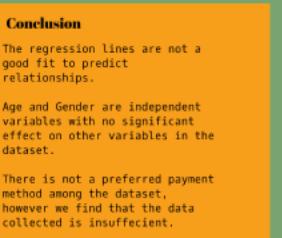
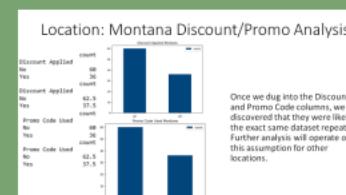
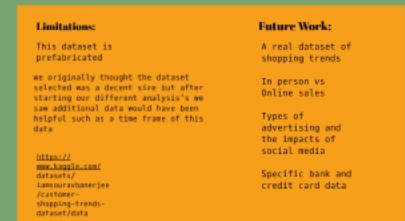
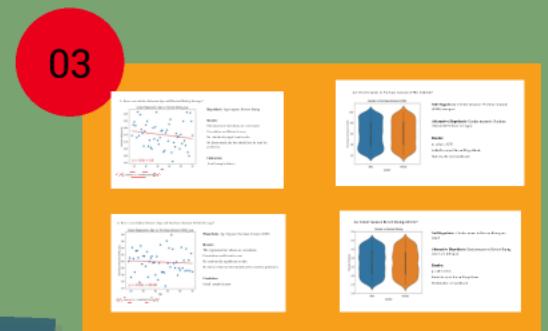
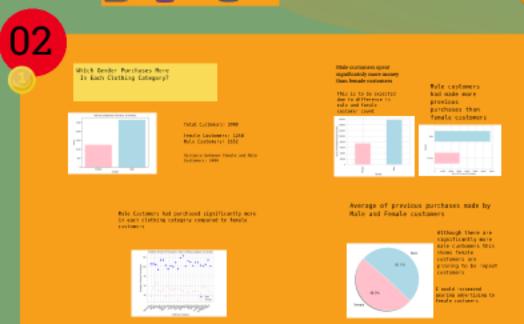


Data Analysis

Dani Luna, Ivette Resse,
Shauntel Phillips, Jon Unger



Data Analysis

of



Dani Luna, Ivette Resse,
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Data Analysis of Shopping Trends

Dani Luna, Ivette Resse,
Shauntel Phillips, Jon Unger



Introduction- Shopping Trends

Why

- A decent sample size
- No null values
- Quantitative & Qualitative Data

All of the above factors led the team to believe we could generate and conduct various analyses to provide insights into consumer patterns in the U.S



Data Cleaning & Prepping

The Shopping Trends data set did not need any cleaning. There were no missing(null) values



Research Questions



Is there any correlation between Age and Review Ratings?



Are male or female customers making more purchases?



What percent of each payment option was used?



Do certain states have a higher usage of discount and promo codes?

Will consumer demographics indicate to whom retailers should target in their market research?

Which season are consumers more willing to spend?



Customer ID	Age	Gender	Item Purchased	Category	Purchase Amount (USD)	Location	Size	Color	Season	Review Rating	Subscription Status	Shipping Type	Discount Applied	Promo Code Used	Frequency of Purchases			
															Previous Purchases	Payment Method		
0	1	55	Male	Blouse	Clothing	53	Kentucky	L	Gray	Winter	3.1	Yes	Express	Yes	Yes	14	Venmo	Fortnightly
1	2	19	Male	Sweater	Clothing	64	Maine	L	Maroon	Winter	3.1	Yes	Express	Yes	Yes	2	Cash	Fortnightly
2	3	50	Male	Jeans	Clothing	73	Massachusetts	S	Maroon	Spring	3.1	Yes	Free Shipping	Yes	Yes	23	Credit Card	Weekly
3	4	21	Male	Sandals	Footwear	90	Rhode Island	M	Maroon	Spring	3.5	Yes	Next Day Air	Yes	Yes	49	PayPal	Weekly
4	5	45	Male	Blouse	Clothing	49	Oregon	M	Turquoise	Spring	2.7	Yes	Free Shipping	Yes	Yes	31	PayPal	Annually
...	
3895	3896	40	Female	Hoodie	Clothing	28	Virginia	L	Turquoise	Summer	4.2	No	2-Day Shipping	No	No	32	Venmo	Weekly
3896	3897	52	Female	Backpack	Accessories	49	Iowa	L	White	Spring	4.5	No	Store Pickup	No	No	41	Bank Transfer	Bi-Weekly
3897	3898	46	Female	Belt	Accessories	33	New Jersey	L	Green	Spring	2.9	No	Standard	No	No	24	Venmo	Quarterly
3898	3899	44	Female	Shoes	Footwear	77	Minnesota	S	Brown	Summer	3.8	No	Express	No	No	24	Venmo	Weekly
3899	3900	52	Female	Handbag	Accessories	81	California	M	Beige	Spring	3.1	No	Store Pickup	No	No	33	Venmo	Quarterly

02

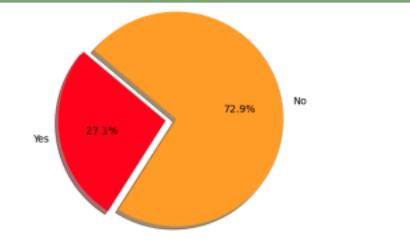


Research Question

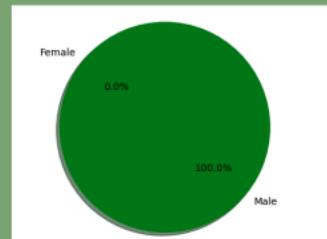
01

Will consumer demographics indicate to whom retailers should target in their market research?

Observation 1a: How many customers have a subscription?



Observation 1b: Of consumers with a subscription, how is that represented by gender?



Limitations/Bias: This would lead a company to assume that only men are interested in subscription services

Which season are consumers more willing to spend?

Observation 2a:

Which season had the most purchases?

Season	
Spring	999
Fall	975
Winter	971
Summer	955

Observation 2b:

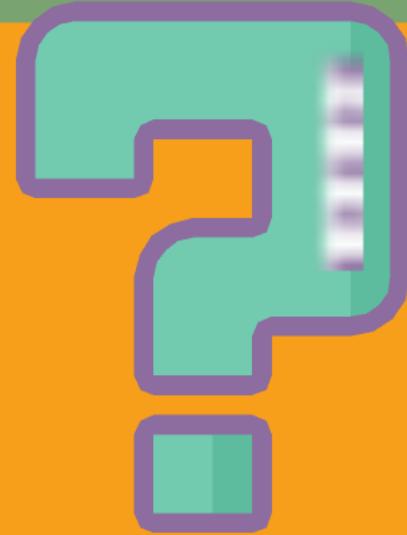
Which season had the most purchases?

Season	
Fall	60018
Spring	58679
Summer	55777
Winter	58607

Name: Purchase Amount (USD)

Results: Spring had the most purchase orders, however, Fall brought in the a larger profit.

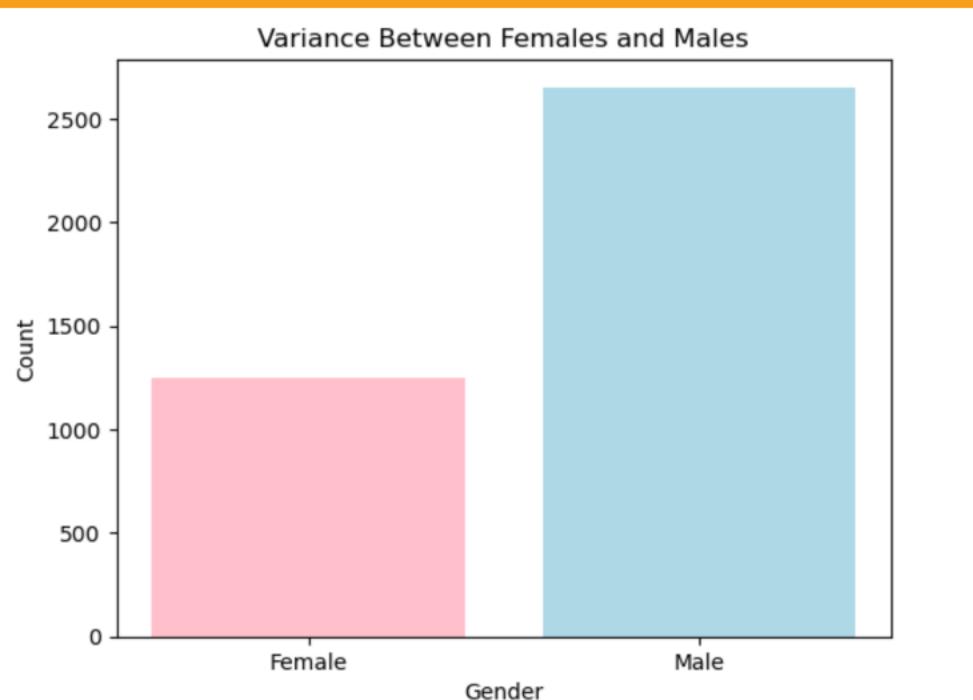
Limitation/Bias: Holiday sales play a key role in shopping habits of consumers



*Would you expect more male
or female customers?*



Which Gender Purchases More In Each Clothing Category?



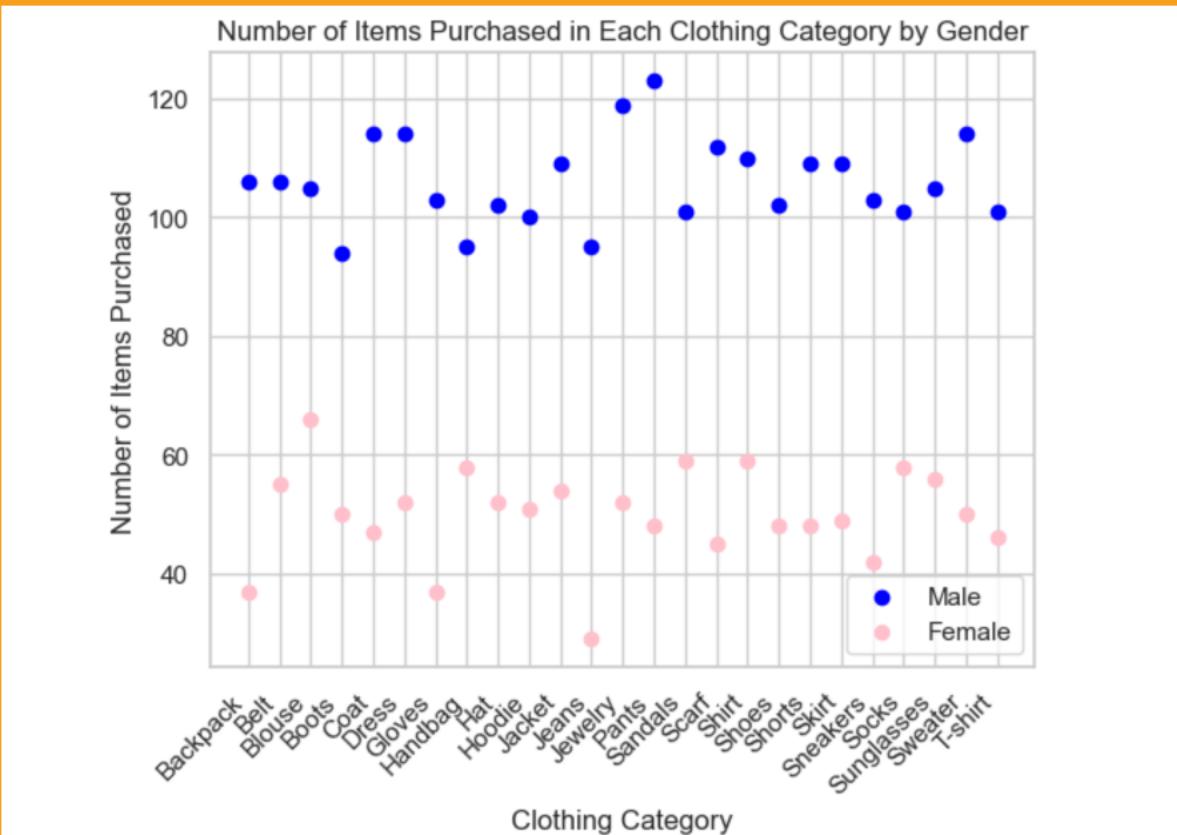
Total Customers: 3900

Female Customers: 1248

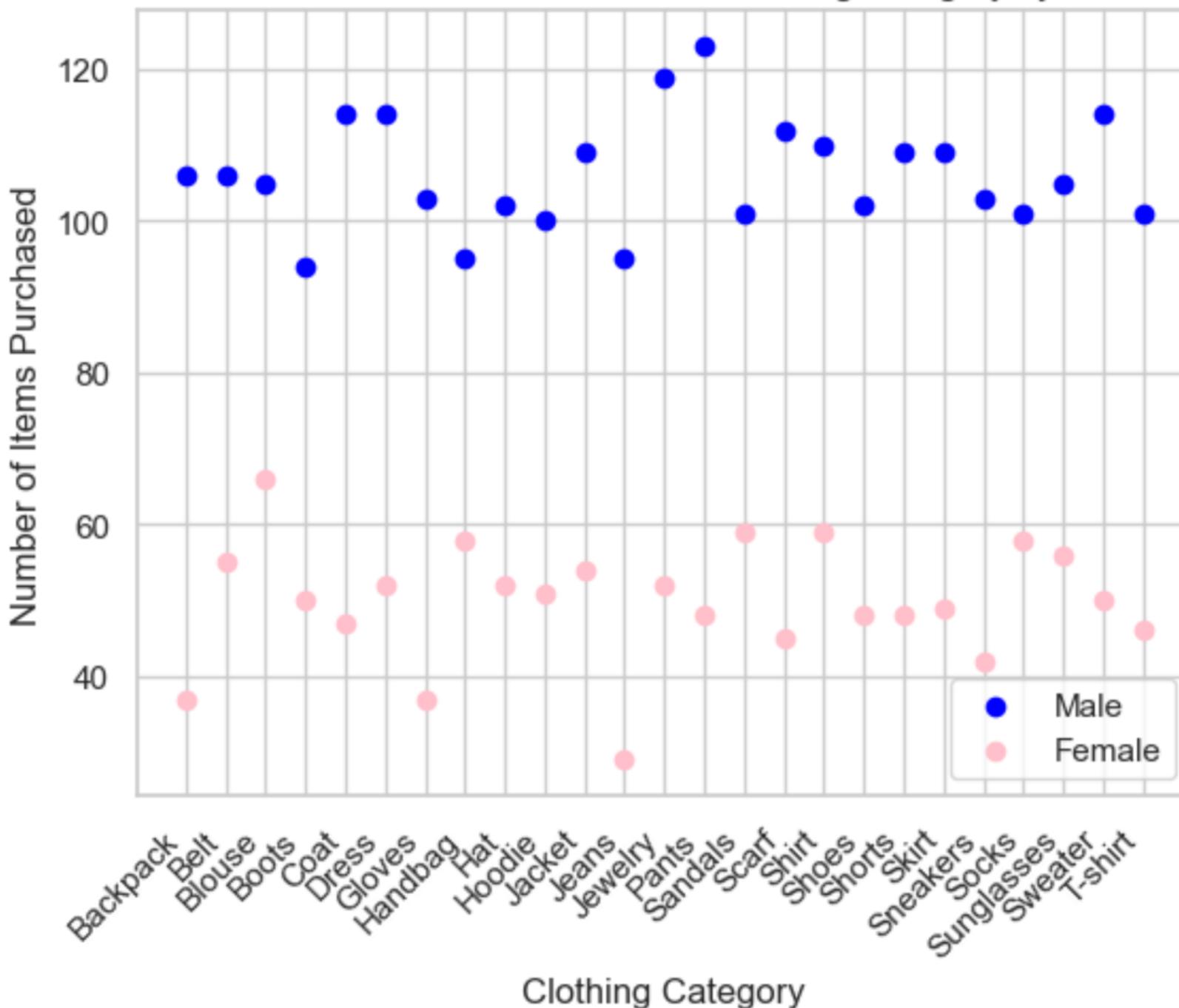
Male Customers: 2652

Variance between Female and Male
Customers: 1404

Male Customers had purchased significantly more in each clothing category compared to female customers

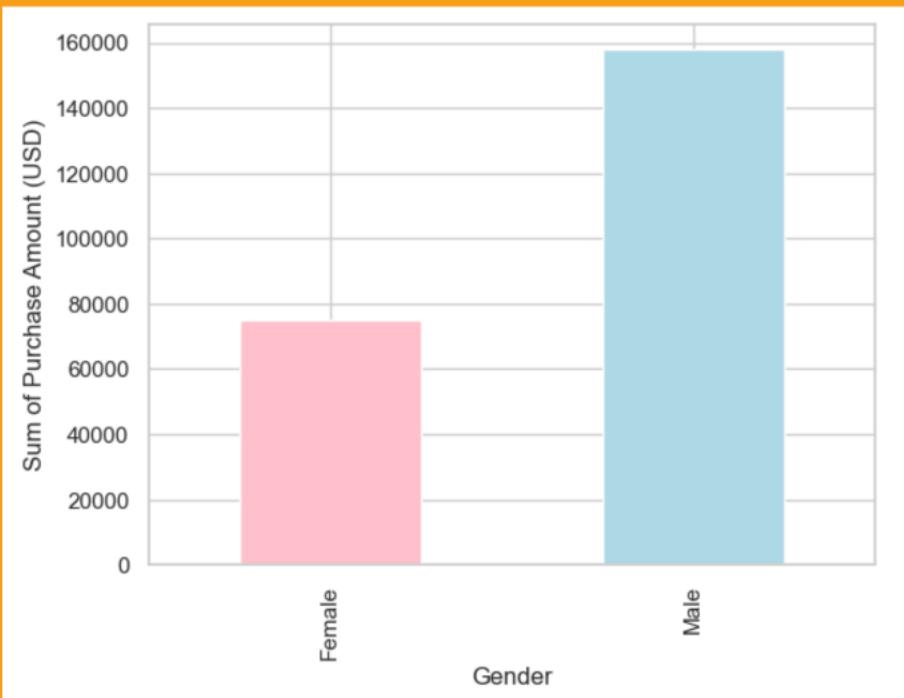


Number of Items Purchased in Each Clothing Category by Gender

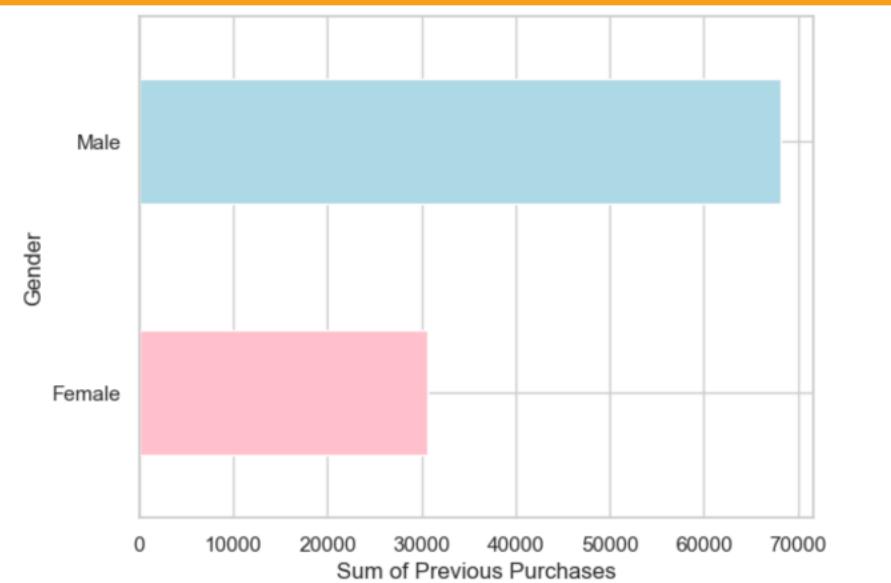


Male customers spent significantly more money than female customers

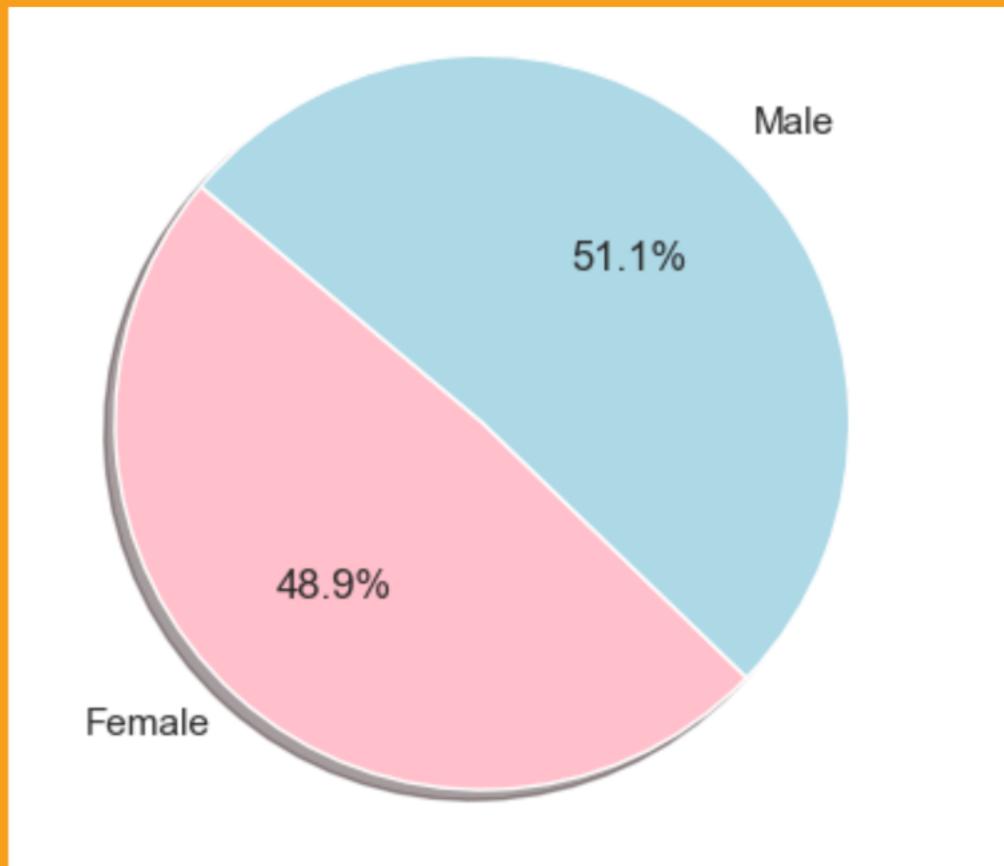
This is to be expected due to difference in male and female customer count



Male customers had made more previous purchases than female customers



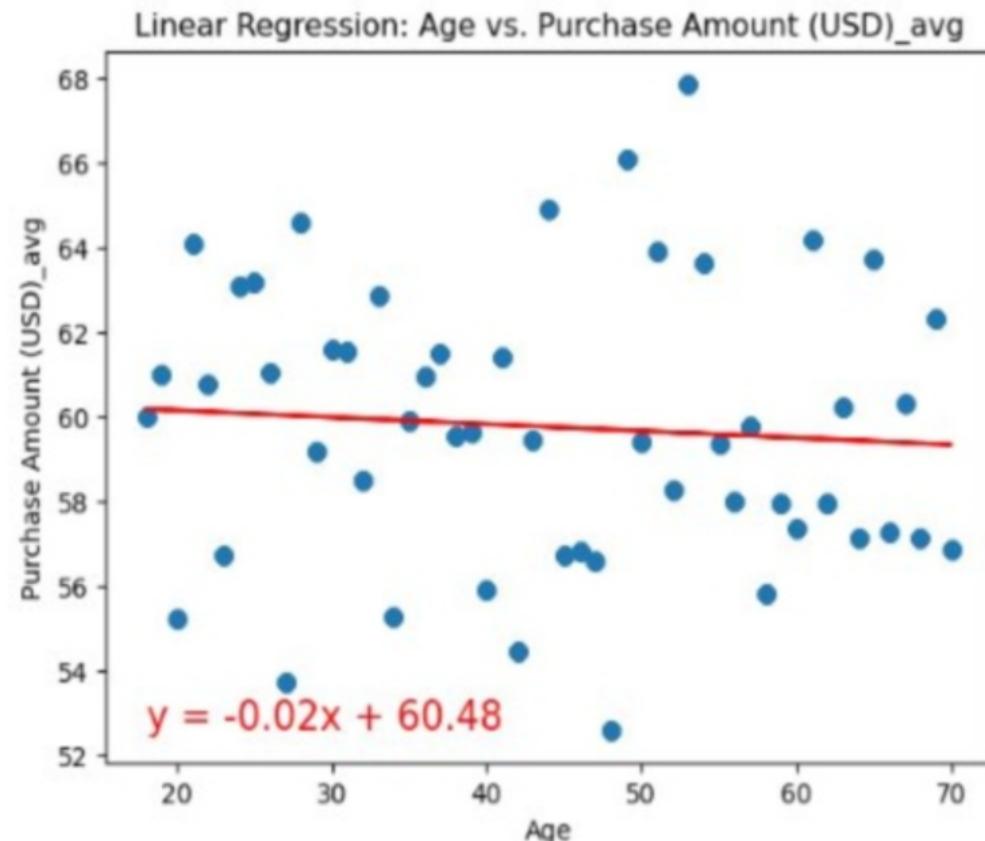
Average of previous purchases made by Male and Female customers



Although there are significantly more male customers this shows female customers are proving to be repeat customers

I would recommend gearing advertising to female customers

Is there a correlation between Age and Purchase Amount (USD) Average?



Hypothesis: Age impacts Purchase Amount (USD).

Results:

The regression line shows no correlation.

Correlation coefficient is zero.

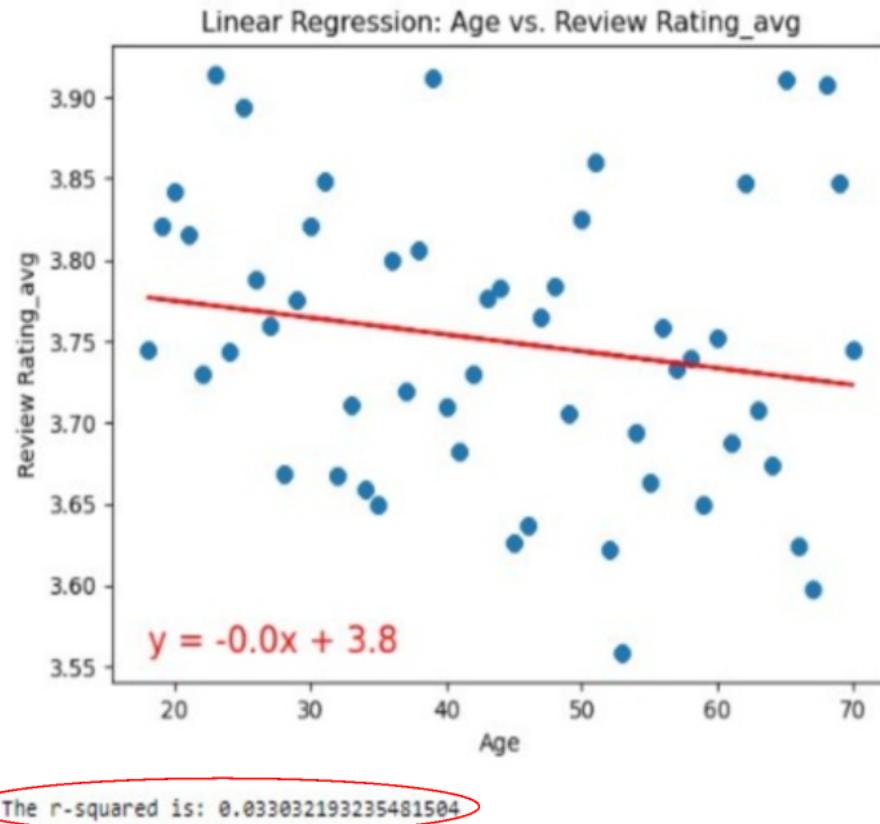
No statistically significant results.

No linear trend, the line should not be used for prediction.

Limitation:

Small sample dataset

Is there a correlation between Age and Review Rating Average?



Hypothesis: Age impacts Review Rating.

Results:

The regression line shows no correlation.

Correlation coefficient is zero.

No statistically significant results.

No linear trend, the line should not be used for prediction.

Limitation:

Small sample dataset

Are Gender means in Purchase Amount (USD) different?



Null Hypothesis: Gender means in Purchase Amount (USD) are equal.

Alternative Hypothesis: Gender means in Purchase Amount (USD) are not equal.

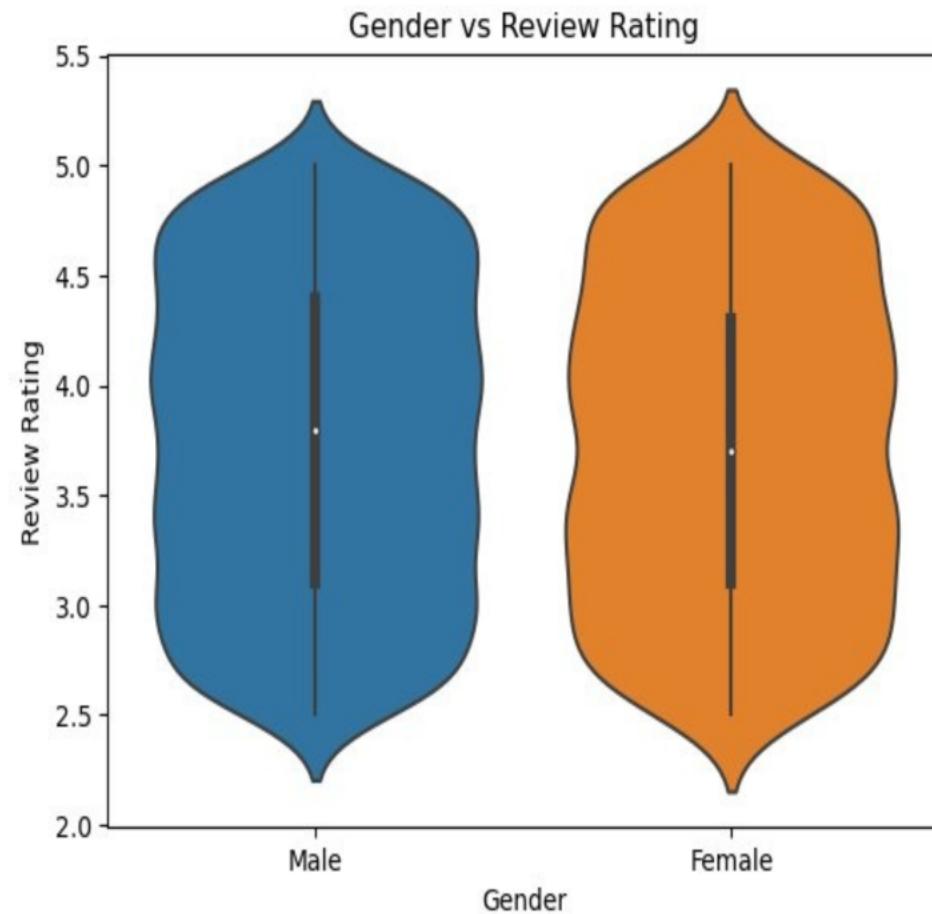
Results:

p_value = 0.38

Failed to reject the null hypothesis

Statistically not significant

Are Gender means in Review Rating different?



Null Hypothesis: Gender means in Review Rating are equal.

Alternative Hypothesis: Gender means in Review Rating means are not equal.

Results:

p_value = 0.61

Failed to reject the null hypothesis

Statistically not significant

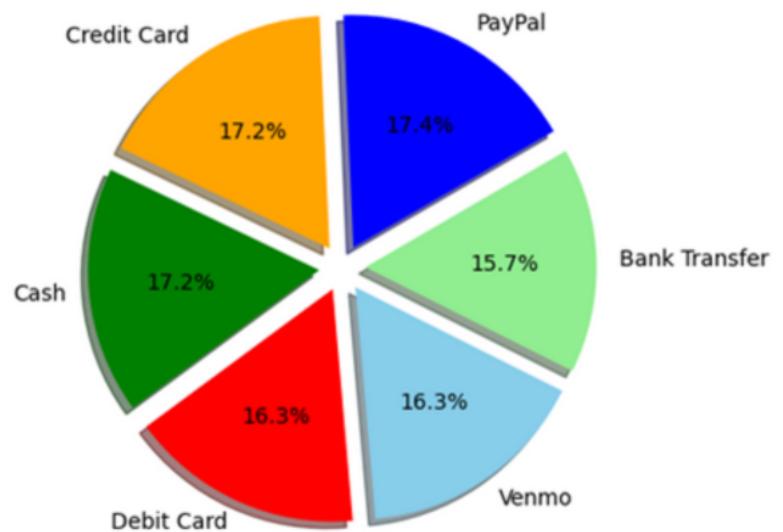
04

What percent of each payment option was used?

Do certain states have a higher usage of discount and promo codes?

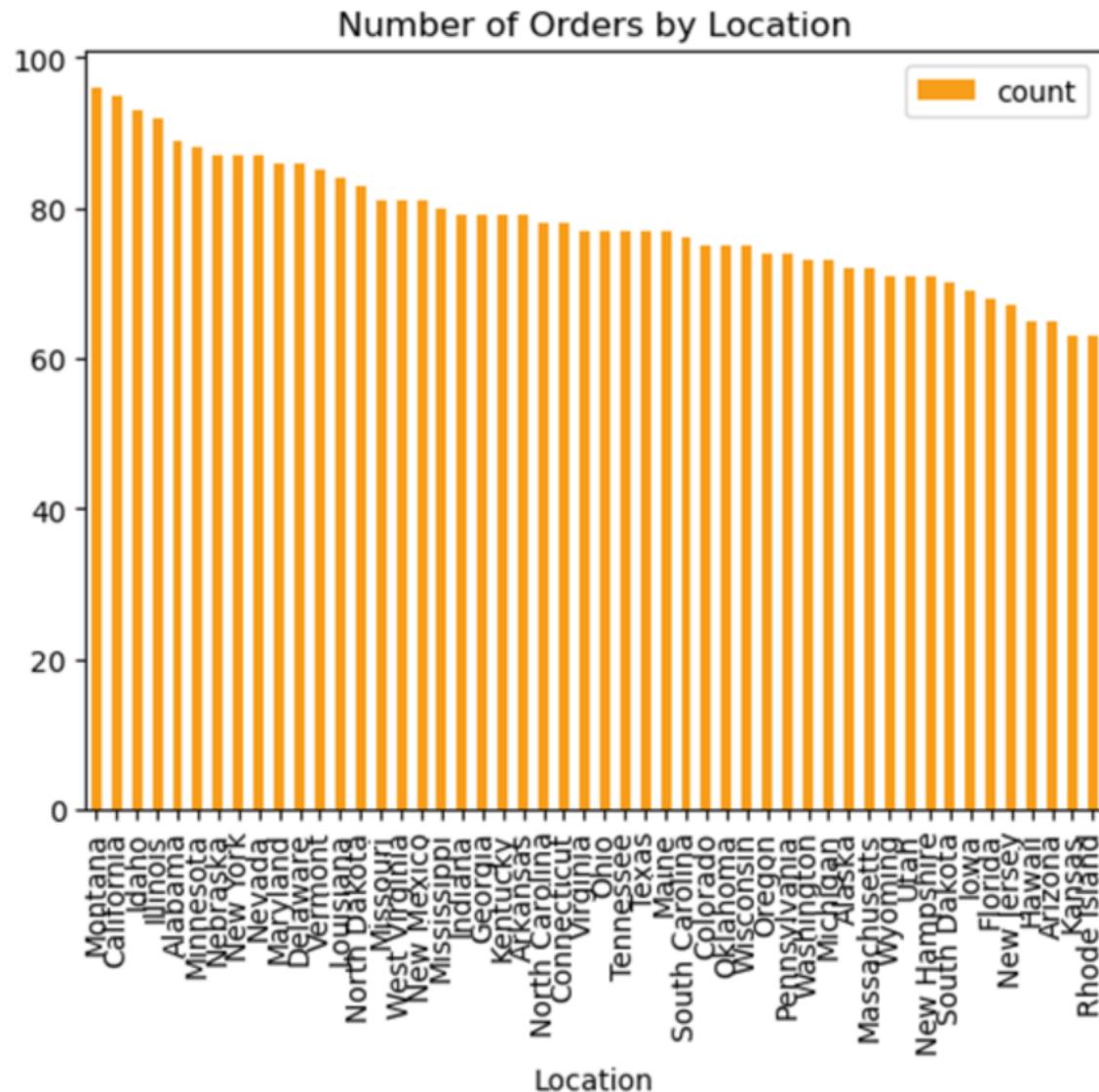
Methods of Payment

Here we have rough percentages of the payment methods on 3900 entries of our data. An interesting point to notice is that our dataset differentiates between PayPal and Venmo, when Venmo is an entity owned by PayPal currently. This might indicate that our data was collected before the acquisition happened. Secondly, the data fails to differentiate similarly between major credit card entities. Thirdly, what if any is the difference between a Venmo transaction and a cash transaction or bank transfer? Venmo is simply a transaction agent, like PayPal, that connects merchants with consumers' forms of payment.



Orders by Location

This allows us to compare numbers of orders per location. Taking this dataset and creating a graphic for each location was not within the scope of this analysis due to the heavy repetition and limited insight gained.



Location: Montana Discount/Promo Analysis

Discount Applied

No

Yes

count

60

36

count

Discount Applied

No

62.5

Yes

37.5

Promo Code Used

No

Yes

Promo Code Used

No

Yes

Promo Code Used

60

36

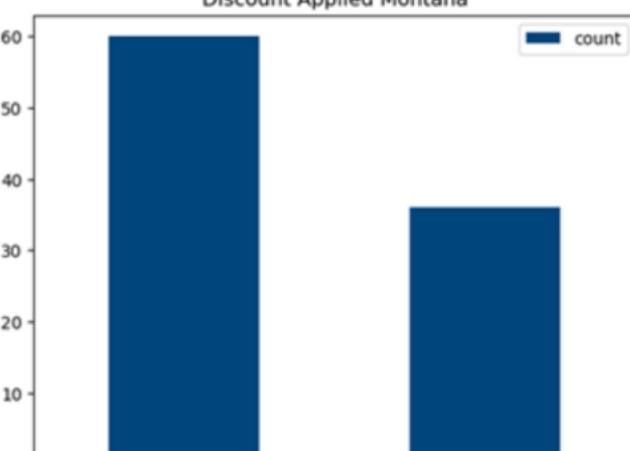
count

62.5

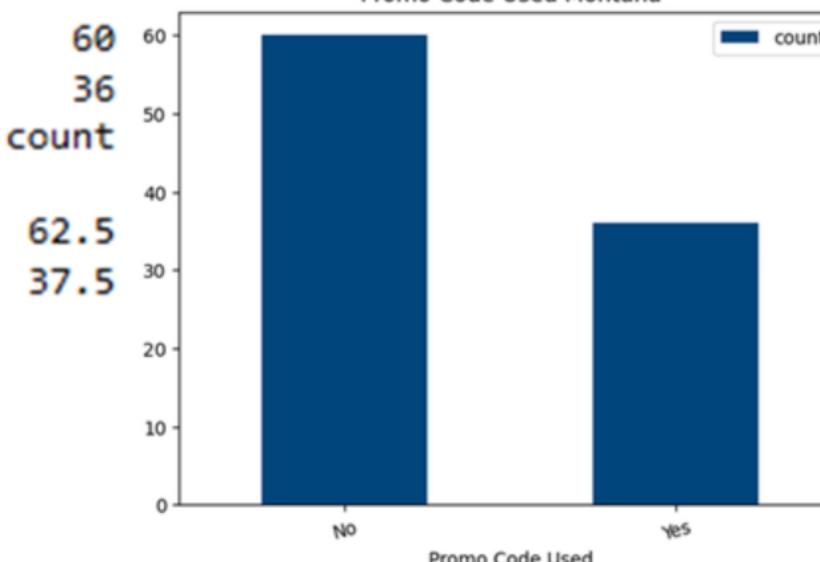
37.5

count

Discount Applied Montana



Promo Code Used Montana

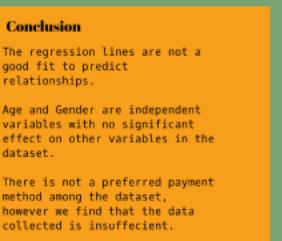
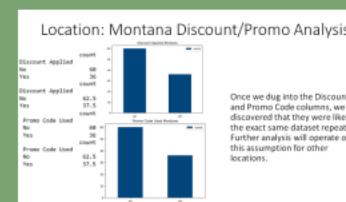
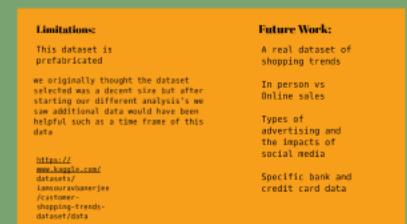
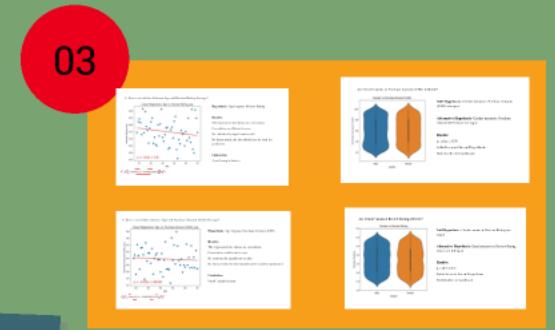
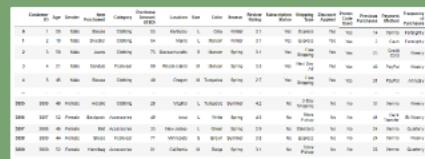


Once we dug into the Discount and Promo Code columns, we discovered that they were likely the exact same dataset repeated. Further analysis will operate on this assumption for other locations.

Data Analysis of Shopping Trends



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Limitations:

This dataset is prefabricated

we originally thought the dataset selected was a decent size but after starting our different analysis's we saw additional data would have been helpful such as a time frame of this data

<https://www.kaggle.com/datasets/iamsouravbanerjee/customer-shopping-trends-dataset/data>

Future Work:

A real dataset of shopping trends

In person vs Online sales

Types of advertising and the impacts of social media

Specific bank and credit card data

alysis

Discount
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were likely
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Conclusion

The regression lines are not a good fit to predict relationships.

Age and Gender are independent variables with no significant effect on other variables in the dataset.

There is not a preferred payment method among the dataset, however we find that the data collected is insufficient.

Data Analysis of Shopping Trends



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