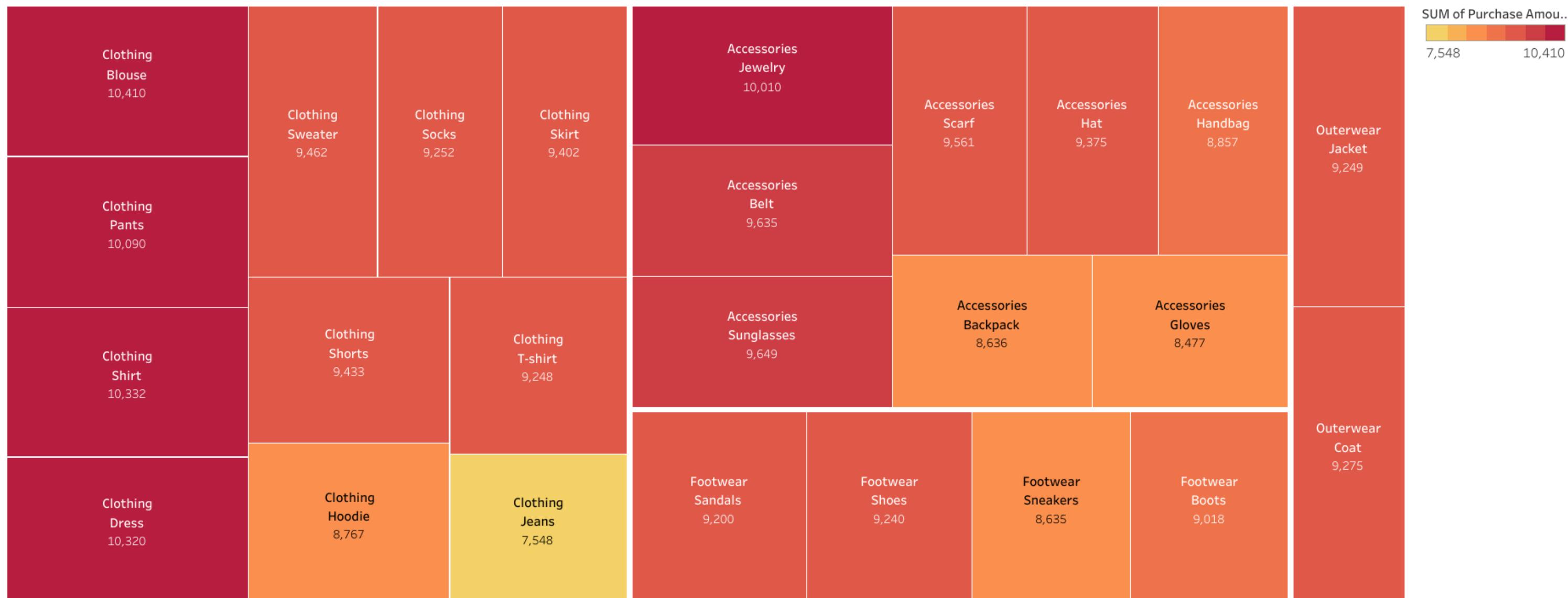
# The item category & Gender

- The product category that contributes the most to total revenue is **clothing**
- The 5 best-selling items in the clothing category are **blouses, pants, shirts, dresses, & sweaters**
- The majority of purchases are made by **men**
- **Clothing** is also a category that is very popular with both **men** and **women**



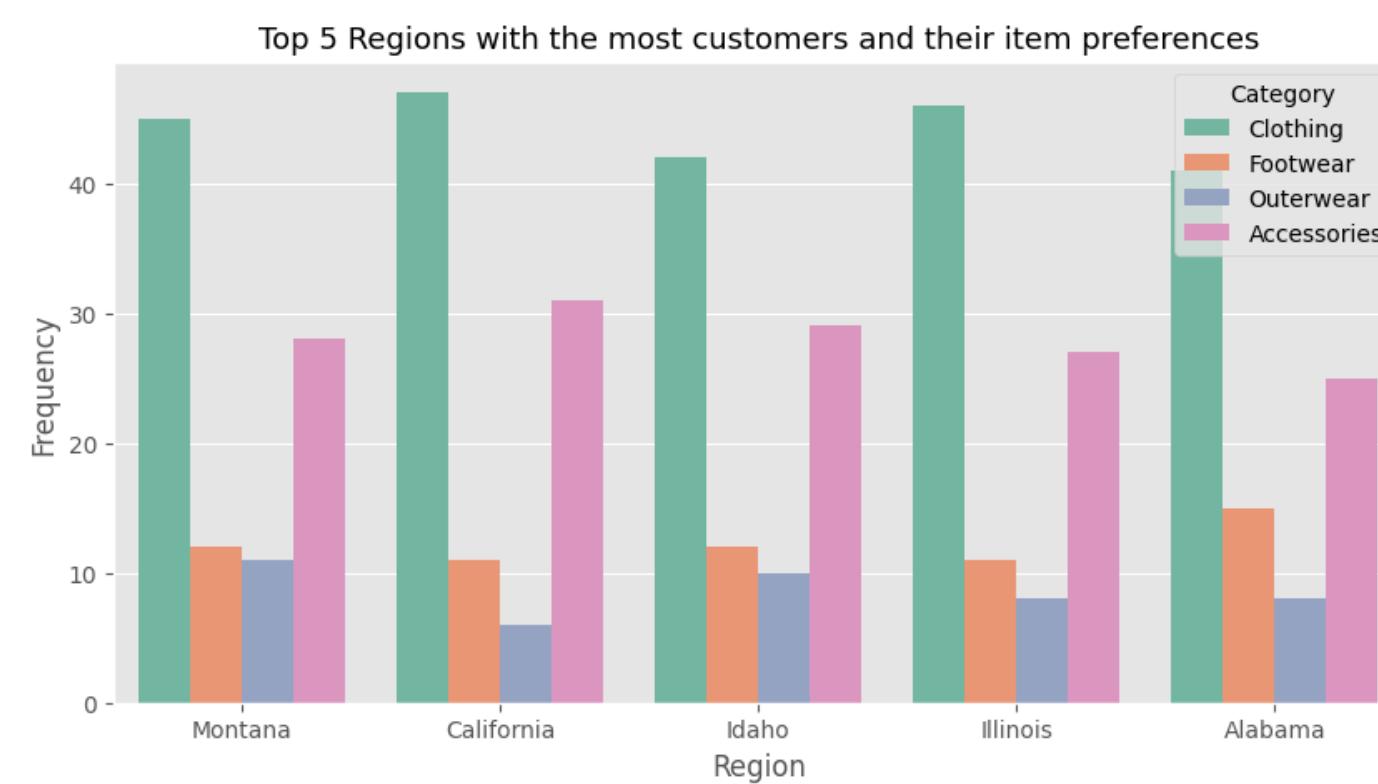
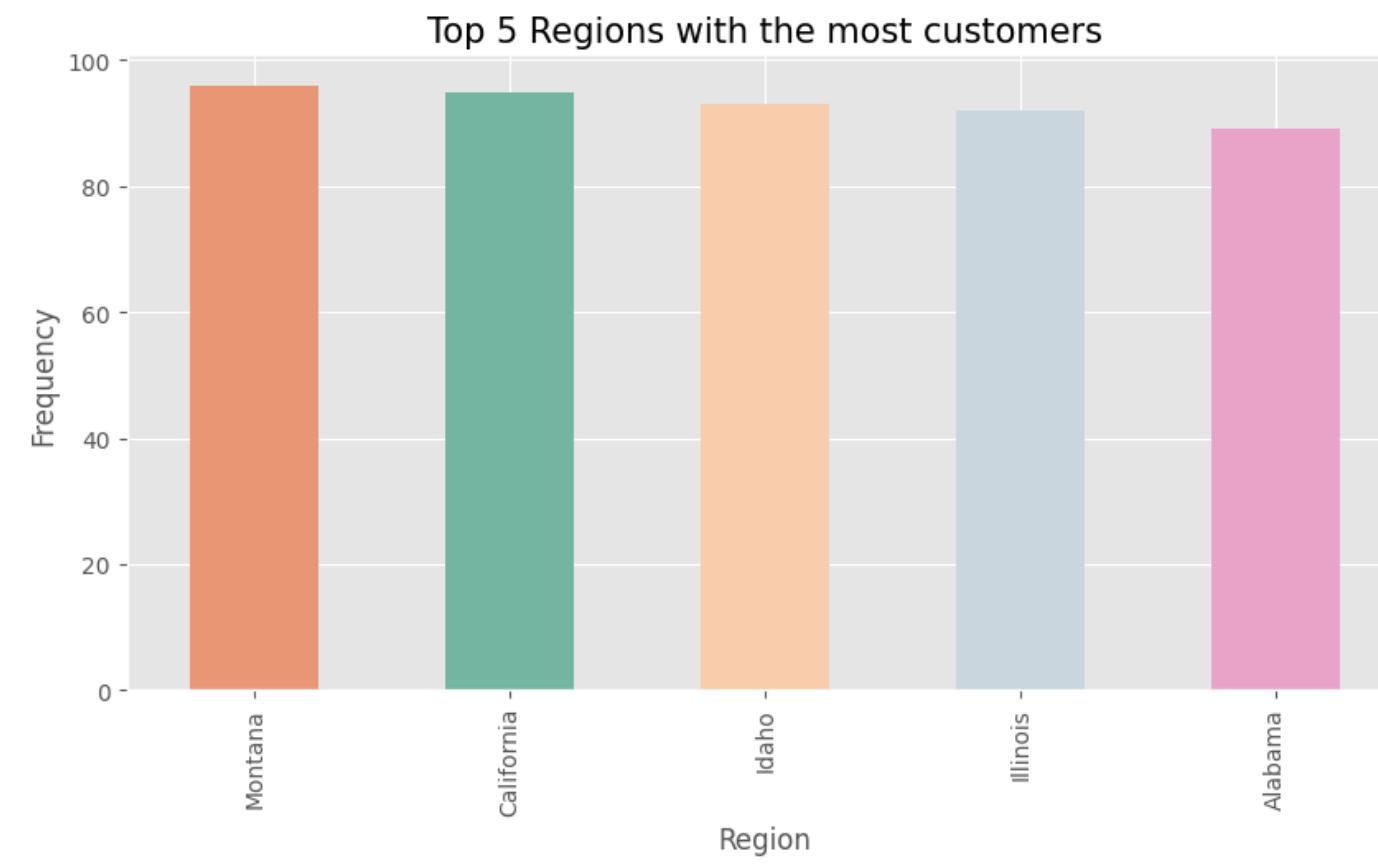
# Tree Map of Purchase Amount

Tree Map SUM of Purchase Amount (USD) per Item Category



## Note:

- The darker the color, the larger the purchase amount.
- The larger the square, the greater the number of items purchased.

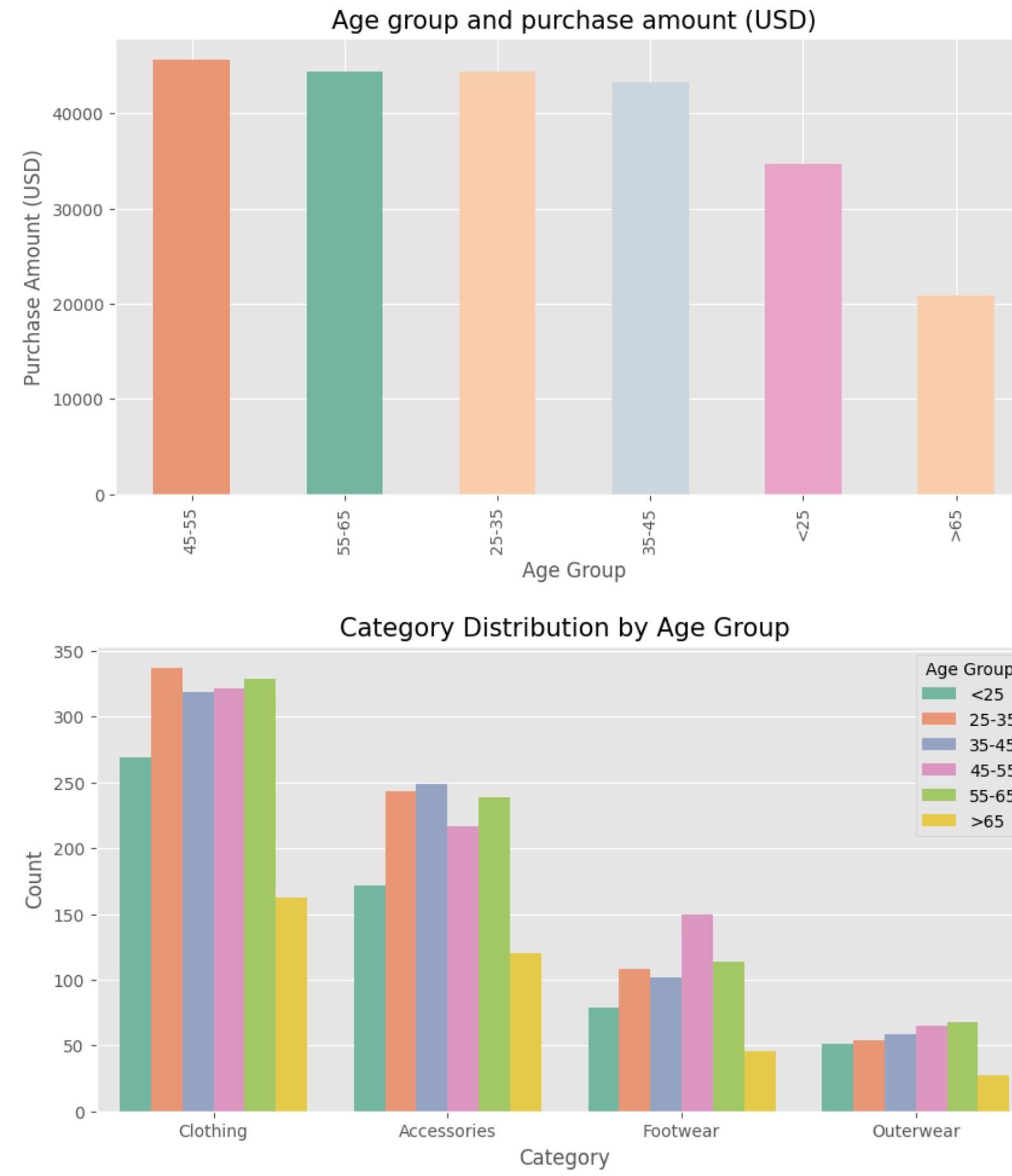


# The item category & Regions

## Top 5 Regions

The **5 regions** with the **largest number of customers** are **Montana, California, Idaho, Illinois, and Alabama**.

and these five regions have **something in common**, that is they often shop for **clothing category** items.



# The item category & Age

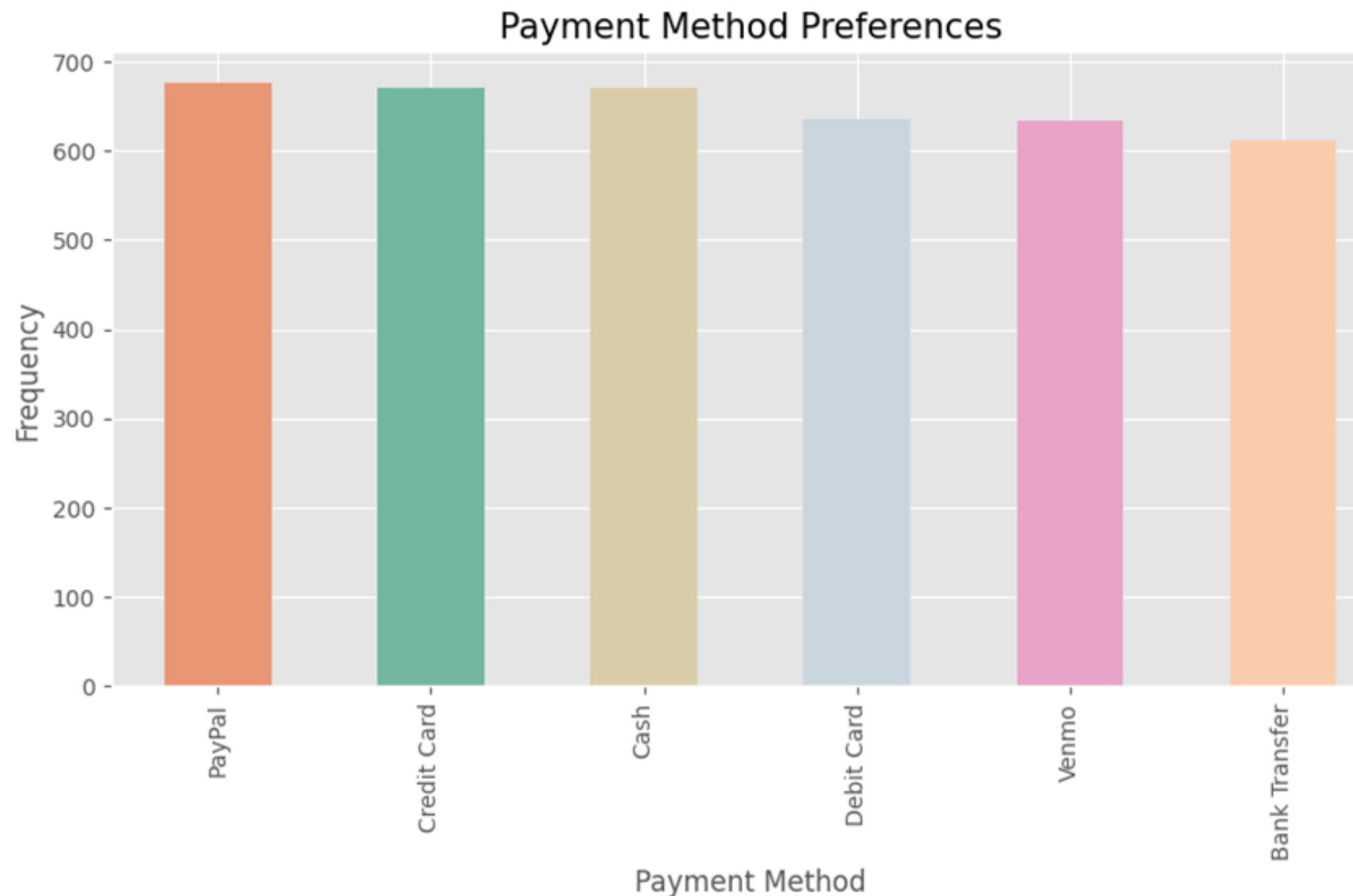
## Most Purchases

The age category that **spends the most money** is in the **45 - 55 year** old range (\$45,619)

## Item Preferences for Each Age

- As we can see, **Clothing** is the **most popular category** among all age groups.
- Accessories** are **equally popular** in all age groups **except** the **<25** and **>65 years** age groups.
- However, we have seen that the **Footwear** category is **most popular** in the **45-55 years** age group.
- Lastly, **Outerwear** is almost as popular among all age groups but has **the lowest sales**

# Payment Methods



- Users prefer to pay using **PayPal, Credit Cards, & Cash**
- So make sure to **provide** this payment method on your e-commerce site, to **attract** and **make it easier** for users to carry out transactions

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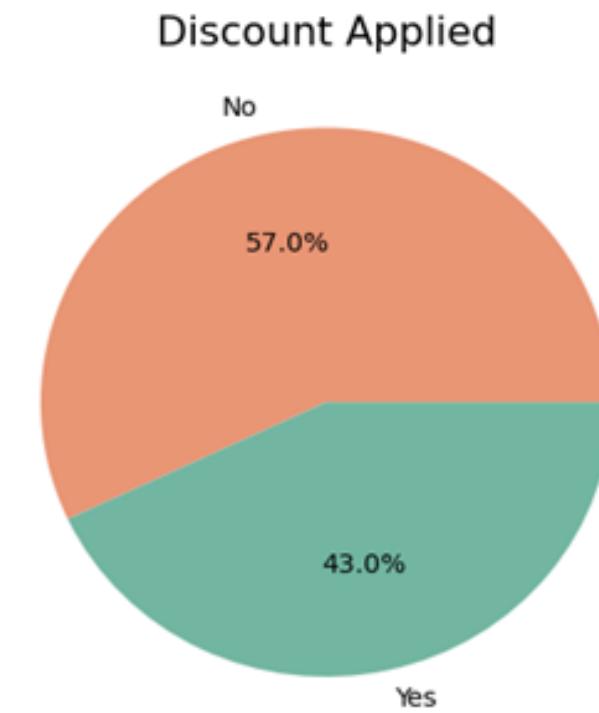
# ADJUSTMENTS TO COSTS

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# Discount & Subscription

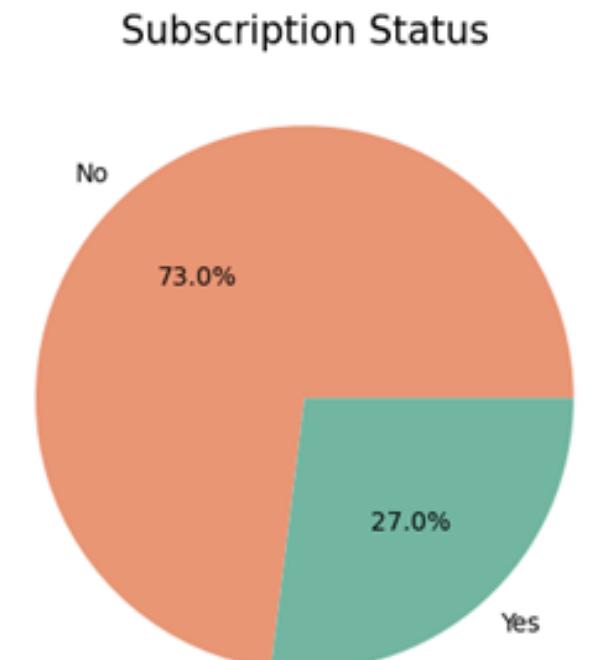
## Discounts

- From a total of **3900** data observations, **57% of customers** still prefer items that are **not discounted**.
- The comparison of the **total purchase amount** between **customers who choose discounted items** and those who choose **non-discounted items** is also **far away**



## Subscriptions

- From a total of **3900** data observations, **73% of customers** prefer **not to subscribe**.
- The comparison of the **total purchase amount** between **customers who subscribe** and **who do not subscribe** is **much far away**





# Shipping Methods

Customers prefer to use the **Free Shipping method** (675 people)

# Highlights

- Providing **discounts** and providing a **subscription system does not have a positive impact on sales**.
- The **shipping method** preferred by customers is **free shipping**.
- It is better to **shift the costs of providing discounts** and also **providing a subscription system to free shipping promos**.
- With the **free shipping method** being **popular** with customers, it can be used as a **free shipping gimmick**. Like buying goods with a certain minimum price to **get free shipping**.
- Since the current **average purchase amount is around \$60** and we want to **increase it to \$65 or more**, we can set **spending milestone targets** per user, and once users reach those milestones, **users can get attractive promotions**, one of which is **free shipping**.



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# INSIGHTS

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# Insights Summary

- Peak Season occurs in **Fall**
- **Clothing** is the category that contributes the **largest revenue** and is in **demand by all regions, gender and age groups**.
- The **Outerwear** category has a lower number of purchases compared to other categories.
- **Montana, Illinois, California, Idaho, and Alabama** are the regions that have the most customers.
- **Men** accounted for **68% of total purchases**, while **women** accounted for **32% of total purchases**.
- The **age category** that **spends the largest amount** is in the **45 – 55 year** age range
- Users prefer to pay using **PayPal, Credit Cards**, and **Cash**.
- **Providing discounts and providing a subscription system** does **not have a positive impact** on sales.
- The **shipping method** preferred by customers is **free shipping**.
- The average purchase amount is **currently around \$60** and would like to **target \$65 or more**.

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# CONCLUSION & RECOMMENDATIONS

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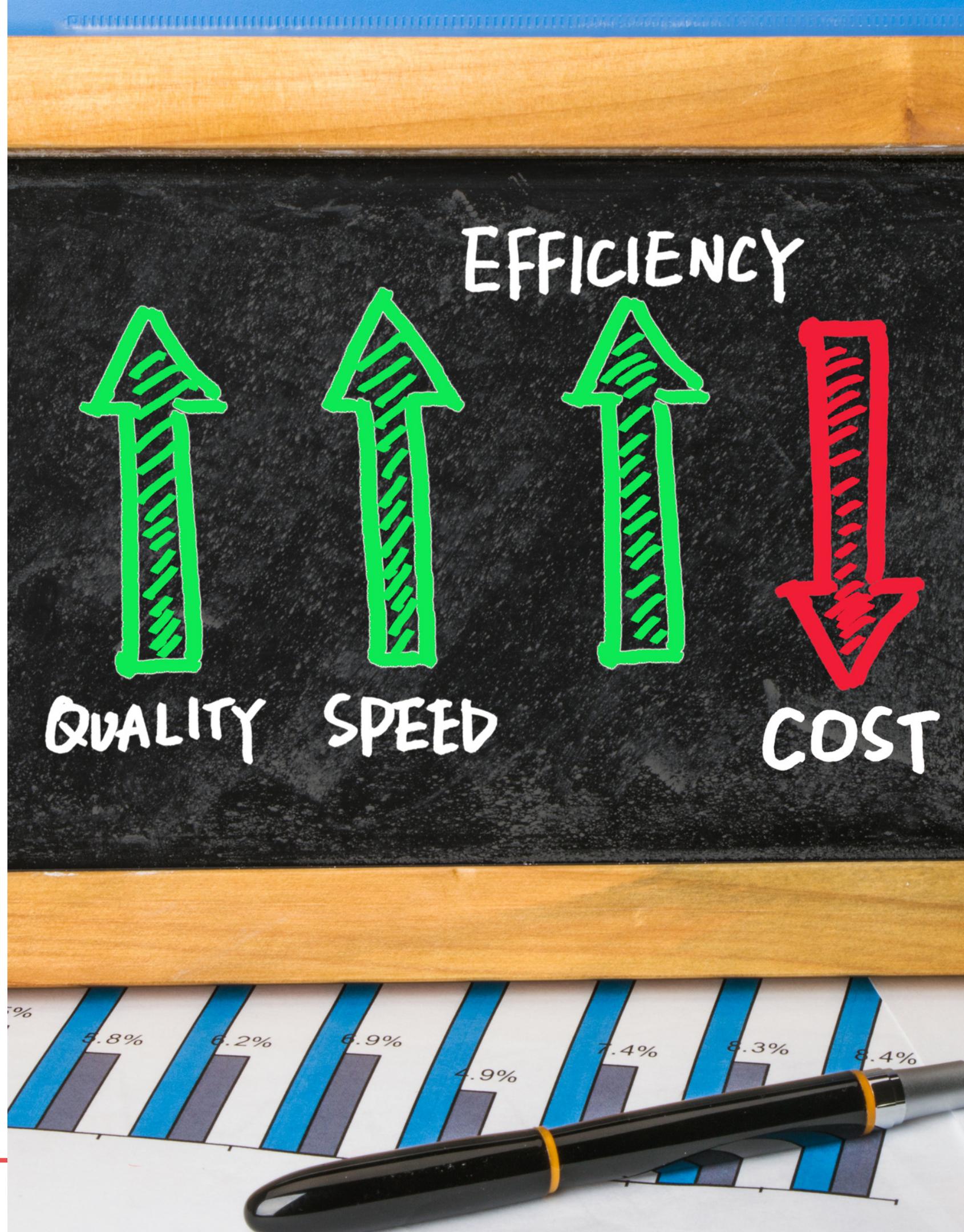
# Customers Preferences



- Because **Peak Season is in Fall**, promotions such as the **Autumn Sale** can be held
- **Focus on selling items in the Clothing category**, because this category is **very popular with all regions, ages and genders**.
- **Clothing category items** that can be sold can include **Blouses, Pants, Shirts, Dresses & Sweaters**.
- Reducing sales of items in the Outerwear category such as **Coats & Jackets** because these items are **less popular**. However, **keep selling these goods so that the market segment remains wide**, but only in **moderate quantities**.
- As much as possible, **provide payment methods using PayPal, Credit Card & Cash**, because users tend to prefer these three payment methods for transactions.

# Cost & Revenue Adjustments

- **Don't give too many discounts**, because it doesn't really affect sales.
- **The alternative is to provide Free Shipping**, because this method is very popular with customers.
- So it is recommended to **direct discount costs to free shipping to attract more customers**.
- Since we want to **increase the average spending amount to \$65 or more**, we can set **spending milestone targets** per user, and when users reach those milestones, users can **get attractive promotions**, one of which is **free shipping**.

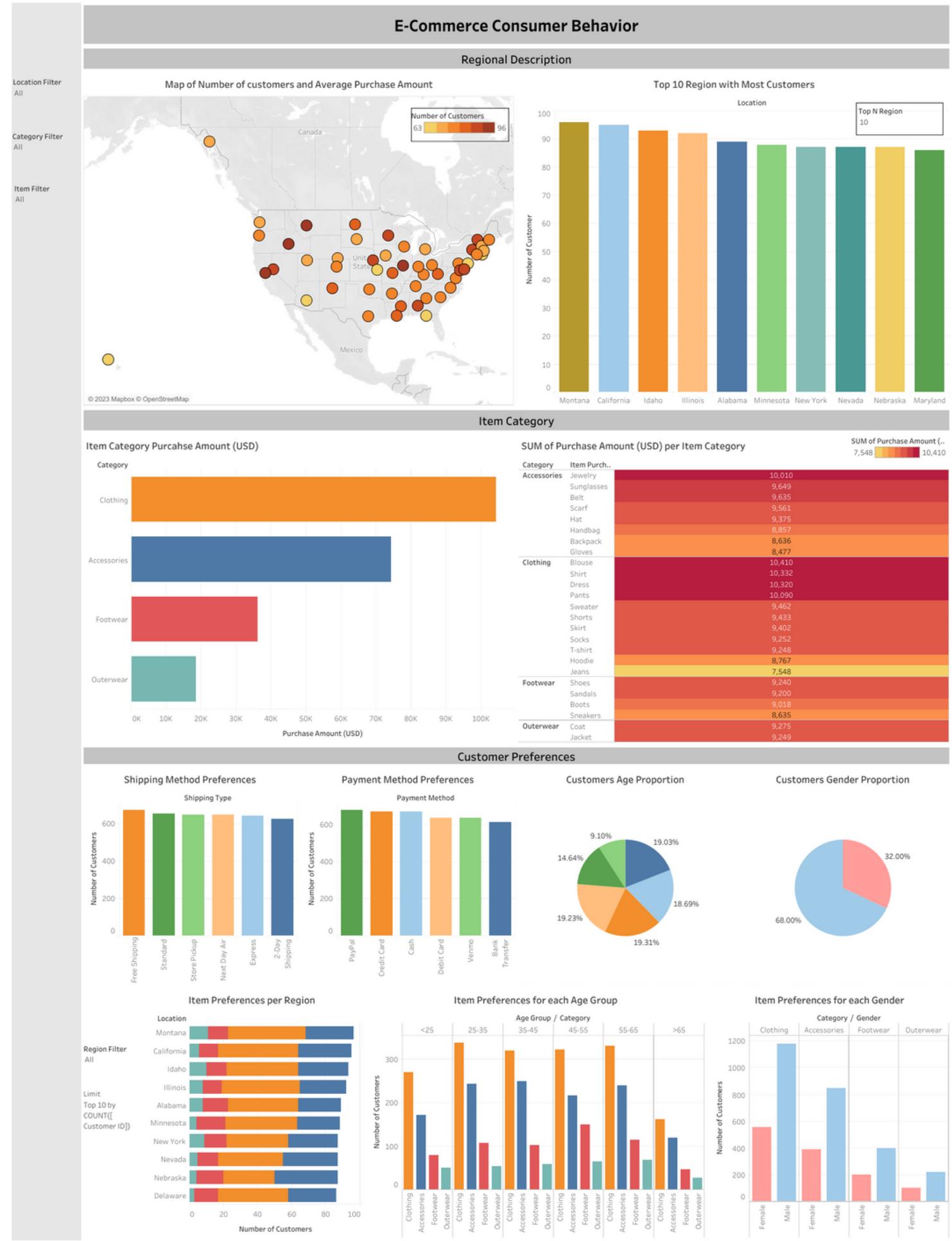


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# TABLEAU DASHBOARD & JUPYTER NOTEBOOK CODE

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# Dashboard

I also created an **interactive dashboard** related to these data using **Tableau**. To access the dashboard, you can go to the following link:

[https://public.tableau.com/views/E-CommerceConsumerBehaviorintheUS\\_17025399920520/Dashboard?:language=en-US&:display\\_count=n&:origin=viz\\_share\\_link](https://public.tableau.com/views/E-CommerceConsumerBehaviorintheUS_17025399920520/Dashboard?:language=en-US&:display_count=n&:origin=viz_share_link)

# Jupyter Notebook Code

and if you want to see the **jupyter notebook code** for creating visualizations, feature engineering, etc. please visit the following **GitHub** link

<https://github.com/AbyatarFL/Analyzing-E-Commerce-Data-in-the-US>

# Thank You

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