

SALES AND TARGETS ANALYSIS (EDA)

-BY:
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PROBLEM STATEMENT

An ABC company has the sales data for the last 3 years and they want to analyze it now. There is a Dimension Data where there is the list of companies and their Line of Business. There are 3 years of sales data. There is also a Target Data. Stakeholders want the following insights

- ❖ Include important KPIs
- ❖ Sales over Time
- ❖ Sales for various Products
- ❖ Manager wise analysis
- ❖ Customer coverage across various Locations
- ❖ Target Analysis

PROJECT AIM AND UNDERSTANDING

The project entails analyzing three years of comprehensive sales data, encompassing invoice details, transaction amounts, dates, salespersons, and product specifics. Accompanying this dataset is Dimension Data, which furnishes a catalog of companies alongside their Line of Business (LOB), enabling segmentation and analysis based on customer industry or business category. Additionally, the Target Data, presumed to comprise predefined sales performance metrics, facilitates the crucial task of comparing actual sales against set targets, streamlining performance assessment and goal alignment efforts. This EDA aims to deliver actionable insights for optimizing sales strategies, enhancing customer engagement, and achieving organizational objectives.

DATA SETS OVERVIEW

SALES DATASET

- ◆ In the process of preparing data, three years of sales data have been concatenated into a single table. This unified dataset contains detailed information such as the issue date, customer ID, salesperson ID, product ID and various categorical bins derived from Qty Items, Unit Price, and Net Weight.
- ◆ A new column 'Amount' was added by multiplying 'Qty Items' into 'Unit Price'. Merging data from multiple years to gain a holistic view of sales trends, customer purchasing behavior, and product performance over time.
- ◆ Additionally, by categorizing relevant variables into bins, the dataset becomes more interpretable and actionable, allowing for deeper insights into the distribution and segmentation of sales data.

	Issue Date	Invoice Number	Customer ID	SalesPerson ID	Product ID	Amount	Order Month	Order Year	Quantity Bins	Unit Price Bins	Net Weight Bins
0	2017-01-12	1492762	3140218	265	1073	52.98	1	2017	0-6	5-50	0-1
1	2017-01-12	1492762	3140218	265	1420	26.64	1	2017	0-6	3-5	3-10
2	2017-01-12	1492762	3140218	265	264	9.60	1	2017	6-11	0-1.5	1.5-3
3	2017-01-13	1492719	2983332	265	1154	17.52	1	2017	0-6	1.5-3	1-1.5
4	2017-01-13	1492719	2983332	265	1527	16.86	1	2017	0-6	1.5-3	1-1.5

DIMENSION TABLES

- ❖ The dimension tables contain crucial information about customers, products, product groups, and salespersons:
 1. The customers table contains unique customers with key attributes like Customer ID, Company Name, Status, and geographic information.
 2. The products table provides insights into individual products through identifiers such as Product ID and Group ID, enabling analysis of sales performance and inventory management.
 3. The product_grp table consolidates 36 distinct product groups with categorical information, aiding in understanding product hierarchies and informing strategic decisions on product assortment and marketing.
 4. Lastly, the salesperson table offers insights into sales team structures, supervision chains, and managerial hierarchies, enabling effective management and performance evaluation of sales teams.

Together, these dimension tables form a comprehensive foundation for analyzing various facets of business operations.

TARGET DATA SET

- In preparing the target data for analysis, a series of steps were implemented to transform an initially imbalanced dataset into a more normalized and analytically suitable format. First, missing values were addressed by employing the **dropna()** function. Subsequently, the column headers were assigned the second row as the new headers using the **columns** attribute. Timestamps embedded within the column headers were then converted to the MMYYYY format through the **map()** function. The dataset underwent a pivotal reshaping process using the **melt()** function, transitioning from a wide to a long format, thereby consolidating monthly sales figures under a single 'Sales' column alongside corresponding 'SalesPerson ID' and 'Date' columns. To ensure data consistency and facilitate analysis, data types were uniformly adjusted, with the 'Sales' column converted to numeric, and 'Target Month' and 'Target Year' columns categorized, while the 'SalesPerson ID' column was standardized to a string data type. Through these systematic steps, the dataset was successfully transformed into a normalized format.

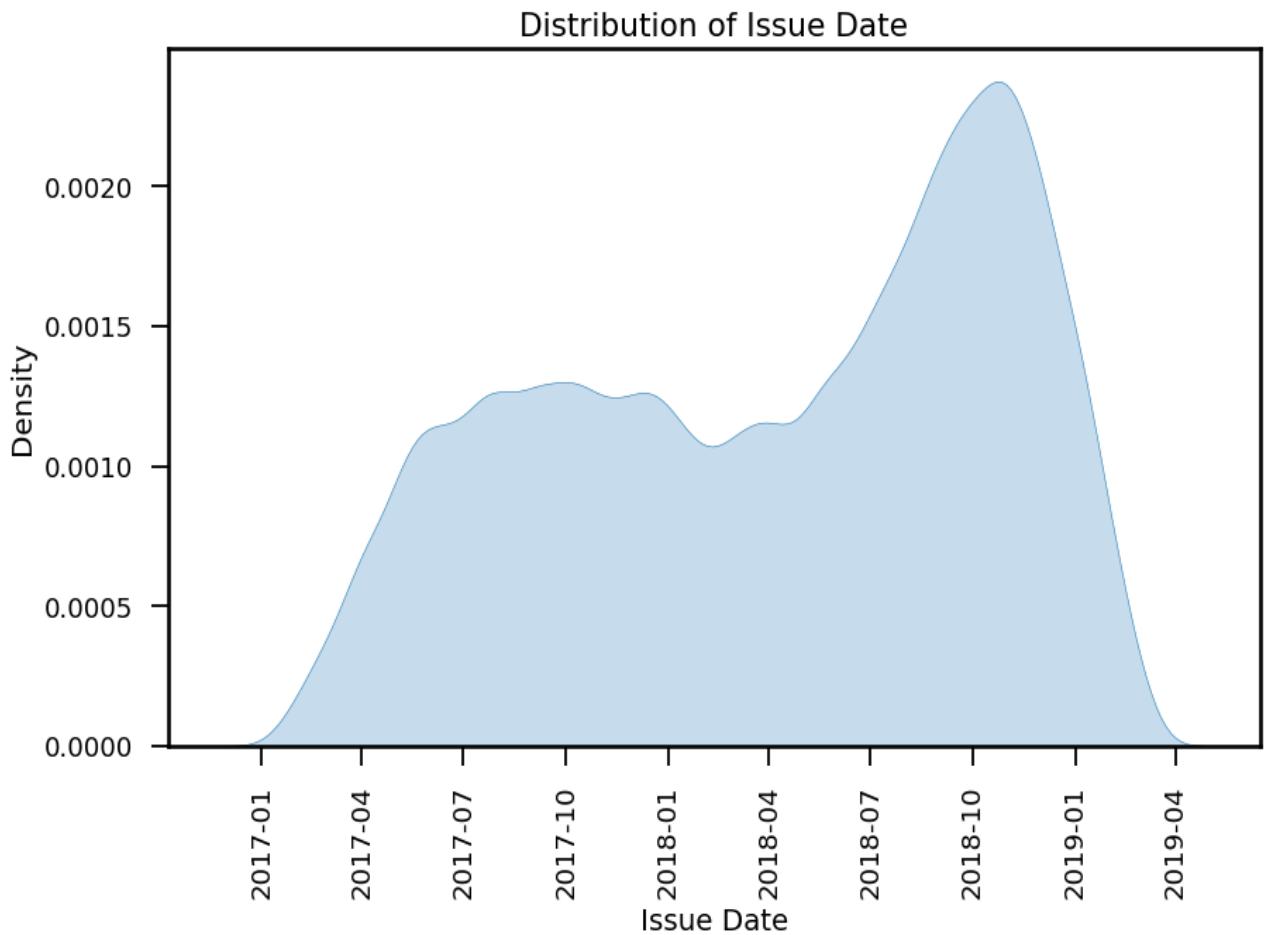
BEFORE							AFTER					
	SalesPerson ID	2017-01-01 00:00:00	2017-02-01 00:00:00	2017-03-01 00:00:00	2017-04-01 00:00:00	2017-05-01 00:00:00	→	SalesPerson ID	Date	Sales	Target Month	Target Year
4	102	140768.312981	124258.753484	169509.931262	143465.231352	98423.627768	0	102	2017-01-01	140768.312981	1	2017
5	125	21525.584613	50778.518843	80286.310022	117769.05503	162043.205771	1	102	2017-02-01	124258.753484	2	2017
6	144	72301.437981	47360.51627	54145.357333	89457.661634	115437.266528	2	102	2017-03-01	169509.931262	3	2017
7	194	0	0	0	0	0	3	102	2017-04-01	143465.231352	4	2017
8	196	75253.91149	56094.071733	156709.108284	82723.073158	47426.320283	4	102	2017-05-01	98423.627768	5	2017

5 rows × 25 columns

UNIVARIATE ANALYSIS

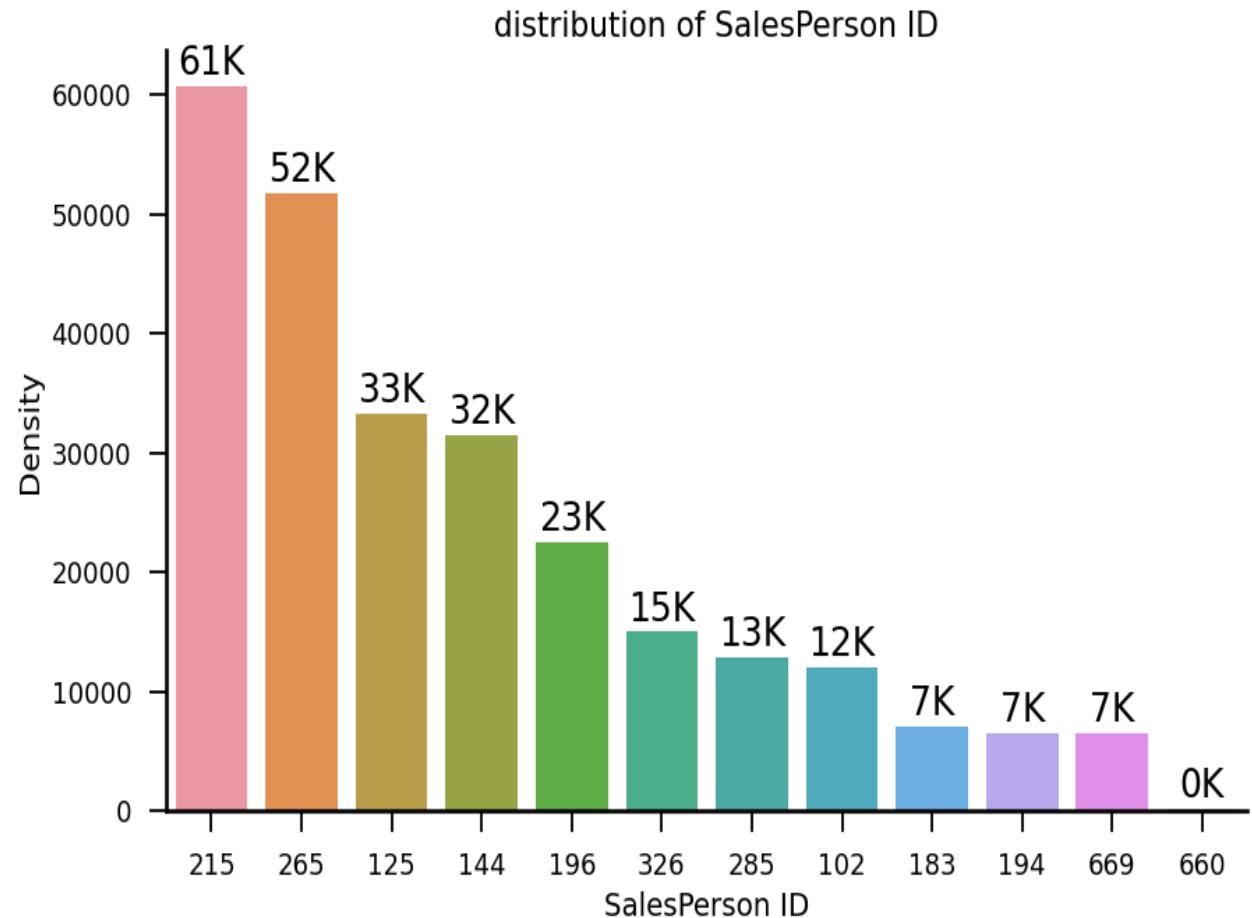
ISSUE DATE

- ❖ The distribution of issue dates in the dataset reveals insights into the frequency and range of transactions over time. KDE plot illustrates that issue dates are comparatively more concentrated within a specific timeframe, with a notable peak observed between October 2018 and January 2019. This concentration suggests that a significant portion of sales transactions occurred during this period, indicating potential trends or patterns in customer behavior, market demand, or business activities.



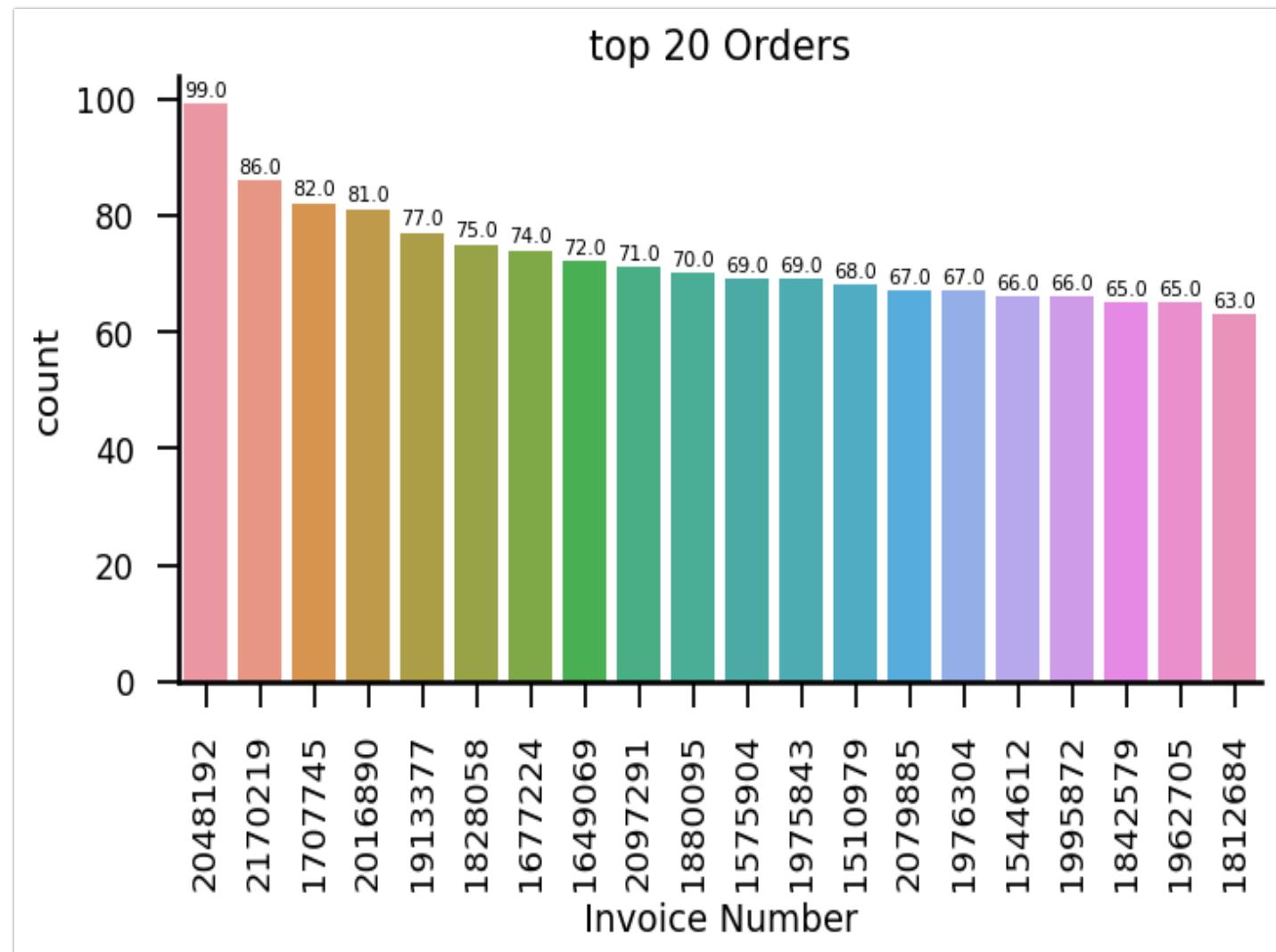
SALESPERSON ID

The visualization reveals variations in the distribution of SalesPerson IDs, indicating differences in individual sales performance or responsibilities. Some SalesPerson IDs exhibit higher frequencies, suggesting greater involvement or productivity such as Id-215,265, while others have lower counts, potentially indicating different roles within the sales team or varying levels of activity(669,660).



INVOICE NUMBER

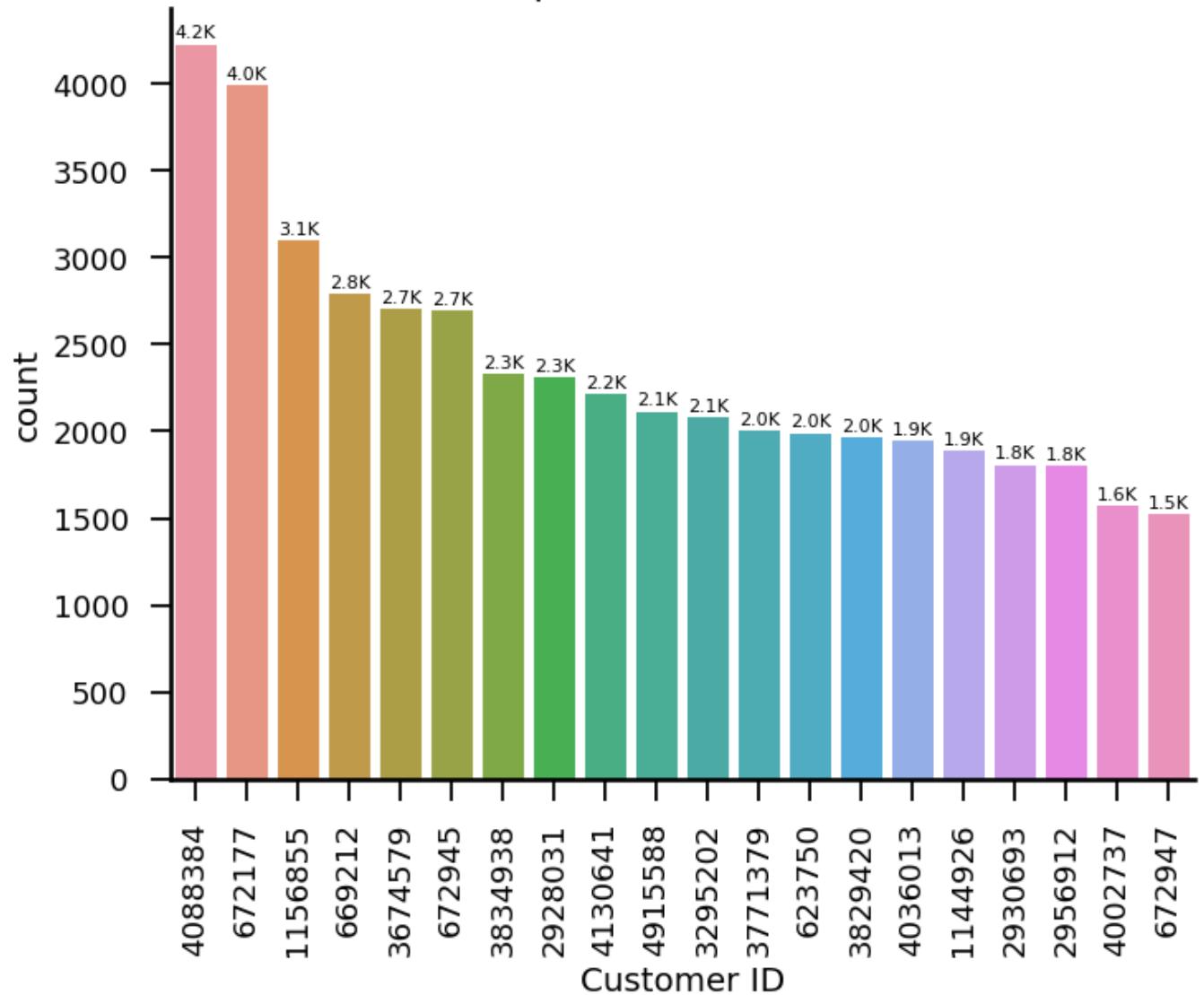
This Plot shows the top 20 invoice numbers with most count. Invoice 2048192 was ordered 100 times. suggests that a significant portion of sales transactions occurred between these order numbers.



CUSTOMER ID

This Plot shows the top 20 Customer ID with most count. Customer ID 4088384 followed by 672177 has placed the most orders. This suggests that a significant portion of sales transactions occurred between these customers.

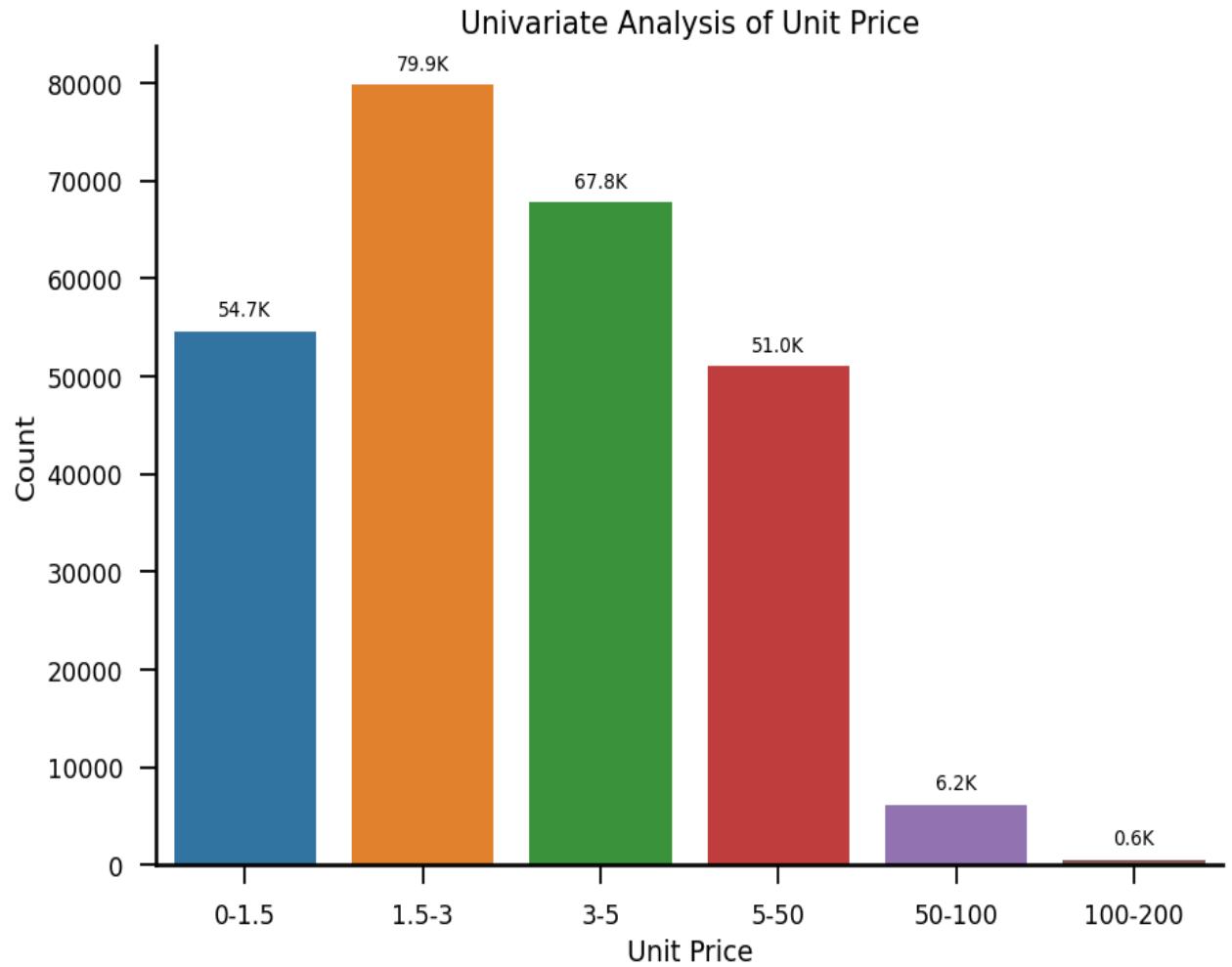
top 20 Customer IDs



UNIT PRICE

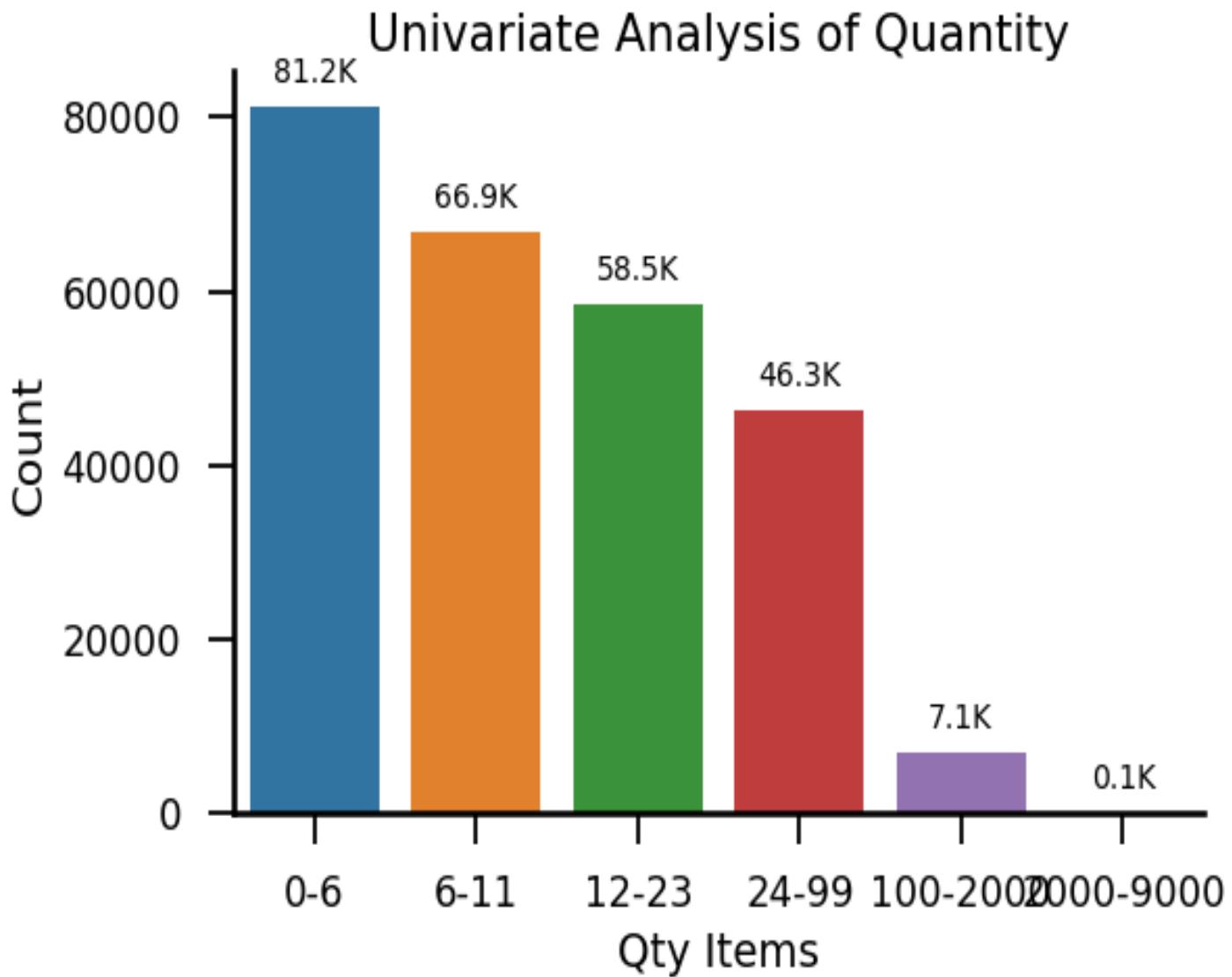
The plot visualizes the distribution of unit prices by dividing them into predefined bins. Each bin represents a range of unit prices, and the height of the bars indicates the frequency of unit prices falling within each range.

The analysis reveals that unit price bins between 1.5 and 3 have the highest counts ,ie. around 80,000 times; suggesting that a significant portion of transactions involves products within this price range. Products on lower price point have higher chance of selling. On the other hand, unit price bins ranging from 50 to 2000 have the lowest counts, indicating that transactions involving higher-priced products are less frequent.



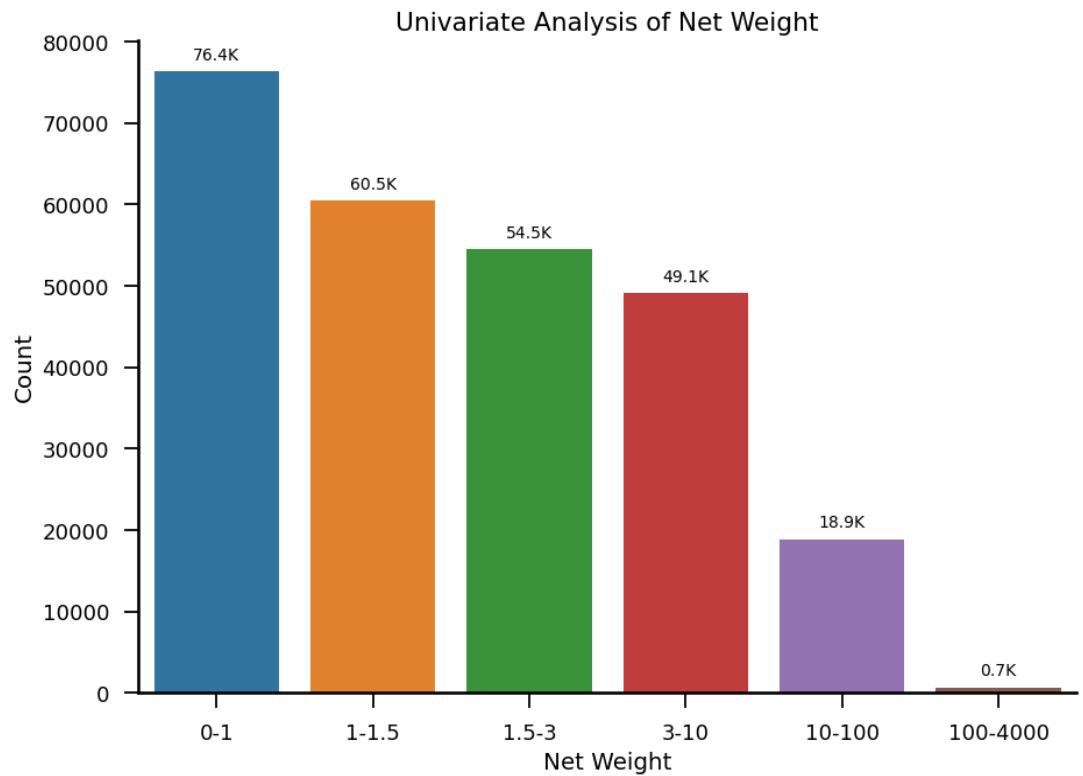
QTY ITEMS

The bins ranging from 0 – 6 bin items have the highest counts, indicating that a significant portion of transactions involves a relatively small quantity of items per purchase. This suggests that most customers tend to purchase smaller quantities of items at a time. On the other hand, bins representing quantities ranging from 100 - 9000 bin items have the lowest counts. This indicates that transactions involving very large quantities of items are less frequent, likely representing bulk or wholesale purchases.



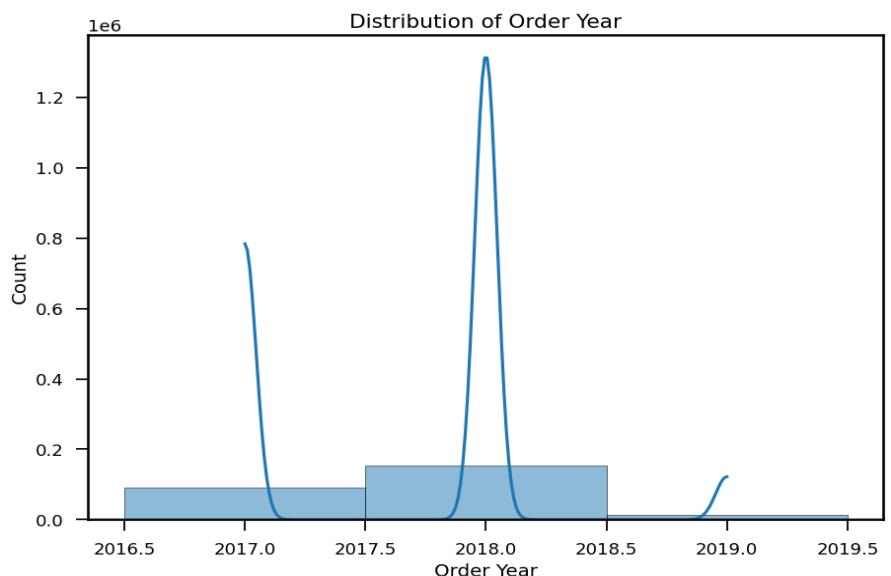
NET WEIGHT

Net weight bins ranging from 0-1g have the highest counts, suggesting that a significant portion of transactions involves products with lower net weights. On the other hand, net weight bins ranging from 100 to 4000 have the lowest counts, indicating that transactions involving products with higher net weights are less frequent.



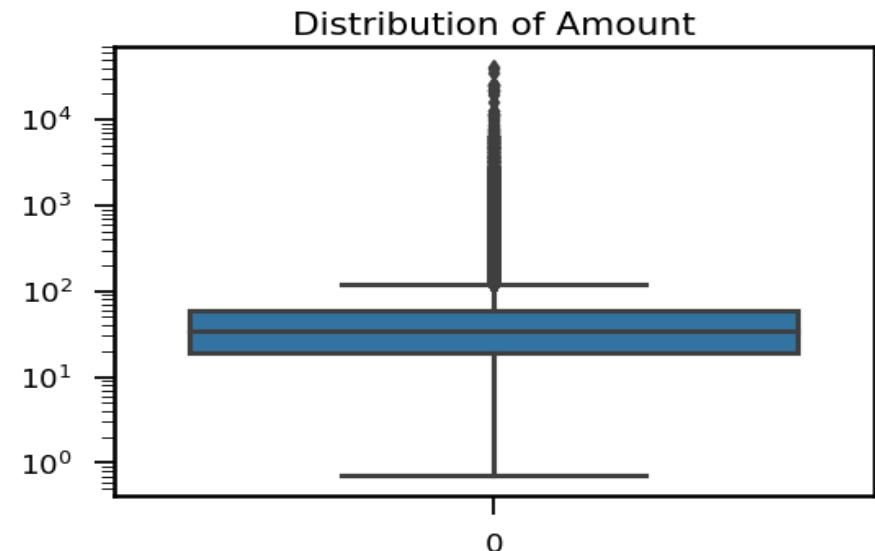
ORDER YEAR

The Distribution of Order year shows there is increase in number of sales from 2017 to 2018



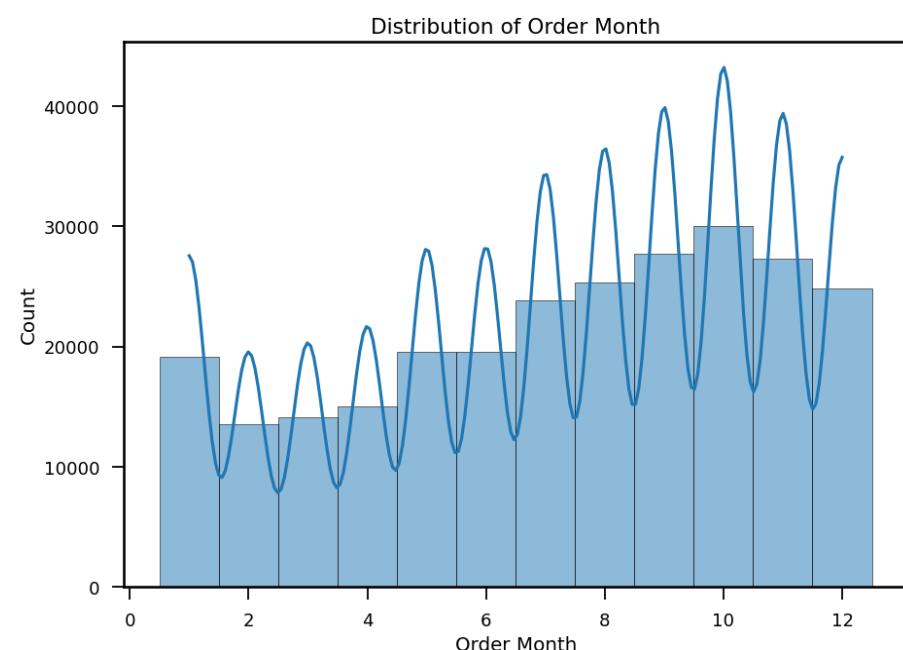
AMOUNT

The Distribution of Amount shows that the amount in Q1 ie 25 percentile and Q3 ie 75 percentile is between 10 to 100. So lower amount of orders are more frequent . Large amount of sales lie outside the 90 percentile range.



ORDER MONTH

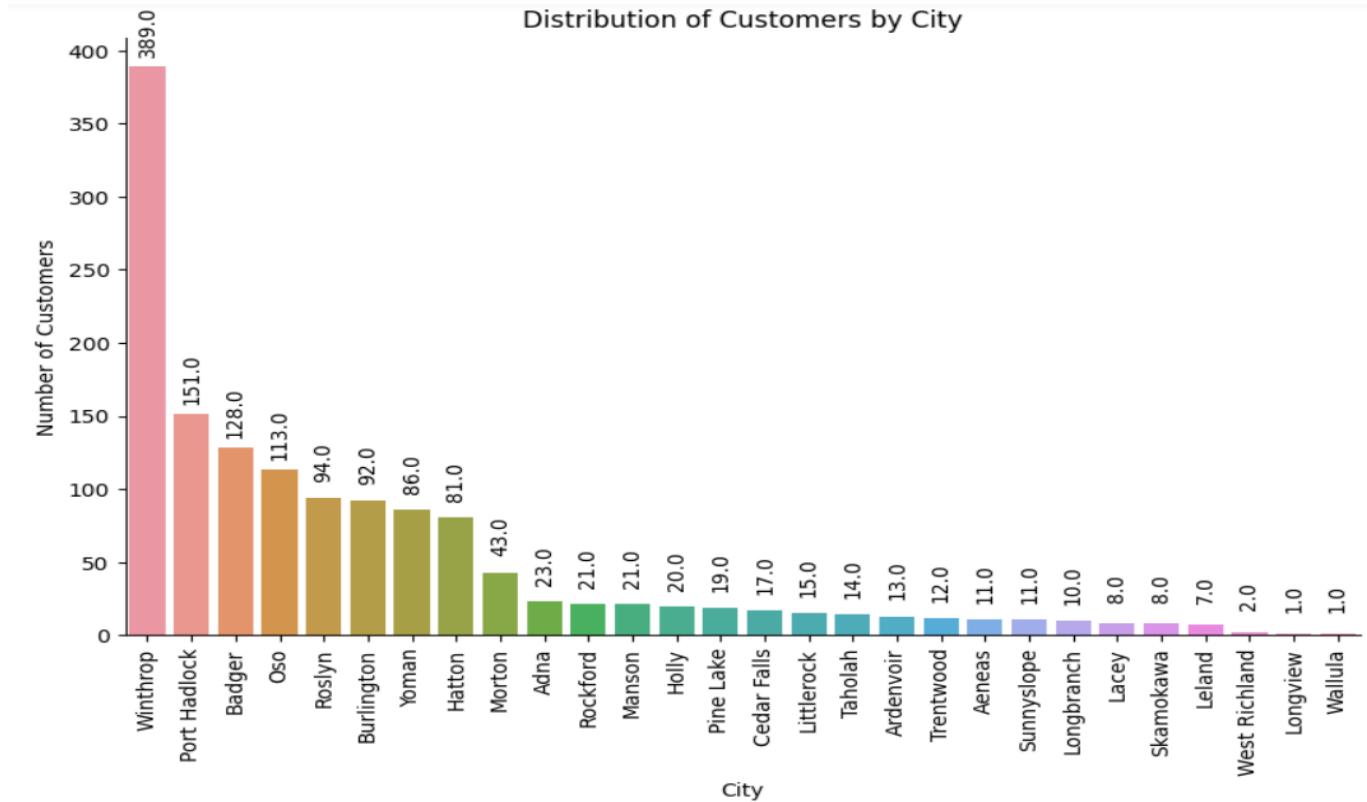
The Distribution of Order Month shows that most sales happen in the end of the year , highest being in October and lowest in February



CITY

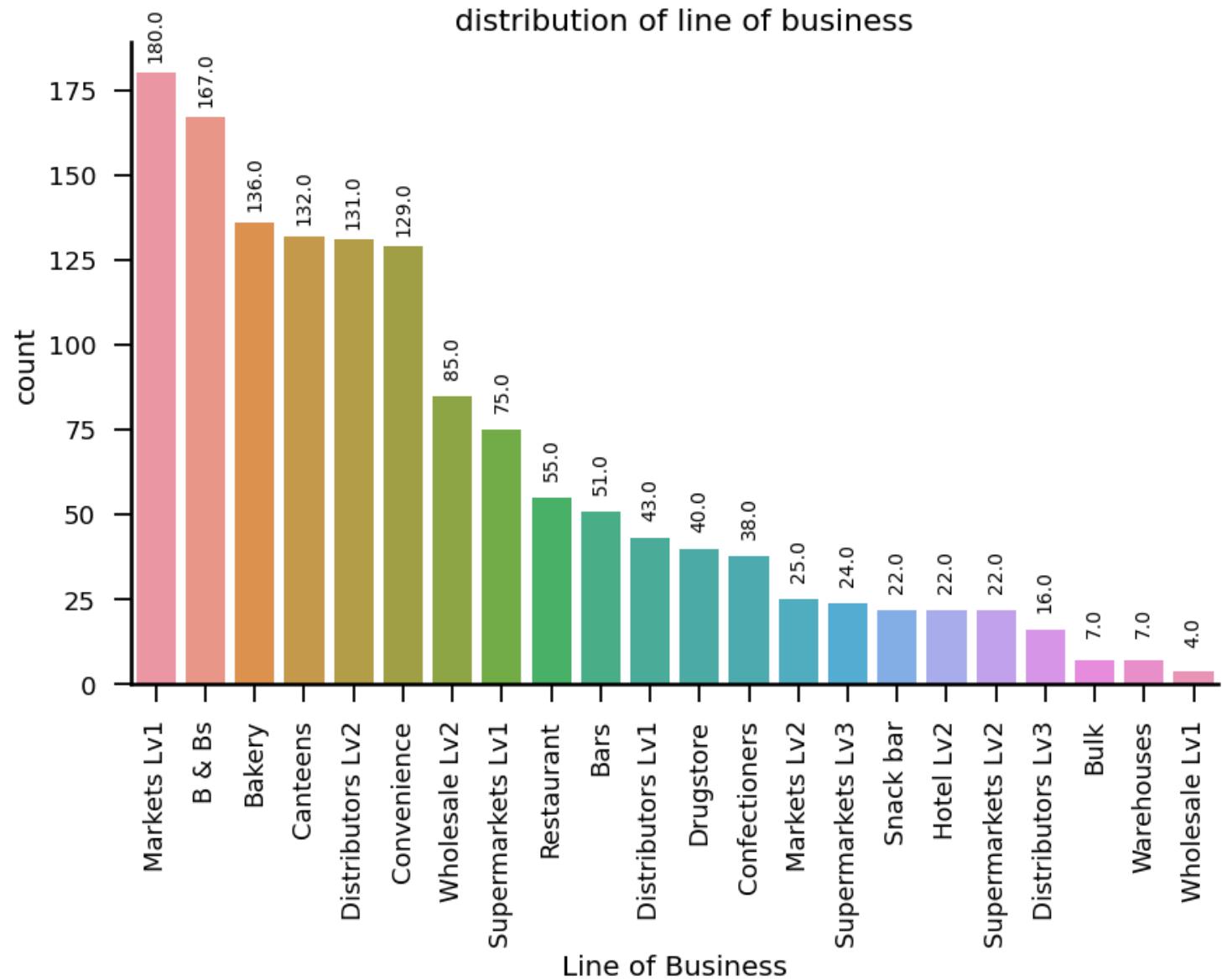
The analysis of customers by city reveals varying levels of customer engagement across different locations. Winthrop emerges as the city with the highest number of customers, suggesting a significant presence or popularity among the customer base.

Conversely, cities like Longview and Wallula have the lowest number of customers, indicating relatively lower representation in these areas.



LINE OF BUSINESS

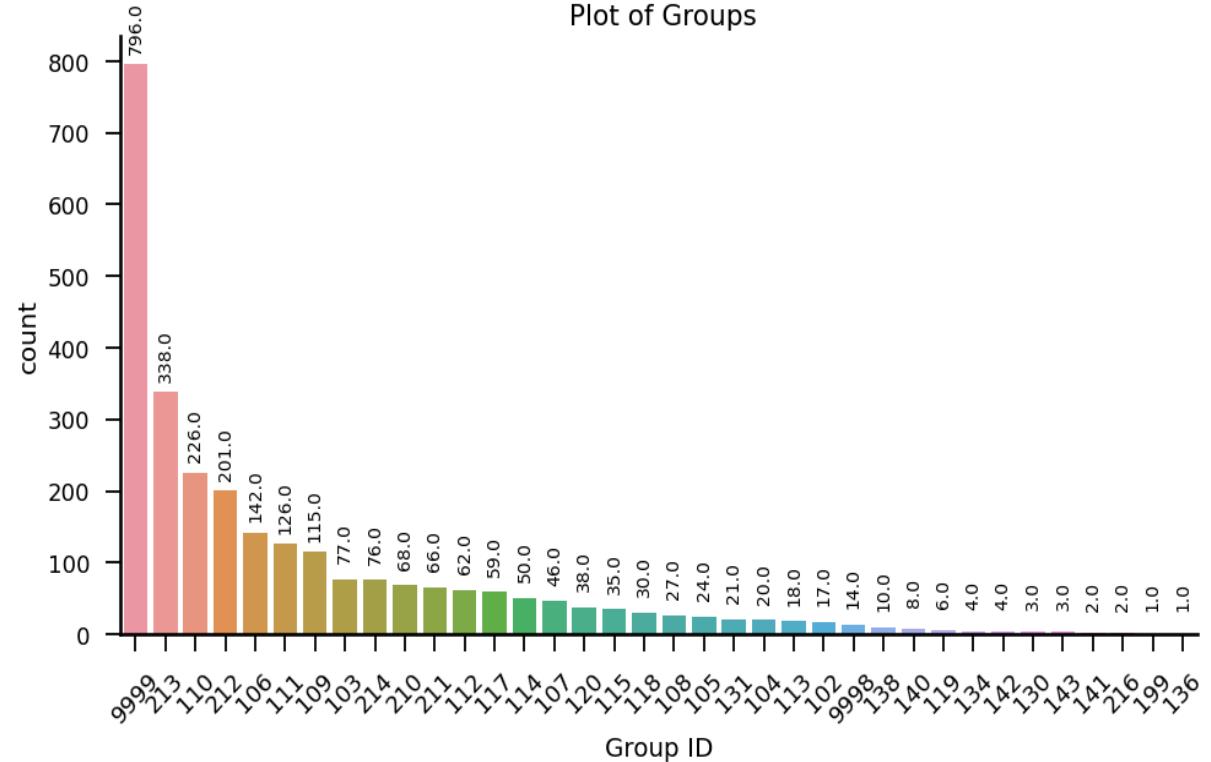
The distribution of Line of Business reveals Markets Lv1, B&Bs, bakeries, and canteens exhibit higher counts, indicating significant representation and activity within these segments. This suggests that a considerable portion of the customer base is comprised of businesses operating in Super Market sectors, potentially highlighting areas of focus for targeted marketing and tailored services. Conversely, the counts for warehouse bulk and wholesale businesses are comparatively lower, implying a smaller presence or lesser engagement within these segments.



GROUP ID

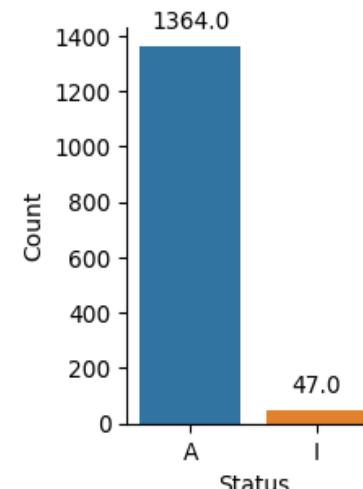
The distribution of count product in Groups shows that Group 9999 dominates the most with 796 products belonging to this group where as group 199 and 136 have just 1 product.

Plot of Groups



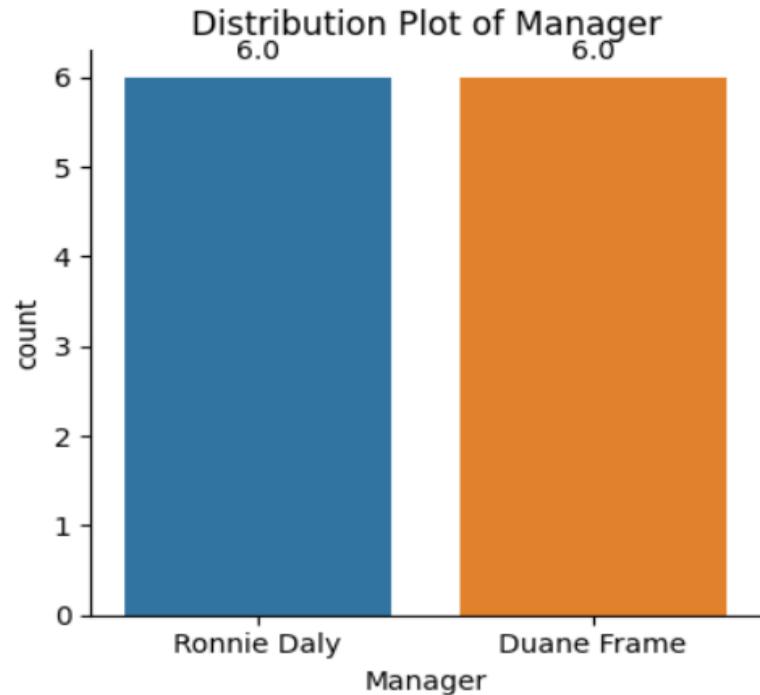
STATUS

Customer status reveals that the majority, or approximately 96.6%, of customers belong to status A. This suggests a high level of engagement or activity among this segment of customers, likely representing regular or active patrons of the business.



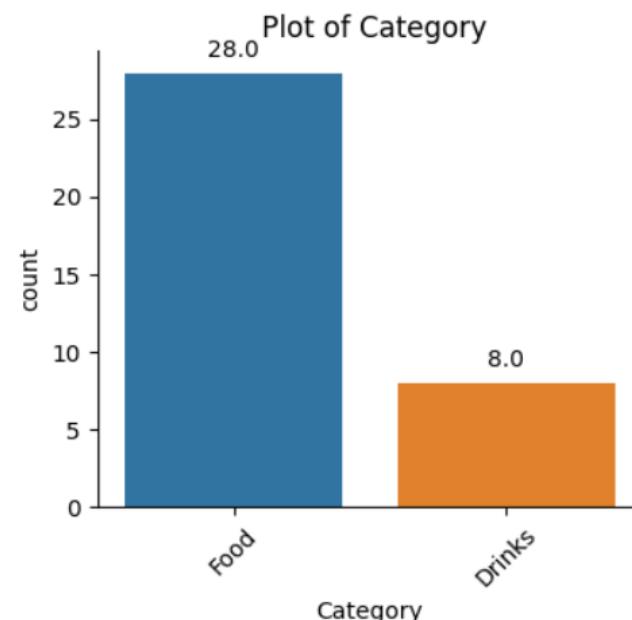
MANAGER

Salespersons are almost equally distributed among the managers, Ronnie Daly and Duane Frame. This indicates a balanced workload distribution or a similar number of salespersons reporting to each manager.



CATEGORY

The distribution plot of category provides insights into the composition of the product. The majority, approximately 77.77%(28 out of 36), of the products belong to the food category, indicating that food products constitute a significant portion. Conversely, approximately 22.22%(8 out of 36) of the products belong to the drinks category, representing a smaller proportion compared to food products. This distribution highlights the dominance of food-related items, suggesting that the business may primarily focus on or specialize in food products.

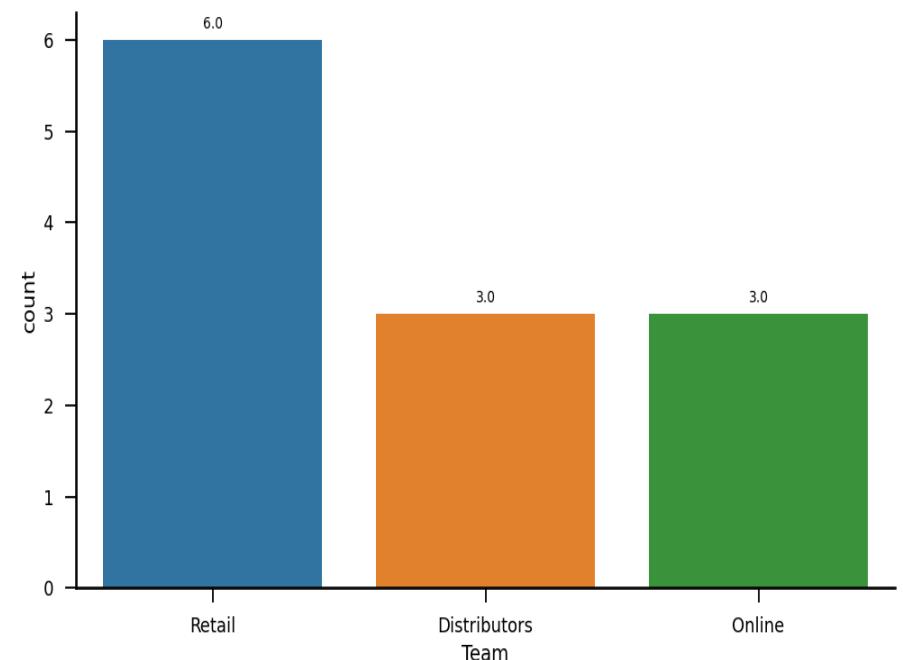
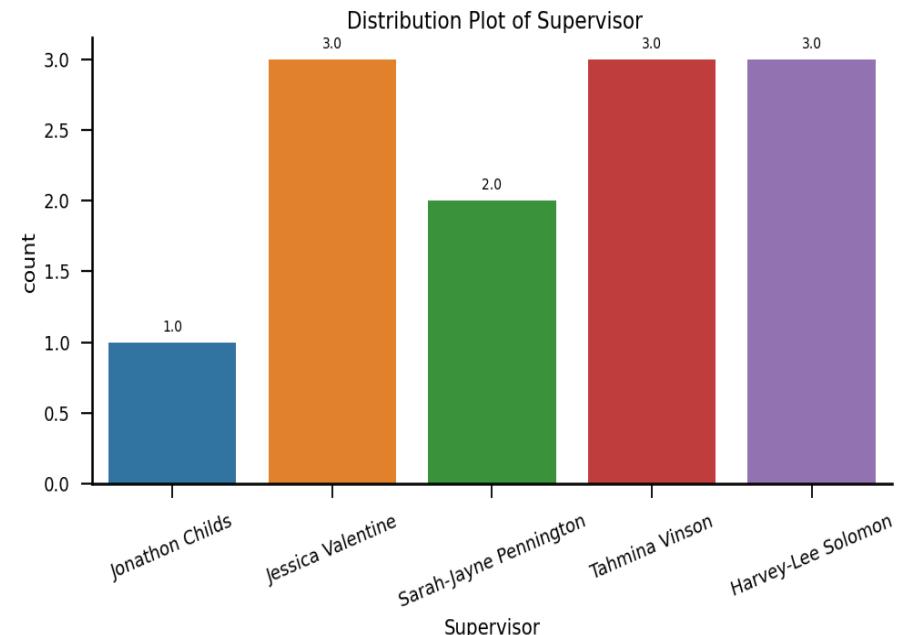


SUPERVISOR

Jessica, Tahmina, and Harvey-Lee have a higher count of salespersons compared to Jonathan. This discrepancy in the distribution suggests variations in workload or organizational hierarchy among supervisors.

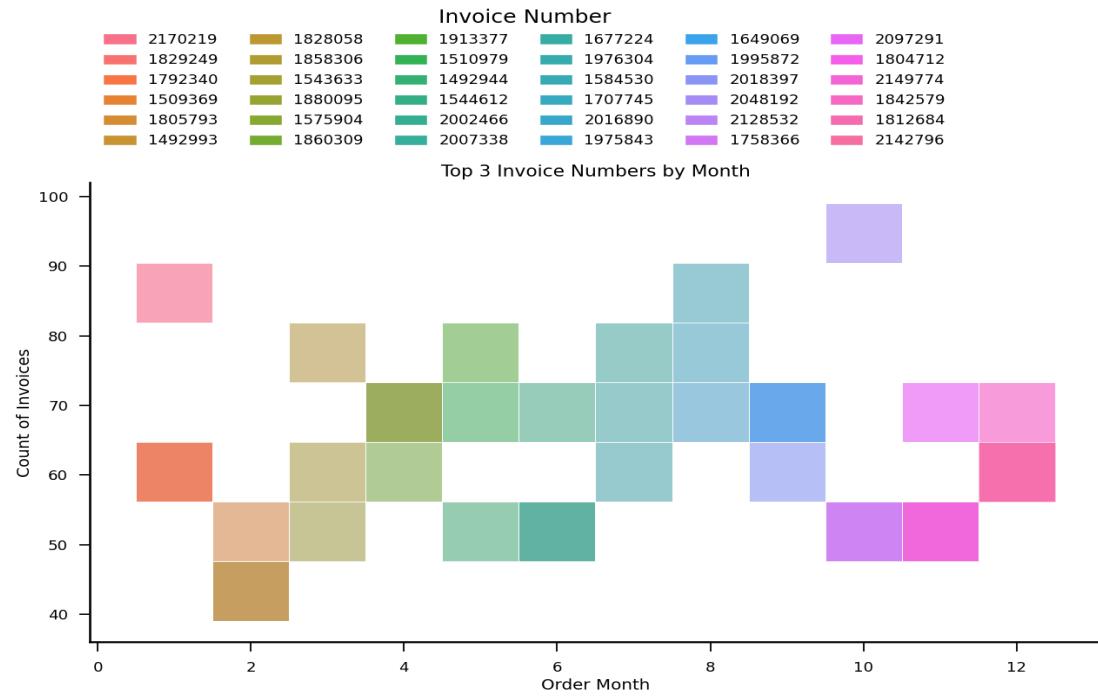
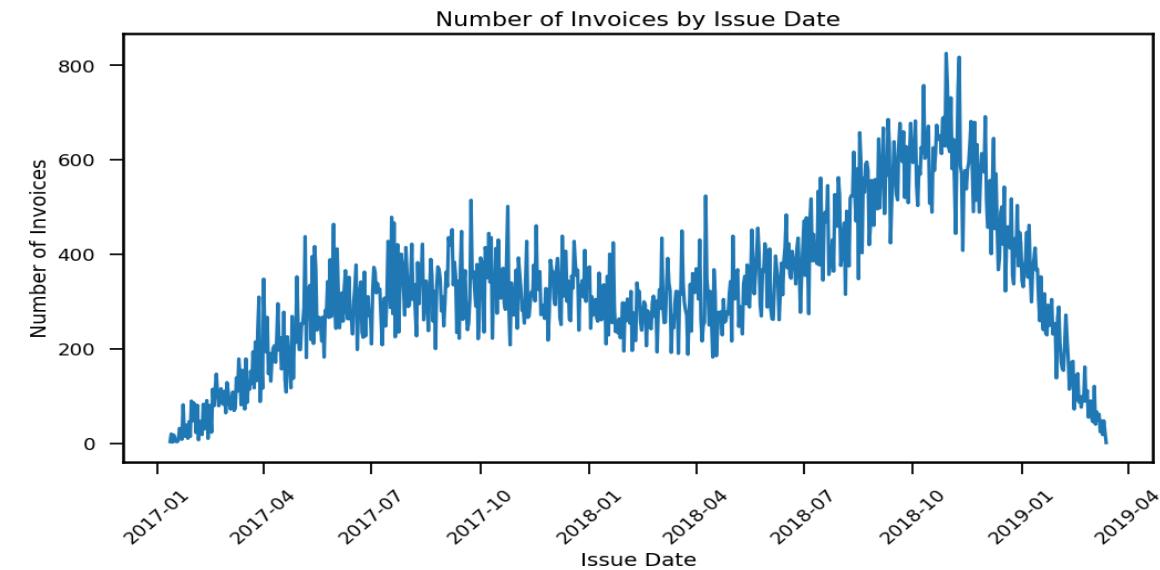
TEAM

The plotted distribution shows the count of salespersons in each team. The "Retail" team has the highest count, followed by "Online" and "Distributors". In contrast, the "Online" and "Distributors" teams have lower counts compared to "Retail." This suggests that the organization may focus more on retail sales channels or have a larger sales force dedicated to retail operations.



BIVARIATE ANALYSIS

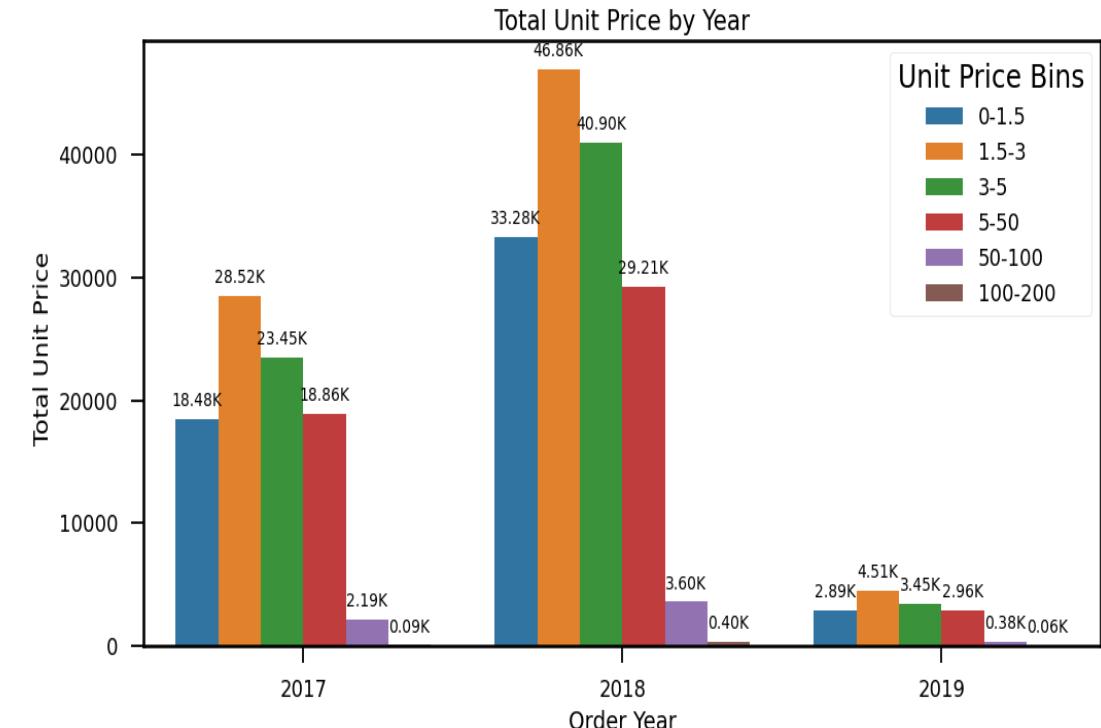
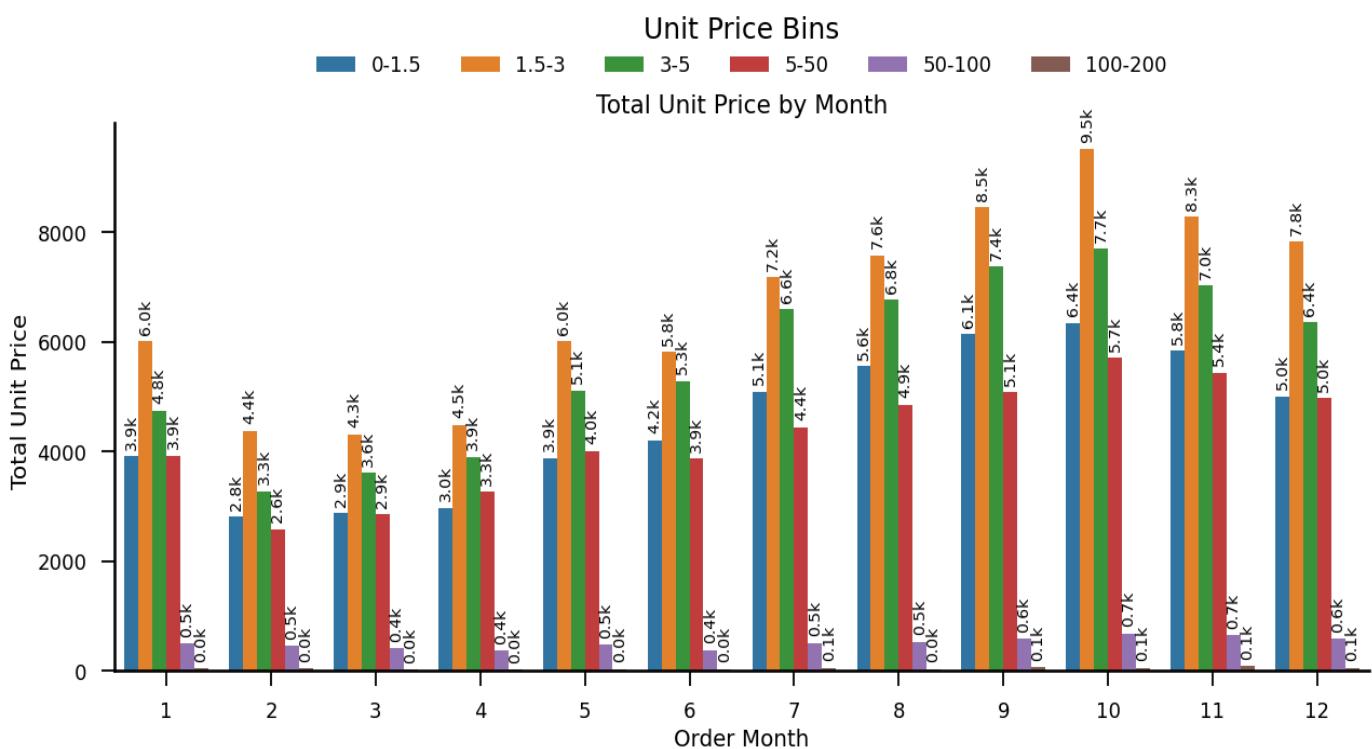
BIVARIATE ANALYSIS OF INVOICE NUMBER WRT ISSUE DATE, ORDER MONTH, ORDER YEAR



Inference:

1. Most number of orders were placed in the months from Oct '18 to Jan '19. Least number of orders were placed in the months of Q1 '17.
2. In each quarter, the type of invoice order frequently ordered changes.
3. The most frequent invoice number in each year is different.
4. General trend of increase in orders is observed from 17-18. Highest in Oct-18 (\$ 19.4M)

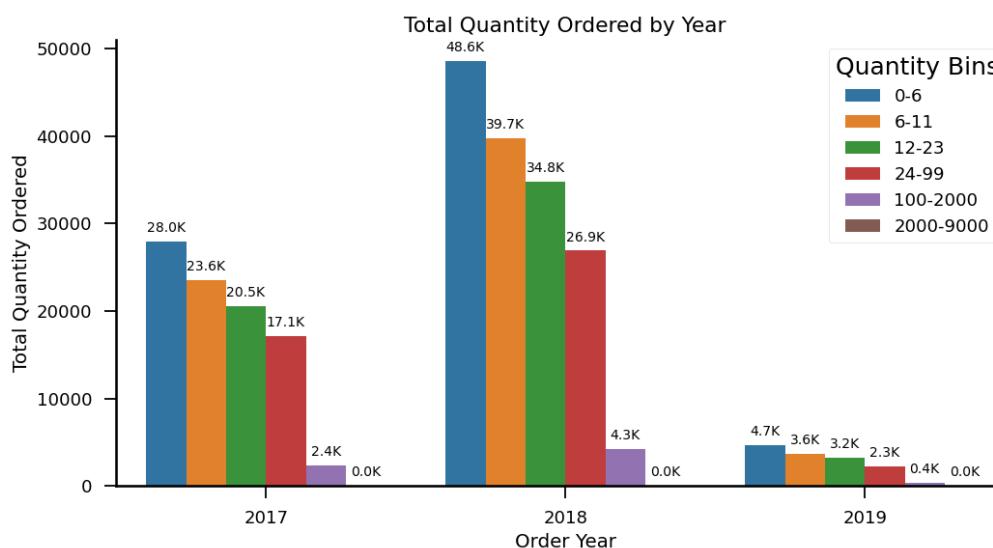
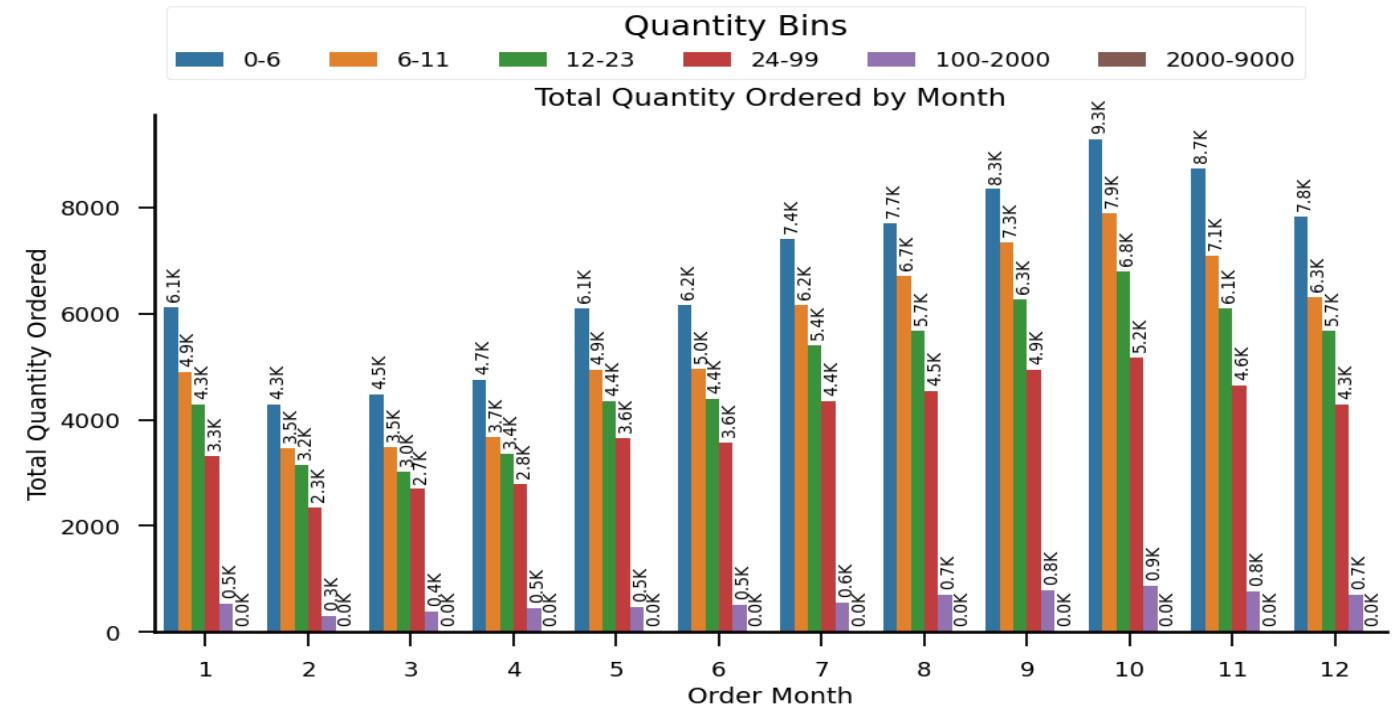
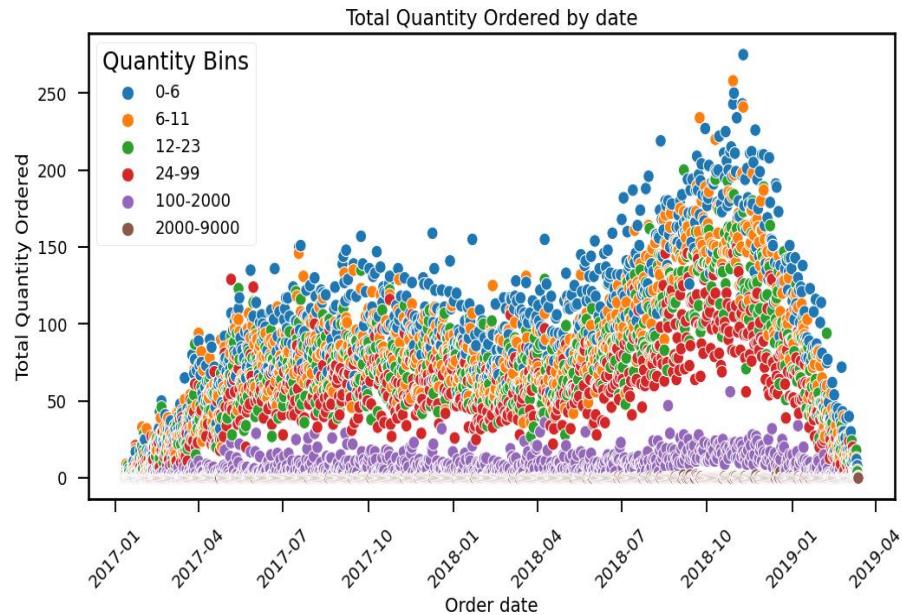
BIVARIATE ANALYSIS OF UNIT PRICE WRT ISSUE DATE, ORDER MONTH, ORDER YEAR



Inference:

1. Most preferred Unit Price range is 1.5-3 followed by 3-5 and the least preferred is 100-200.
2. Monthly and Yearly trend of Unit Price is same and increasing across all bins, 2018 being the highest
3. Highest being ordered in the month of oct-18 for all bins.

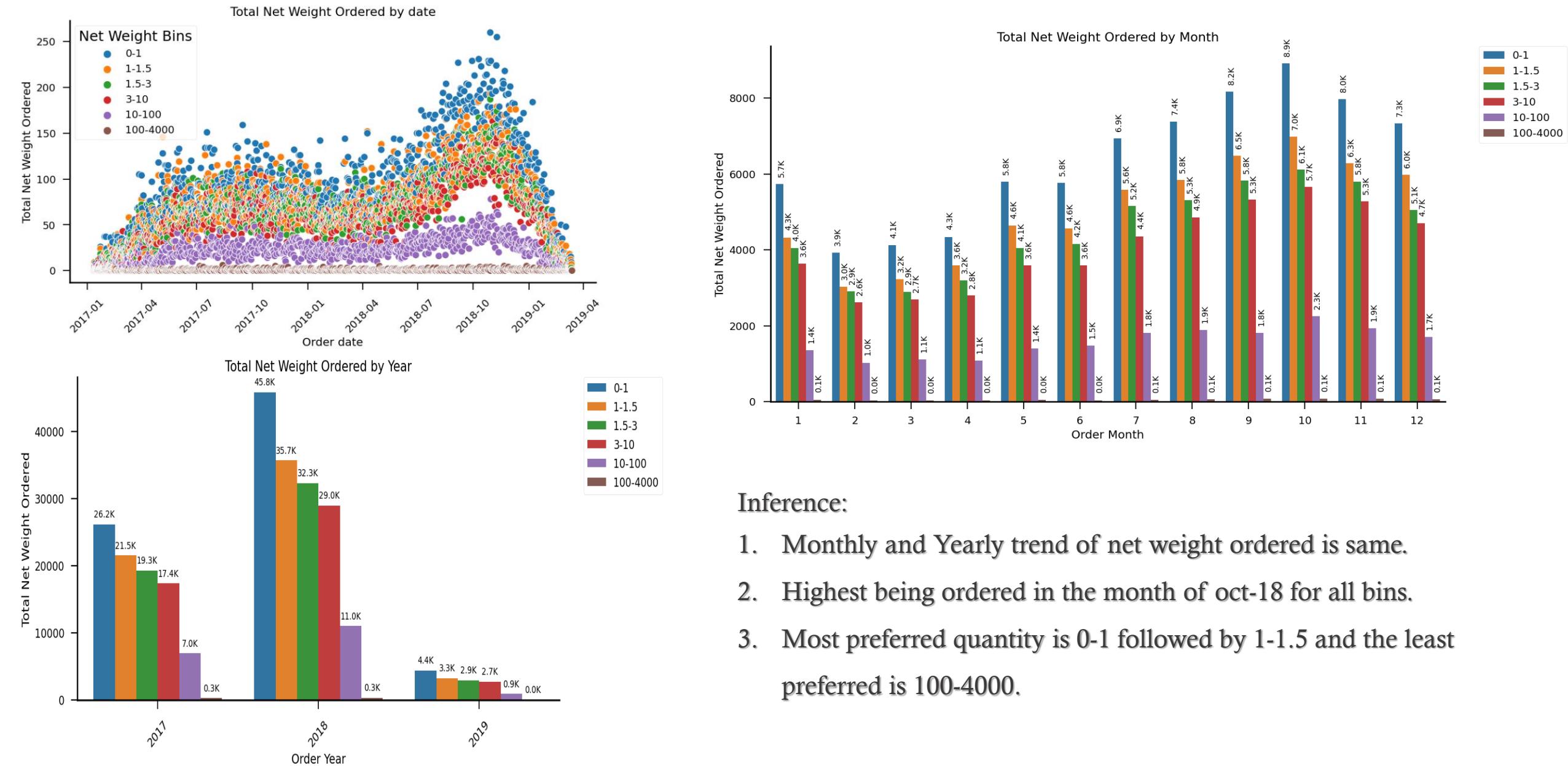
BIVARIATE ANALYSIS OF QNTY WRT ISSUE DATE, ORDER MONTH, ORDER YEAR



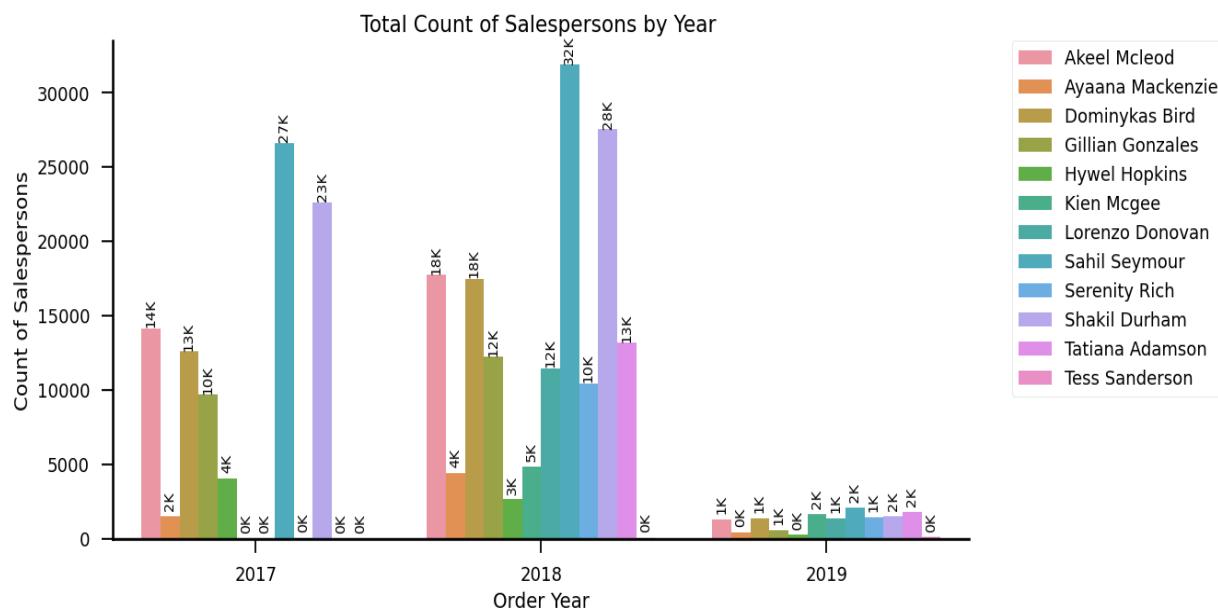
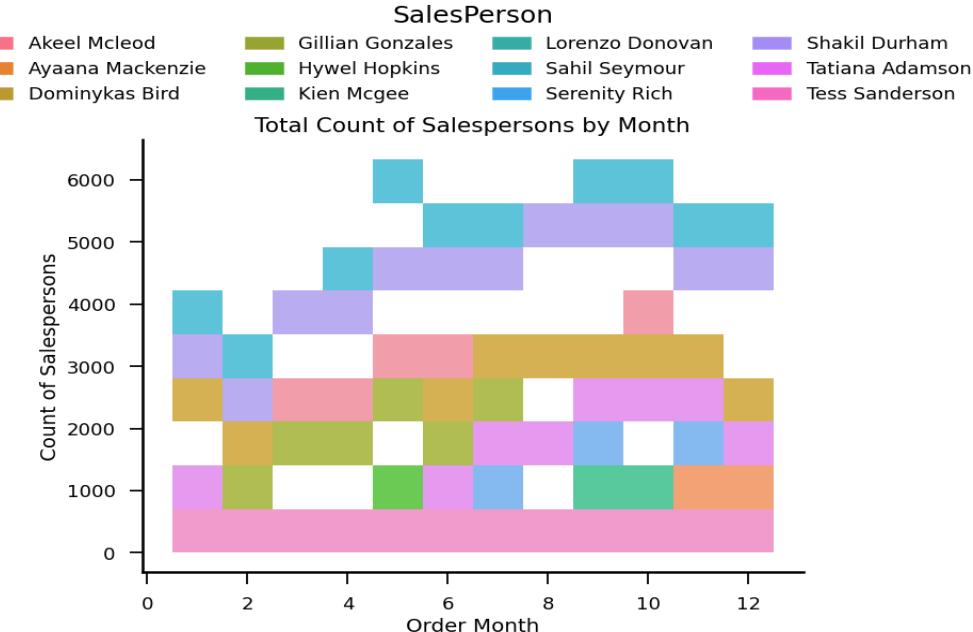
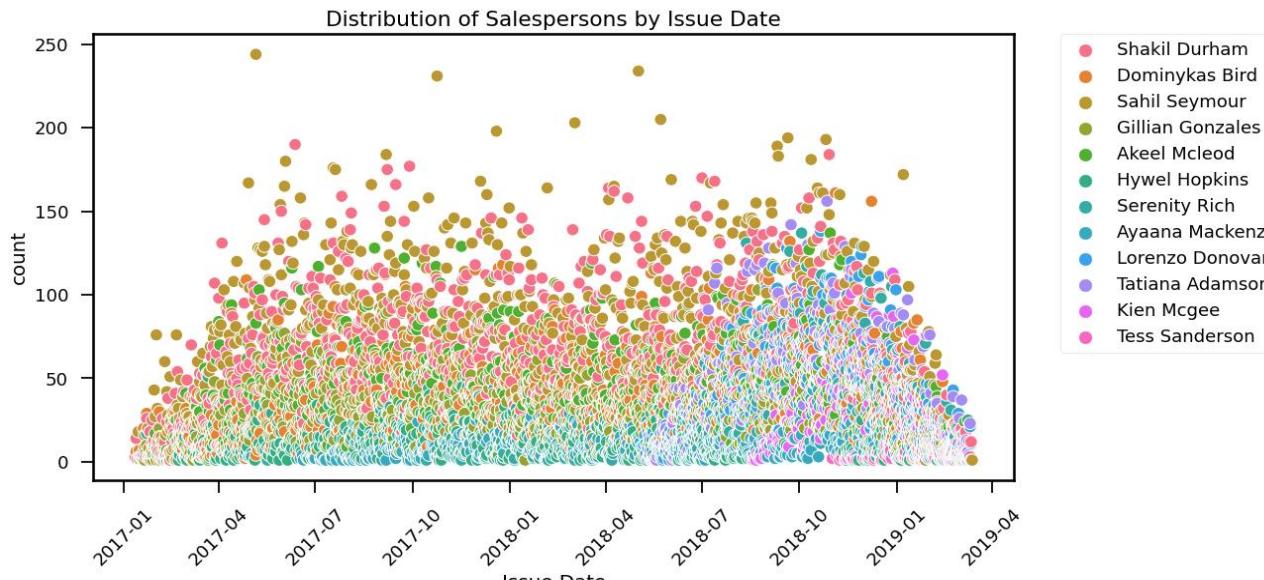
Inference:

1. Most preferred quantity is 0-6 followed by 6-11 and the least preferred is 2000-9000.
2. Monthly and Yearly trend of quantity ordered is same.
3. Highest quantity being ordered in the month of oct-18 for all bins.

BIVARIATE ANALYSIS OF NET WT. WRT ISSUE DATE, ORDER MONTH, ORDER YEAR



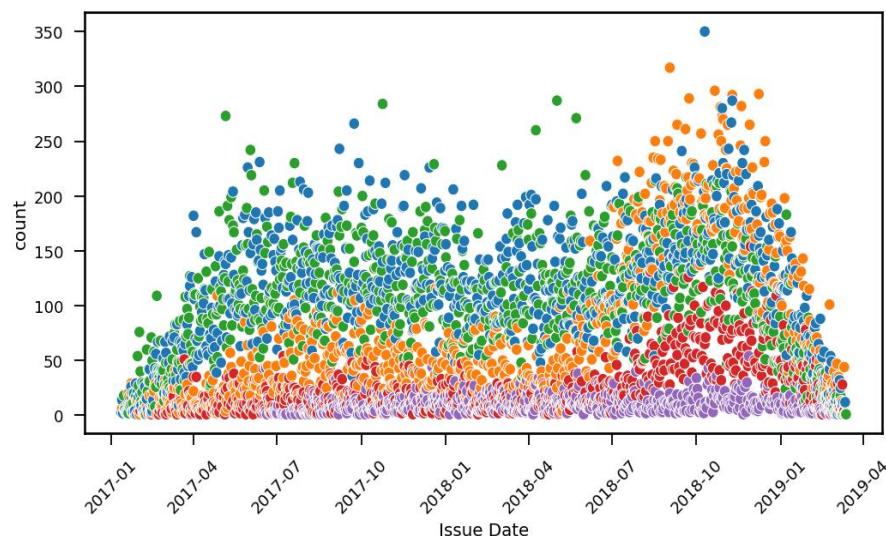
BIVARIATE ANALYSIS OF SALESPERSON WRT ISSUE DATE, ORDER MONTH, ORDER YEAR



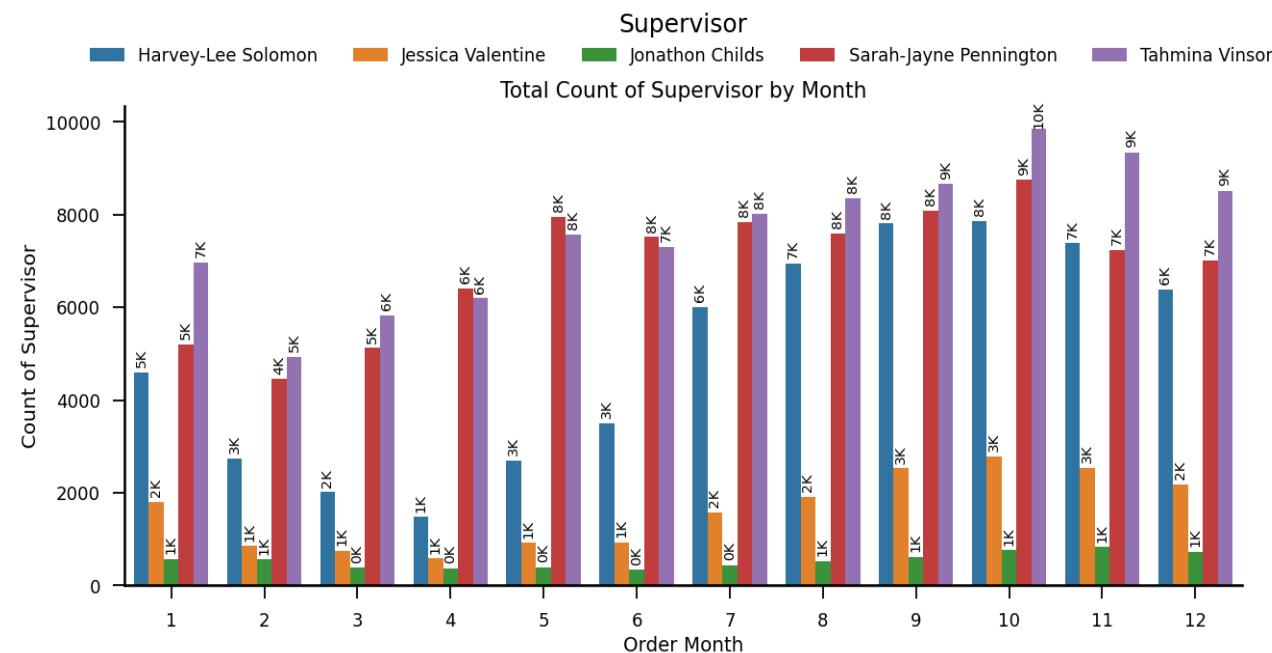
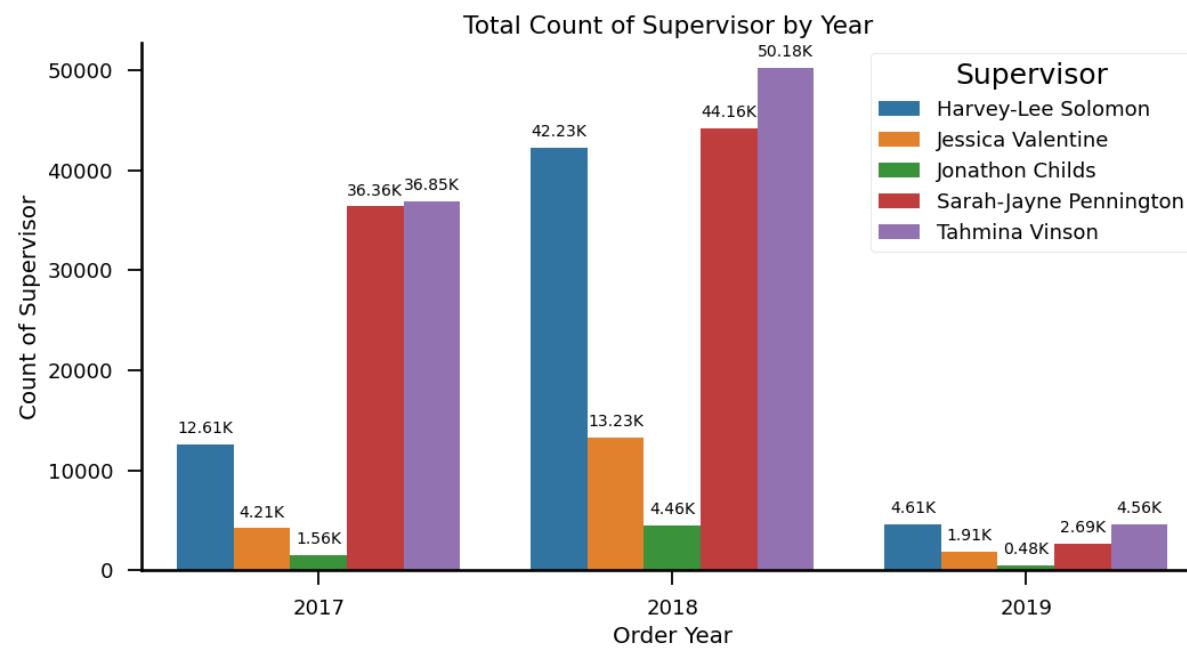
Inference:

1. Sahil Seymour is the Salesperson that has most frequent orders across all months except march and august that was lead by Shakil .
2. Tess Sanderson has the least no. of orders across all months and years.
3. Overall Sahil , Shakeel followed by Akeel have the most orders yearly.

BIVARIATE ANALYSIS OF SUPERVISOR WRT ISSUE DATE, ORDER MONTH, ORDER YEAR



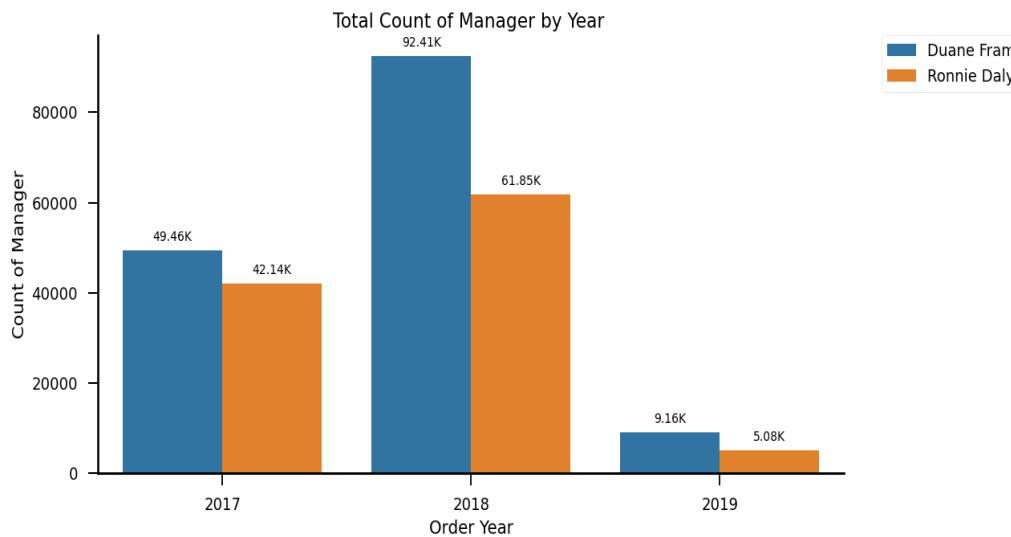
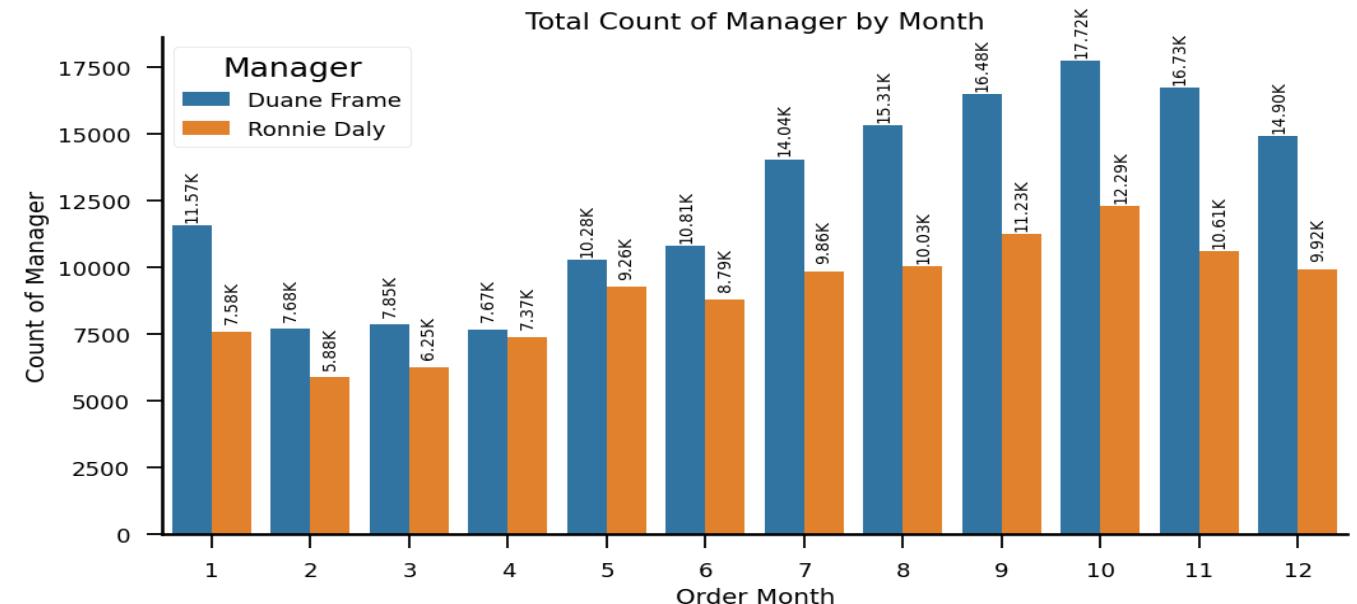
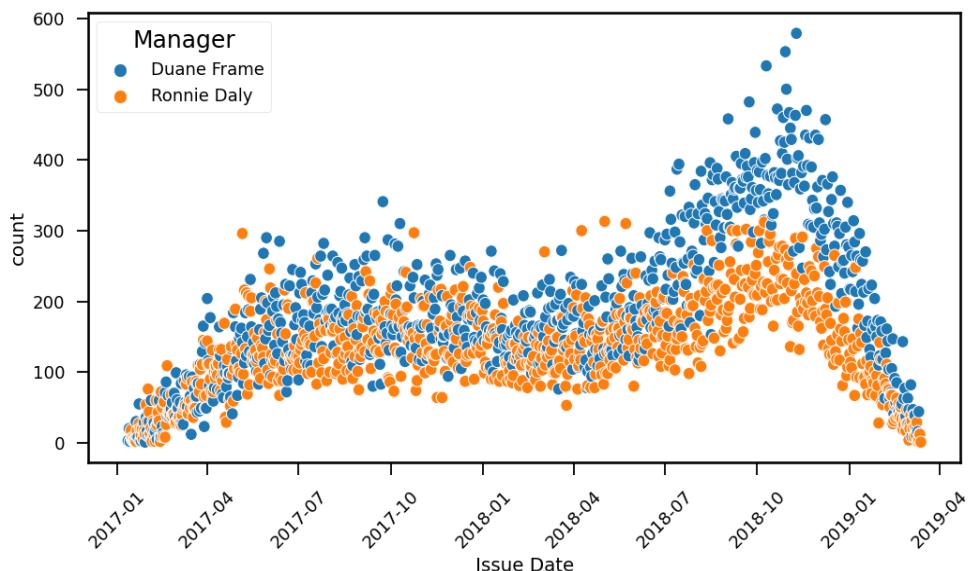
- Tahmina Vinson
- Harvey-Lee Solomon
- Sarah-Jayne Pennington
- Jessica Valentine
- Jonathon Childs



Inference:

- The top Supervisors with frequent orders is Tahmina followed by Sarah and Harvey, the most in oct-18.
- Yearly, Tahmina has more frequent orders than Sarah.
- Jonathan has the least frequent orders.

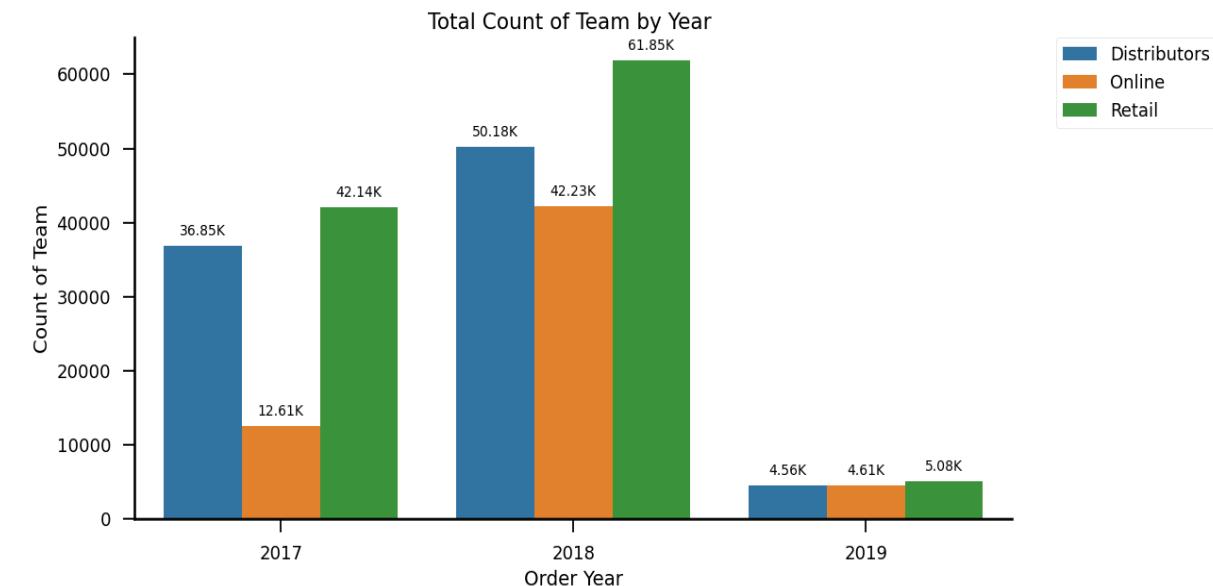
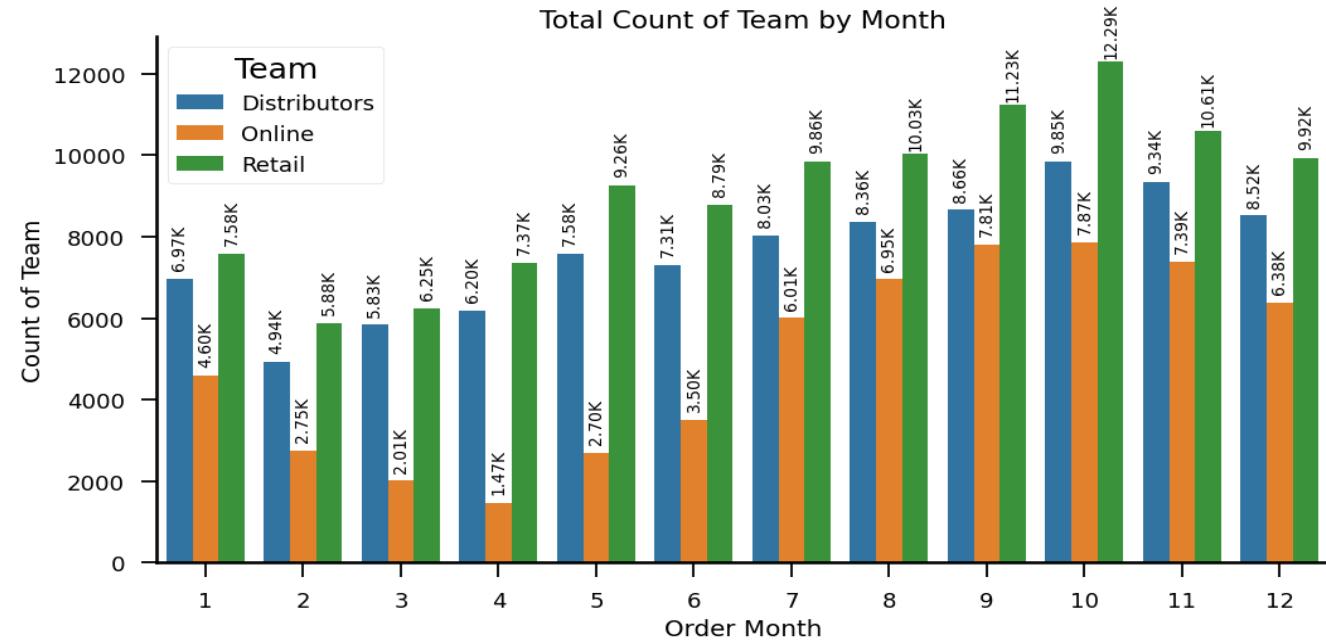
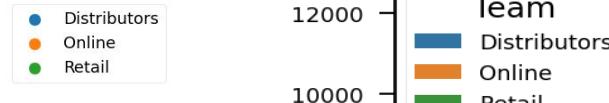
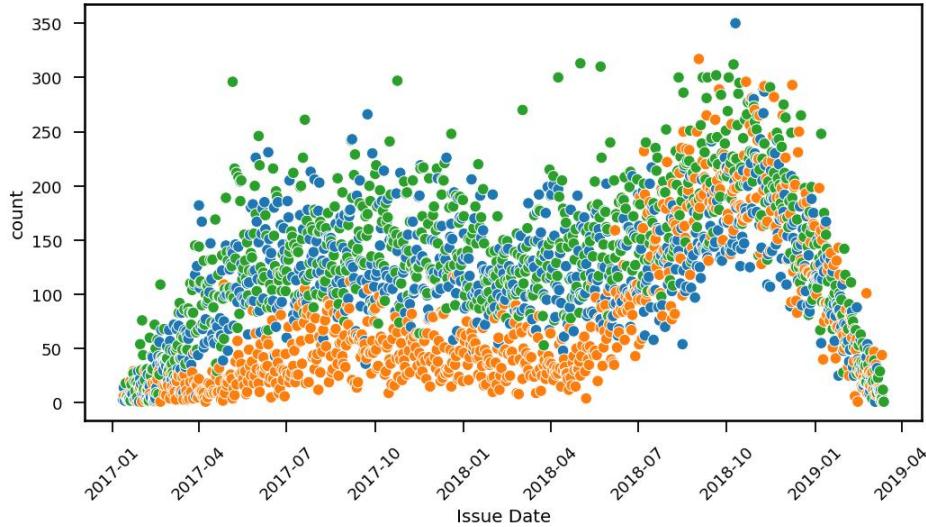
BIVARIATE ANALYSIS OF MANAGER WRT ISSUE DATE, ORDER MONTH, ORDER YEAR



Inference:

1. The top Manager with frequent orders is Duanne followed by Ronnie, the most in oct-18.
2. Yearly, Duanne has more frequent orders than Ronnie and there is an increasing trend in the no of orders for both.

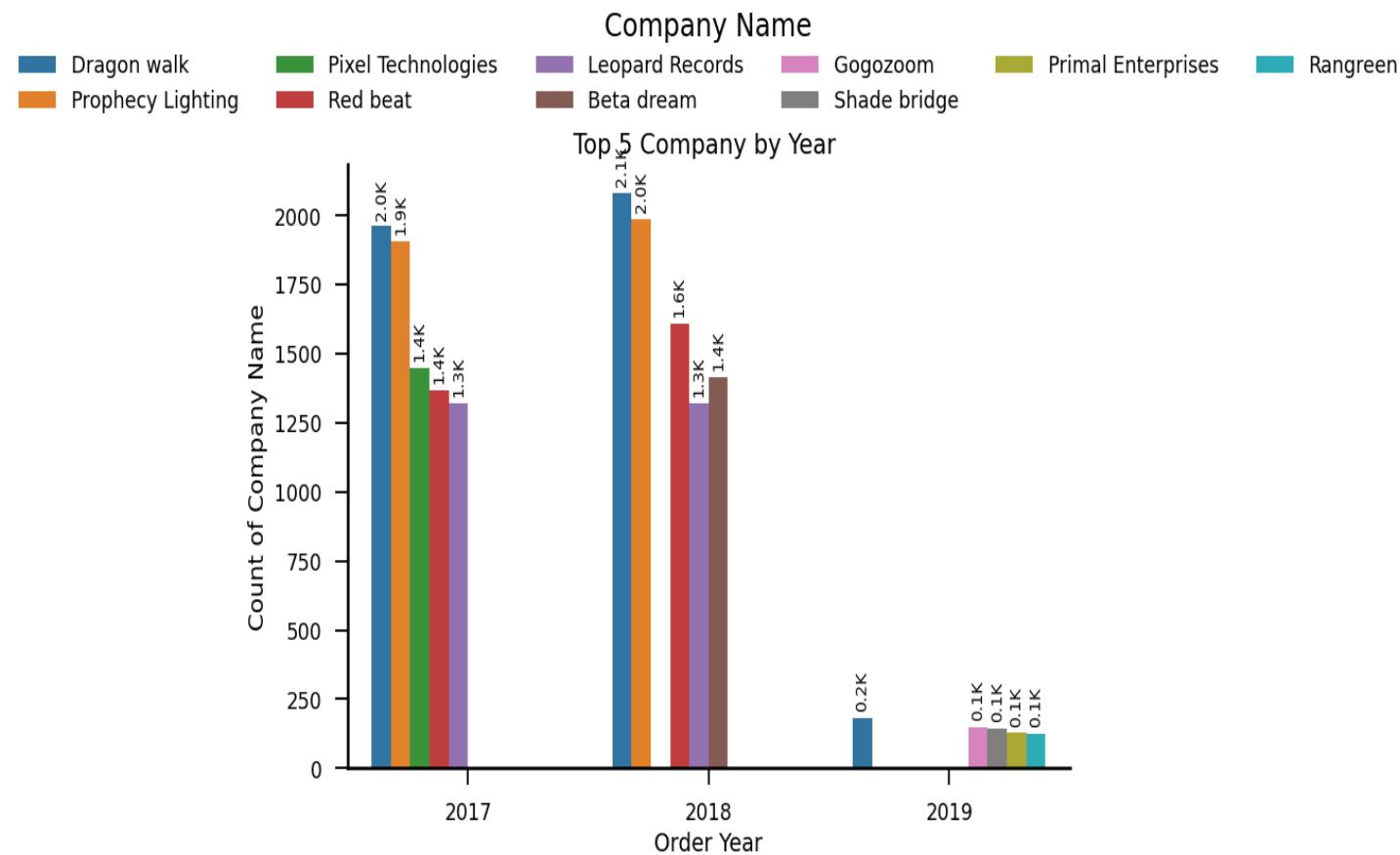
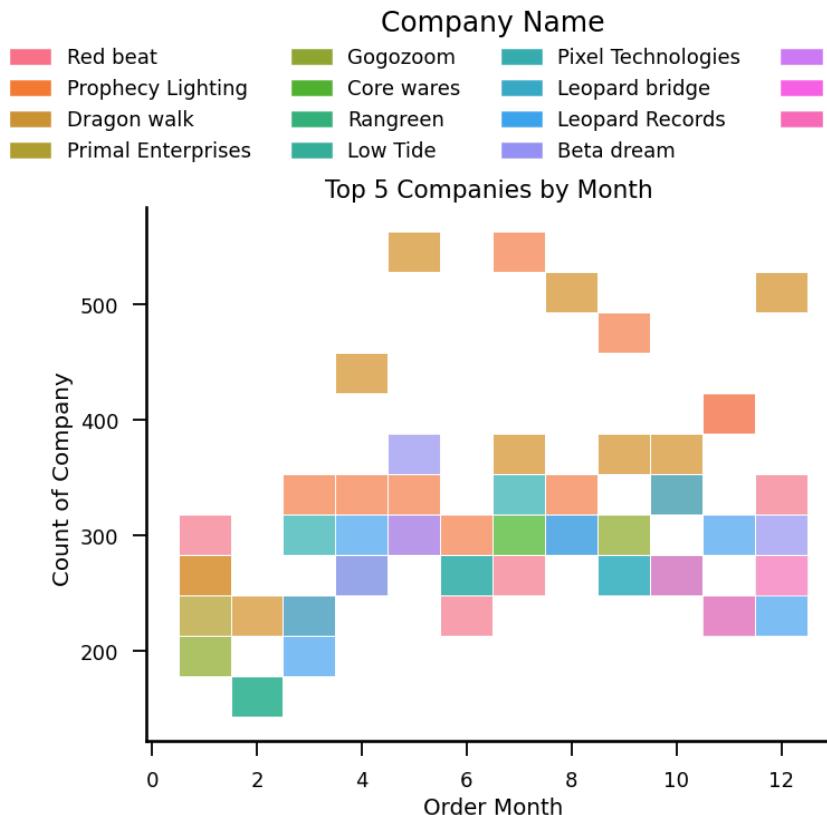
BIVARIATE ANALYSIS OF TEAM WRT ISSUE DATE, ORDER MONTH, ORDER YEAR



Inference:

1. The top Team with frequent orders is Retail followed by Distributors, the most in oct-18.
2. Least no of orders is for the Team Online.
3. Yearly, Retail has more frequent orders than Distributor.
4. There is an increasing trend in the no. of orders for both monthly and yearly.

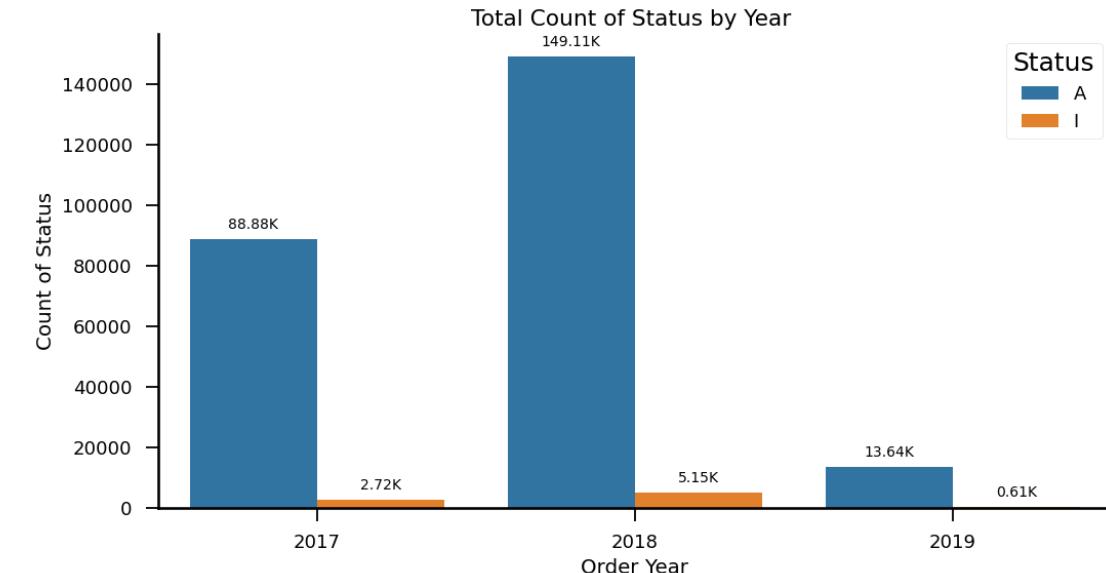
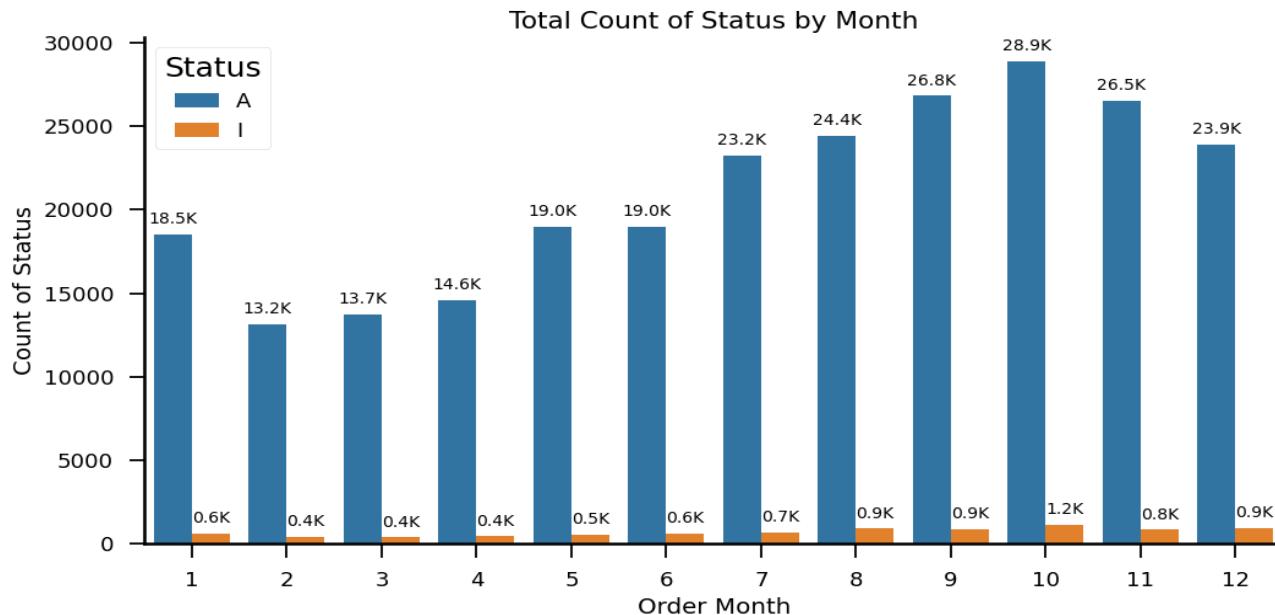
BIVARIATE ANALYSIS OF COMPANY WRT ISSUE DATE, ORDER MONTH, ORDER YEAR



Inferences:

1. Dragon Walk, Red Beat, Prophecy Lighting are the top companies with monthly frequent orders.
2. Yearly Dragon Walks and Red Beat have got almost the same count of orders in both the years.
3. Pixel Technologies didn't have any sales in 2018. Beta dream has emerged in top 5 in 2018.

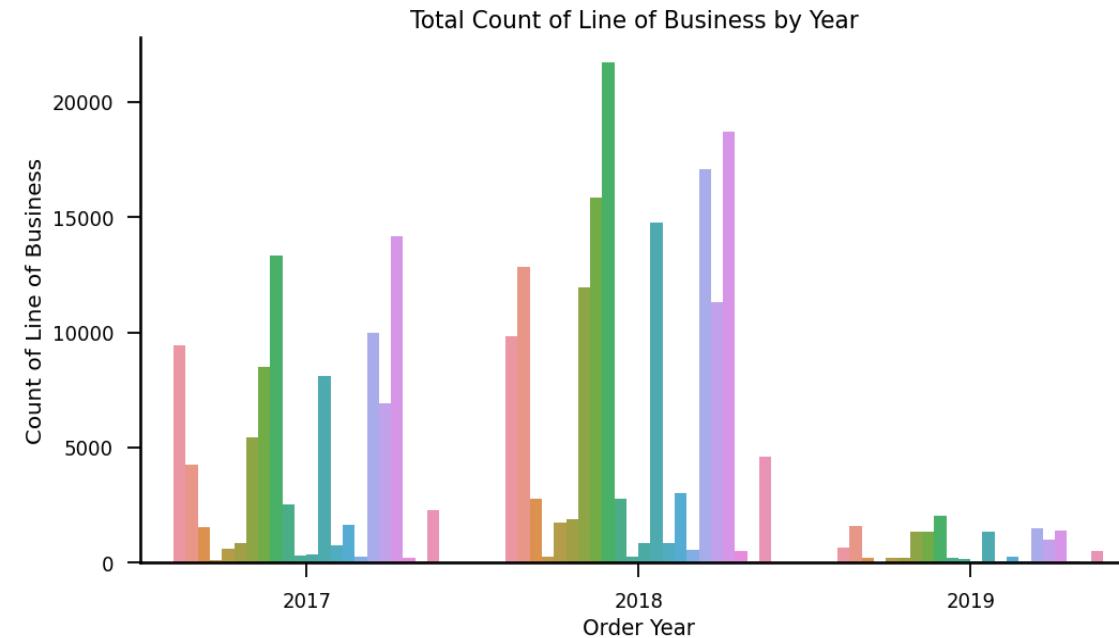
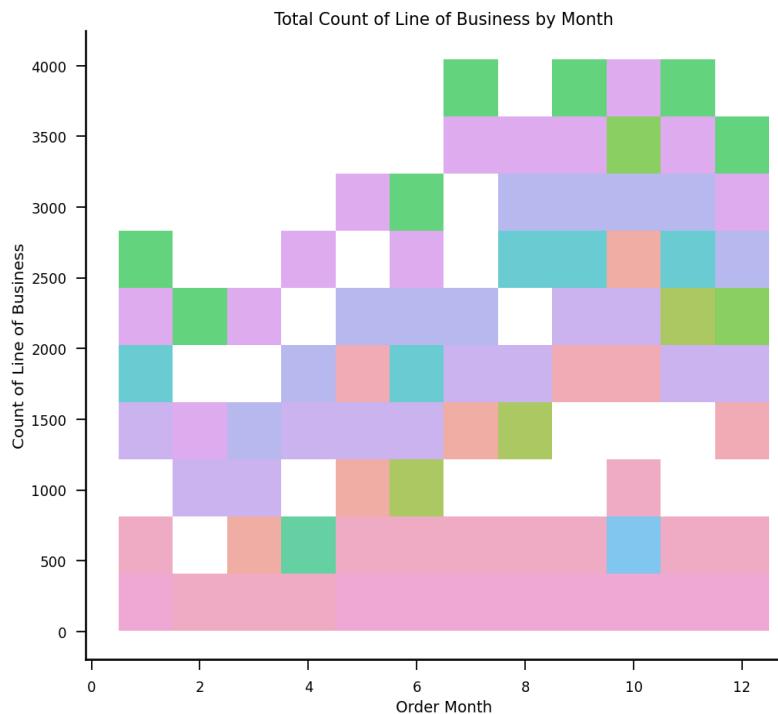
BIVARIATE ANALYSIS OF STATUS WRT ISSUE DATE, ORDER MONTH, ORDER YEAR



Inferences:

1. Active companies are 30 times more frequent than the inactive companies, with the highest in oct-18 and lowest in feb-17.
2. Yearly Active and inactive customers are in same trend like monthly trend, both the years. Active companies are 30 times more frequent than inactive companies'

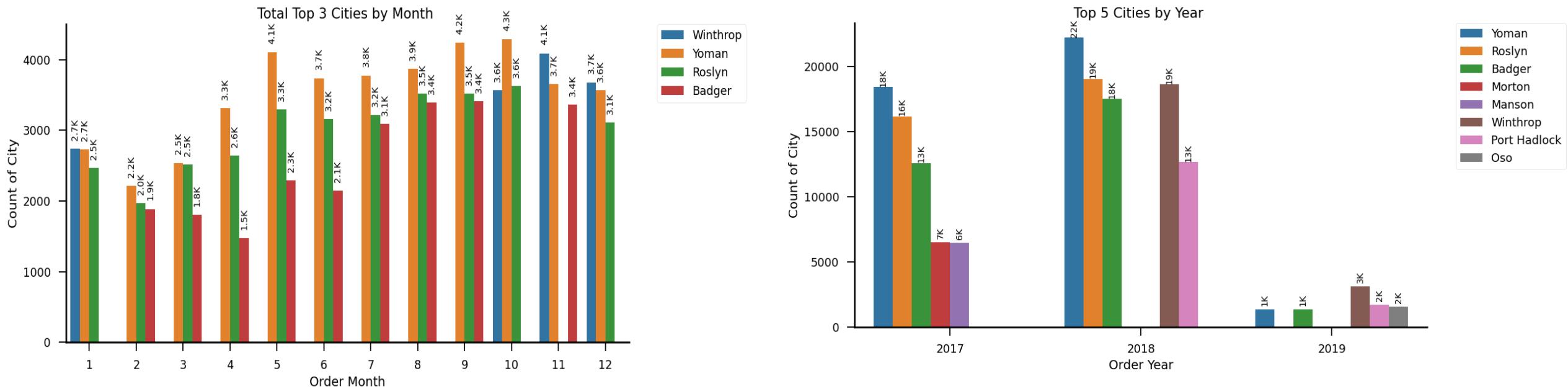
BIVARIATE ANALYSIS OF LINE OF BUSINESS WRT ISSUE DATE, ORDER MONTH, ORDER YEAR



Inferences:

1. Supermarkets LV2 and Distributors LV2 are most frequent whereas Wholesales are least favorite.
2. Yearly same trend is there in both years, The supermarkets are most frequent, followed by distributors, hotels and at last the bakery and wholesale vendors.

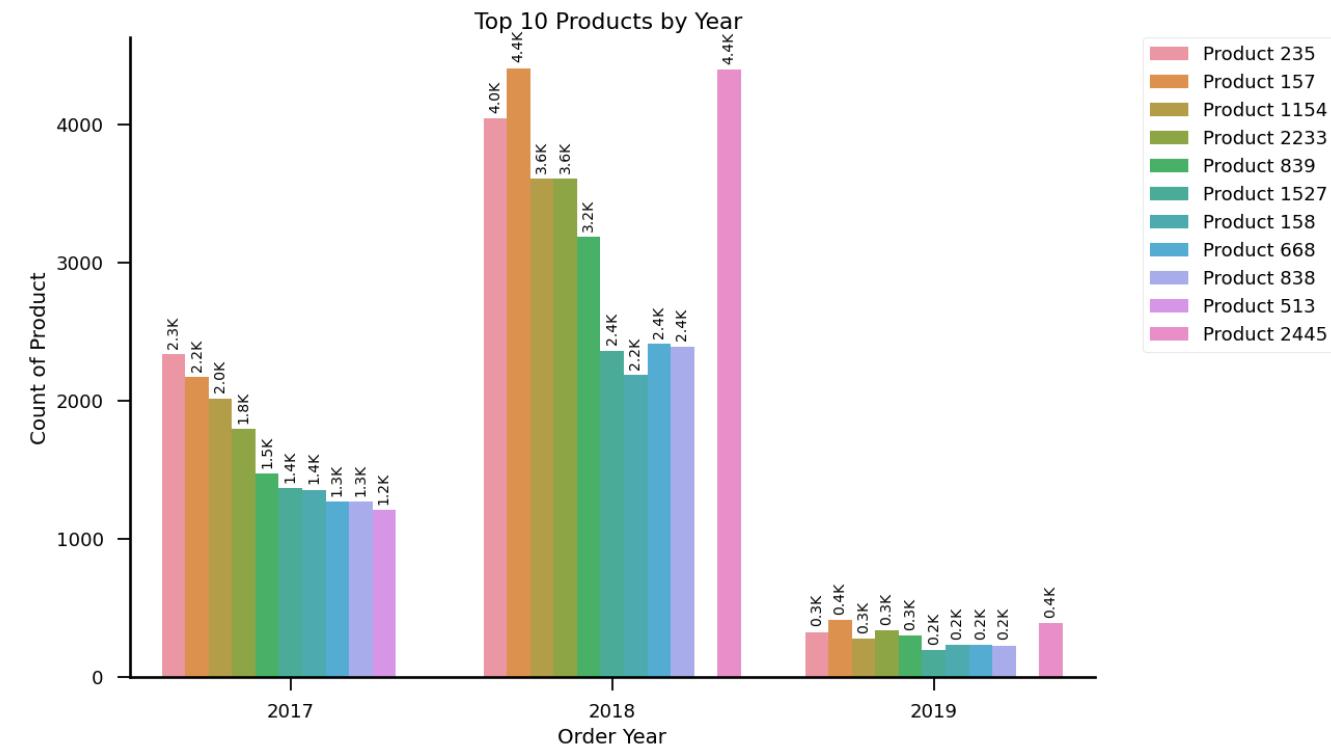
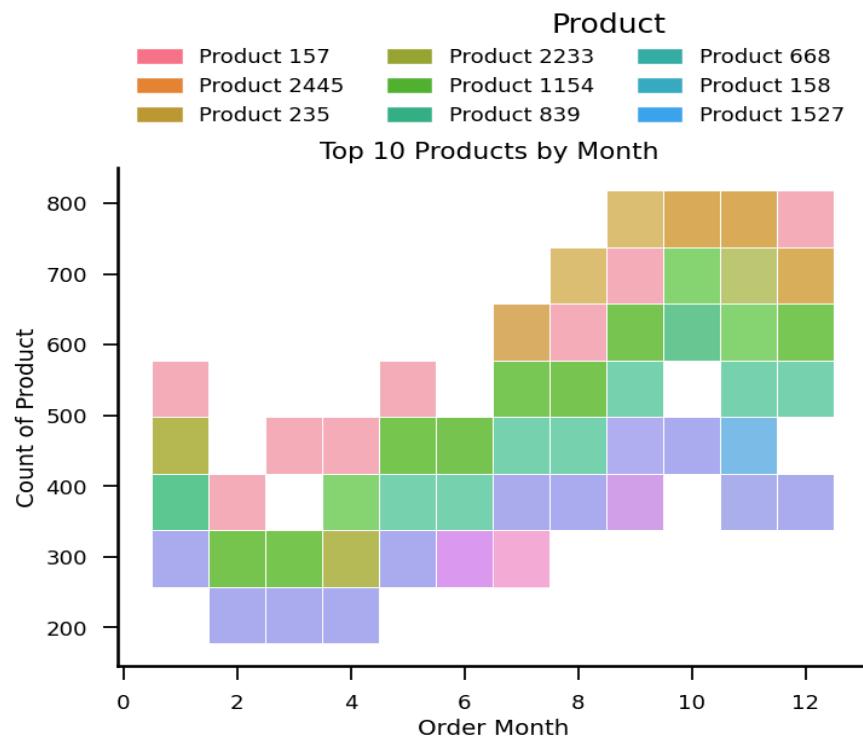
BIVARIATE ANALYSIS OF CITY WRT ISSUE DATE, ORDER MONTH, ORDER YEAR



Inferences:

1. Yoman , Roslyn and Badger are top 3 companies and are most frequent in most months whereas Winthrop is more frequent in last 3 months of 2018.
2. Yearly same trend is there in both years, The Yoman and Roslyn are most frequent, followed by Bagder, Morton drops out of top 5 frequent companies in 2017 and Winthrop performs well to become 2nd most frequent company in 2018.

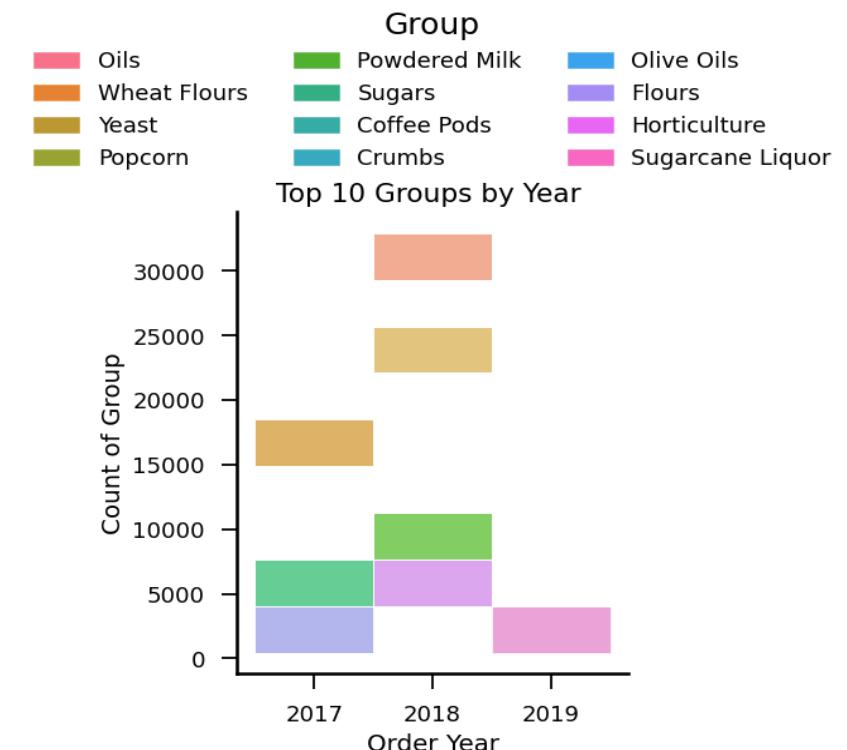
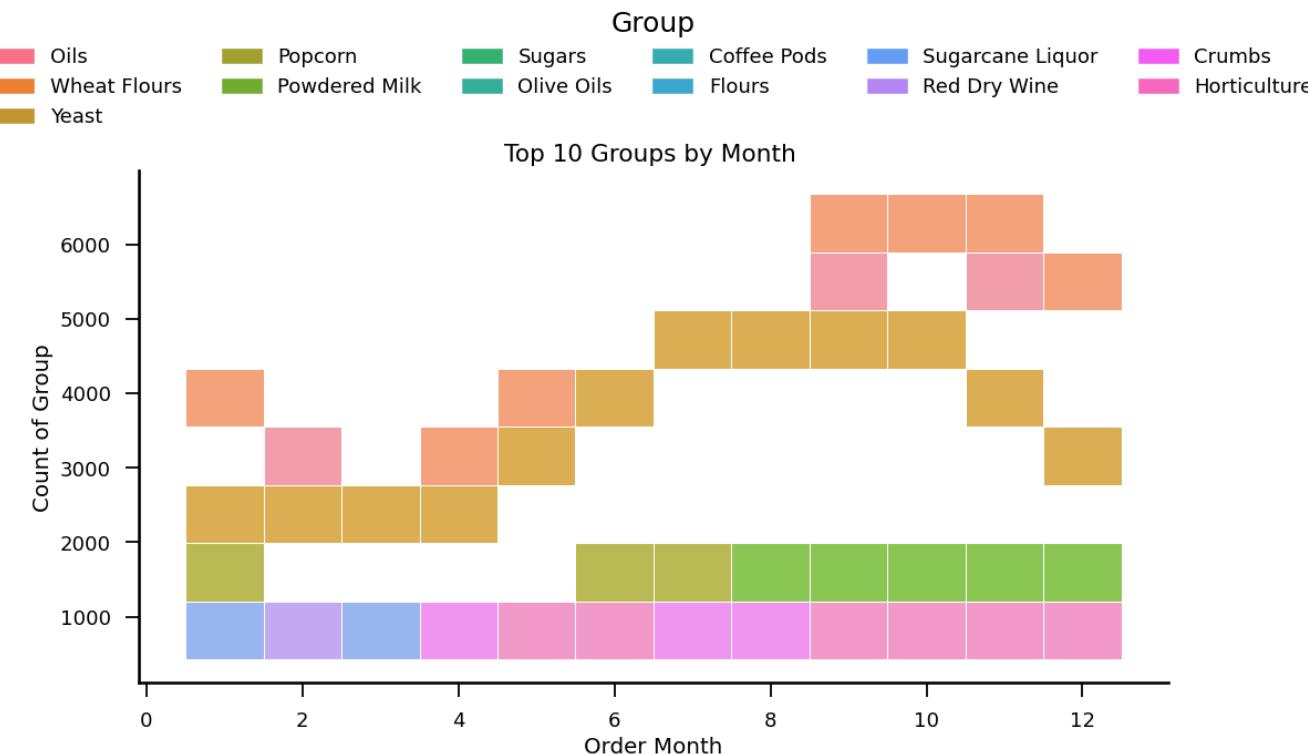
BIVARIATE ANALYSIS OF PRODUCT WRT ISSUE DATE, ORDER MONTH, ORDER YEAR



Inferences:

1. In the first half of the year, Product 157 is most frequent whereas product 235 and 2445 in later months of the year.
2. In 2017, product 235 is most frequent whereas in 2018 product 2445 is most frequent.

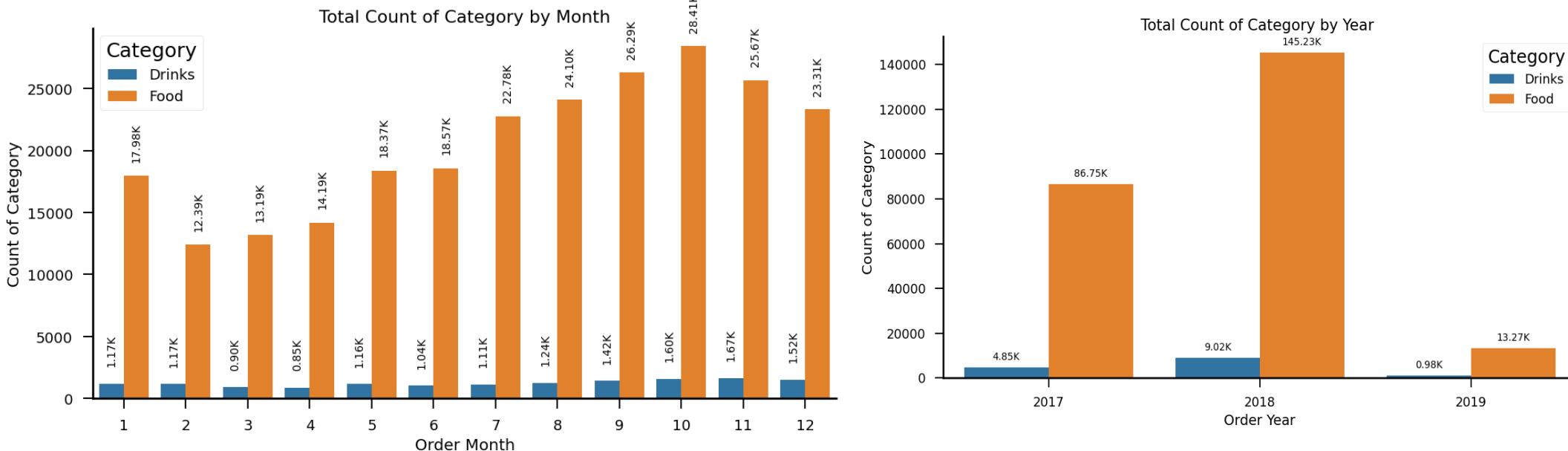
BIVARIATE ANALYSIS OF GROUPS WRT ISSUE DATE, ORDER MONTH, ORDER YEAR



Inferences:

1. Wheat flours, oils, yeast are the most frequent groups across months of the year.
2. In 2017, Yeast was the most frequent whereas in 2018 Wheat Flours is most frequent.

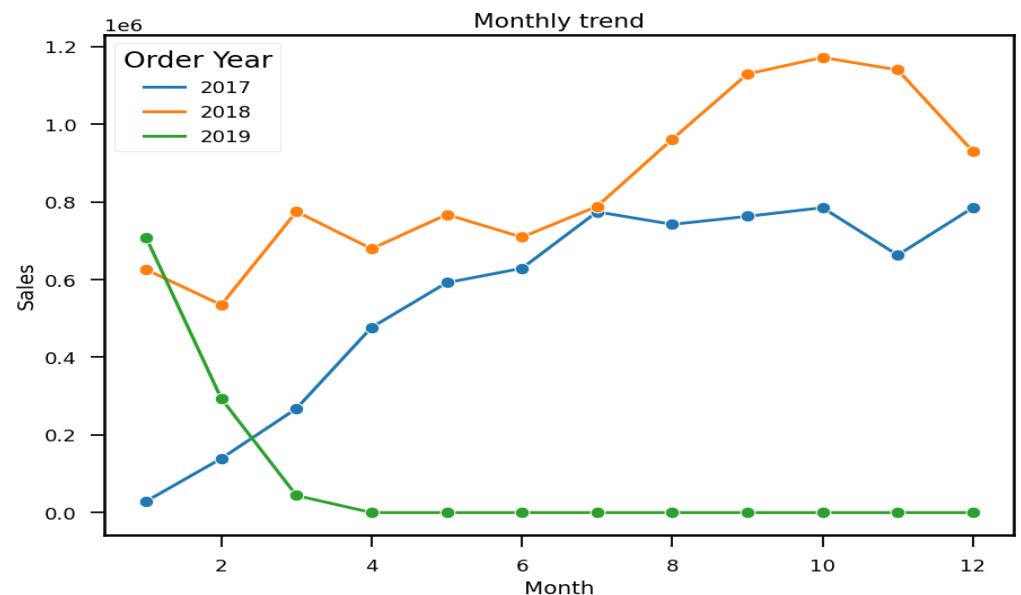
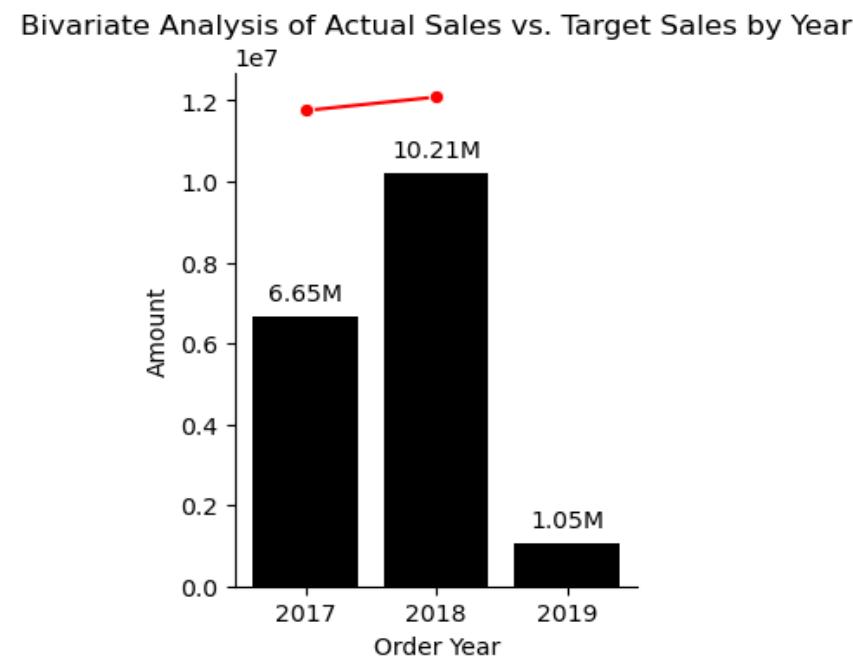
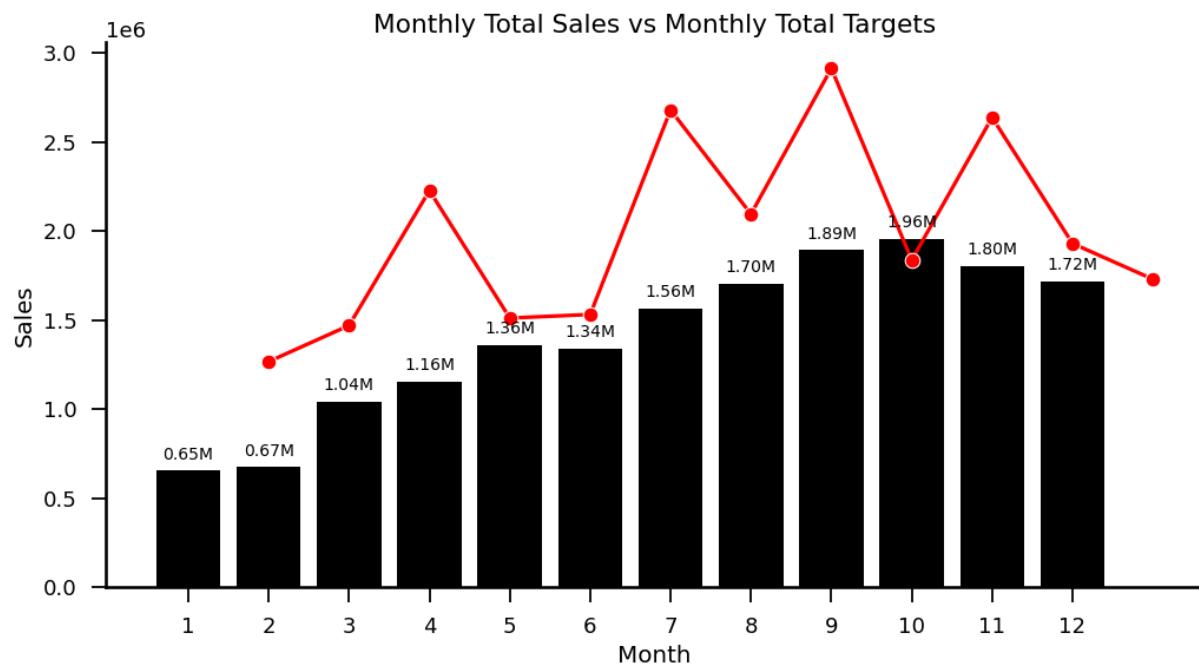
BIVARIATE ANALYSIS OF CATEGORY WRT ISSUE DATE, ORDER MONTH, ORDER YEAR



Inferences:

1. Food Category dominates the no of orders by 18 times over the drinks category, which remain constant throughout the year.
2. Yearly, the trend is increasing for both categories with highest in 2018.

BIVARIATE ANALYSIS WRT AMOUNT AND TARGET SALES TO ISSUE DATE, ORDER MONTH, ORDER YEAR



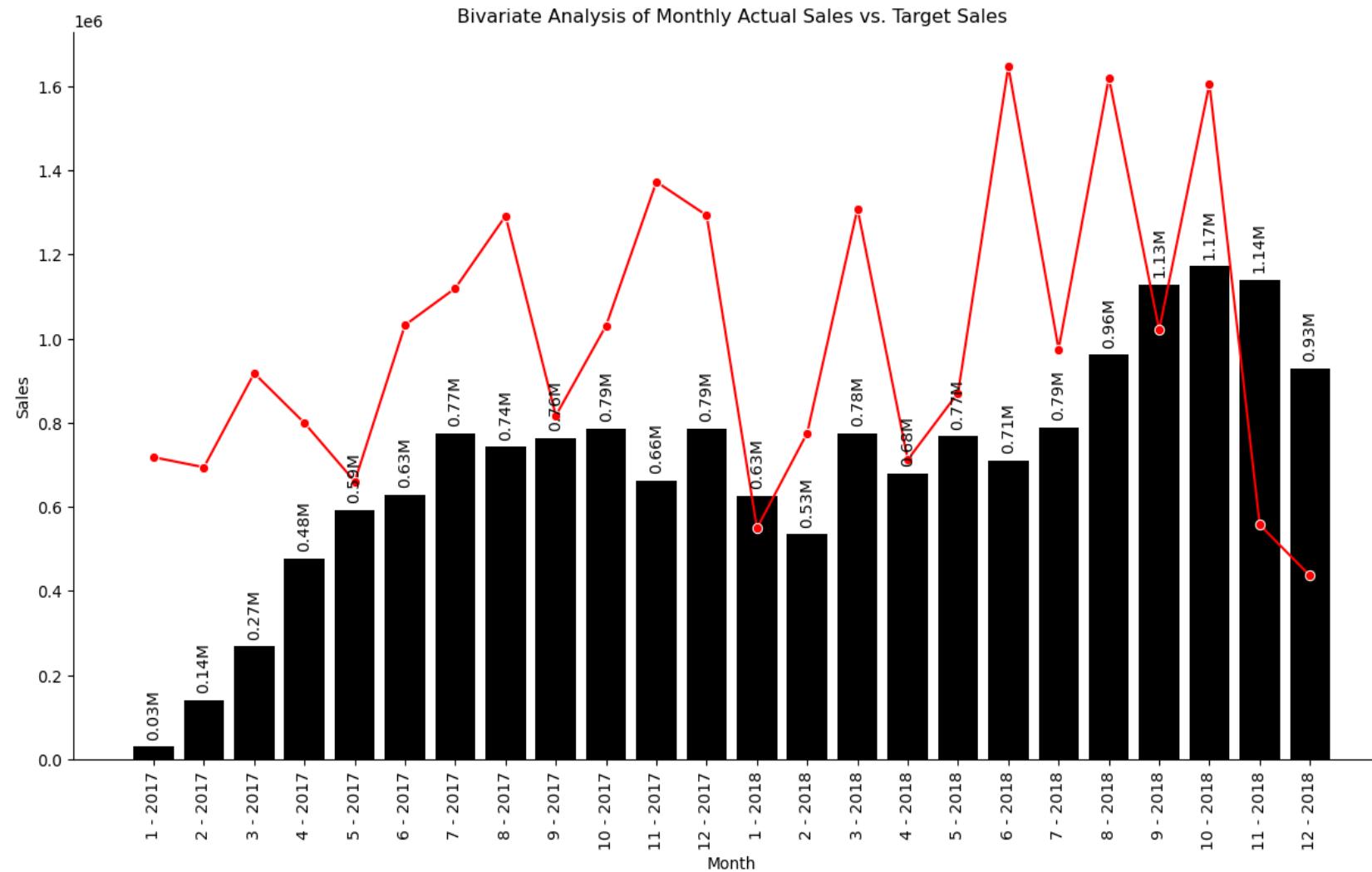
Inferences:

1. Monthly total sales increases from Jan to Oct then decreases slightly towards the end of the Year. Total Targets show that only in the month of October(\$ 1.96M) the total Target Sales were met.
2. Total Yearly Sales and Total target sales show an increasing trend , with highest being in 2018(\$ 10.21M)

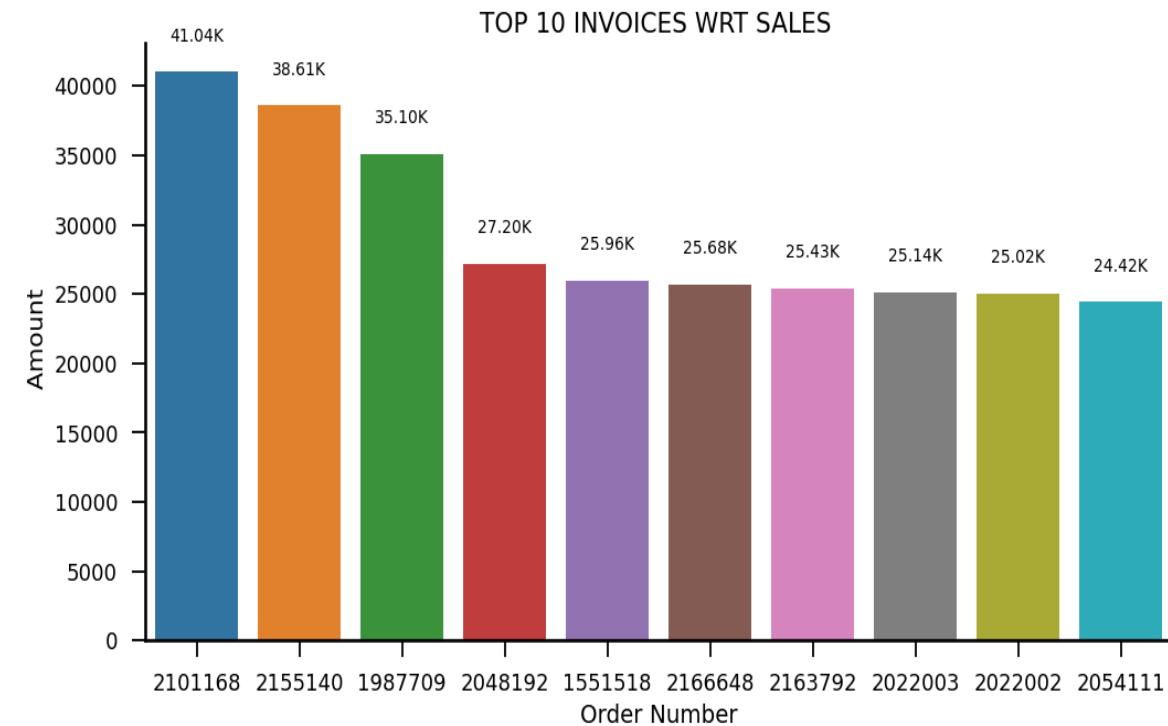
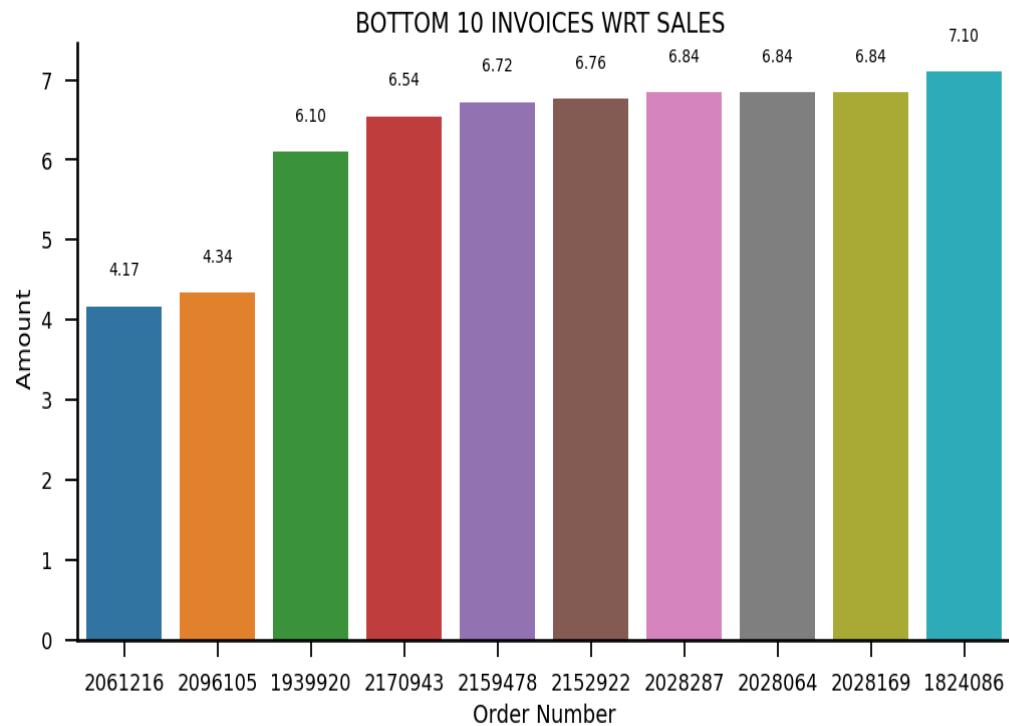
BIVARIATE ANALYSIS WRT AMOUNT AND TARGET SALES TO ISSUE DATE, ORDER MONTH, ORDER YEAR

Inferences:

1. Monthly sales increases from Jan to July then decreases and remains constant mostly for remaining months in 2017.
2. In 2018, From Jan to Oct, sales are increasing then slightly decreases towards the end of the Year. Total Targets show that Only in the 2018, month of Jan Sept, Nov and Dec Target Sales were met.
3. 4 out of 24 months meet their monthly targets.



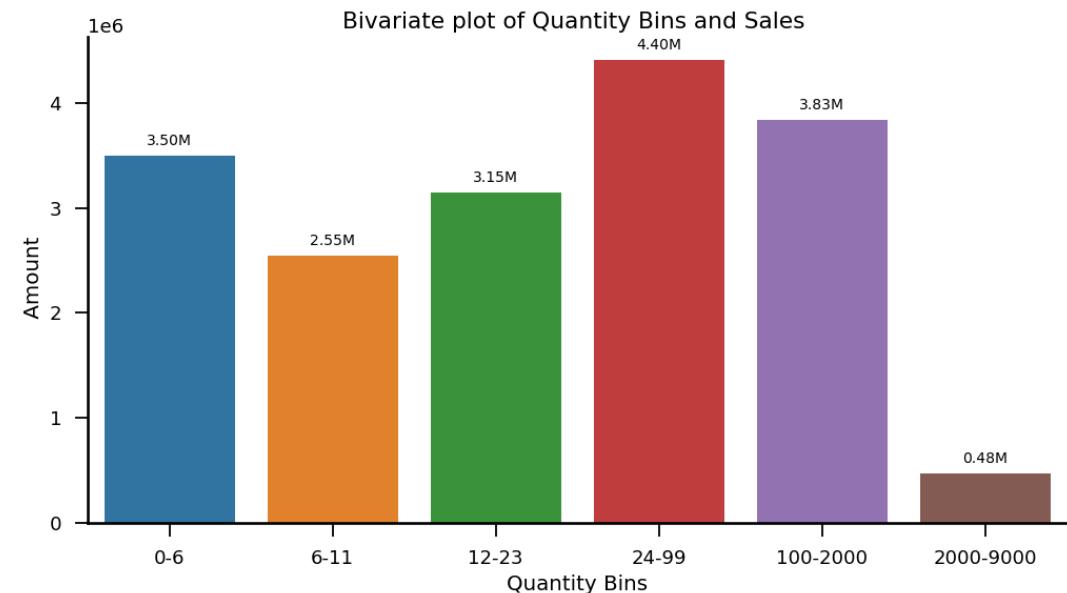
BIVARIATE ANALYSIS OF INVOICE NUMBER WRT ACTUAL SALES AND TARGET SALES



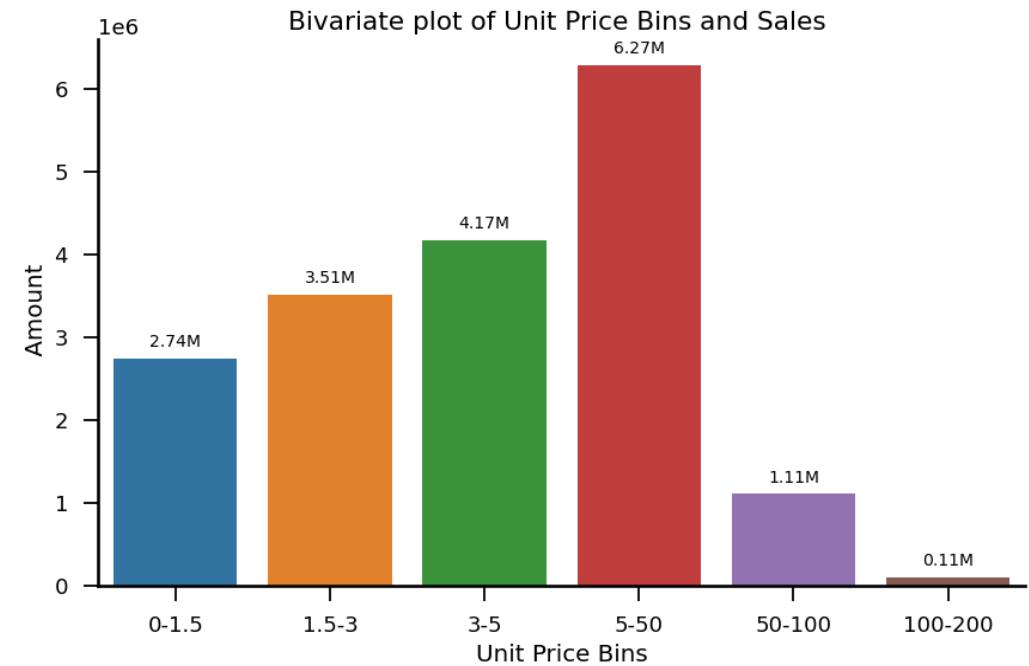
- Invoice 2101168 has contributed most in terms of sales has it has \$41,000 worth of sales.
- Whereas Invoice 2061216 has contributed the least \$4.17 worth of sales.

BIVARIATE ANALYSIS OF QNTY WRT ACTUAL SALES AND TARGET SALES

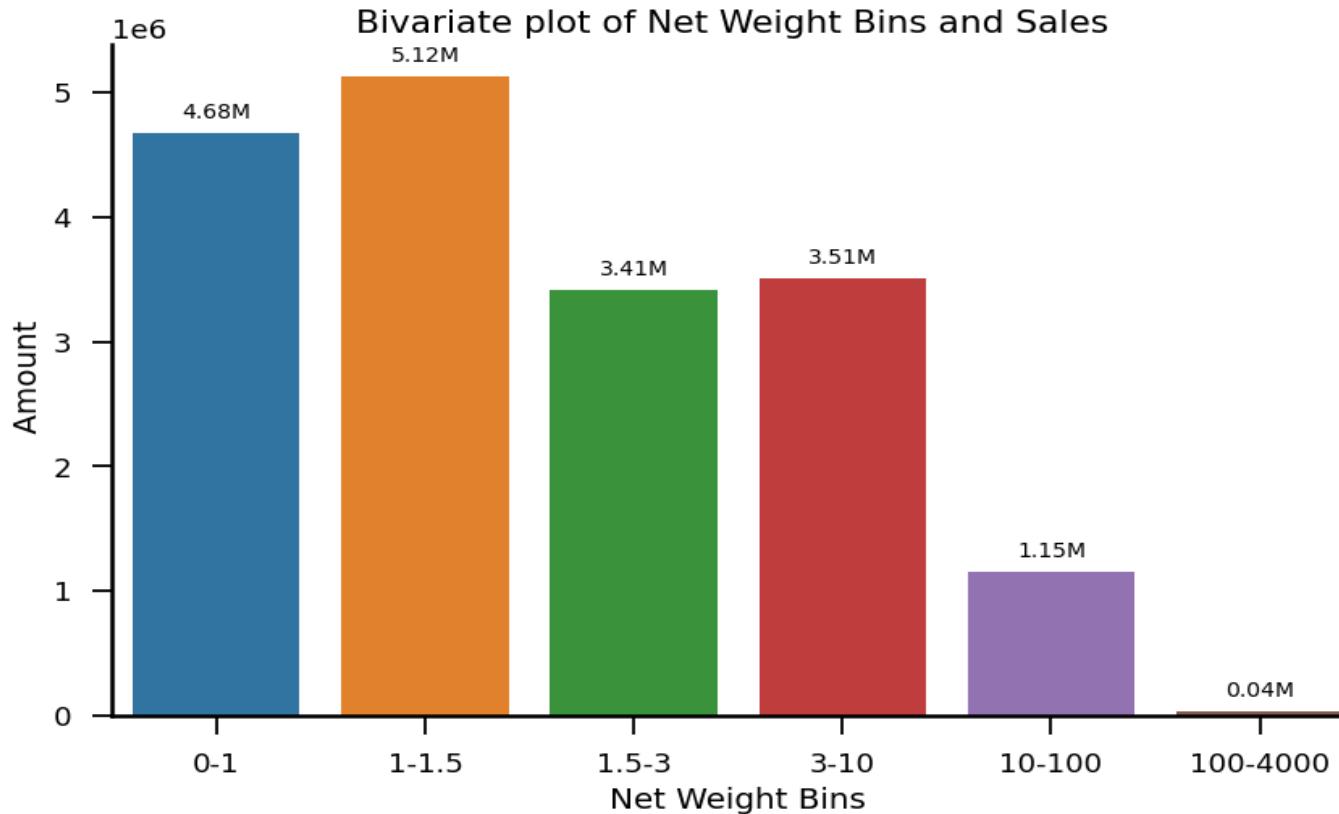
- Quantity bins ranging from 24-99 and 100-2000 are the most lucrative, indicating robust demand within these ranges.



- Unit price bins of 5-50 exhibit strong sales, while those in the range of 100-200 lag behind.



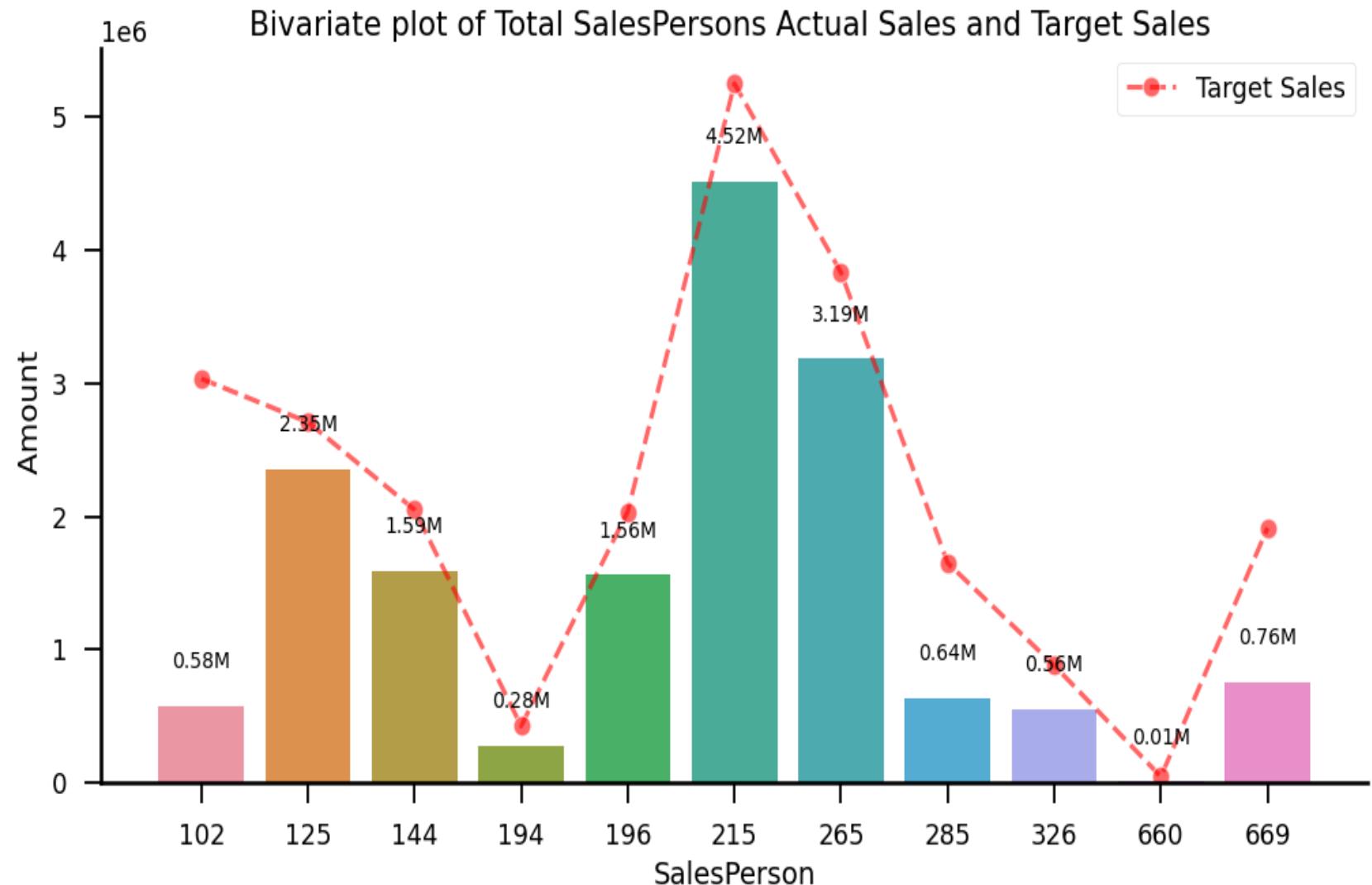
BIVARIATE ANALYSIS OF NET WEIGHT WRT ACTUAL SALES AND TARGET SALES



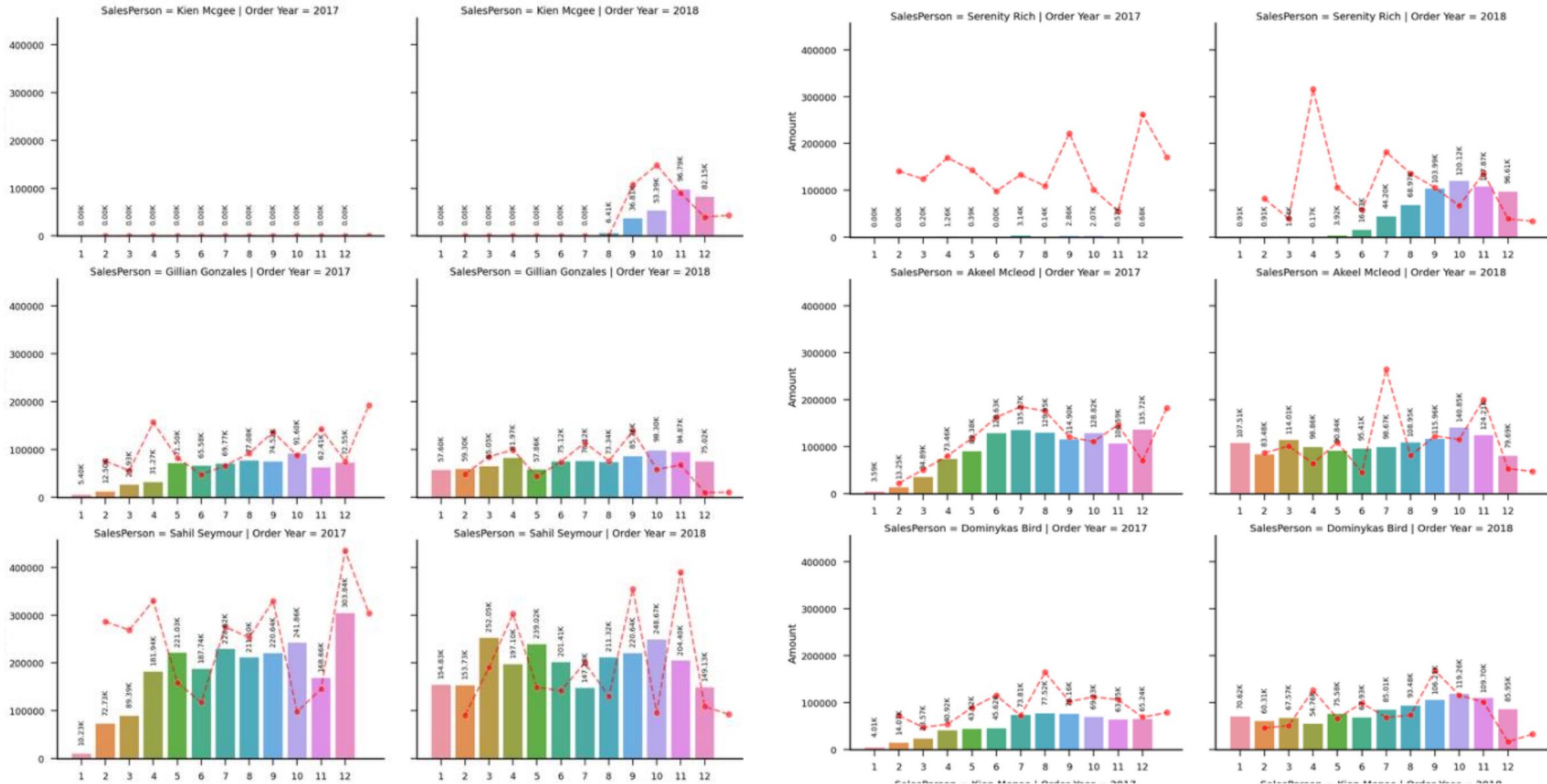
- Net weight bins like 0-1 and 1-1.5 show significant traction in sales.

BIVARIATE ANALYSIS OF SALESPERSON WRT ACTUAL SALES AND TARGET SALES

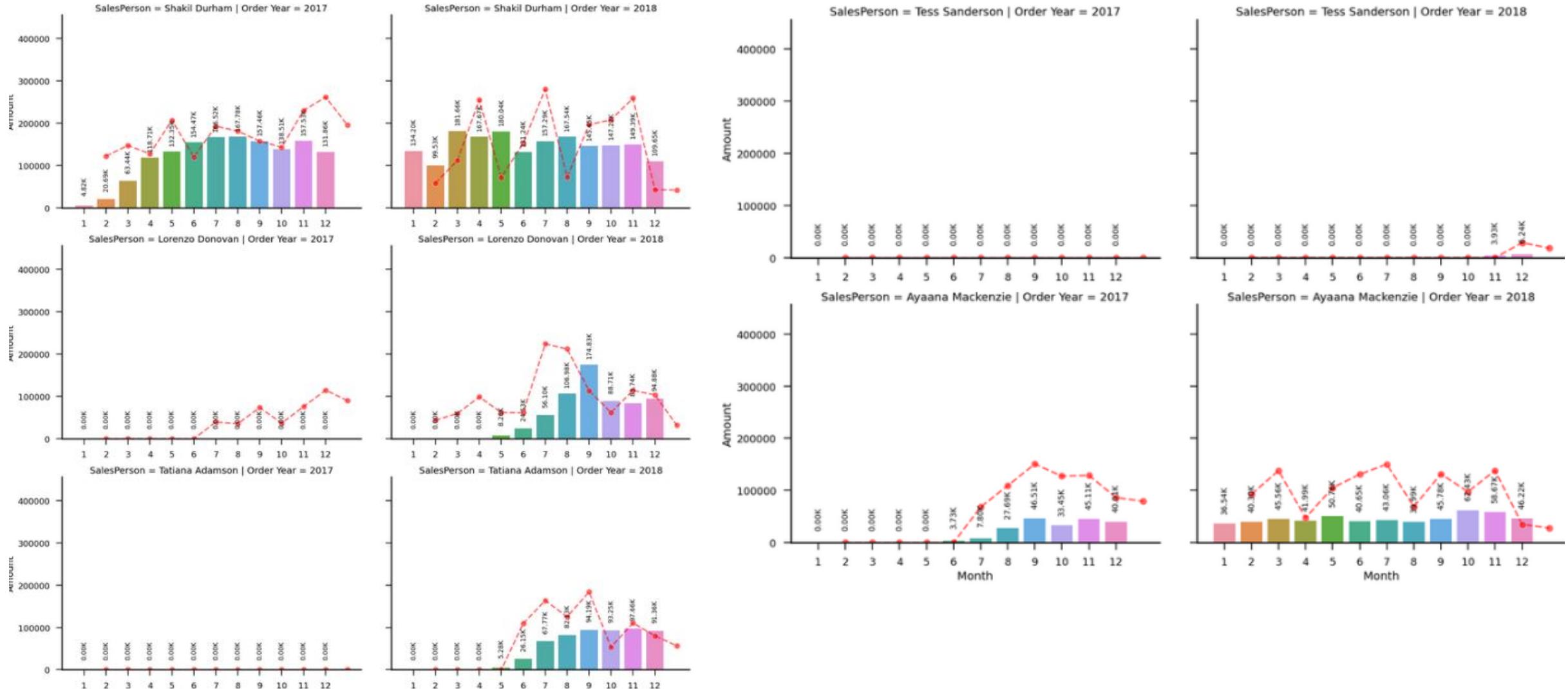
- Salesperson 215 leads in sales with \$4.52M, while 326 trails as the lowest performer with \$10k.
- No SalesPerson has met their total Target Sales.



BIVARIATE ANALYSIS OF SALESPERSON WRT ACTUAL SALES AND TARGET SALES



BIVARIATE ANALYSIS OF SALESPERSON WRT ACTUAL SALES AND TARGET SALES



VARIATE ANALYSIS OF SALESPERSON WRT ACTUAL SALES AND TARGET SALES

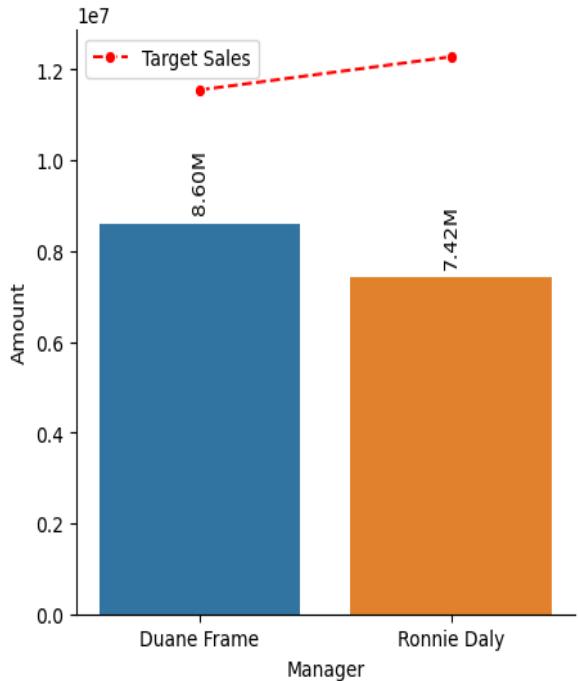
Inferences:

1. None of them have met their total targets.
2. Kien Mcgee has met 2 of their monthly targets.
3. Serenity Rich has met 3 of their monthly targets.
4. Gillian Gonzales has met 7 of their monthly Targets.
5. Akeel Mclood has met 8 of their Monthly Targets
6. Sahil Seymour has met 11 of their monthly Targets.
7. Dominykas has met 7 of their monthly Targets.
8. Shakeel Durham has met 6 of their monthly Targets.
9. Lorenzo Donovan has met 2 of their monthly Targets.
10. Tatiana Adamson has met 2 of their monthly Targets.
11. Ayana Mackenzie has met 1 of their monthly Targets.
12. Tess Sanderson has met 0 of their monthly Targets.

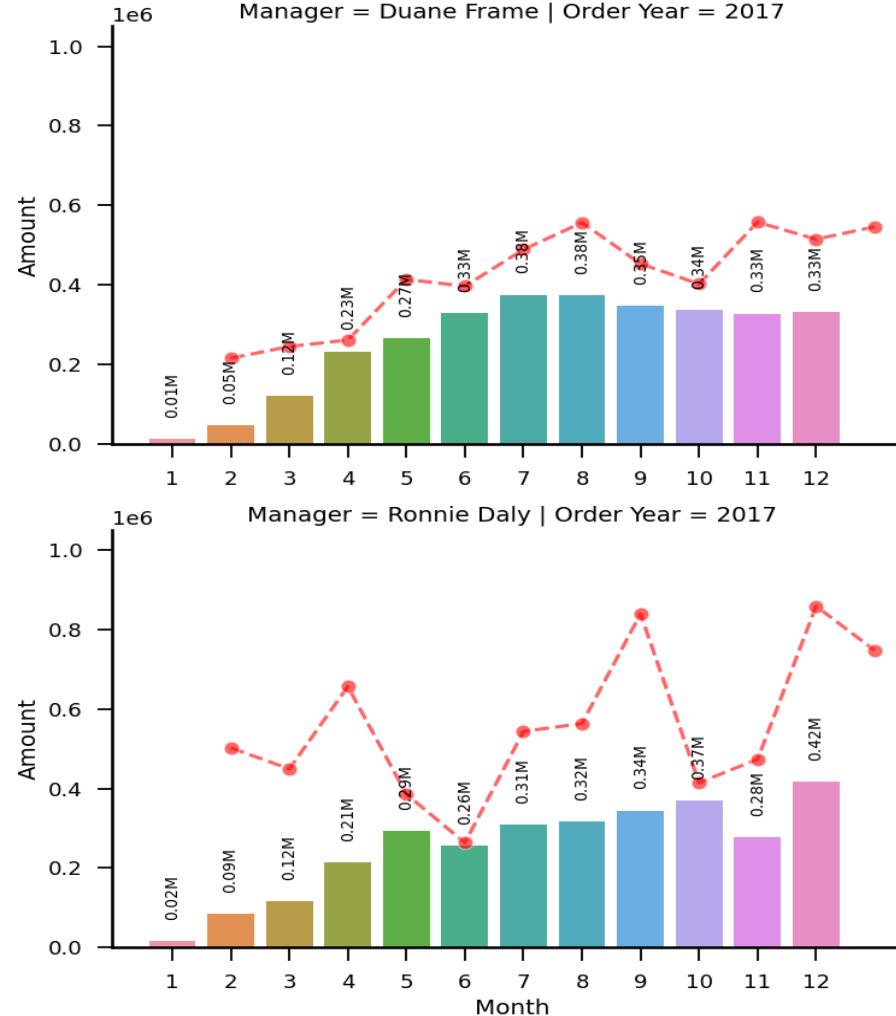
BIVARIATE ANALYSIS OF MANAGER WRT ACTUAL SALES AND TARGET SALES

Duane Frame has met 4 of their Monthly targets whereas Ronnie Daly has met only 2 of their Monthly Targets. Duane Frame dominates managerial sales with \$8.60 million, followed closely by Ronnie Daly at \$7.42 million.

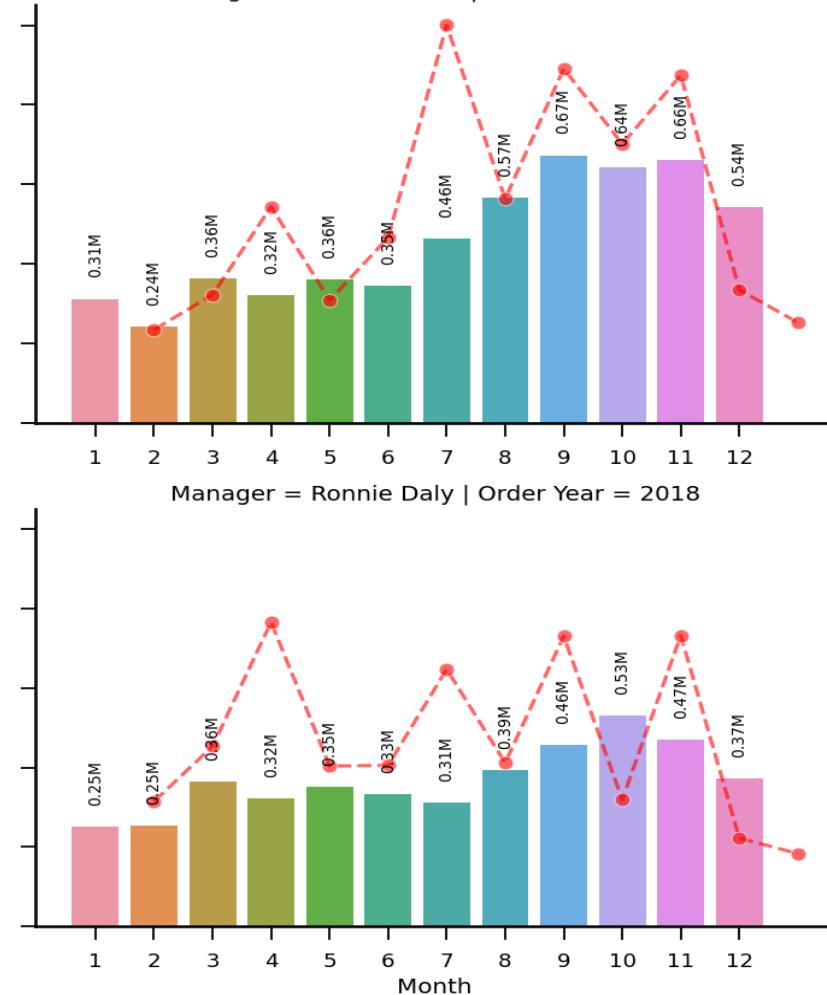
Bivariate plot of Total Manager Actual Sales and Target Sales



Monthly Actual Sales and Targets by Manager

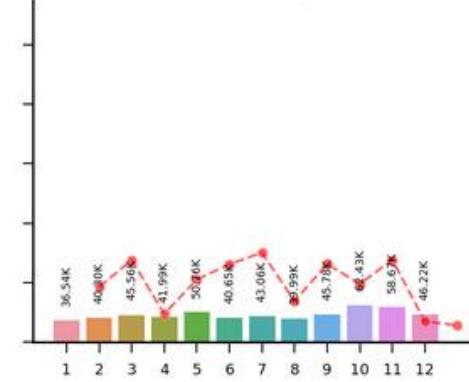
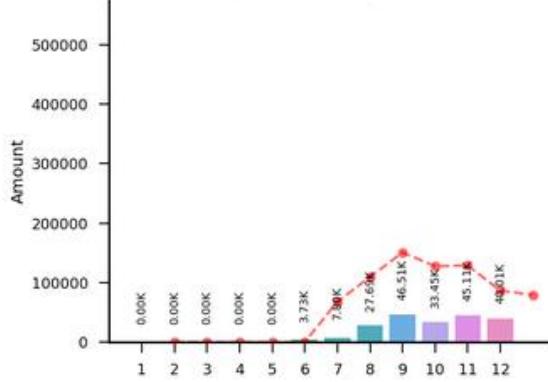
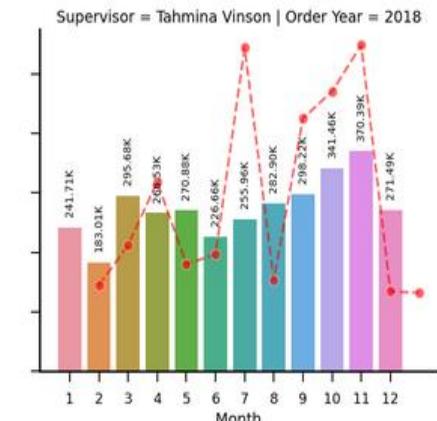
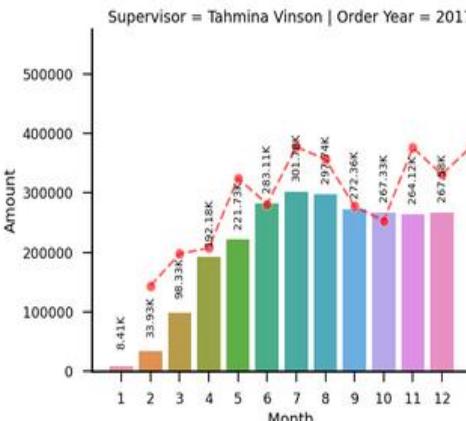
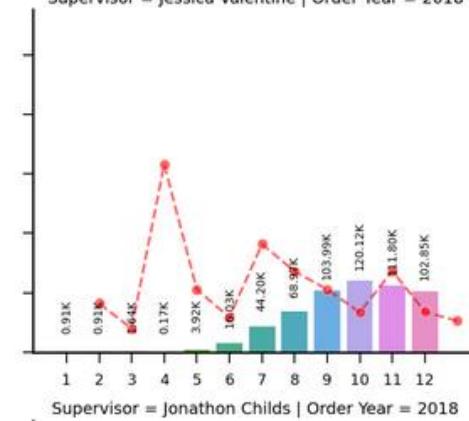
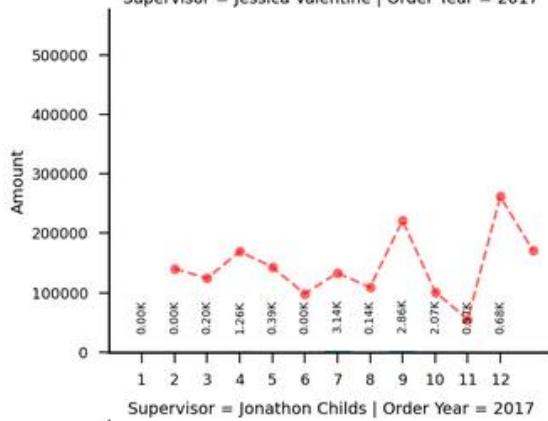
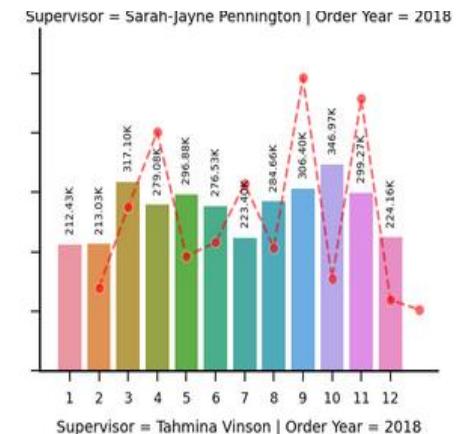
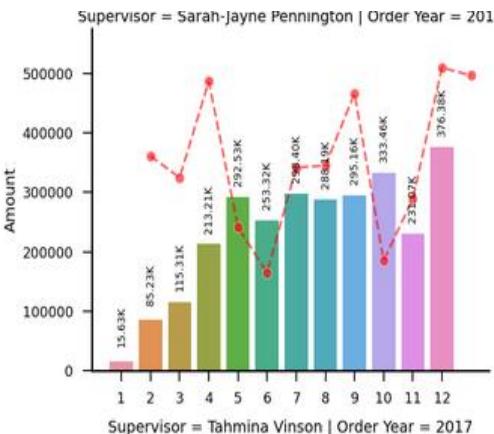
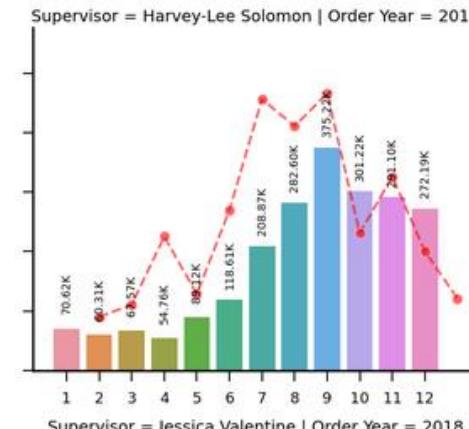
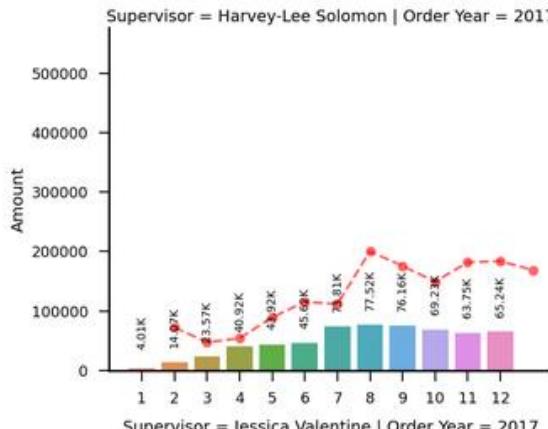


Manager = Duane Frame | Order Year = 2018



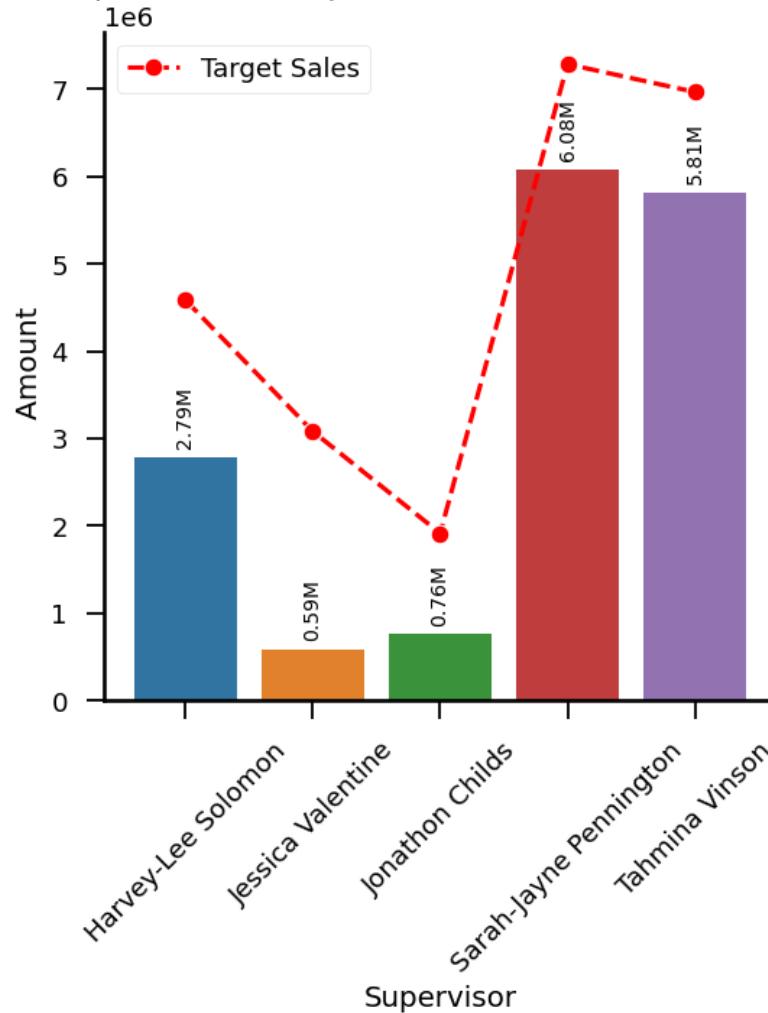
BIVARIATE ANALYSIS OF SUPERVISOR WRT ACTUAL SALES AND TARGET SALES

Monthly Actual Sales and Targets by Supervisor



BIVARIATE ANALYSIS OF SUPERVISOR WRT ACTUAL SALES AND TARGET SALES

Bivariate plot of Total Supervisor Actual Sales and Target Sales

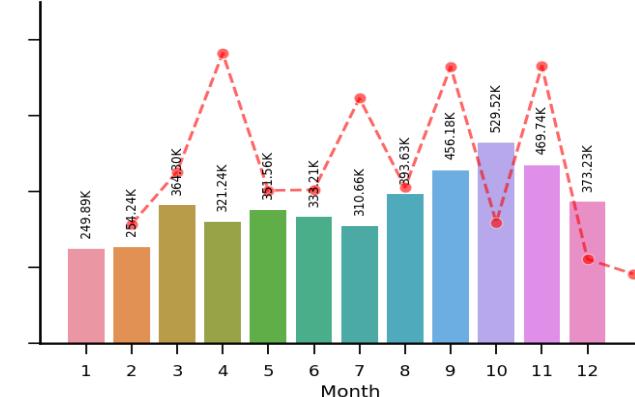
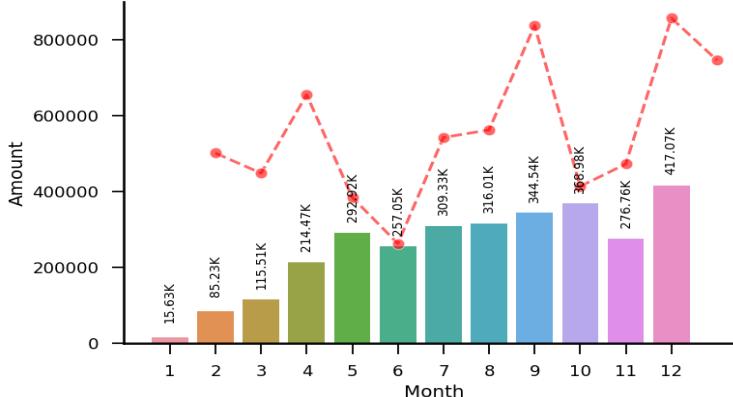
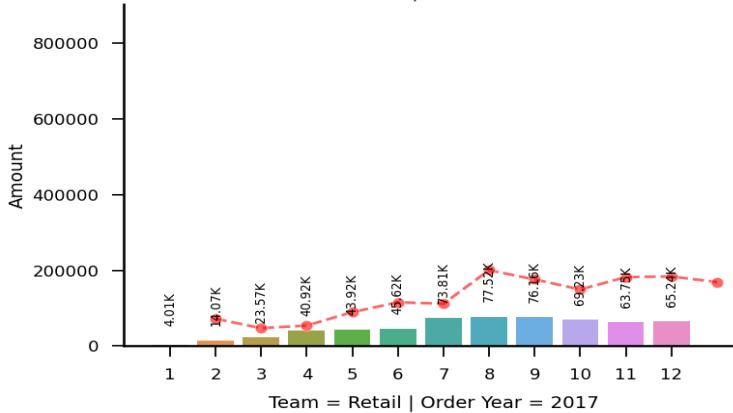
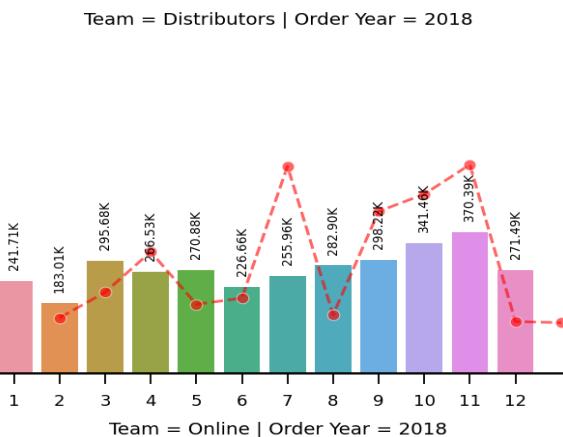
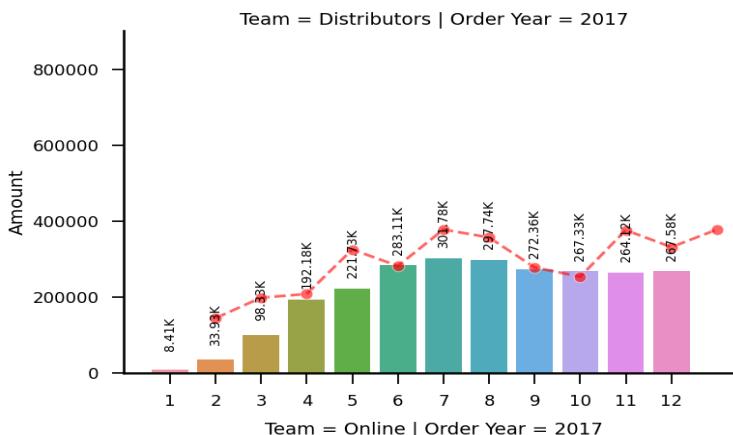


Inferences:

1. Supervisors Sarah Jain with \$6M and Tahmina with \$5.81M stand out for their high sales figures, contrasting with Jessica, who records the lowest(\$0.59M).
2. None of them have met their total targets.
3. Sarah-Jayne has met 10 of their monthly Targets.
4. Tahmina Vinson has met 8 of their monthly Targets.
5. Jessica Valentine has met 2 of their monthly Targets.
6. Harvey Lee has met 2 of their monthly Targets.
7. Jonathon Childs has met 1 of their monthly Targets.

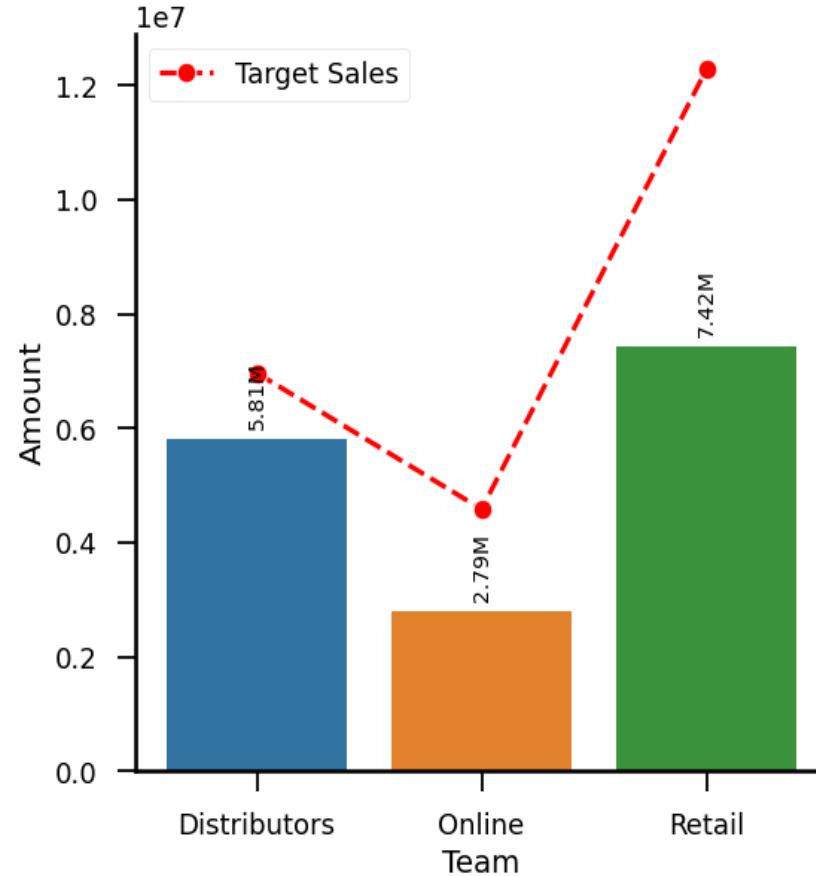
BIVARIATE ANALYSIS OF TEAM WRT ACTUAL SALES AND TARGET SALES

Monthly Actual Sales and Targets by Team



BIVARIATE ANALYSIS OF TEAM WRT ACTUAL SALES AND TARGET SALES

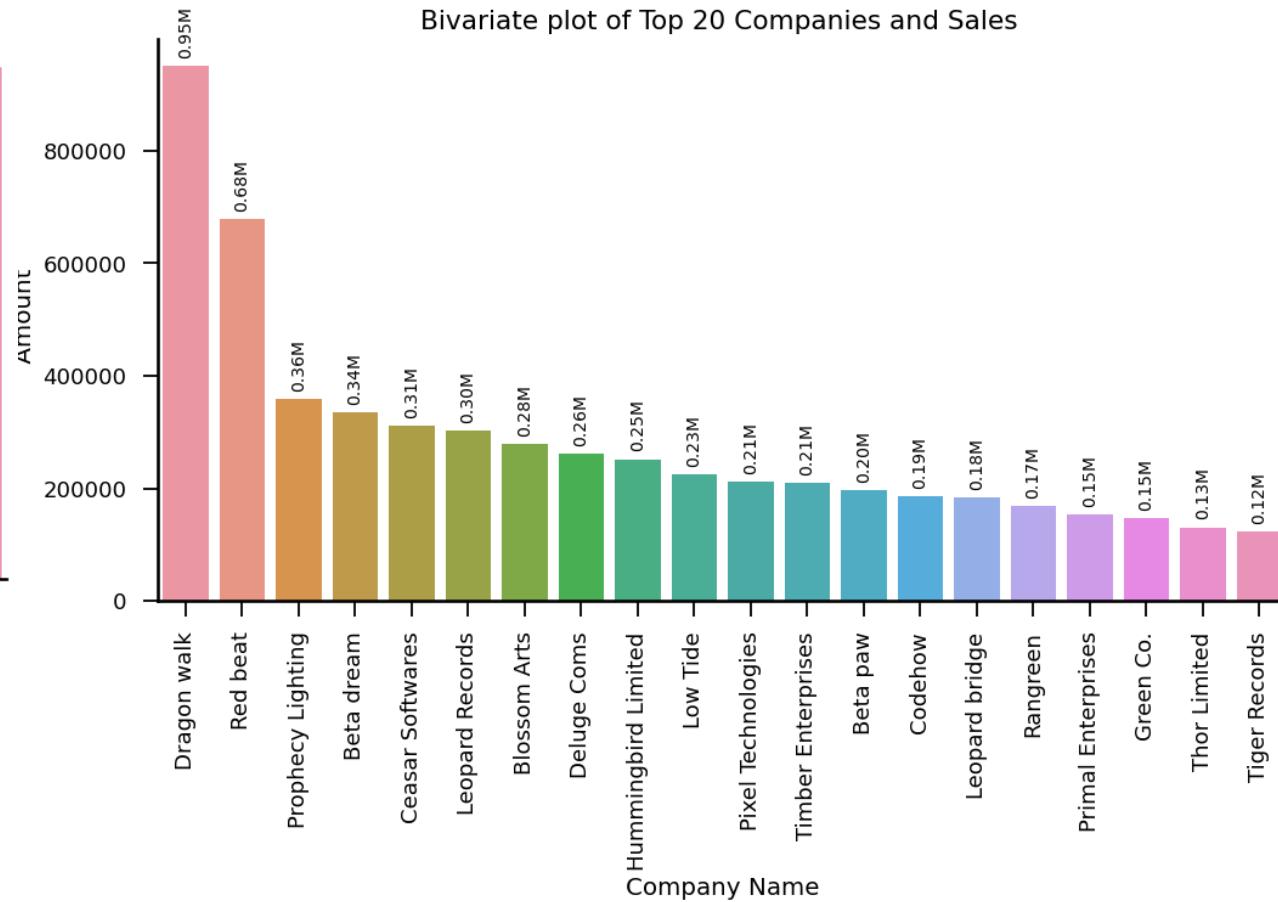
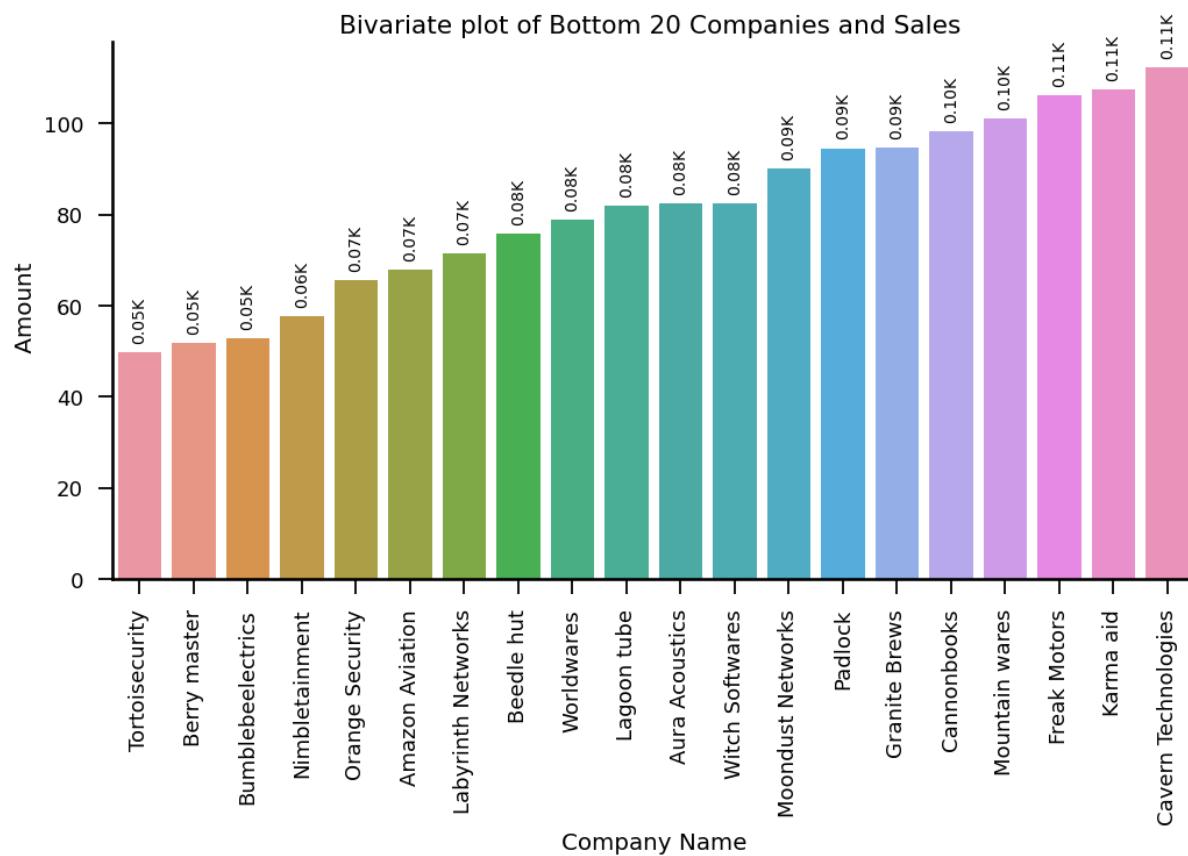
Bivariate plot of Total Team Actual Sales and Target Sales



Inferences:

1. The retail team emerges as the top performer with \$7.42 million in sales, followed by distributors with \$4.81 million and online platforms with the lowest at \$2.79 million.
2. Distributors has met 9 of their monthly Targets.
3. Online has met 2 of their monthly Targets.
4. Retail met 2 of their monthly Targets.

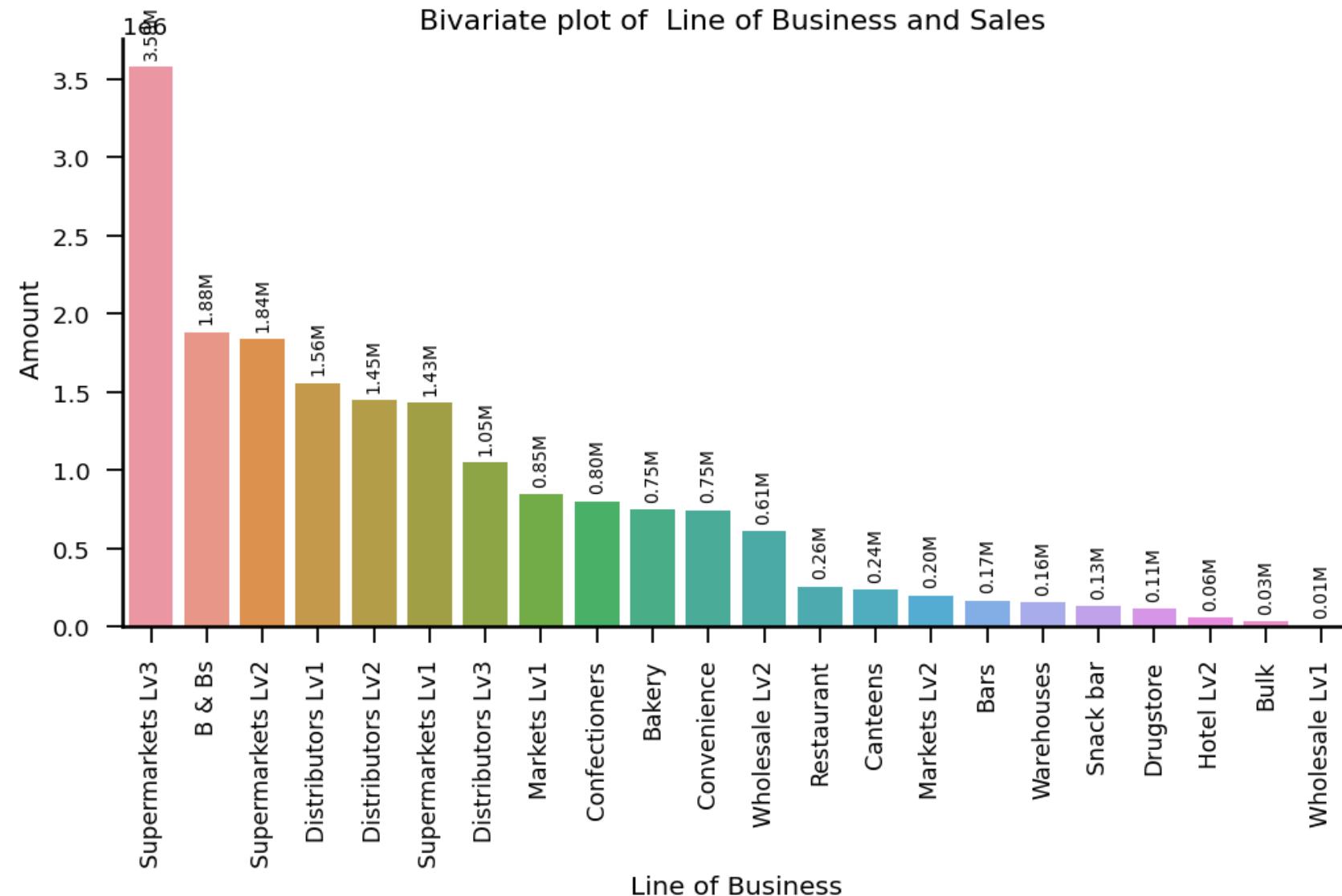
BIVARIATE ANALYSIS OF COMPANY WRT ACTUAL SALES AND TARGET SALES



- Key players in the market, including dragonwalk (\$ 1M), red beat(\$ 0.68M), and prophecy lighting(\$ 0.36M), lead in sales, while others like tortoisecurity (\$50) and berry master (\$50) lag behind.

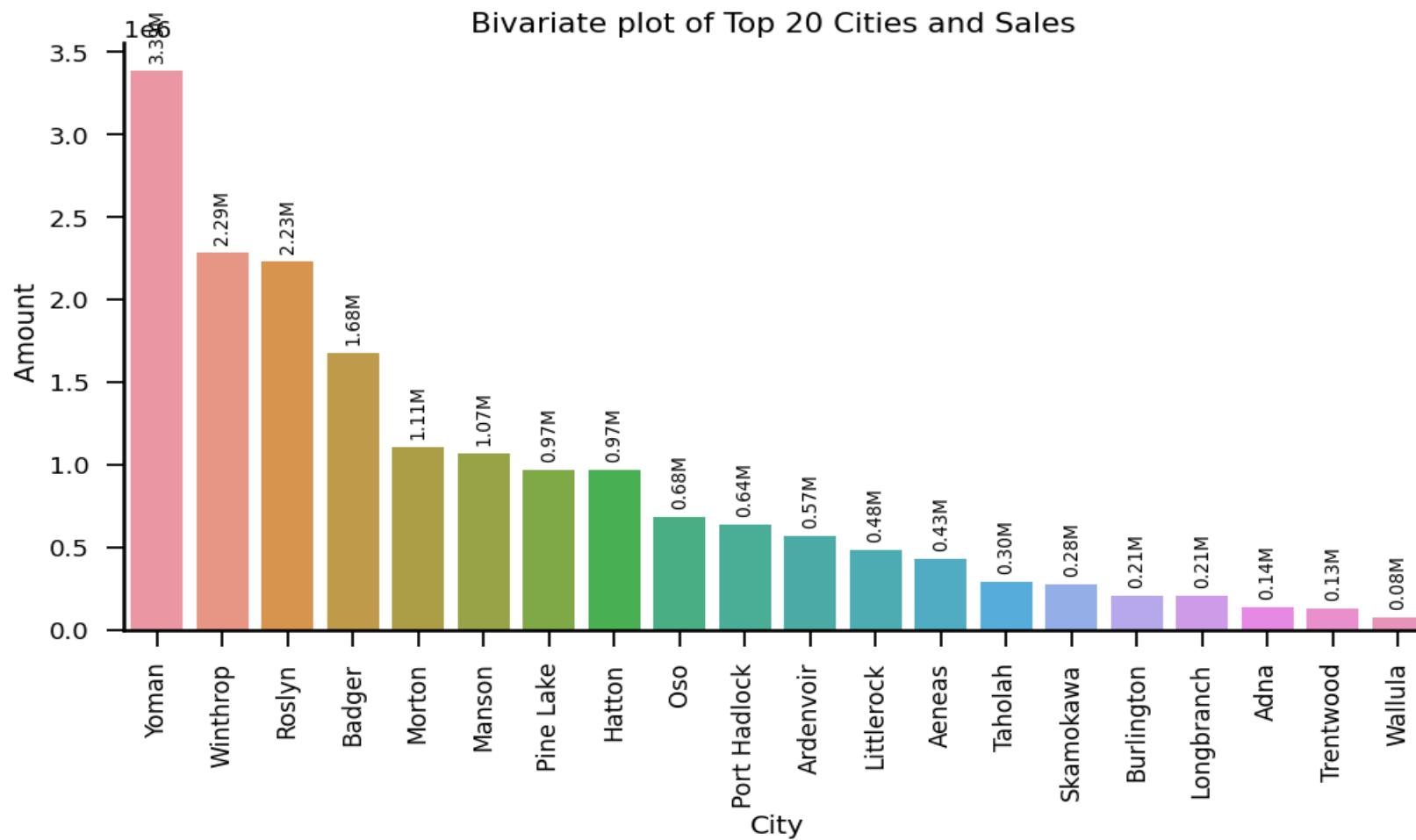
BIVARIATE ANALYSIS OF LIME OF BUSINESS WRT ACTUAL SALES AND TARGET SALES

- Supermarket Lv3 generates the highest sales at \$3.5 million, with Wholesale Lv2 and Bulk registering the lowest figures.

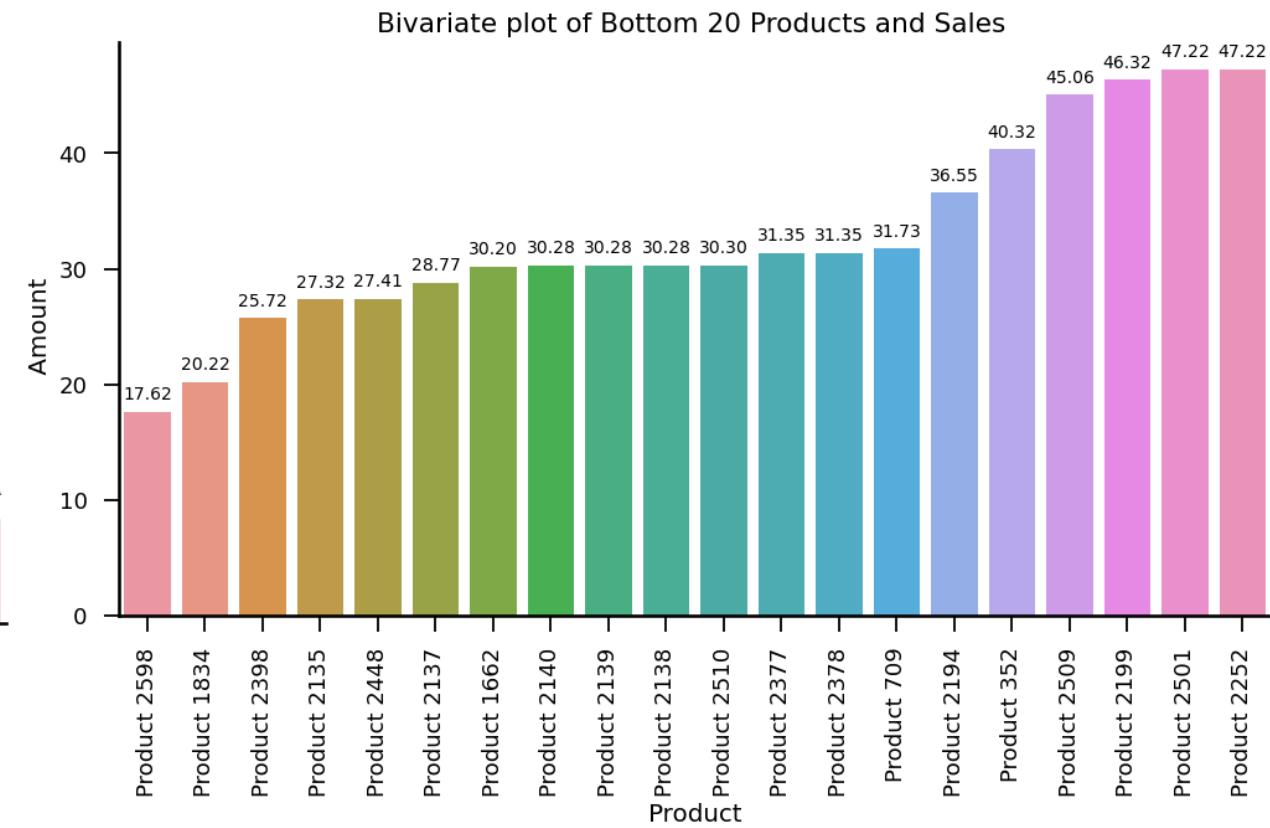
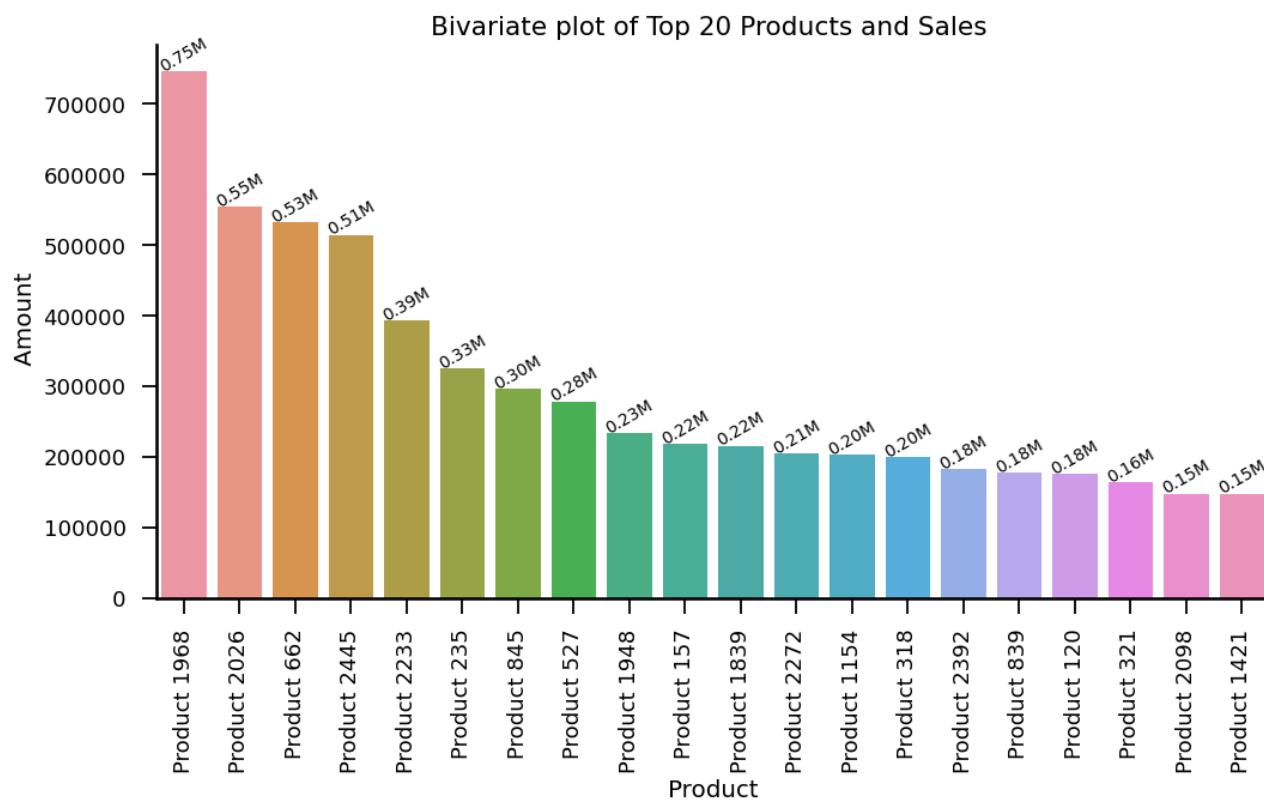


BIVARIATE ANALYSIS OF CITY WRT ACTUAL SALES AND TARGET SALES

- Geographically, Yoman ranks first with \$3.3 million in sales, while Lacey (\$ 80K) ranks at the bottom.



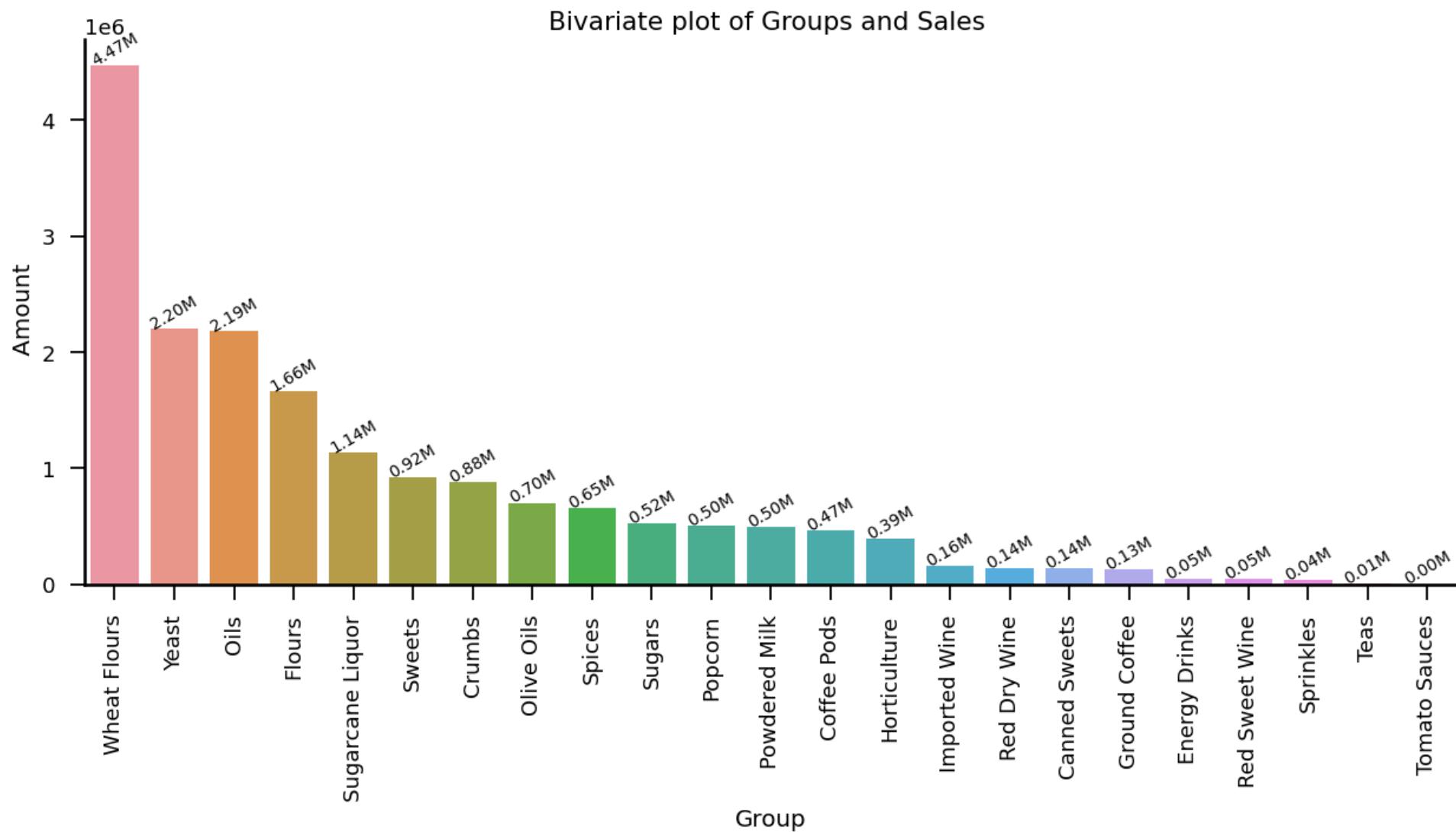
BIVARIATE ANALYSIS OF PRODUCT WRT ACTUAL SALES AND TARGET SALES



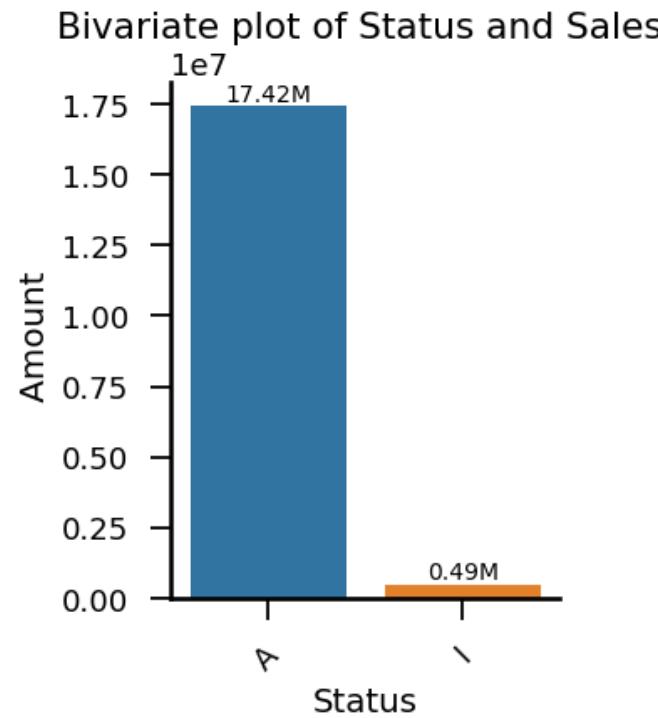
Product 1968 (\$0.75 million), product 2026(\$ 0.55 million) dominate the sales charts, whereas less popular items like Product 2598(\$17.62) and 1834(\$20.22), struggle to gain traction.

IVARIATE ANALYSIS OF GROUP WRT ACTUAL SALES AND TARGET SALES

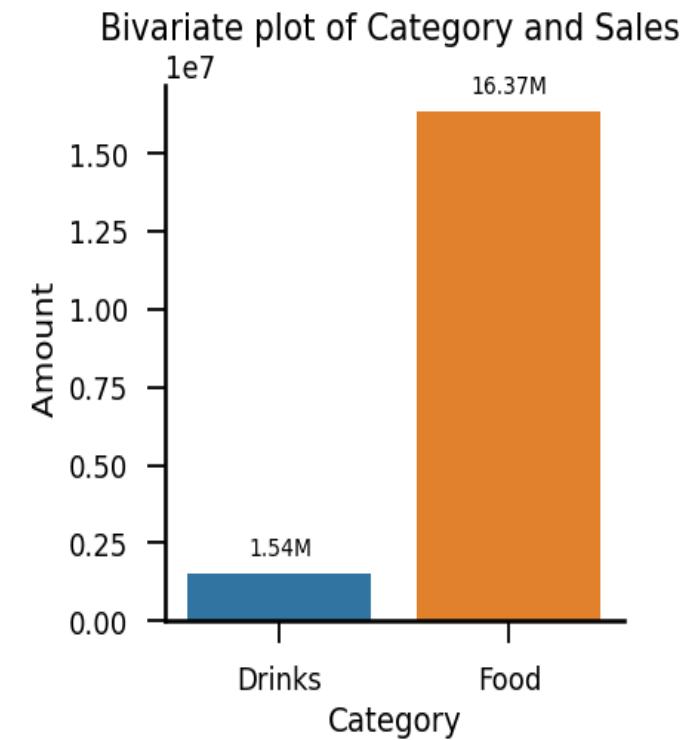
wheat flours (\$4.47 million), yeast (\$2.20 million), and oils (\$2.19 million) dominate the sales charts, whereas less popular items like teas, tomato sauce, and sprinkles struggle to gain traction.



BIVARIATE ANALYSIS OF STATUS WRT ACTUAL SALES AND TARGET SALES



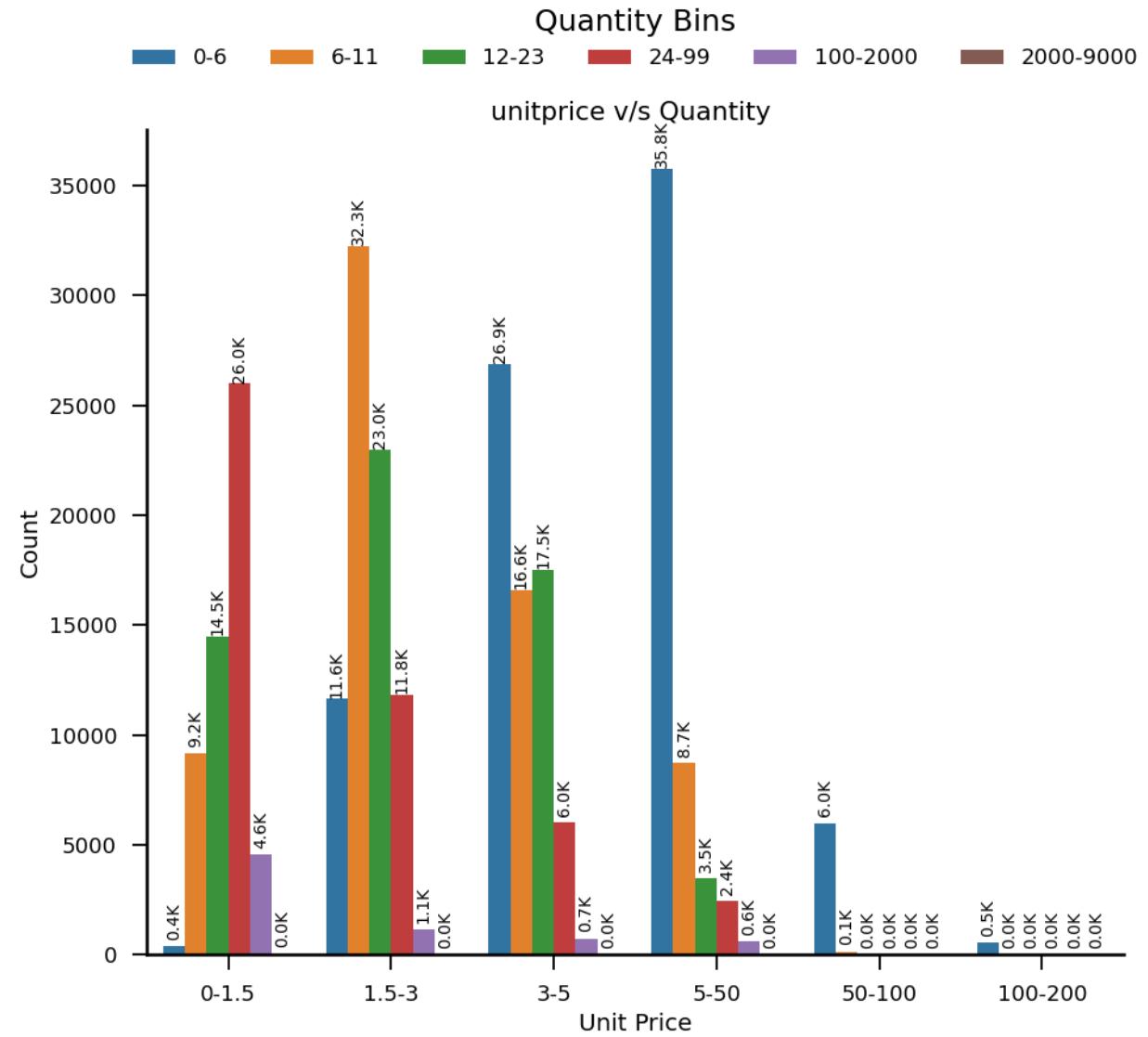
- Active customers lead significantly, contributing approximately \$17.4 million in sales.



- Food products lead significantly, contributing approximately \$16.37 million in sales, while drink products lag behind at \$1.54 million.

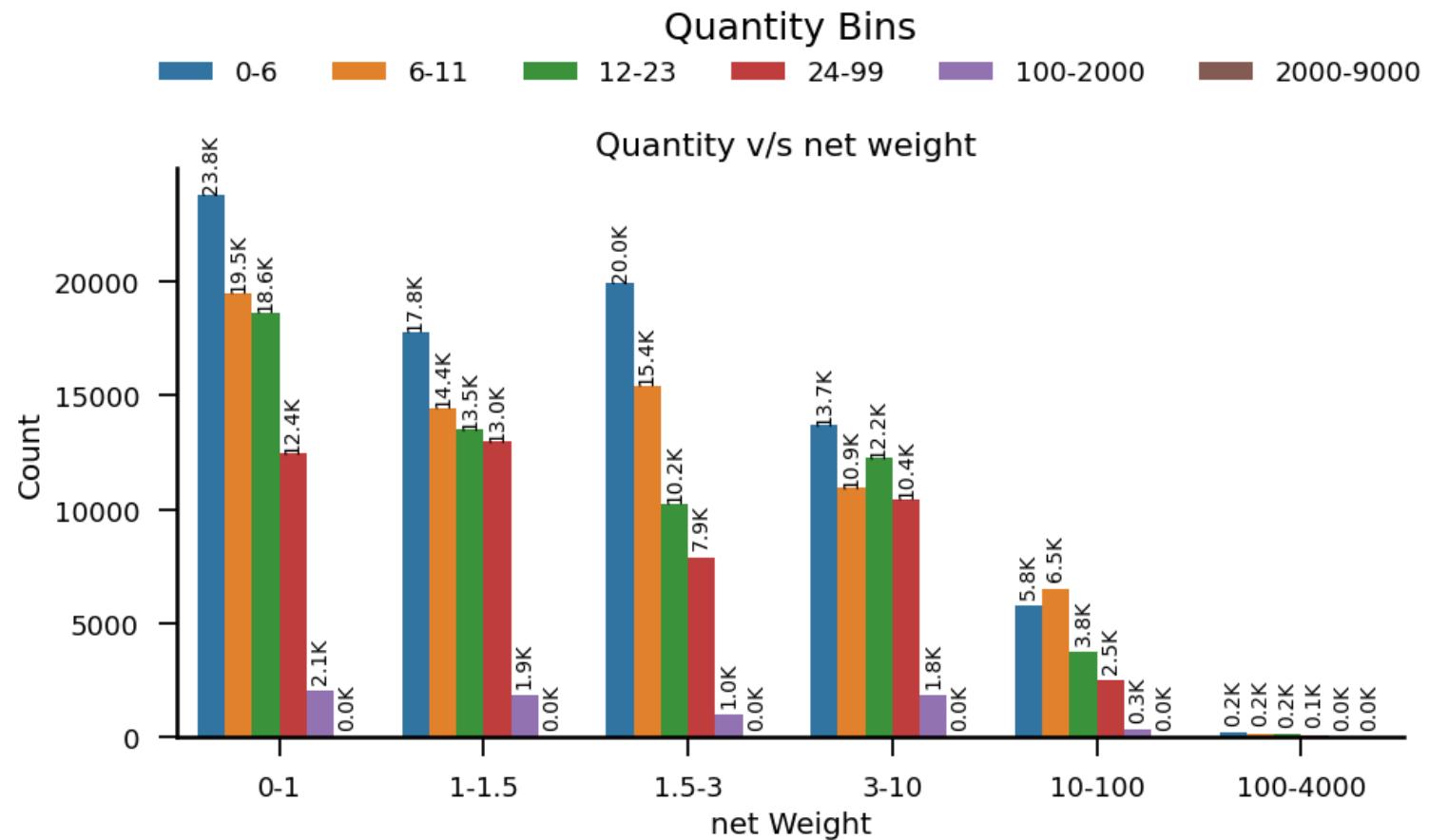
BIVARIATE ANALYSIS WRT QNTY

Unit Price Range	Most frequent Qnty Bin
0-1.5	24-99
1.5-3	6-11
3-5	0-6
5-50	0-6
50-100	0-6
100-200	0-6

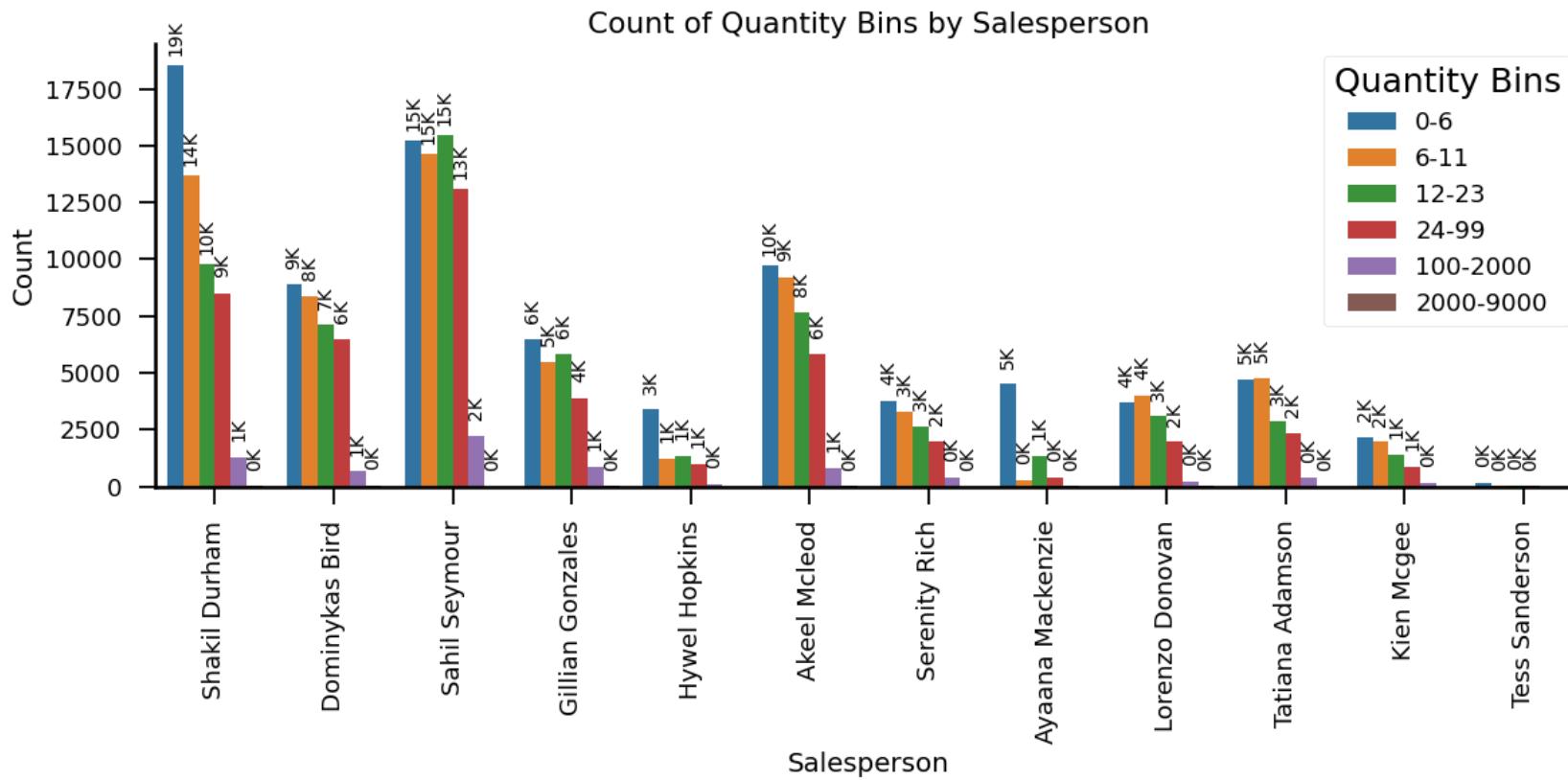


BIVARIATE ANALYSIS WRT QNTY

Net Weight Range	Most frequent Qnty Bin
0-1	0-6
1-1.5	0-6
1.5-3	0-6
3-10	0-6
10-100	6-11
100-4000	0-6



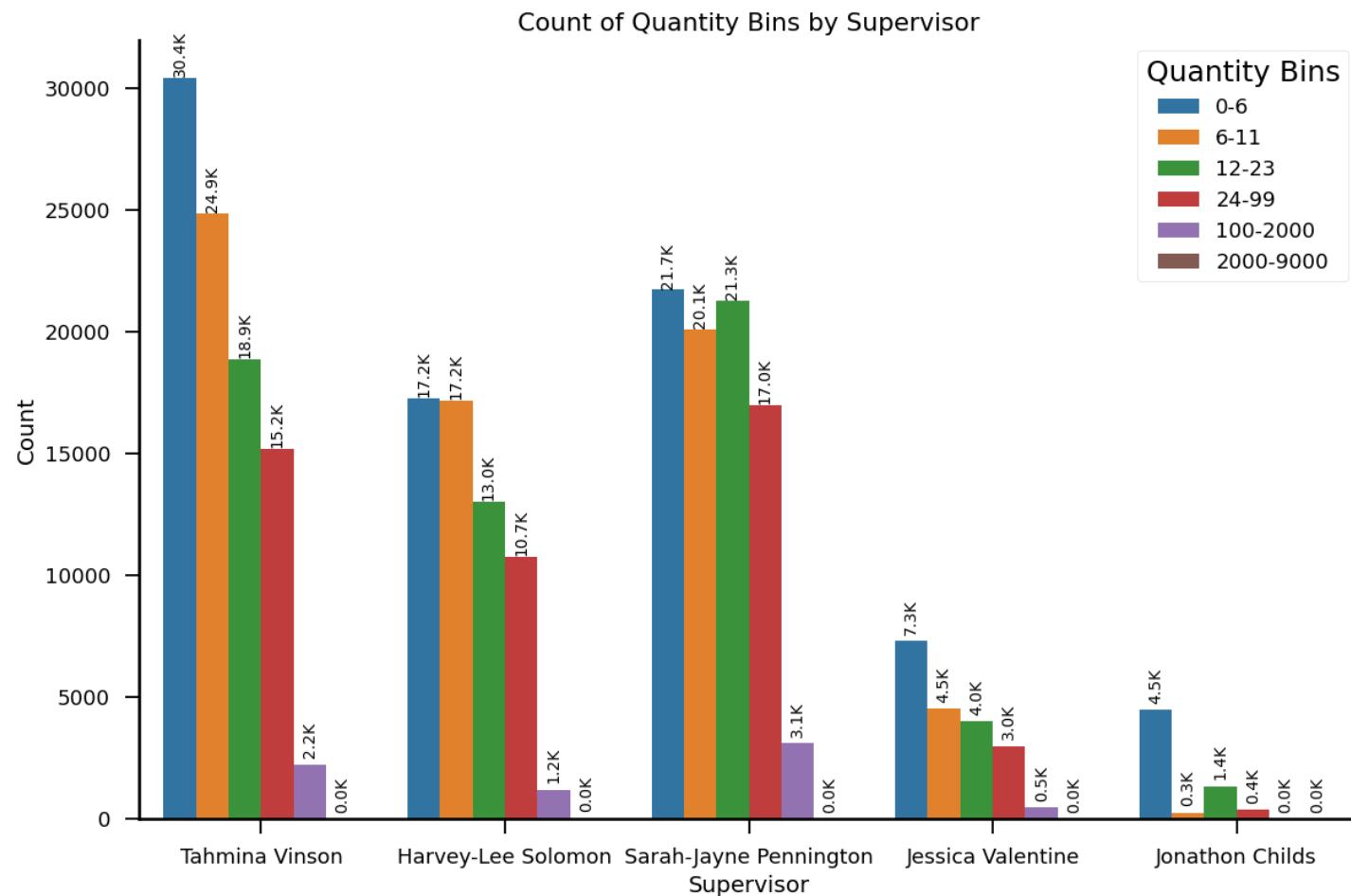
BIVARIATE ANALYSIS WRT QNTY



1. Shakil and Sahil stand out with a higher number of 0-11 quantity bins, indicating their involvement in transactions with smaller quantities.
2. Conversely, Kien and Tess have the least count of quantity bins among all salespersons, suggesting a different focus or sales approach.
3. Overall most purchases have been made in 0-100 quantities indicating that bulk orders are not preferred rather than frequent fewer quantity purchases contribute majorly.

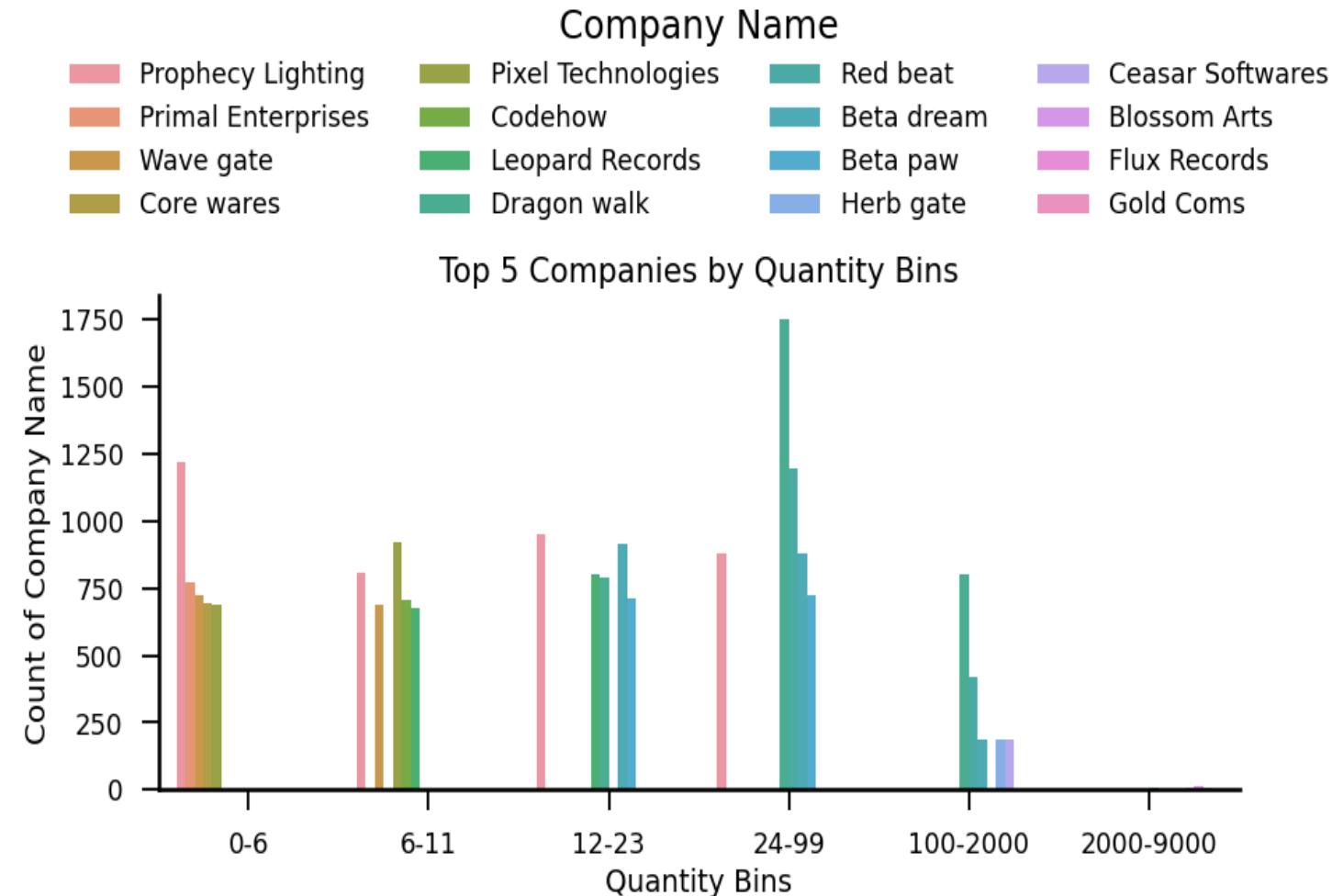
BIVARIATE ANALYSIS WRT QNTY

1. Tahmina, Jessica and Jonathan have 0-6 qnty bin as most frequently ordered.
2. Harvey has 0-11 as most ordered qntty range
3. Sarah has most frequently ordered qntty in 0-23 count range



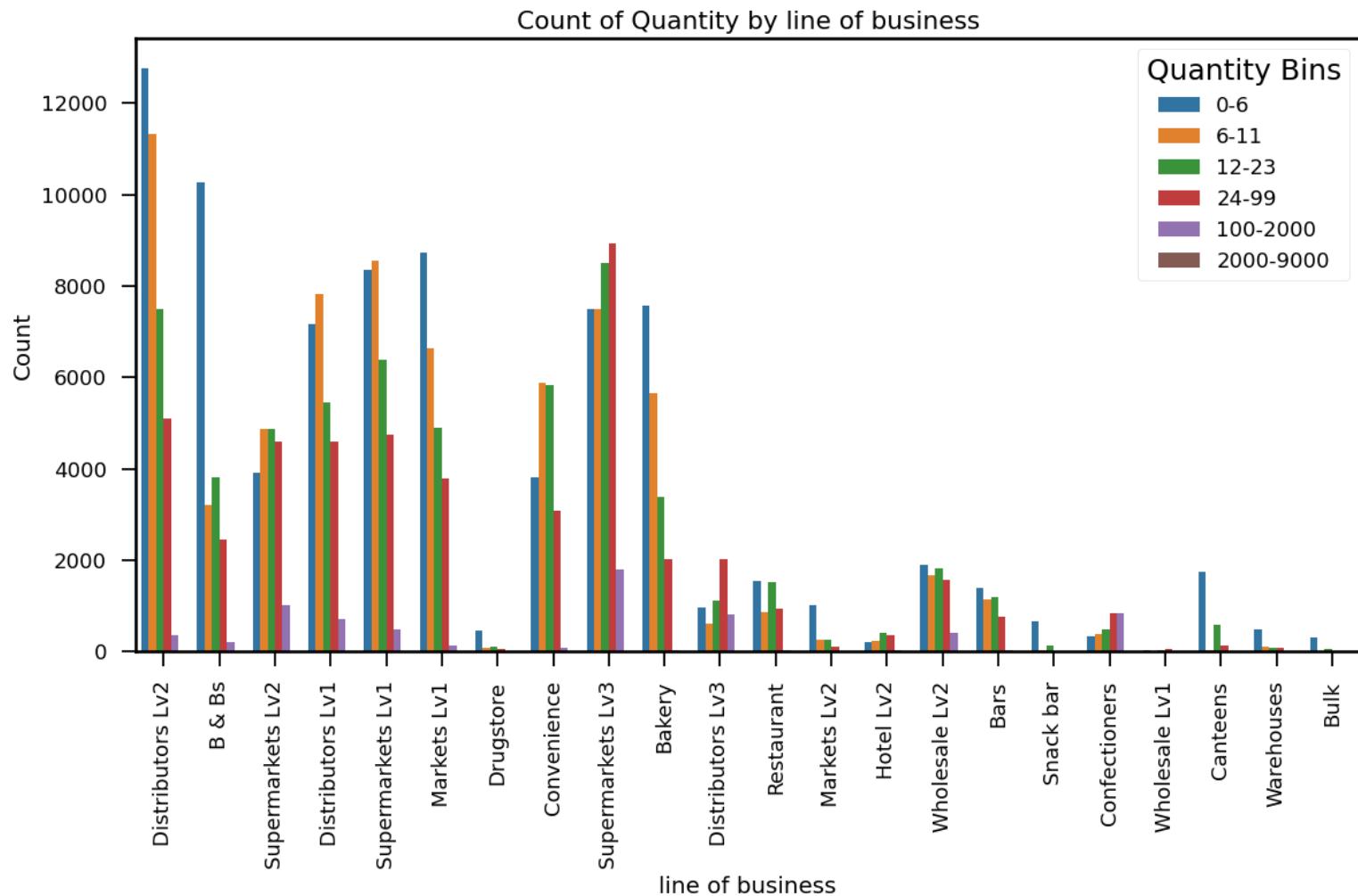
BIVARIATE ANALYSIS WRT QNTY

Qnty Bin	Company with highest bin count
24-99	Red Beat
6-11	Pixel Texhnologies
0-6	Prophecy Lighting
12-23	Prophecy Lighting
100-2000	Dragon Walk
2000-9000	

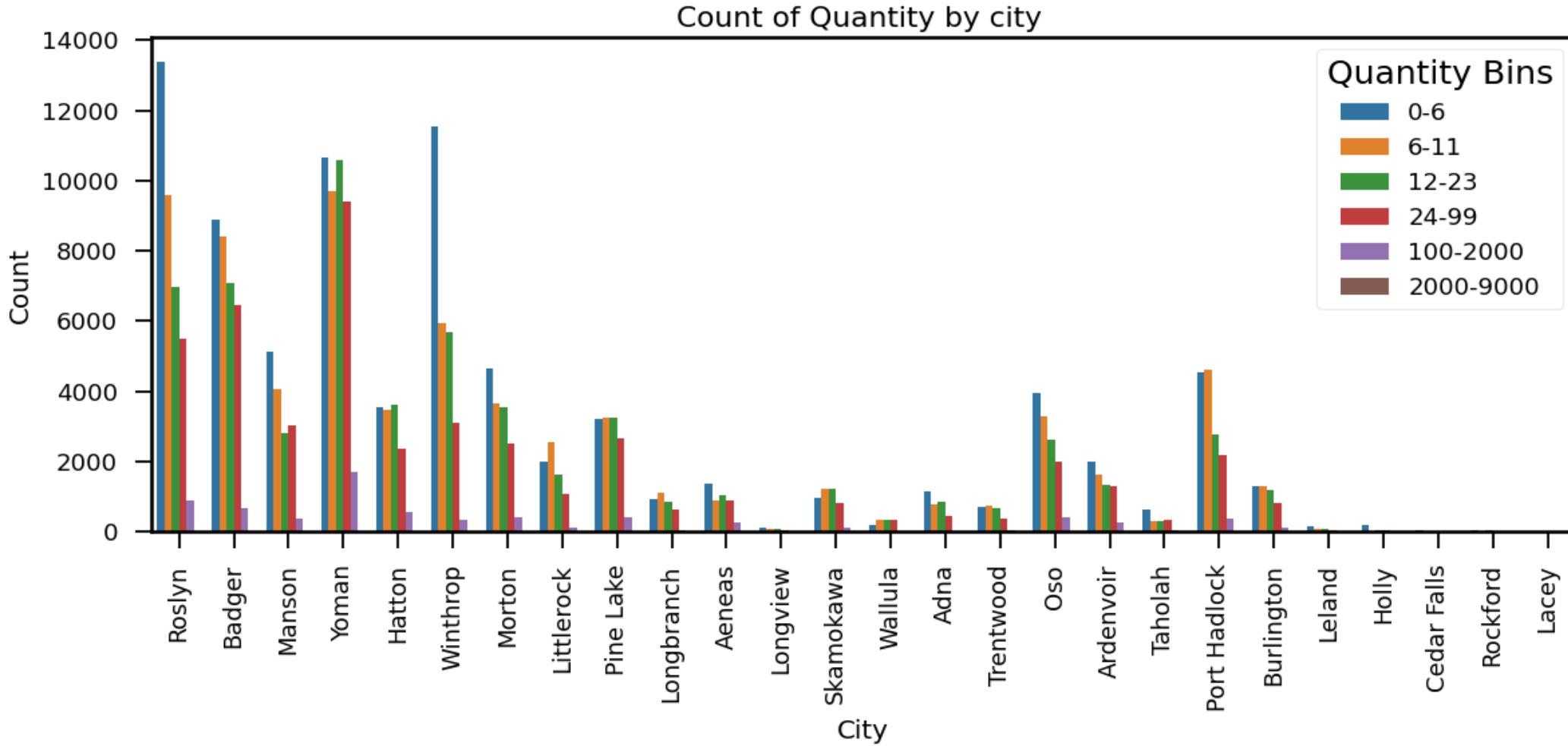


BIVARIATE ANALYSIS WRT QNTY

1. When considering the types of businesses, supermarkets and distributors emerge with the highest count for 0-99 quantity bins, reflecting their involvement in a wide range of transactions covering different quantities.
2. Conversely, confectioners show a preference for larger quantities, with more counts in the 100-2000 quantity bin range.

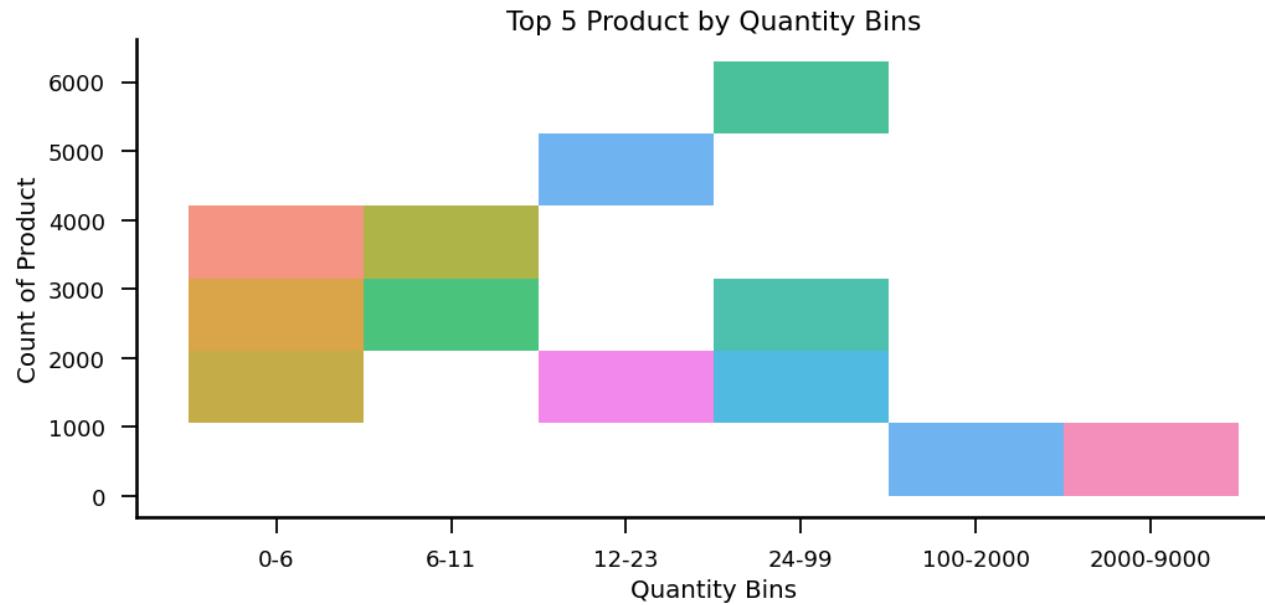


BIVARIATE ANALYSIS WRT QNTY



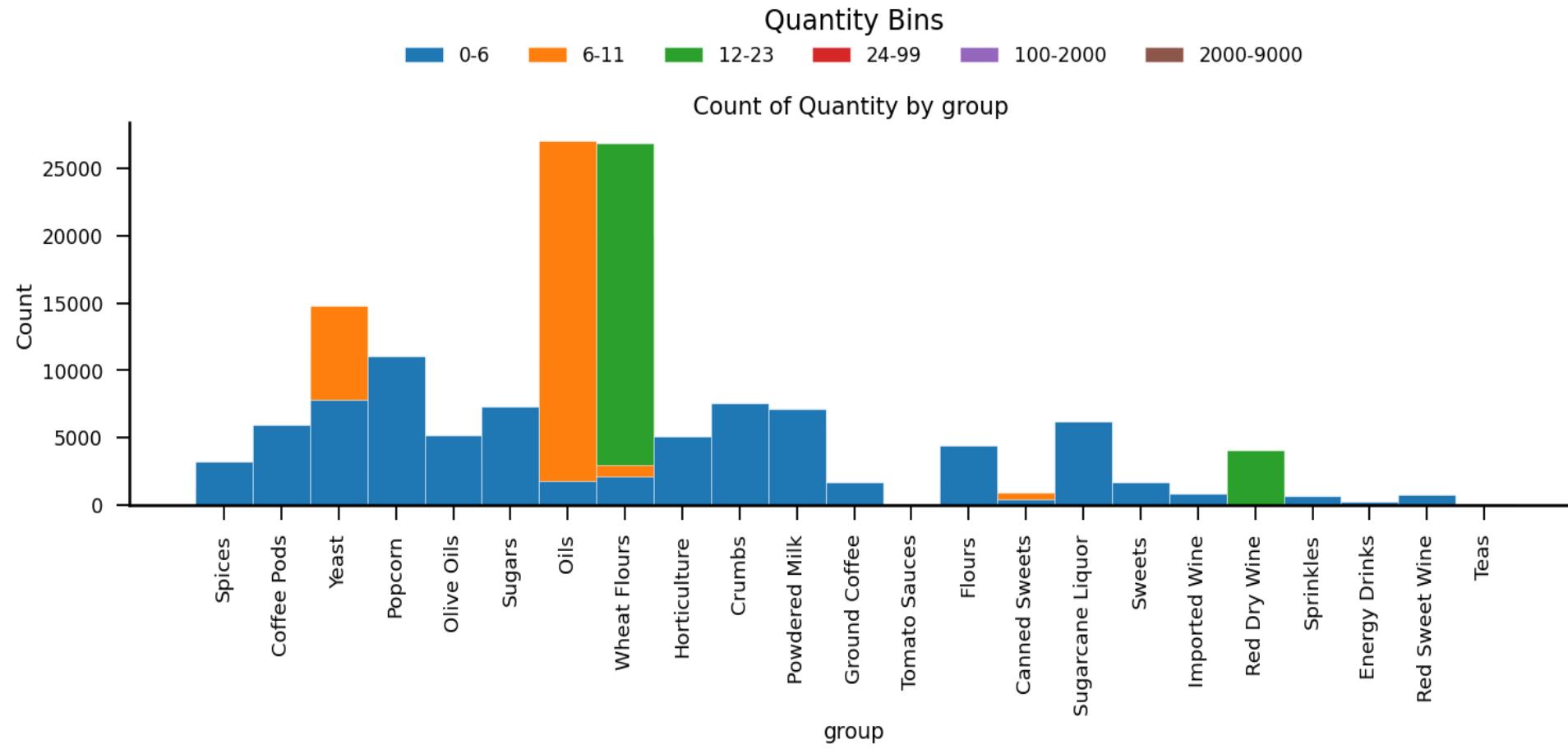
- Geographically, locations like Roslyn, Badger, Winthrop, and Yoman exhibit the highest counts for quantity bins, indicating significant transactional activity across these regions.
- Conversely, locations such as Leland, Holly, and Lacey have lower counts, suggesting relatively lower transaction volumes.

BIVARIATE ANALYSIS WRT QNTY



Analyzing product categories reveals interesting patterns: oils and yeast predominantly fall within the 6-11 quantity bin range, indicating common transactional quantities for these items. Wheat flour and red dry wine are more prevalent in the 12-23 quantity bin range, suggesting larger transaction sizes. Meanwhile, coffee pods, popcorns, powdered milk, crumbs, and sugarcane liquor tend to belong to the 0-6 quantity bin range, highlighting their frequent sale in smaller quantities.

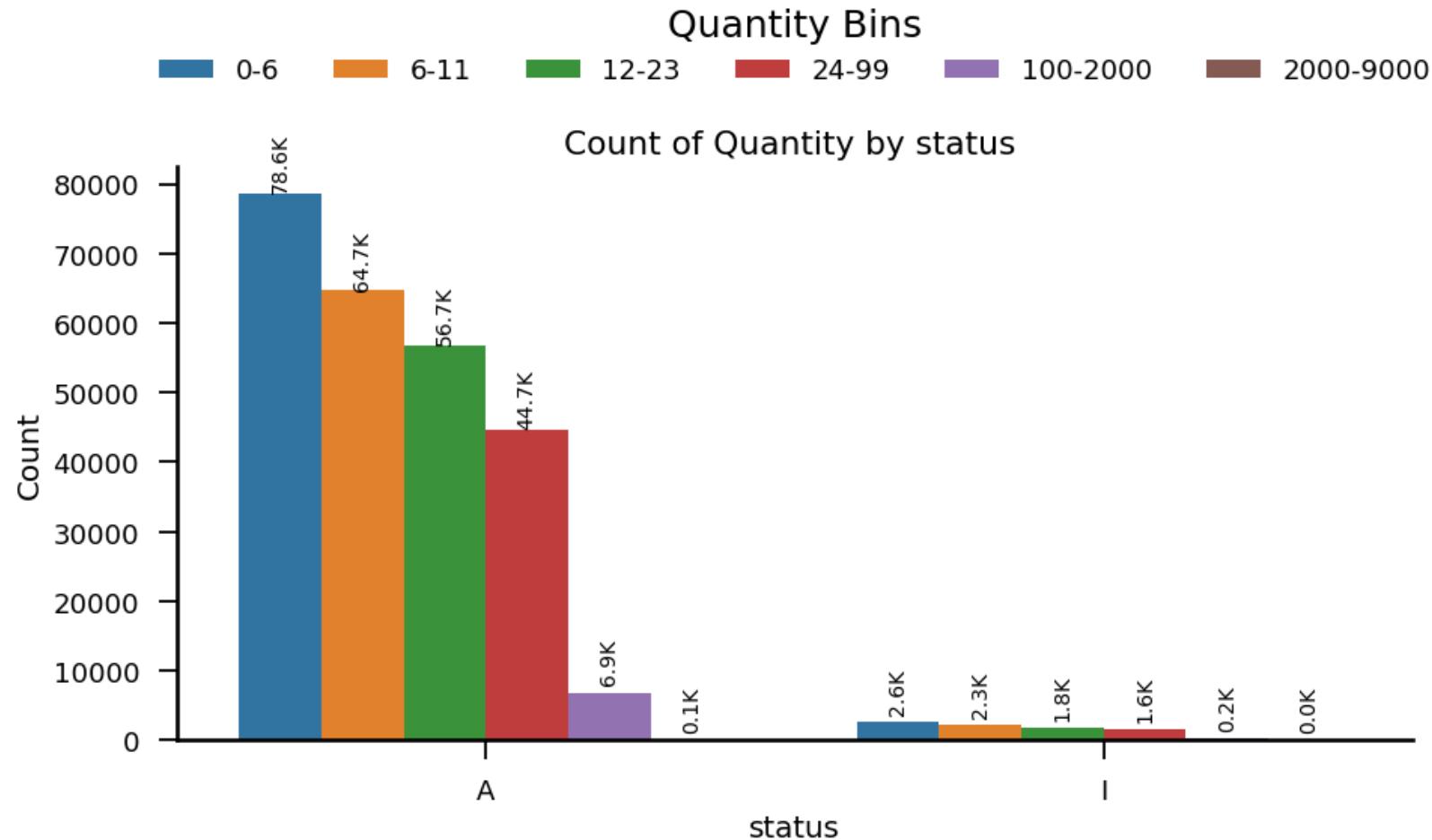
BIVARIATE ANALYSIS WRT QNTY



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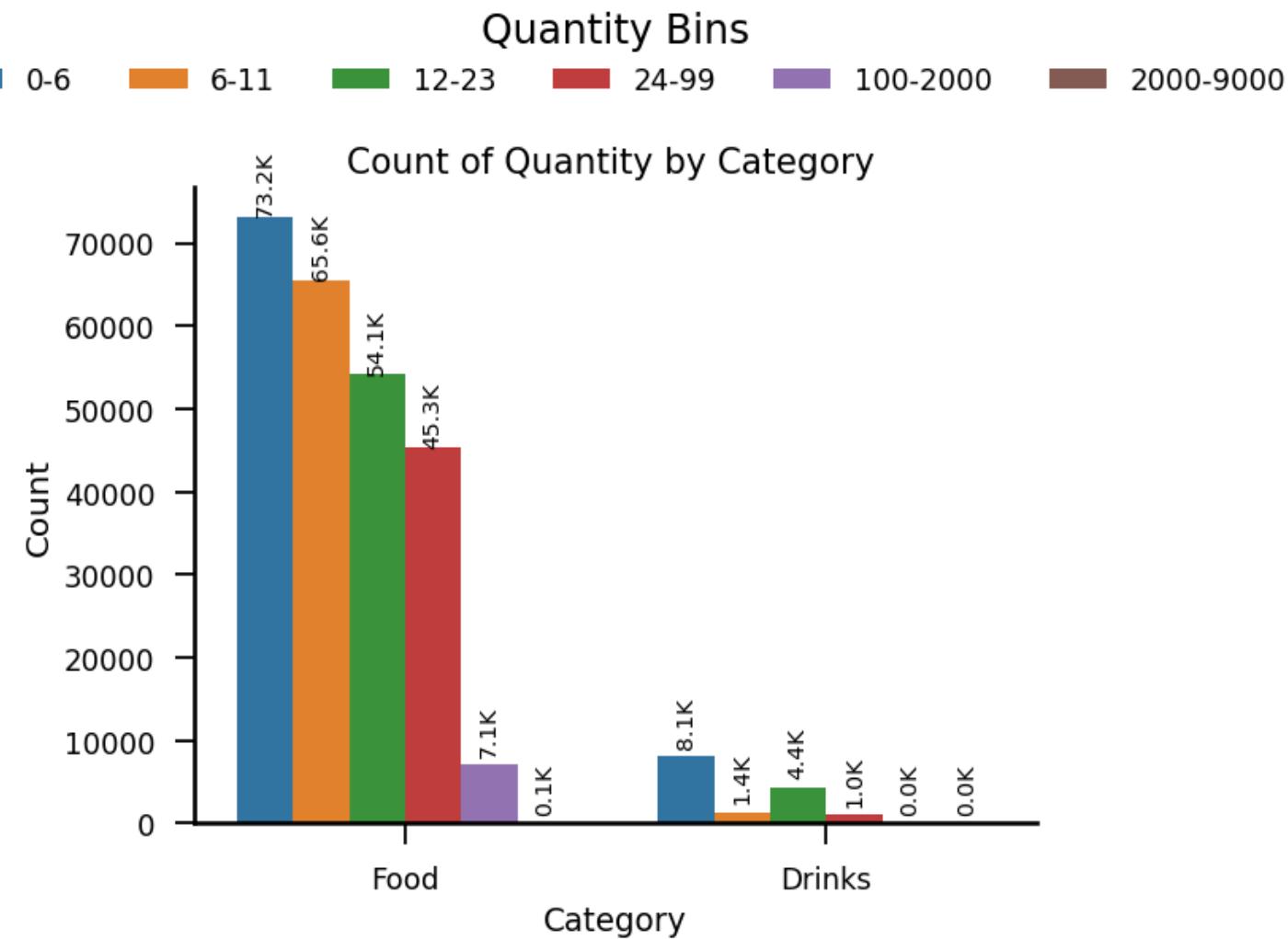
BIVARIATE ANALYSIS WRT QNTY



Active Customers dominate across all the quantity bins, highest being 0-6 bin with 78.6K orders.
Inactive Customers have a few orders in lower quantity bins.

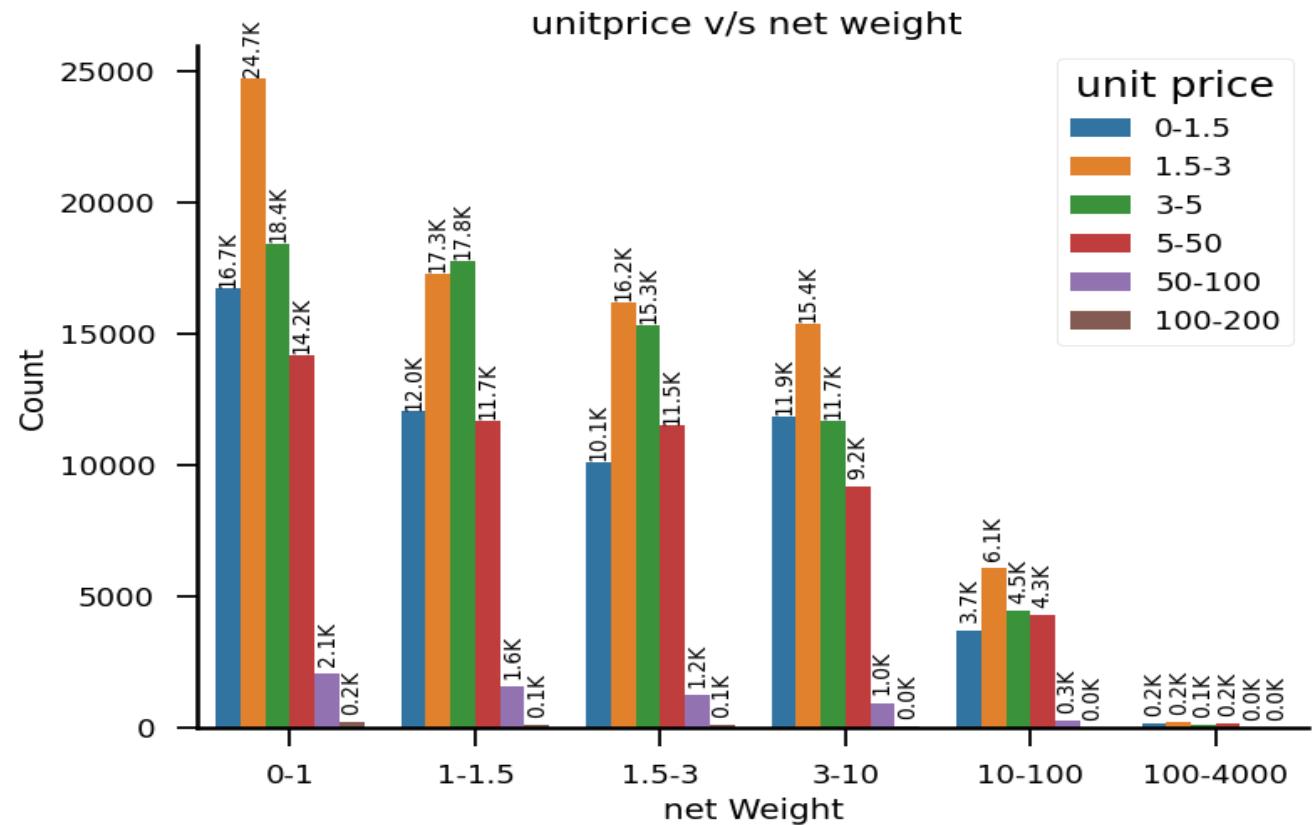
BIVARIATE ANALYSIS WRT QNTY

1. 0-100 quantity ranges dominate the Food Category, highest being 0-6 bin with 73.2 K orders
2. 0-23 quantity ranges dominate the Drinks Category with highest in 0-6 bin.

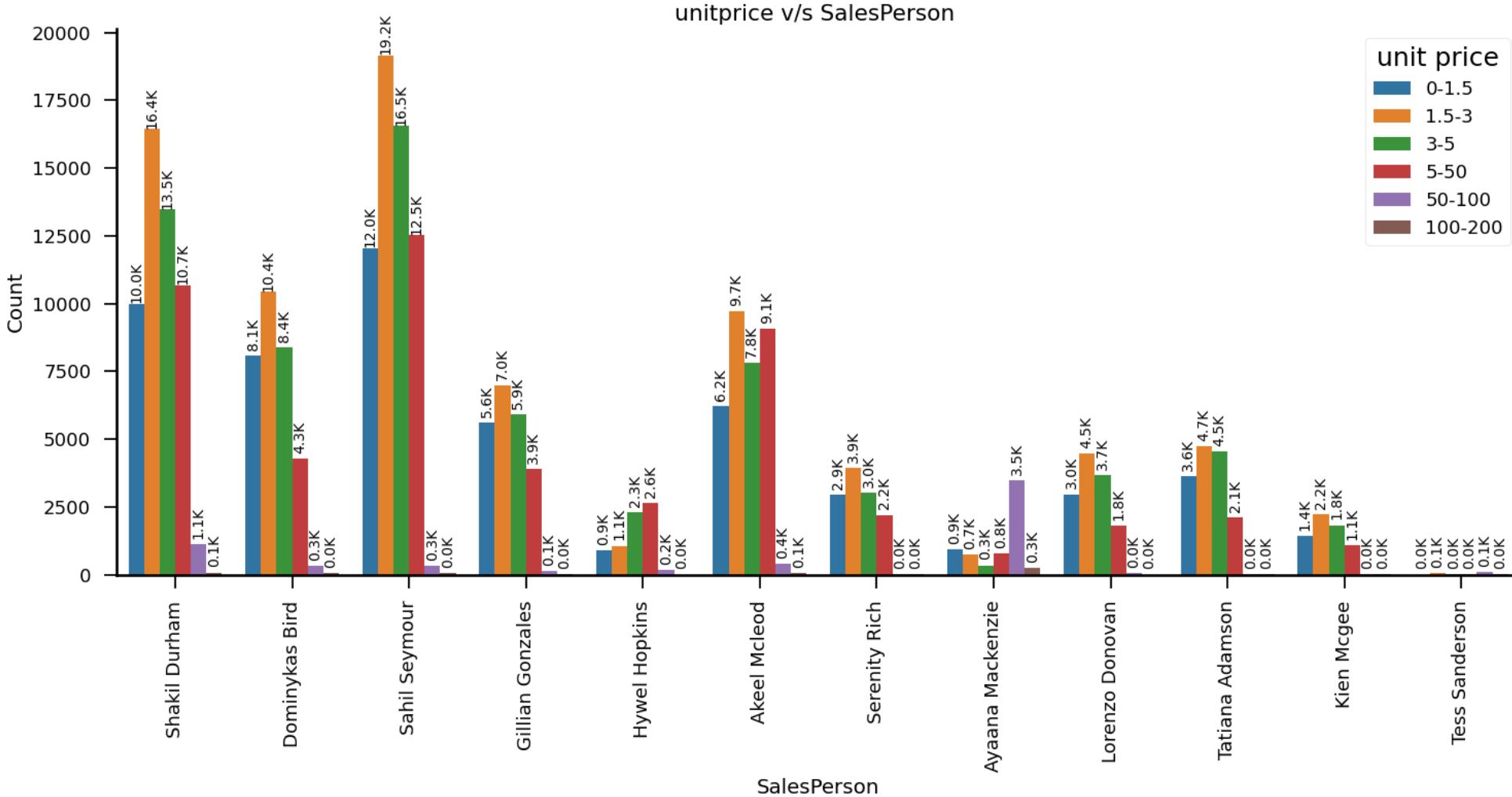


BIVARIATE ANALYSIS WRT UNIT PRICE

1. When the net weight range is 1-3, most frequent unit price range is
2. \$1-5.
3. When the net weight range is 0-1, The most frequent unit price range is \$1.5-3.
4. Rest of the net weight bins follow the same Trend, 0-5\$ is the price range.
5. Heaviest orders are least frequent, marginally present in the lower price ranges.



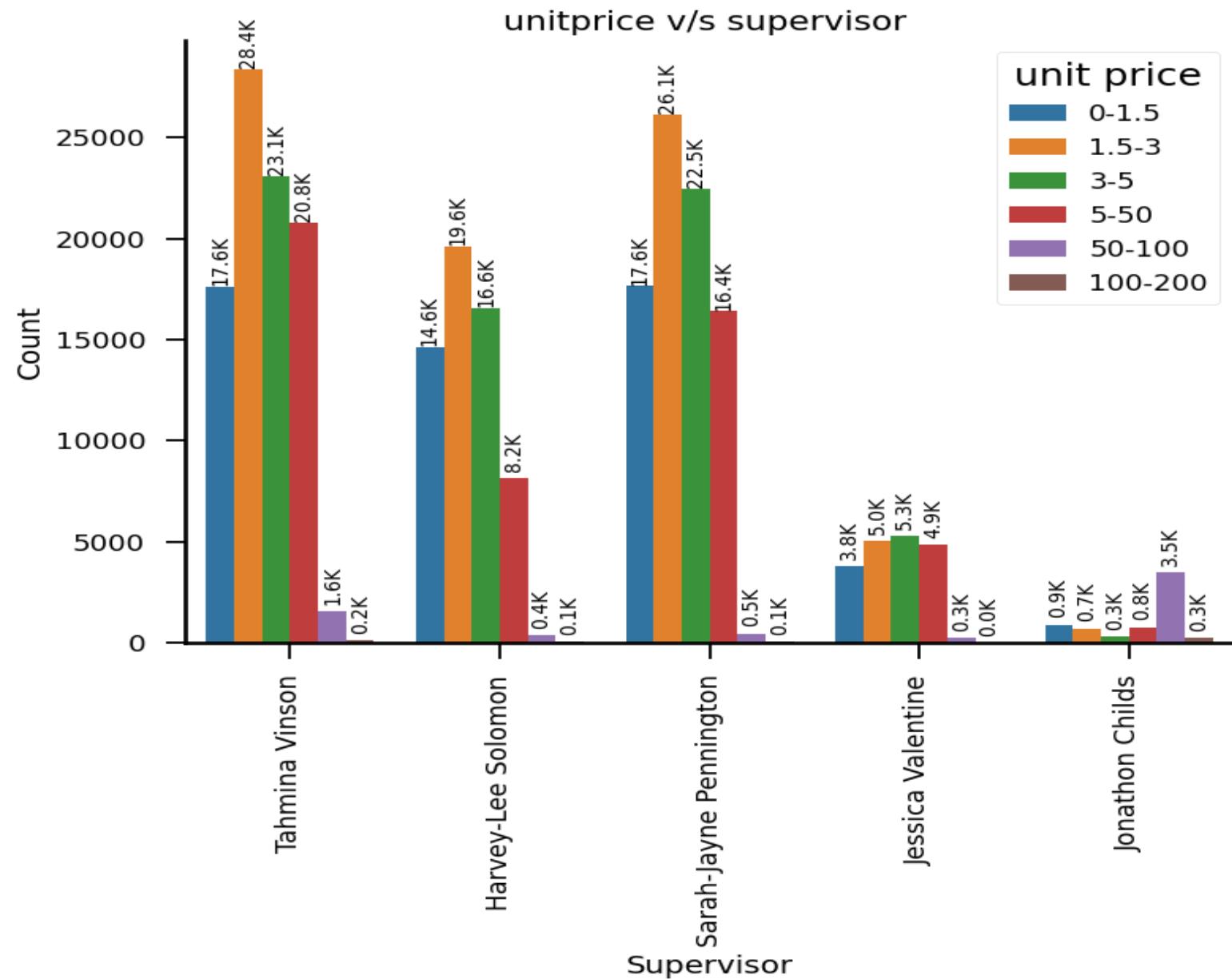
BIVARIATE ANALYSIS WRT UNIT PRICE



1. Hywel Hopkins has most orders in the range of \$5-50.
2. Akeel has most orders in the range of \$1.5-3 and \$5-50.
3. Ayaana has 3500 orders in \$50-100.
4. Rest of the sales person having most of their orders in the 0-5\$. Among them , Sahil Seymour has 19K orders in \$1.5-3 range.

BIVARIATE ANALYSIS WRT UNIT PRICE

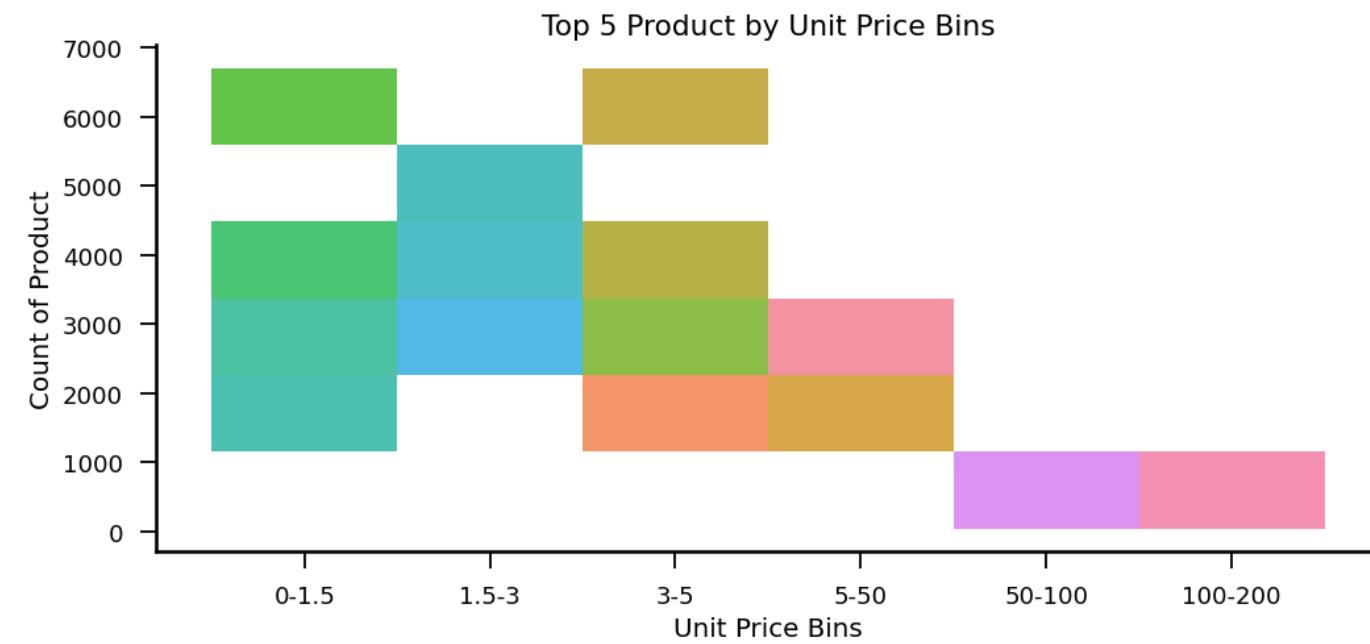
1. Tahmina has around 69 K orders in the range of 0 to 5\$ and 20K orders in 5-50\$
2. Harvey has 50K orders in the range of 0-5\$ and 8k orders in 5-50\$
3. Sarah has 65k orders in the range 0-5\$ and 16K orders in 5-50\$
4. Jonathan has just 6k orders, out of which 3.5K orders are in 50-100\$



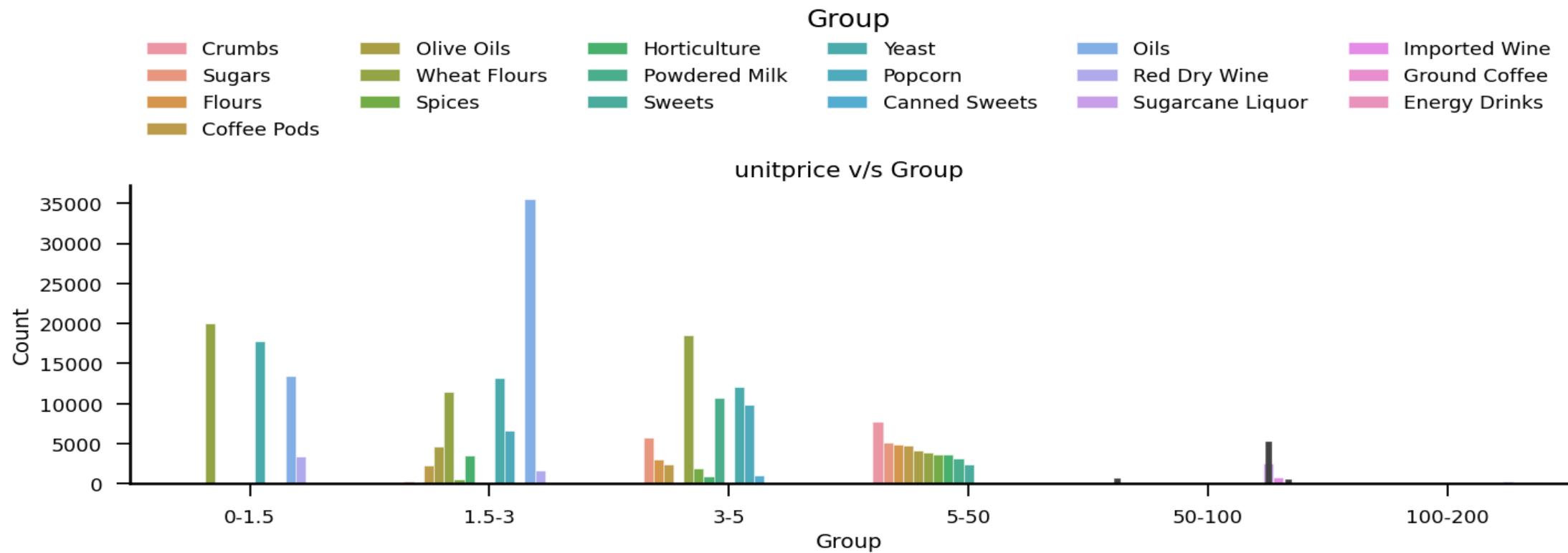
BIVARIATE ANALYSIS WRT UNIT PRICE

Unit Price Range	Most ordered Product's ID
0-1.5	235
1.5-3	2445
3-5	157
5-50	0-6
50-100	1421
100-200	1925

Most ordered Product is product 157 which is in the price range 3-5\$. Higher Price products are ordered very rarely.

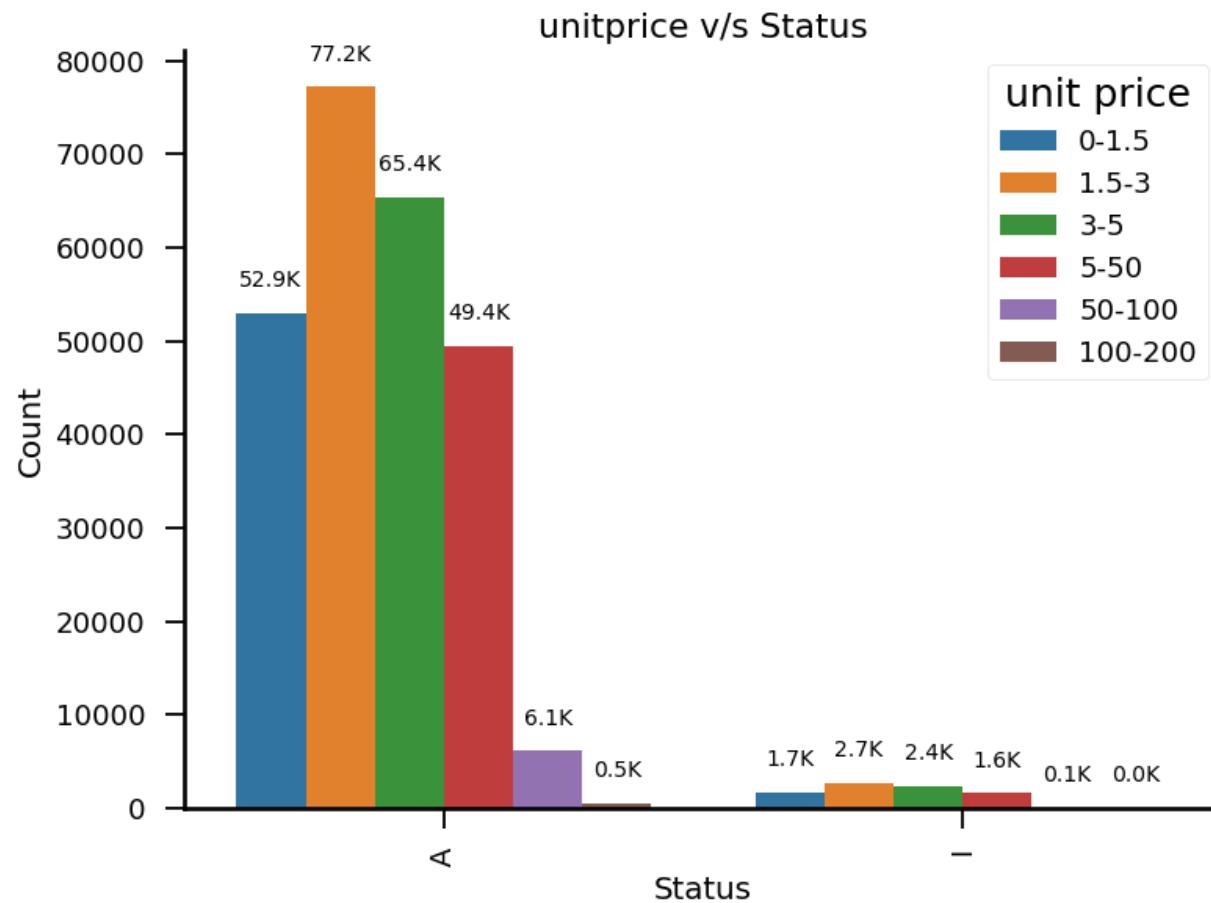


BIVARIATE ANALYSIS WRT UNIT PRICE



1. Oils dominates the 1.5-3\$ range followed by 0-1.5\$
2. Wheat flours dominate the 0-1.5 and 3-5\$.
3. Horticulture , Powdered Milk, Yeast, Popcorn have most orders in 0-5\$.
4. In 5-50\$ range, Crumbs, sugars and flours dominate.

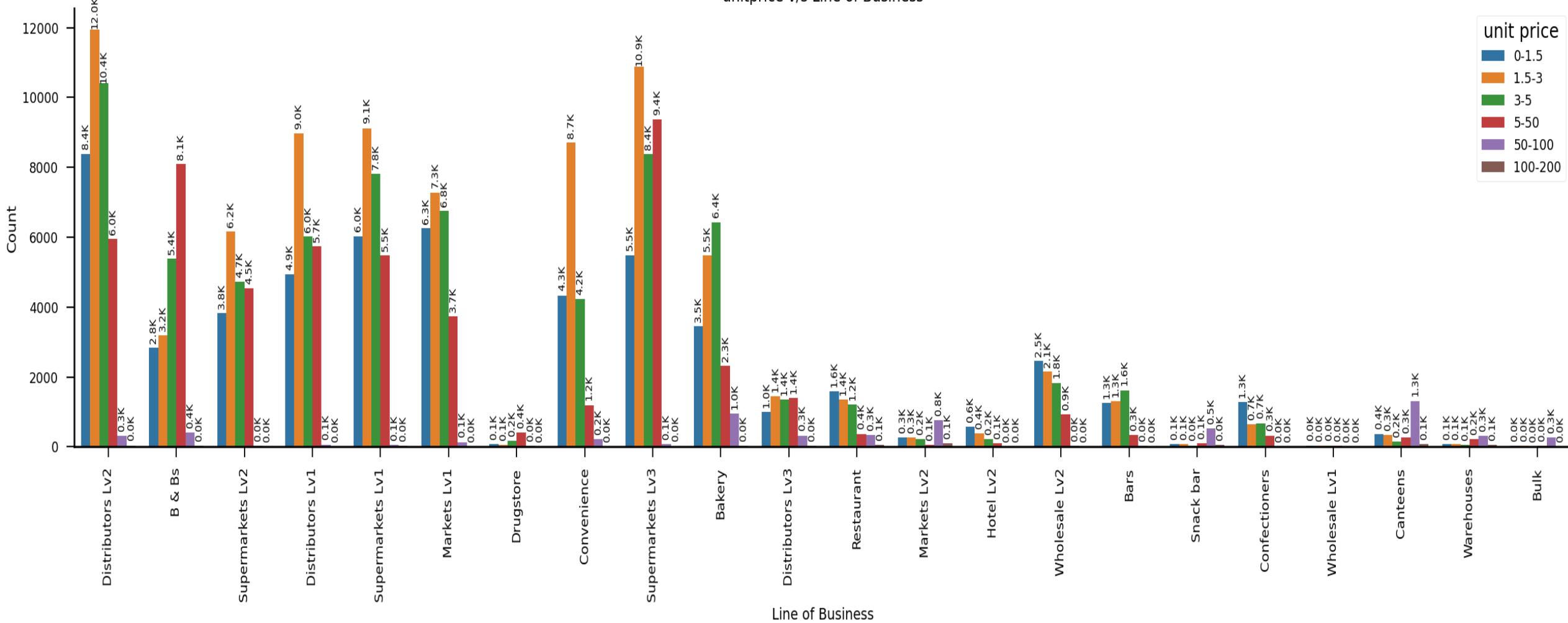
BIVARIATE ANALYSIS WRT UNIT PRICE



Active Customers have ordered more, with highest being in the range of \$1-5.

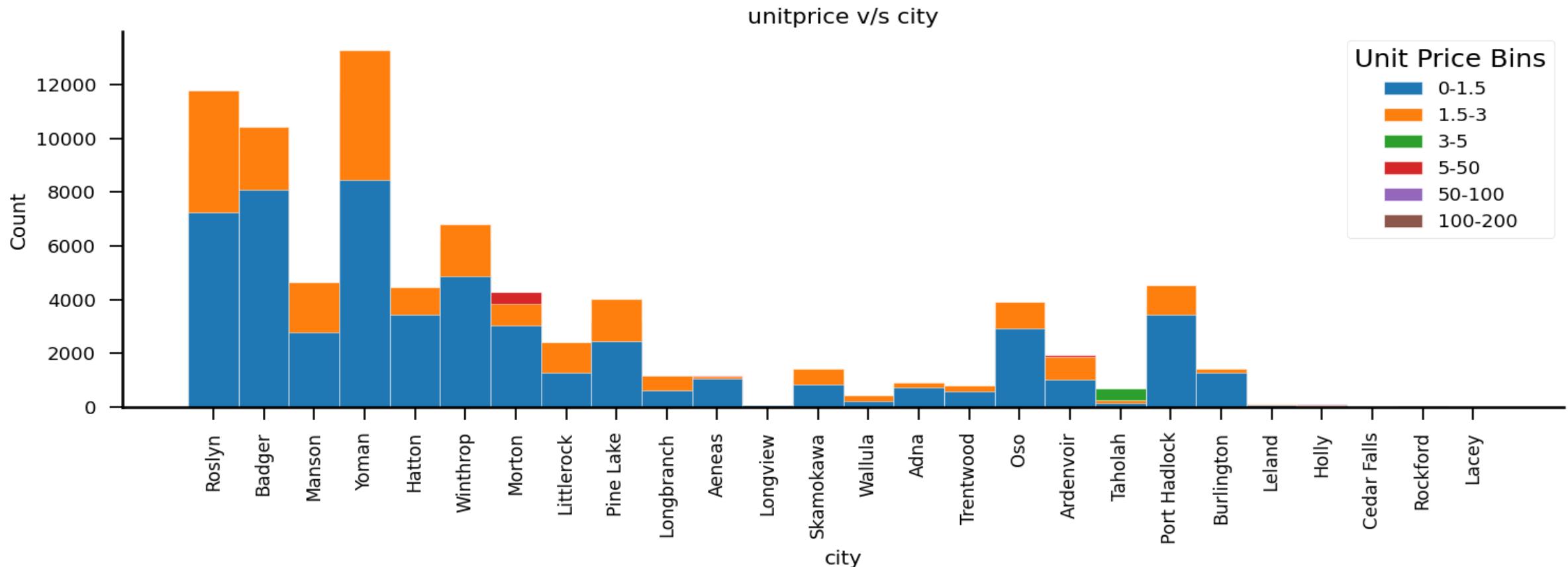
BIVARIATE ANALYSIS WRT UNIT PRICE

unitprice v/s Line of Business



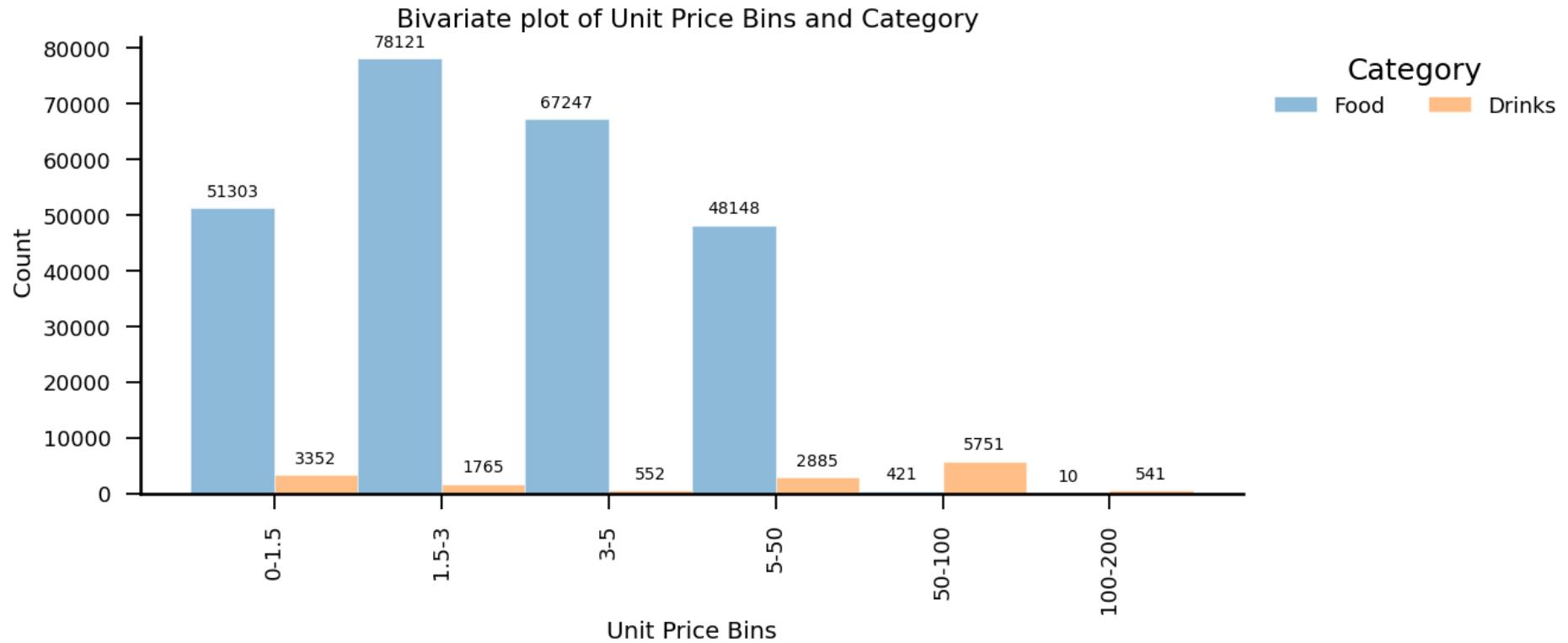
1. Distributors and Supermarkets have most orders in the range of 0-5\$
2. B&Bs and Drugstore have most orders in 5-50\$ range
3. Warehouses, Bulk, Snack Bar , Markets and Canteens have ordered most in 50-100\$ and few hundred orders in the range 100-200\$.

BIVARIATE ANALYSIS WRT UNIT PRICE



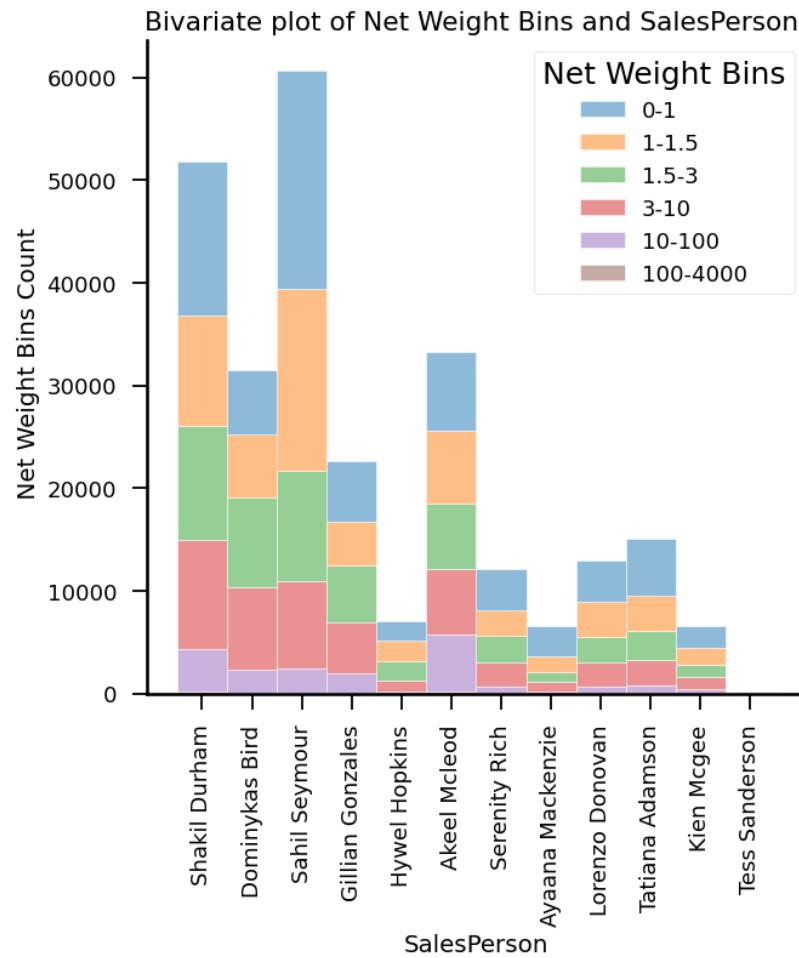
1. Across all top cities, 1.5-3\$ range dominates followed by 0-1.5\$,
2. Most orders coming from Yoman and Roslyn for both the lower price ranges.
3. Taholah is the only city that has 3-5\$ dominating the price of most orders

BIVARIATE ANALYSIS WRT UNIT PRICE

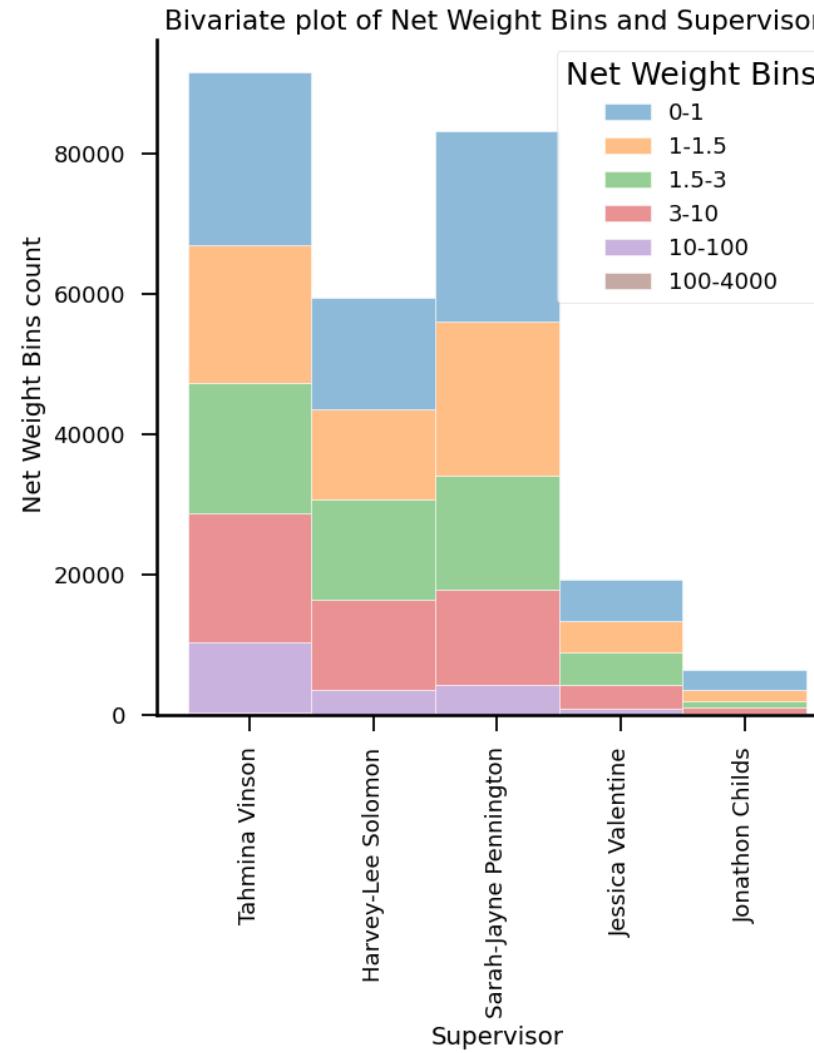


1. Food Category dominates the lower price ranges form 1-50\$(most being in 1.5-3\$)
2. Drinks dominate the 50-100\$ range.

BIVARIATE ANALYSIS OF SALESPERSON WRT NET WT



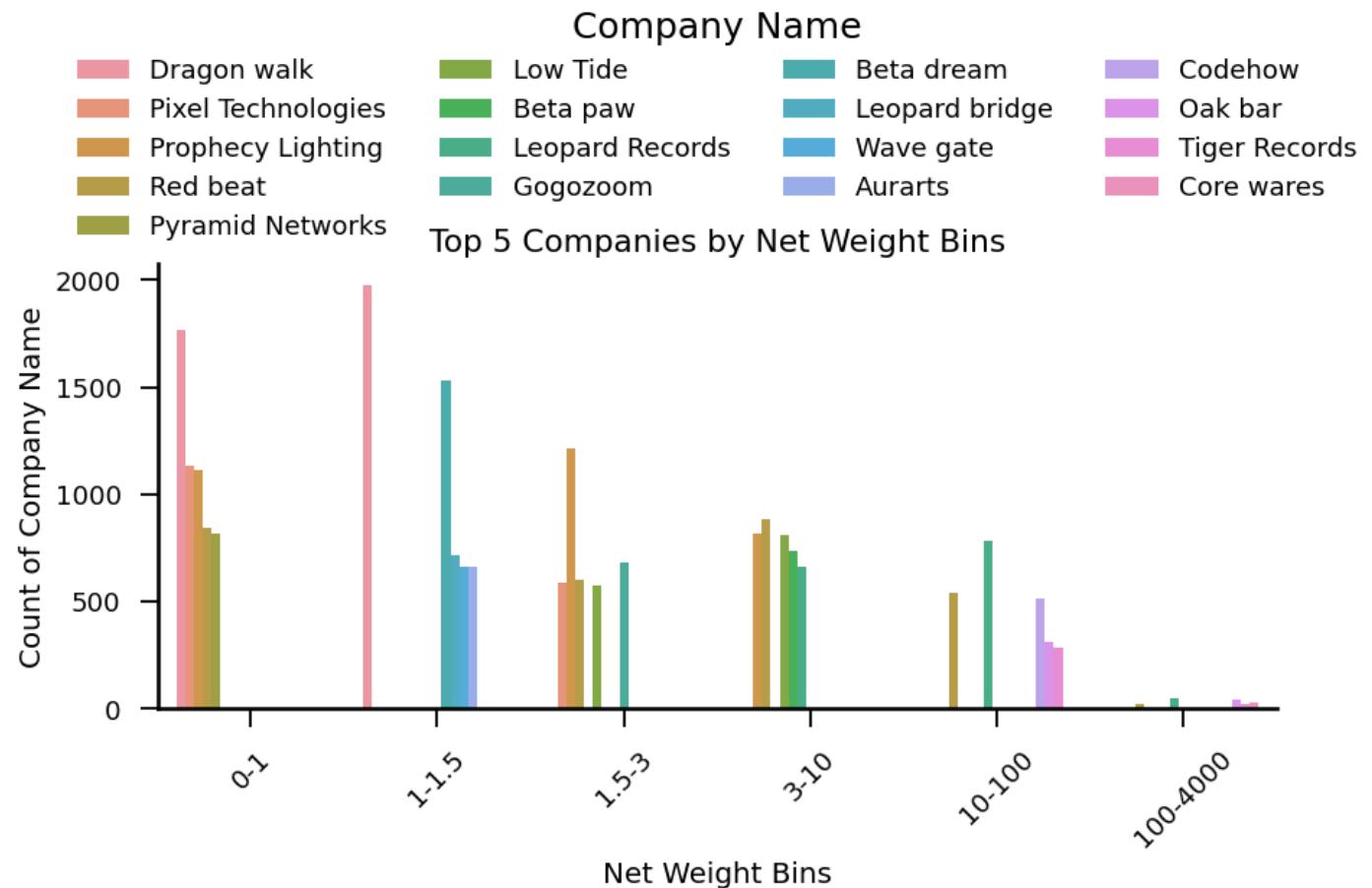
1. Shakil and Sahil stand out with a higher number of 0-1 net wt bins, indicating their involvement in transactions with smaller quantities.
2. Conversely, Kien and Tess have the least count of quantity bins among all salespersons, suggesting a different focus or sales approach.



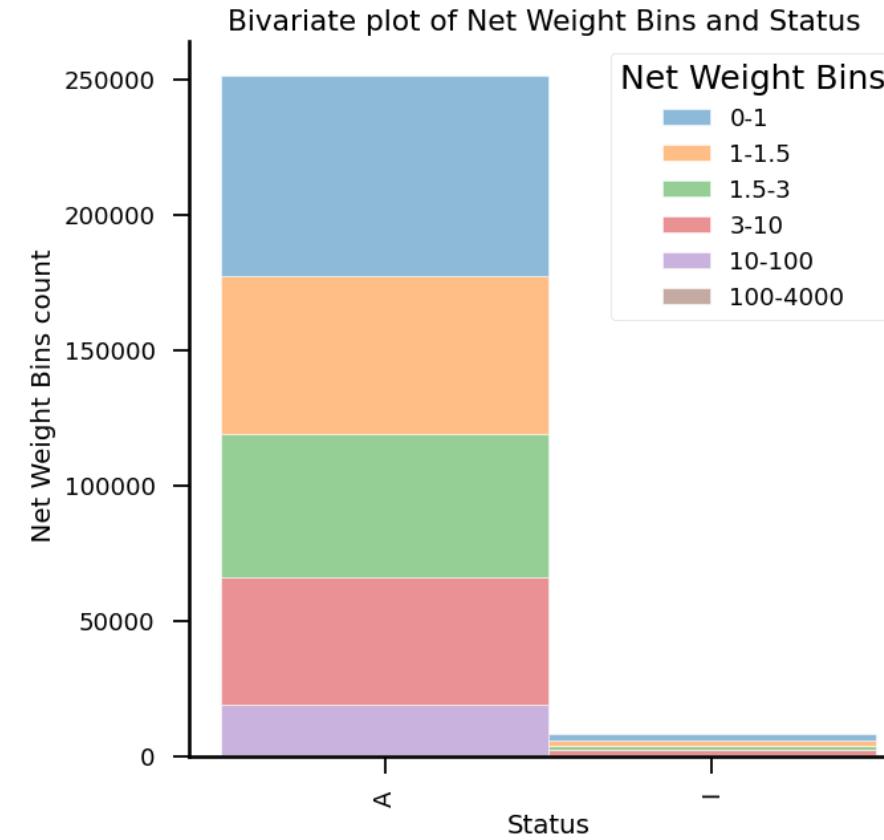
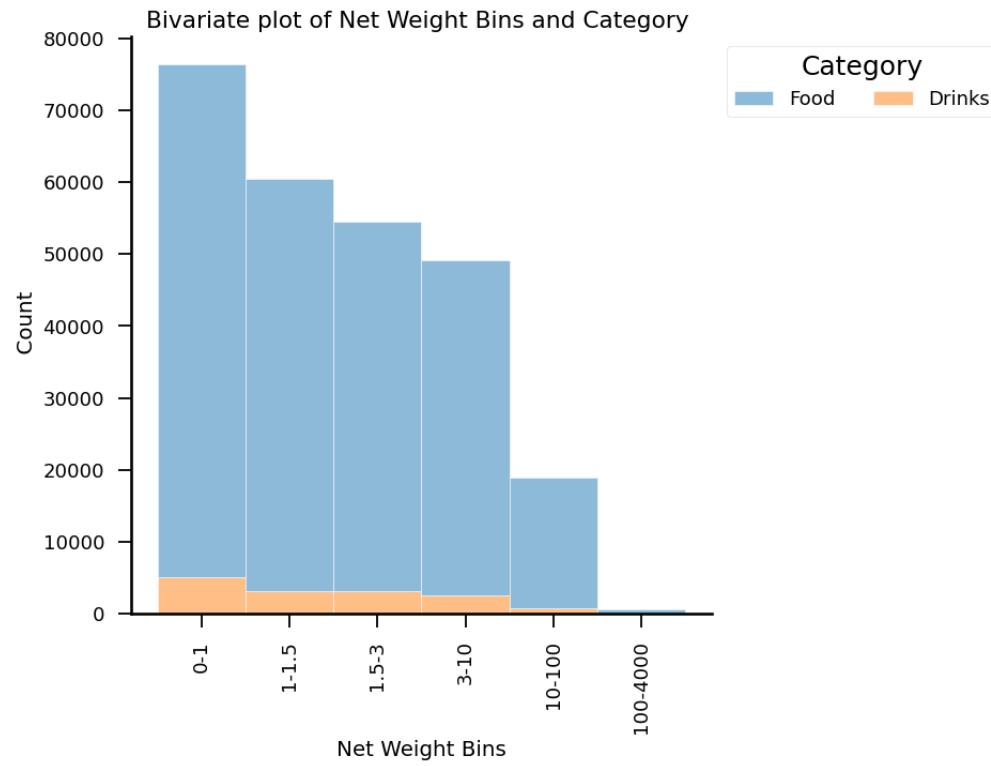
1. Shakil and Sahil stand out with a higher number of 0-1 net wt bins, indicating their involvement in transactions with smaller quantities.
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BIVARIATE ANALYSIS WRT NET WT

1. Dragon Walks dominates low net wt bins 0-1 and 1-1.5 .
 2. Prophecy lighting and Red Beat dominate the lower weight bins 1.5-3 and 3-10.
 3. Leopard Records dominates higher net wt bins 10-100.



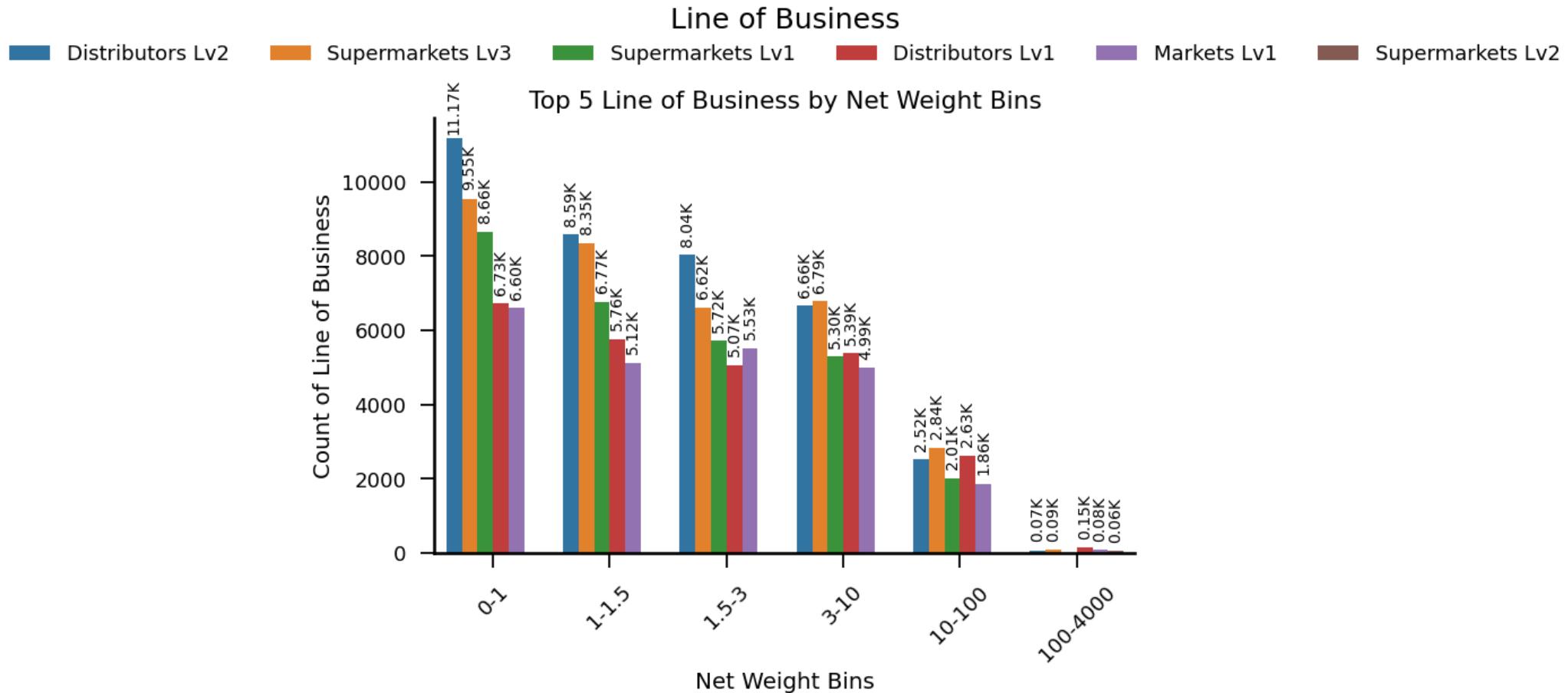
BIVARIATE ANALYSIS WRT NET WT



- Food products lead significantly across all wet ranges, highest in 0-1 bin (~8000)
- Drinks lag behind and most counts spread across lower wt bins, highest in 0-1 bin (~5000)

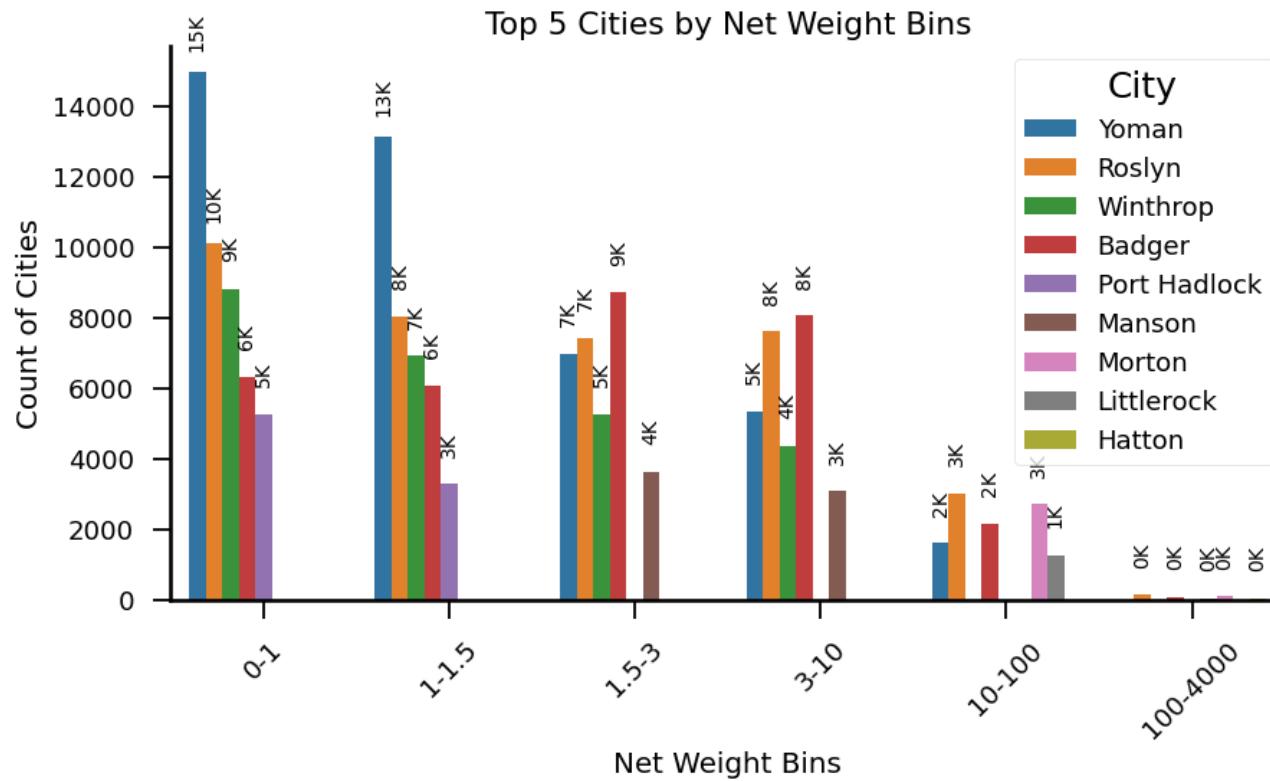
- Active customers lead significantly in both the segment of customers

BIVARIATE ANALYSIS WRT NET WT



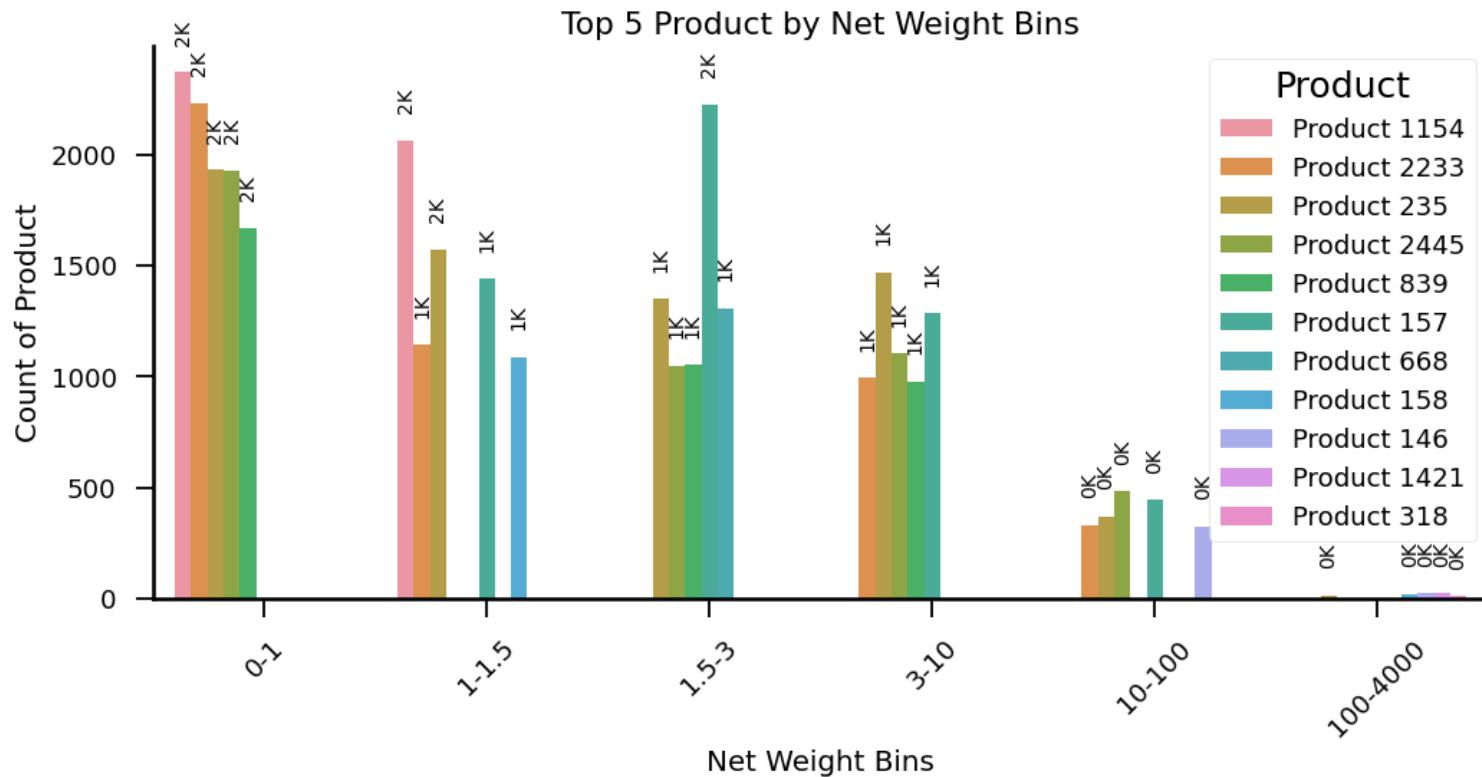
When considering the types of businesses, distributors and supermarkets emerge with the highest count for 0-1 net wt bins, reflecting their involvement in a wide range of transactions covering different net weights. 100-4000 is the least preferred.

BIVARIATE ANALYSIS WRT NET WT



1. Geographically, locations like Badger and Roslyn exhibit highest counts for 1.5-3 and 3-10 Net wt bins.
2. Yoman exhibit the highest counts for lower wt bins 0-1 and 1-1.5 bins, indicating significant transactional activity across these regions.
3. Conversely, locations such as Leland, Holly, and Lacey have lower counts, suggesting relatively lower transaction volumes.

BIVARIATE ANALYSIS WRT NET WT

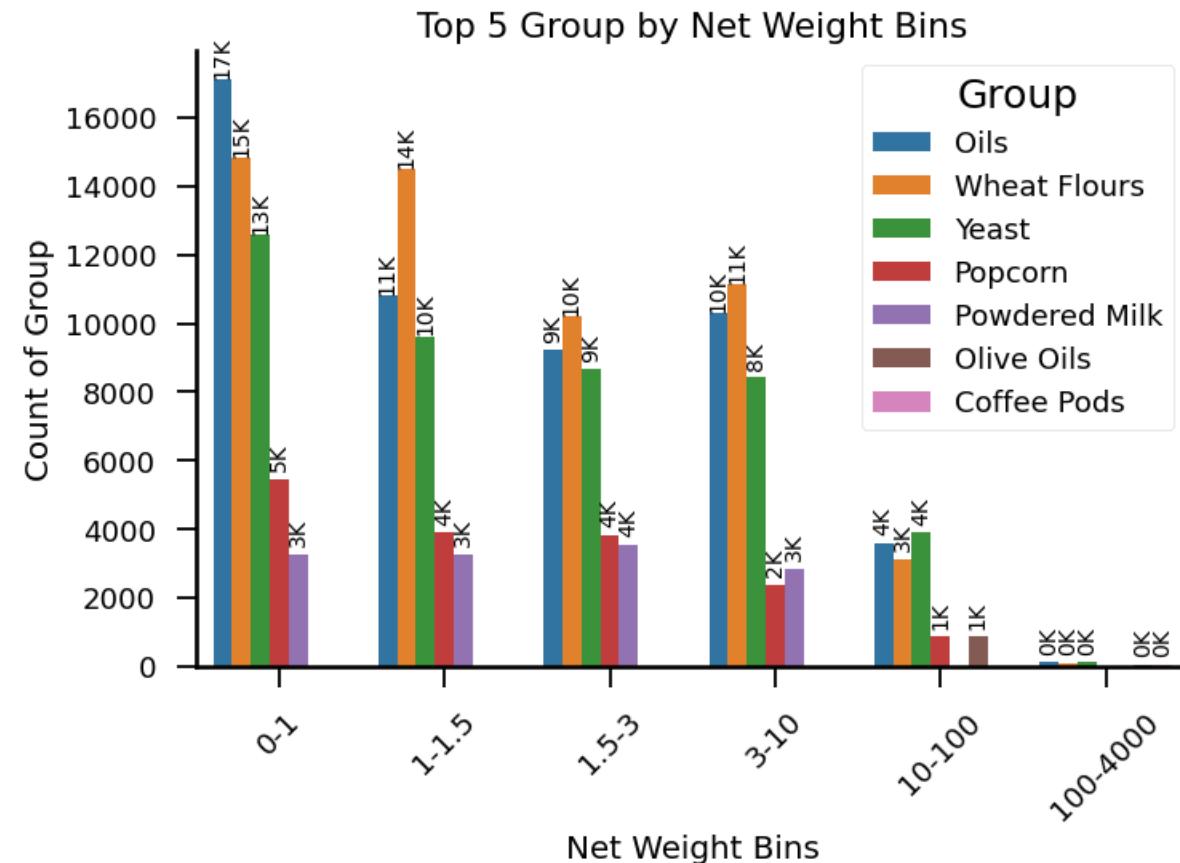


1. Product 1154 is most popular in 0-1 and 1-1.5 bins.
2. Product 157 and 2445 most popular in 1.5 to 3, 3-10 and 10-100 bins.
3. Product 318 has few sales only in 100-4000 bin

BIVARIATE ANALYSIS WRT NET WT

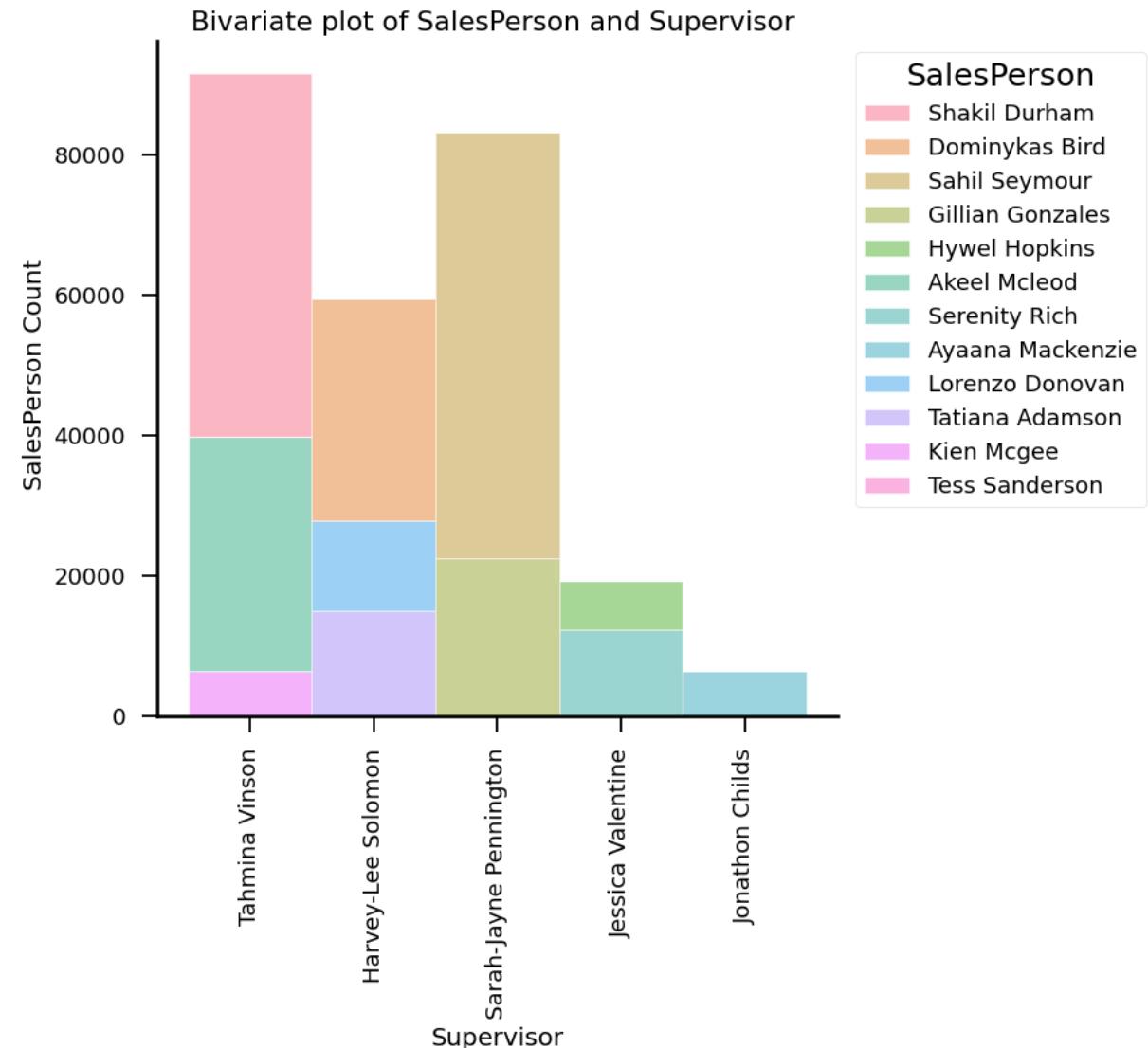
Analyzing product categories reveals interesting patterns:

1. Oils, wheat and Yeast fall within all ranges , indicating common transactional net weights for these items .
2. The highest for Oils being 0-1 net weight bin range. Wheat flour is more prevalent in the lower net weight bins quantity bin range, suggesting larger transaction sizes.
3. Meanwhile in mid range 10-100 bin, Yeast has the highest count.



BIVARIATE ANALYSIS WRT SALESPERSON

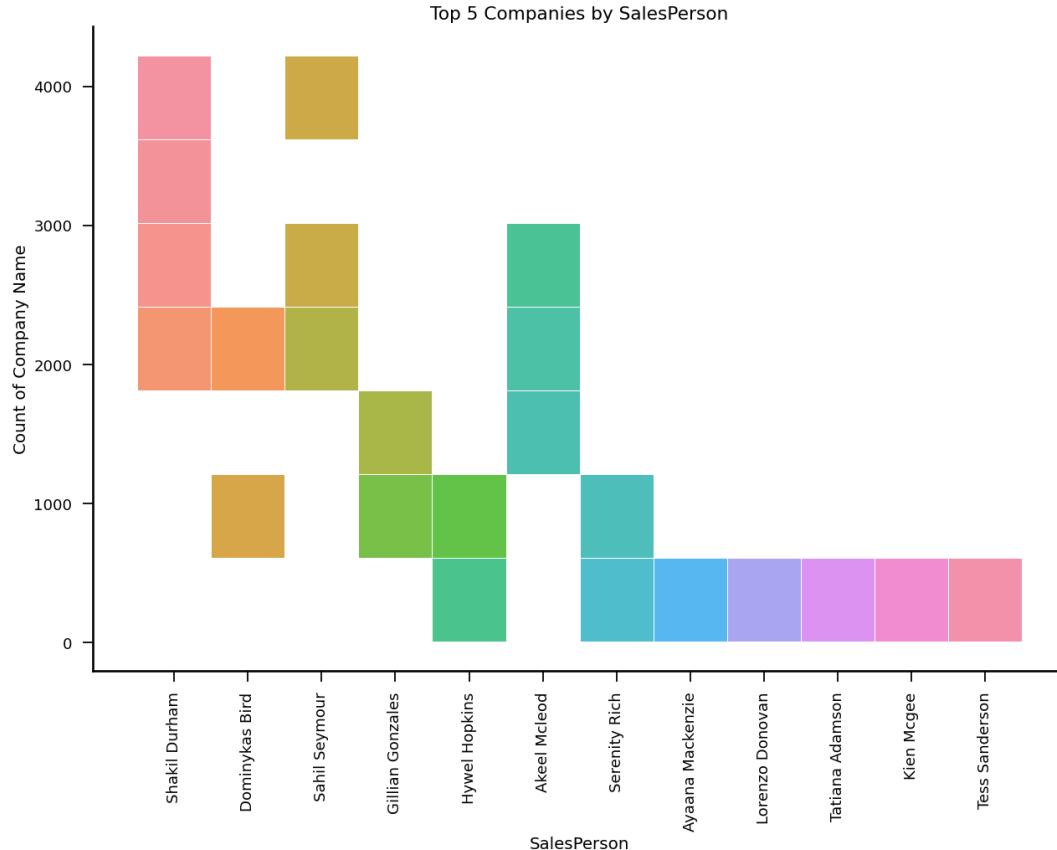
1. Inference:
2. Supervisor Tahmina dominates the organization with top Salesperson like Shakil, Akeel and Kien working under her.
3. Supervisor Sarah has Sahil and Gillian working under her coming in at close second .
4. Jonathan Child has just one salesperson Ayaana who need to improve on their performance



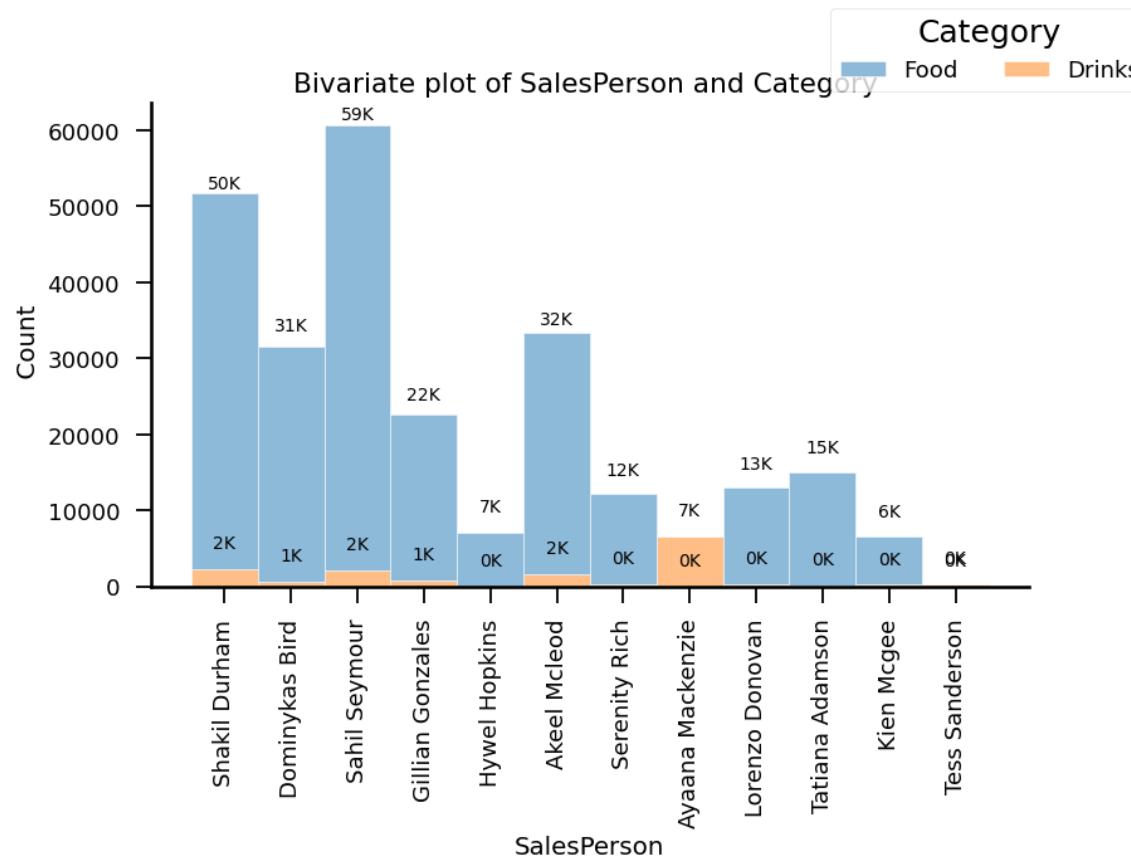
BIVARIATE ANALYSIS WRT SALESPERSON

Inferences:

1. Salespersons Shakeel, Sahil and Akeel engage deal with a wide range of companies showing an impressive list of clientele. The top companies they engage with, such as Prophecy Lightning and Red Beat for Shakil, and Core Wares and Global Solutions for Dominykas, signify their significant client relationships and market presence
2. Tatiana, Tess, Lorenzo deal with only one company showing a company gravitating towards a single salesperson.



BIVARIATE ANALYSIS WRT SALESPERSON

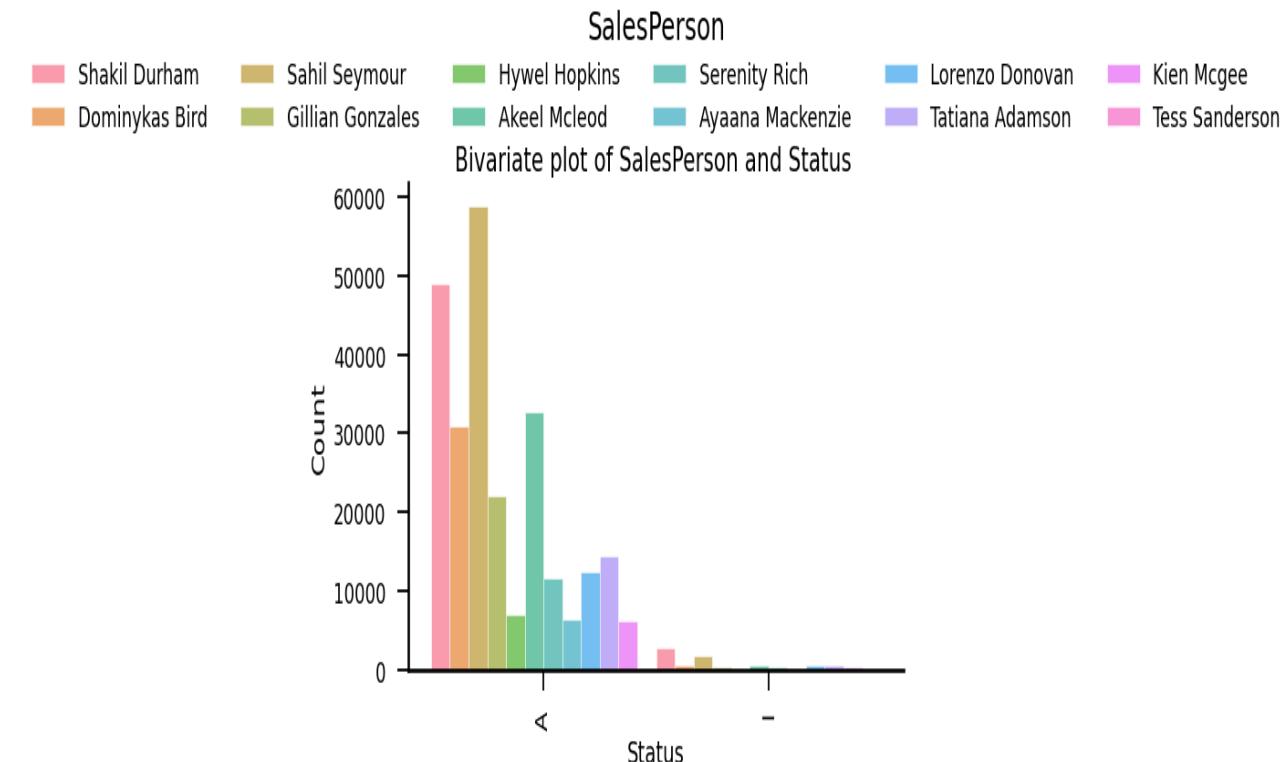


Inference:

Salesperson Sahil and Shakil are top performers in Food

Category.

Ayaana Mackenzie is the top performer in Drinks Category.

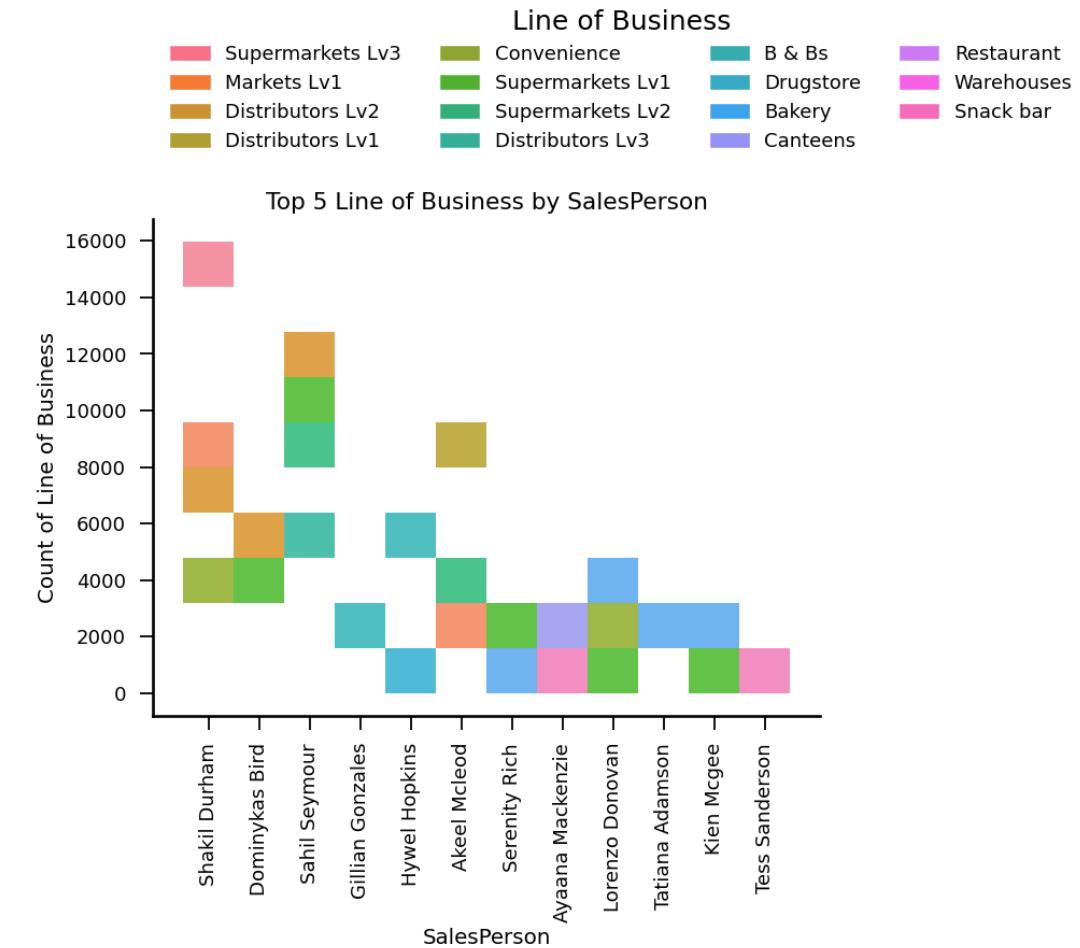


Inference:

Salesperson Salespersons deal with Active customers.

BIVARIATE ANALYSIS WRT SALESPERSON

1. Inference:
 2. Shakil, Sahil and Akeel's involvement in diverse lines of business, spanning supermarkets, distributors, B&Bs, and bakery sectors, reflects adaptability and strategic alignment with market demands.
 3. On the other hand, Tess deals with Warehouses only.



BIVARIATE ANALYSIS WRT SALESPERSON

Inferences:

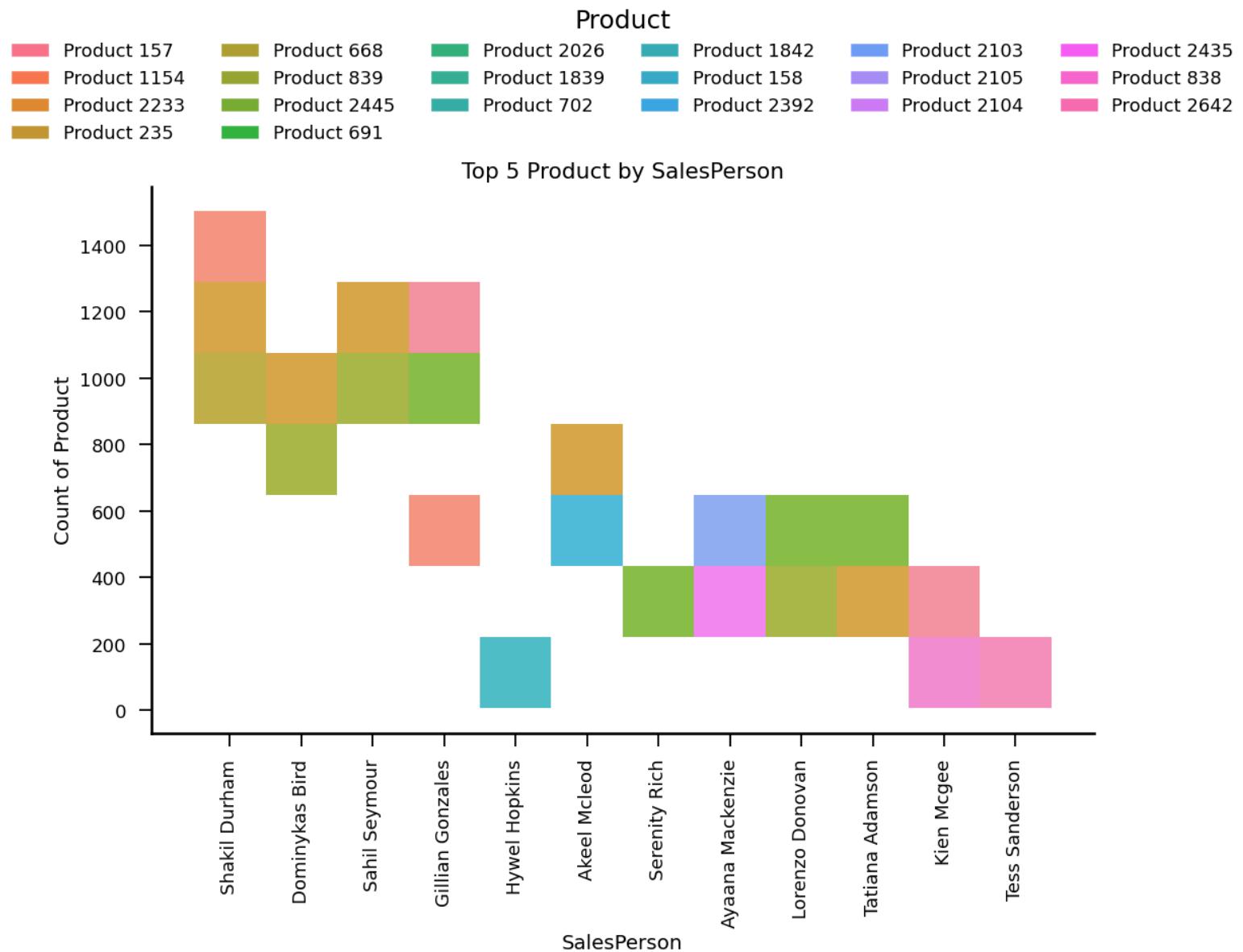
1. Shakeel deals with customers in Roslyn and Badger (highest no. of customers).
2. Sahil deals with customers in Yoman, Pine Lake and Adna. (highest no. of customers).
3. Akeel deals with Littlerock, LongBranch and Wallula.
4. Rest of them have customers spread across diverse locations.



BIVARIATE ANALYSIS WRT SALESPERSON

Inference:

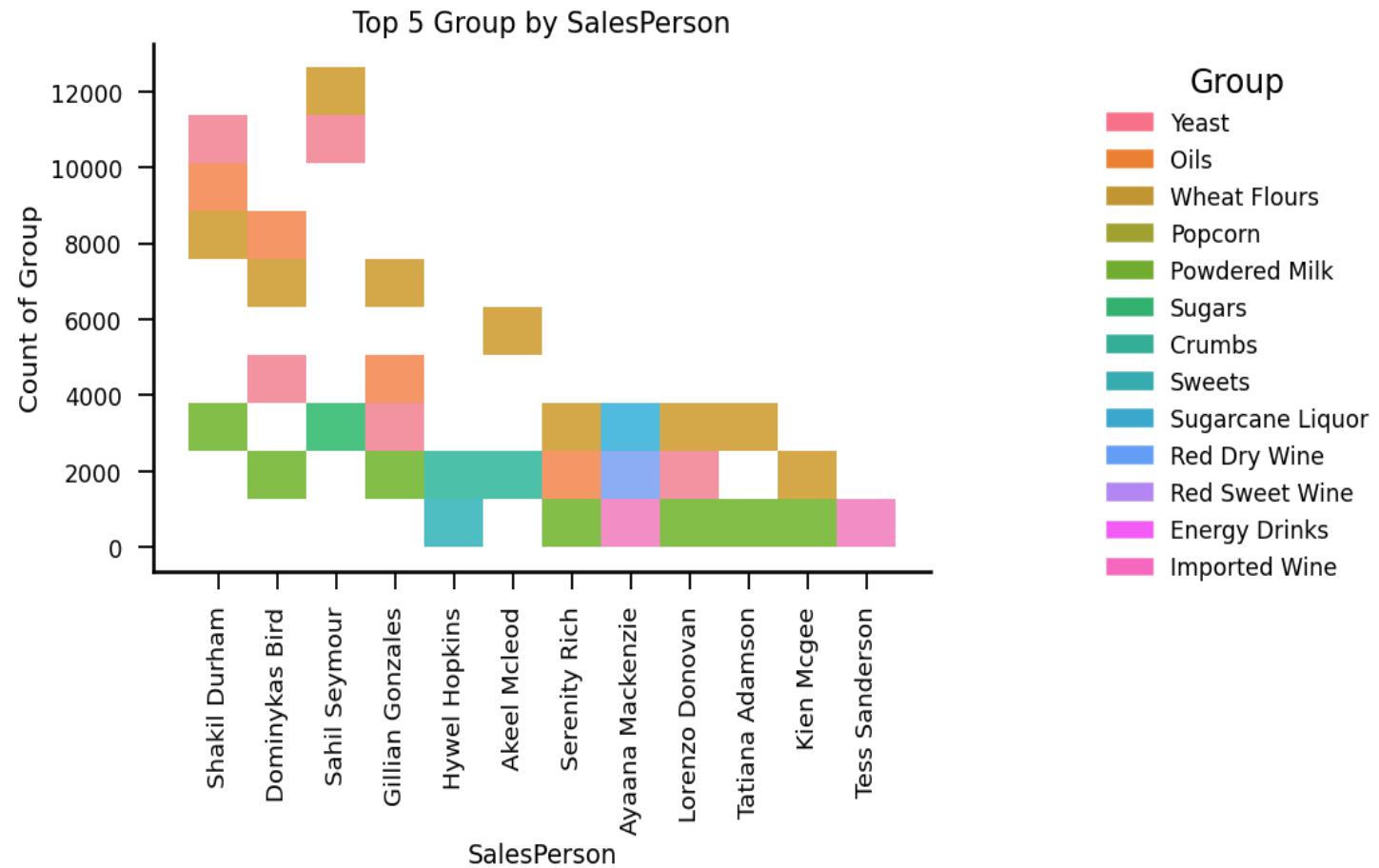
1. Shakeel and Gillian have sold a wide variety of products to companies.
2. Whereas Tess has sold just one type product.



BIVARIATE ANALYSIS WRT SALESPERSON

Inference:

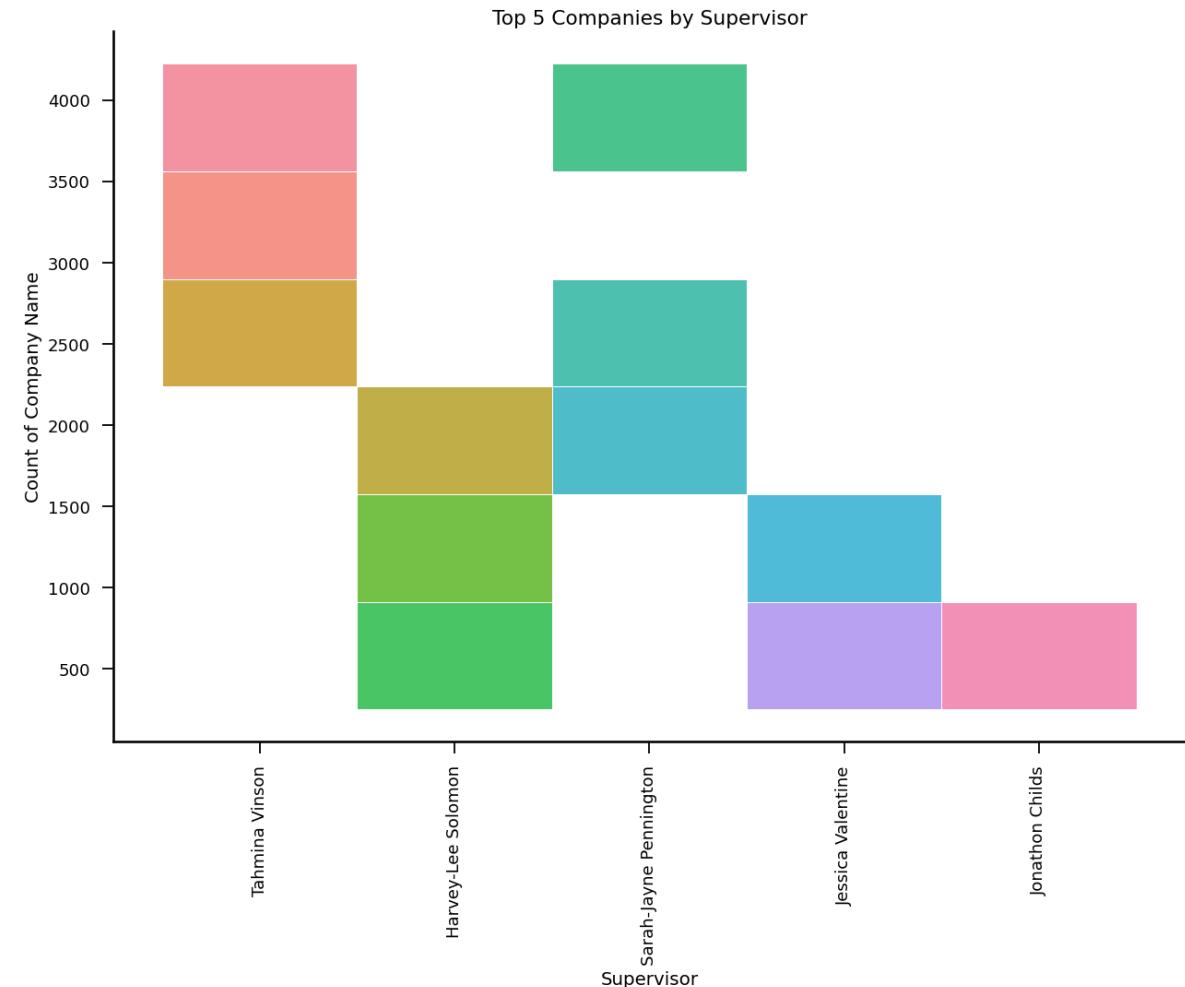
1. The overview of salespersons reveals distinct patterns and contributions within their respective territories and product lines.
2. Shakil Durham and Dominykas emerge as key performers, demonstrating strong sales in products like yeast, wheat flours, popcorn, and powdered milk across areas like Roslyn, Manson City, and Badger.
3. Conversely, Klen and Tess exhibit lower sales, particularly in imported wine, powdered milk, and flours



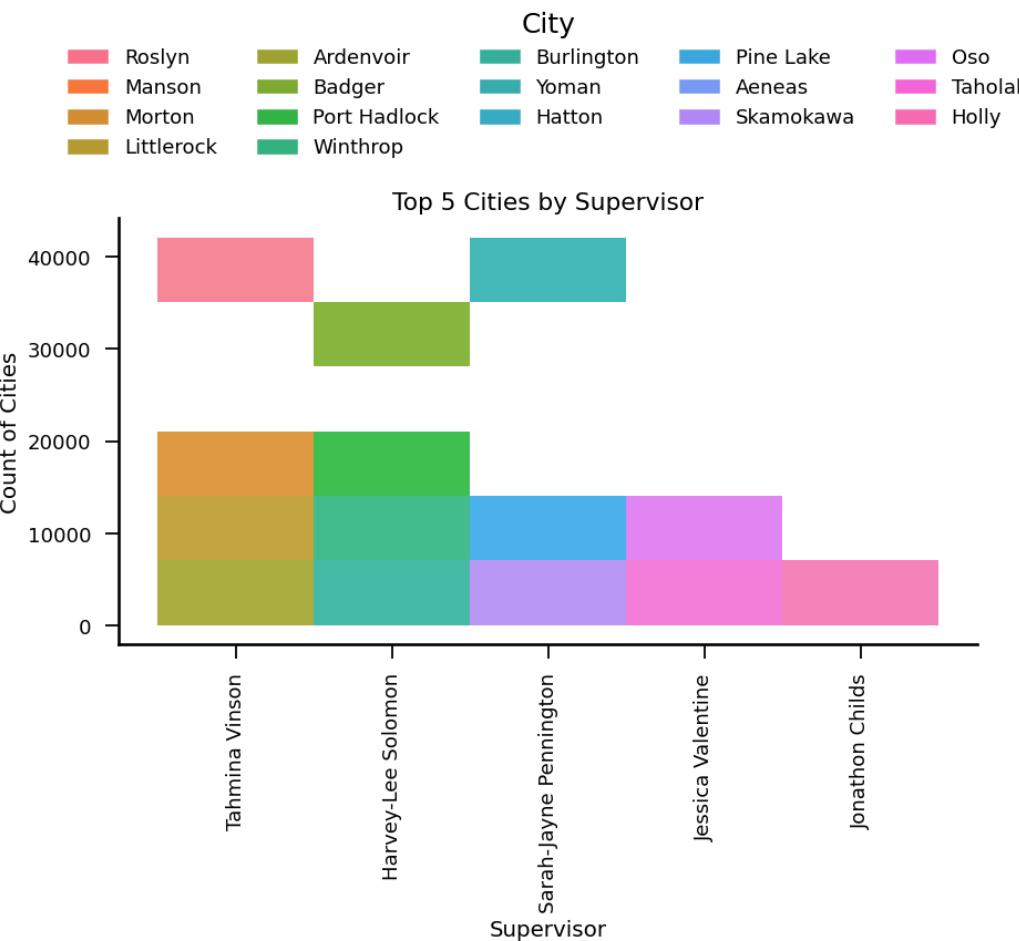
BIVARIATE ANALYSIS WRT SUPERVISOR

Inferences:

1. Tahmina Vinson oversees Prophecy Lighting, Red beat, Pixel Technologies, Leopard Records, and Leopard bridge as the top five companies.
2. Harvey-Lee Solomon supervises Core wares, Global Solutions, Maze master, Green Electronics, and Silver Lining Navigations.
3. Jonathan Childs only deals with Prophecy Lighting.

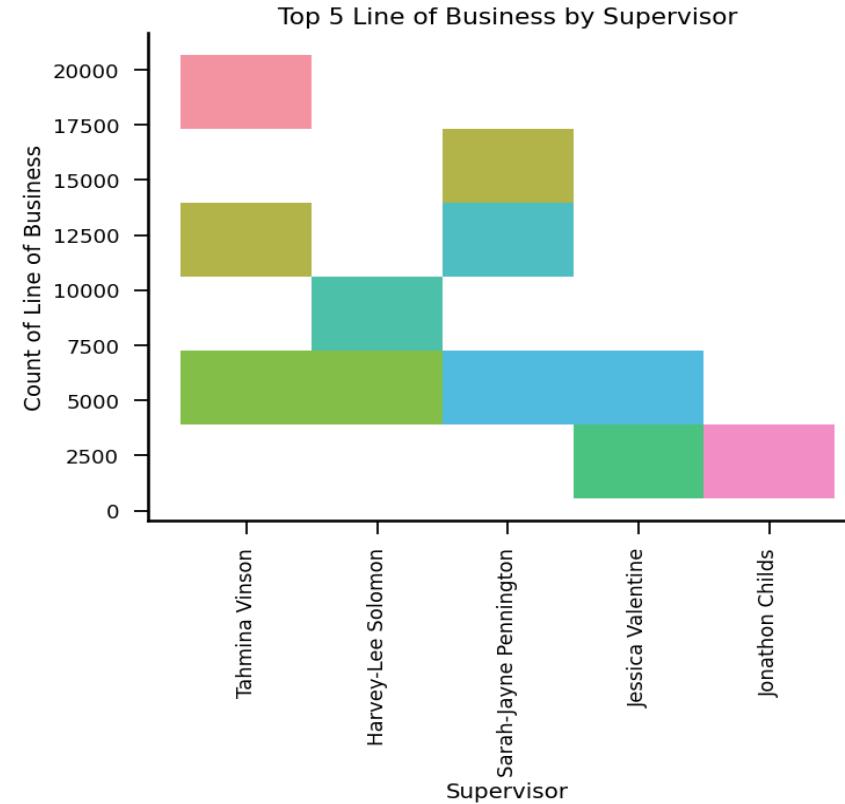


BIVARIATE ANALYSIS WRT SUPERVISOR



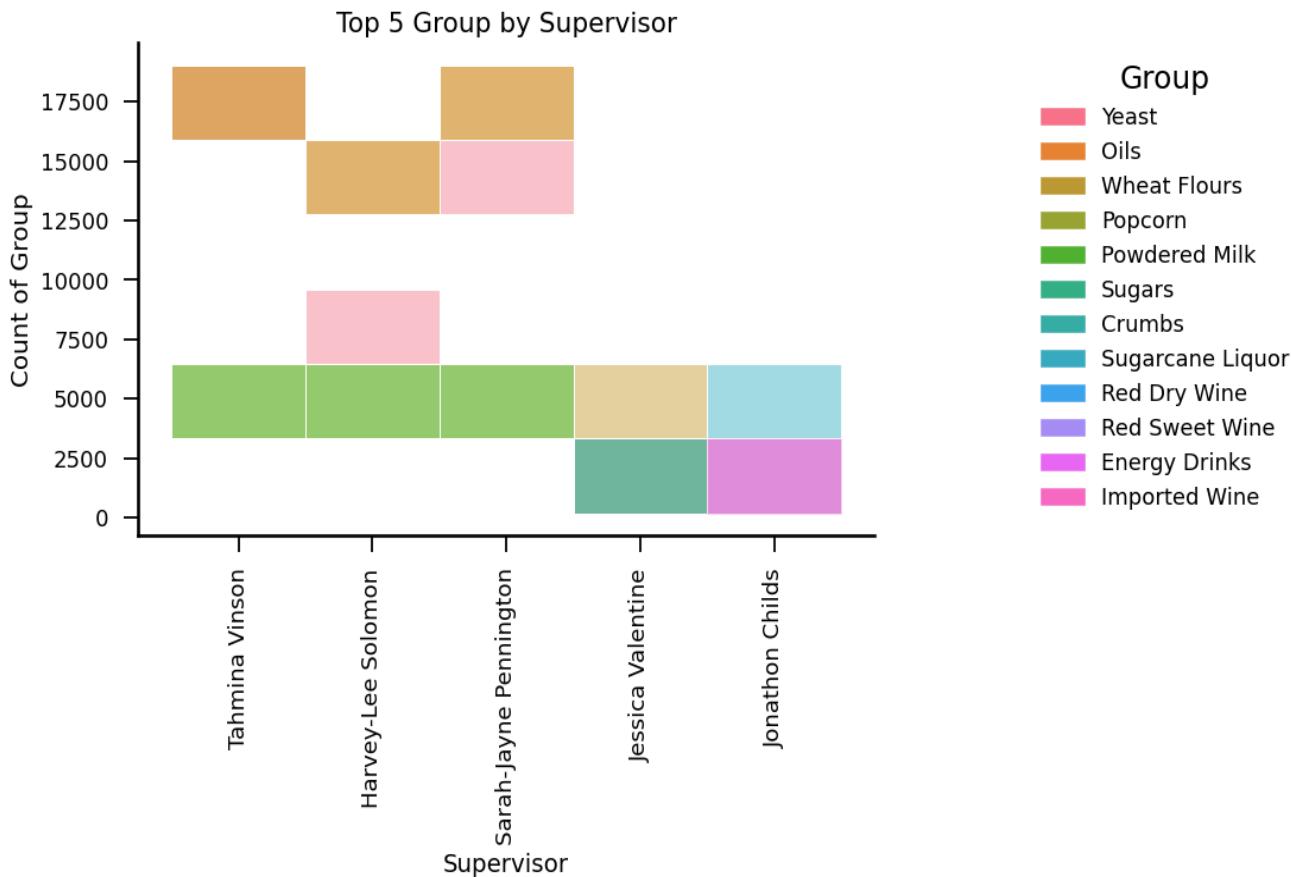
1. Tahmina Vinson's team is concentrated in Roslyn, Manson, Morton, Littlerock and Ardenvoir.
2. Harvey-Lee Solomon's team operates in Badger, Port Hadlock, Winthrop, Burlington, and other cities.

BIVARIATE ANALYSIS WRT SUPERVISOR



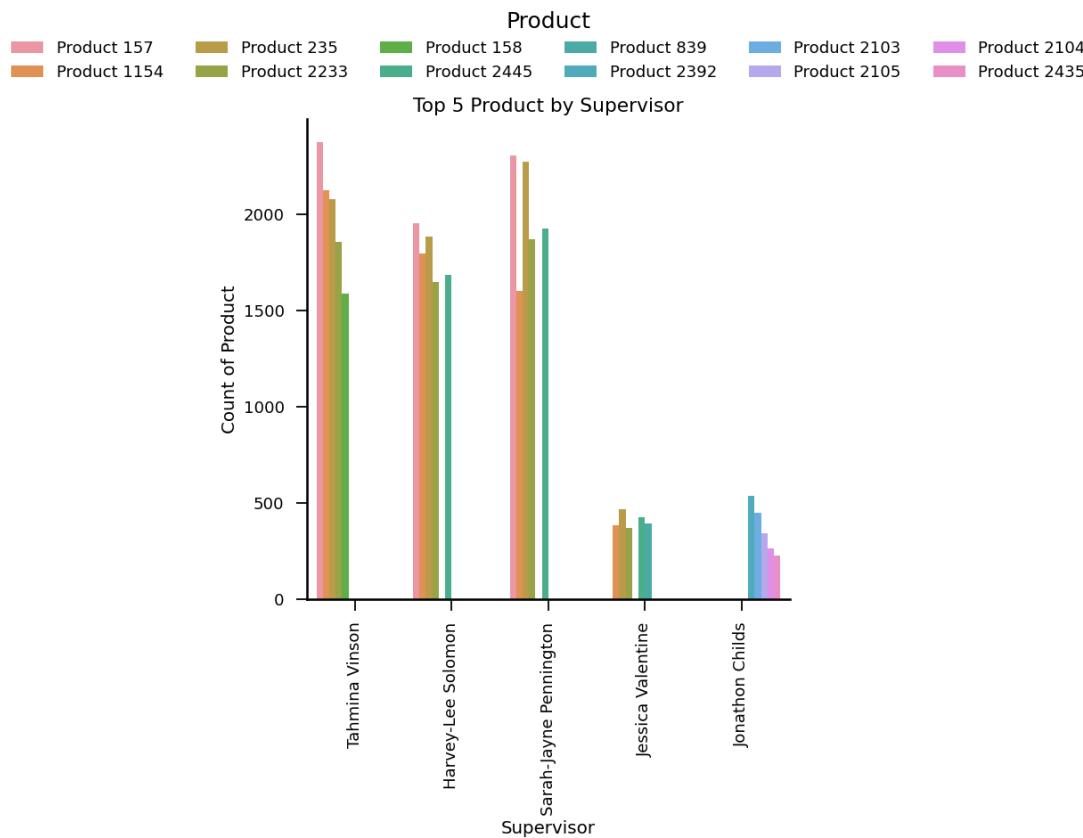
1. Tahmina Vinson's team is primarily involved in Supermarkets Lv3, Distributors Lv1, Markets Lv1, Distributors Lv2, and Supermarkets Lv1.
2. Harvey-Lee Solomon's team focuses on Distributors Lv2, Bakery, Convenience, Markets Lv1, and Supermarkets Lv1.

BIVARIATE ANALYSIS WRT SUPERVISOR



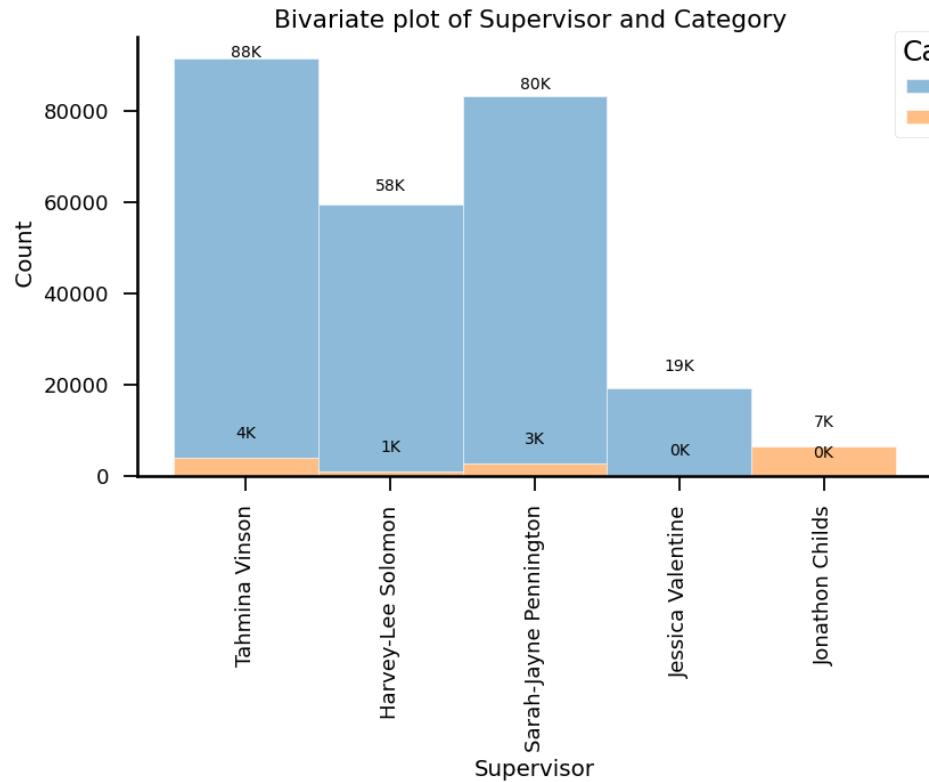
1. Tahmina Vinson's team manages Yeast, Oils, Wheat Flours, Popcorn, and Powdered Milk as the top five groups.
2. Harvey-Lee Solomon's team oversees Oils, Wheat Flours, Yeast, Popcorn, and Powdered Milk.
3. Sarah has Oils, Yeast and Powdered Milk as top selling groups.
4. Jonathan sells the Wine and energy drinks .

BIVARIATE ANALYSIS WRT SUPERVISOR

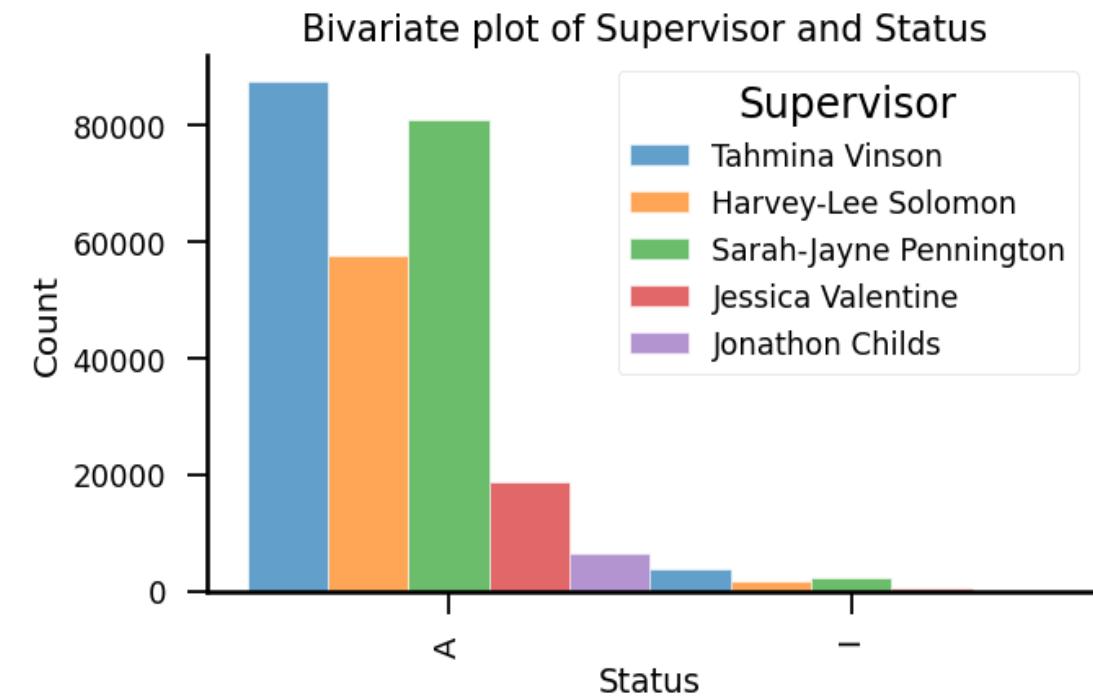


1. Tahmina Vinson's team deals with Product 157, Product 1154, Product 235, Product 2233, and Product 158.
2. Harvey-Lee Solomon's team handles Product 157, Product 235, Product 1154, Product 2445, and Product 2233.

BIVARIATE ANALYSIS WRT SUPERVISOR



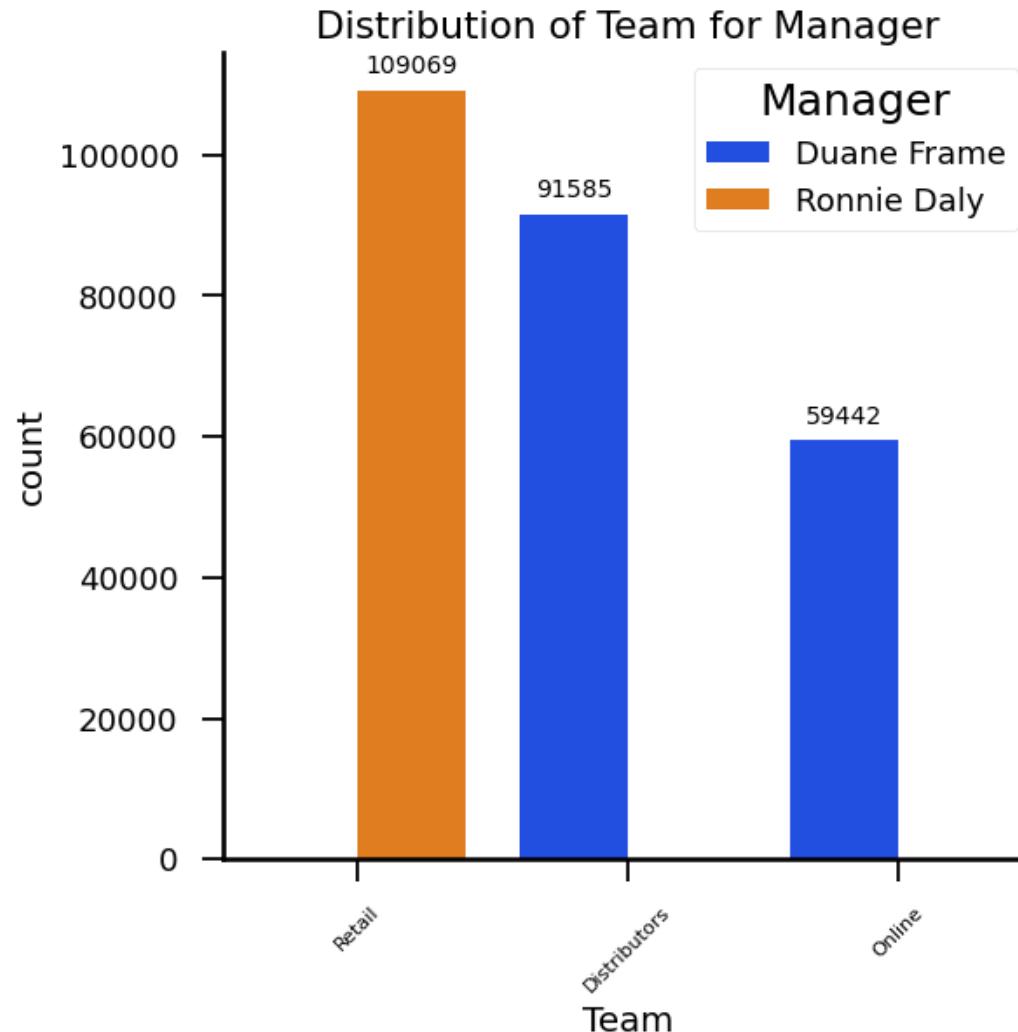
The category distribution varies among supervisors, indicating different areas of focus or specialization within their respective teams



The status distribution varies among supervisors, indicating most supervisors deal with active state customers

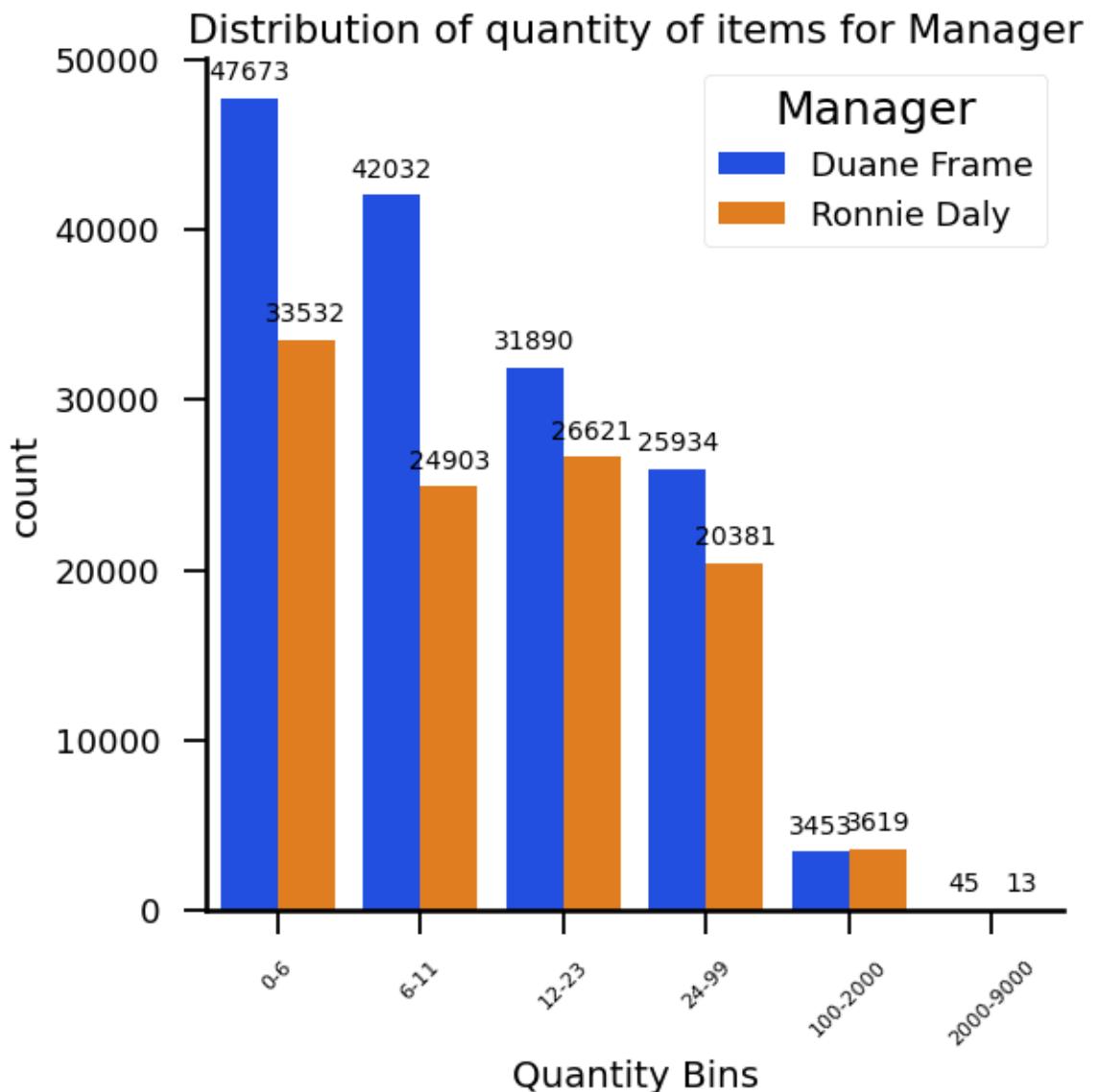
BIVARIATE ANALYSIS WRT MANAGER

- Duane Frame manages both the Distributors and Online Teams. He has about 35.21% of total quantity ordered through distributors ,whereas its 22.85% through online
- Ronnie daly has about 41% total quantity ordered through Retailers. Retail Teams has the most quantity ordered.



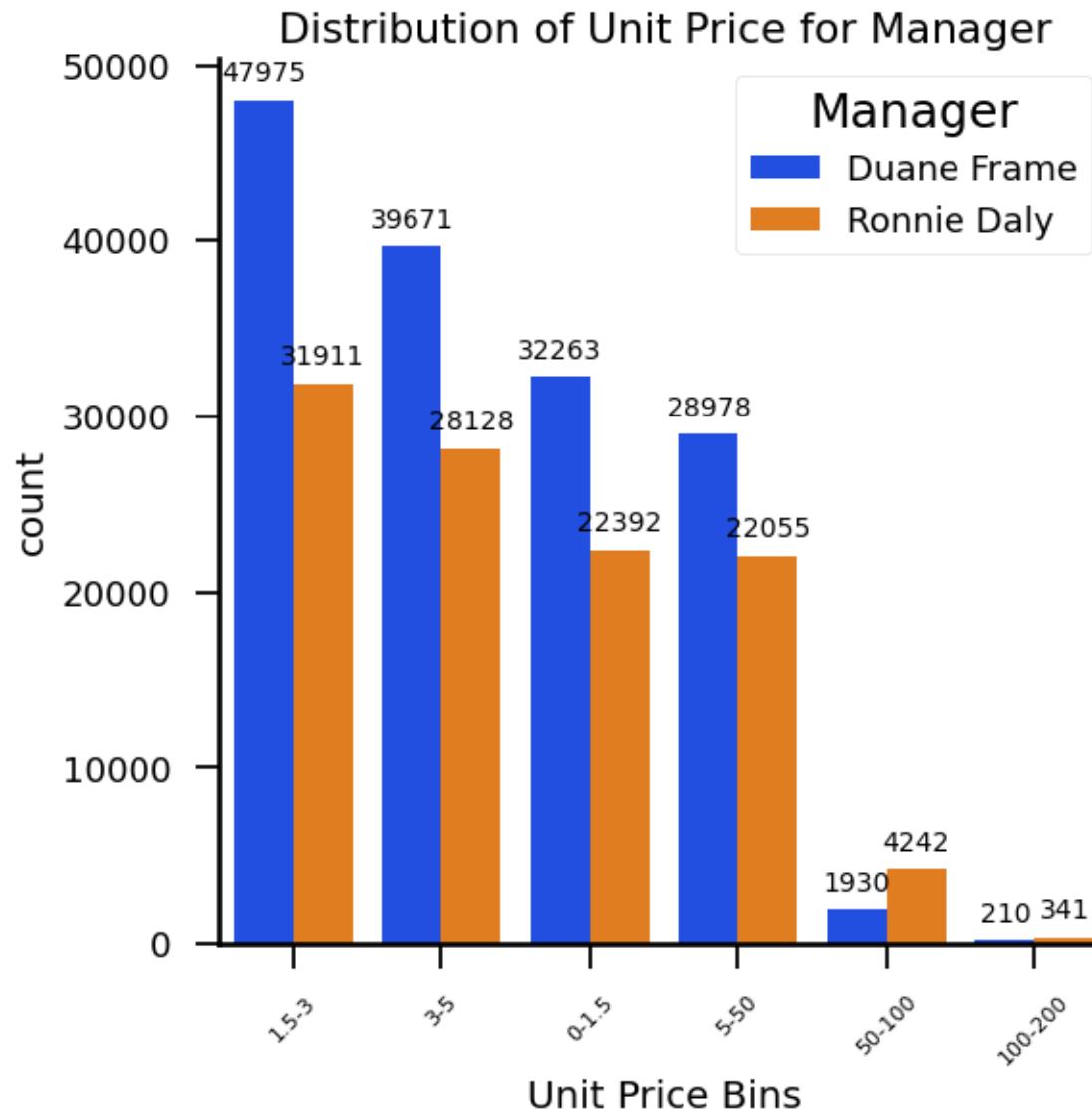
BIVARIATE ANALYSIS WRT MANAGER

1. Manager Duane Frame ordered significantly more quantity across all bins.
2. Duane Frame - 18.32% his orders come from 0-6 bin.
3. Ronnie Daly - 12.89% of his orders come from 0-6 bin.



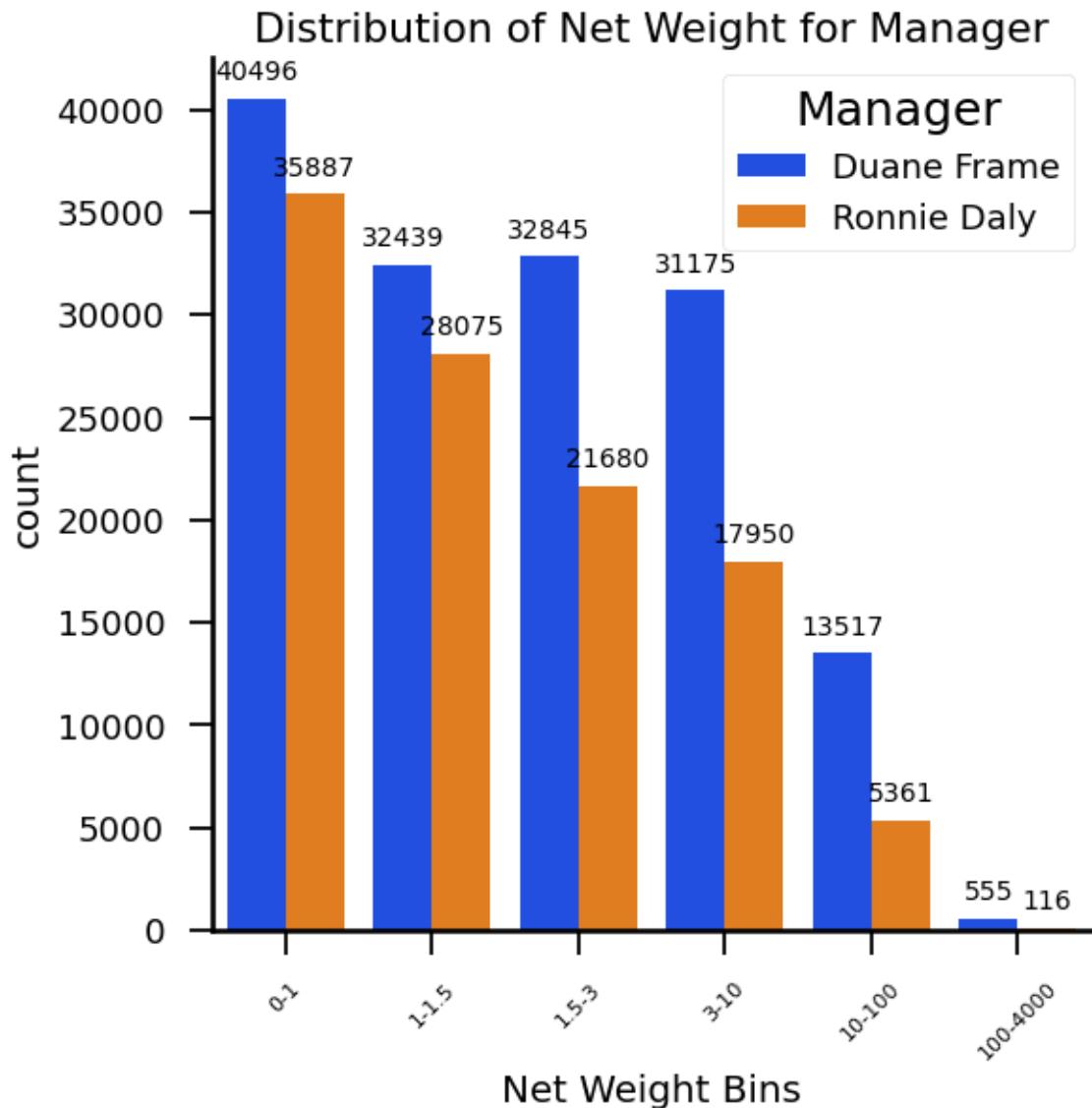
BIVARIATE ANALYSIS WRT MANAGER

1. Manager Duane Frame dominates in the lower price bins.
2. Ronnie Daly dominates the higher price bins 50-200.
3. Manager Duanne Frame performs best in 1.5-3 Unit Price Bins having 48k orders.



BIVARIATE ANALYSIS WRT MANAGER

1. Manager Duane Frame dominates across all net weight bins.
2. Manager Duanne Frame performs best in 0-1 net weight Bins having 40k orders whereas Ronnie has 35K in the same bin.



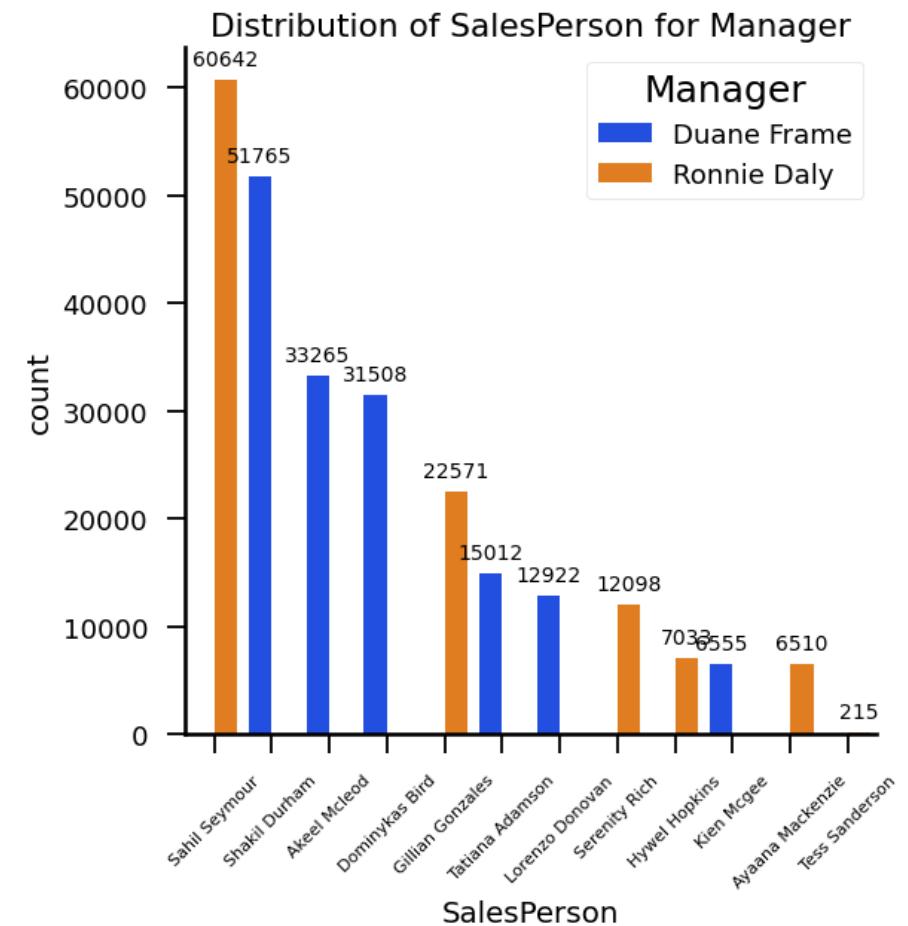
BIVARIATE ANALYSIS WRT MANAGER

1. Order percentage of Salesperson under Duane frame:

- Akeel 12.78%
- Dominykas 12%
- Kien 2.5%
- Lorenza 49%
- Shakil 19%
- tatiana 5.7%

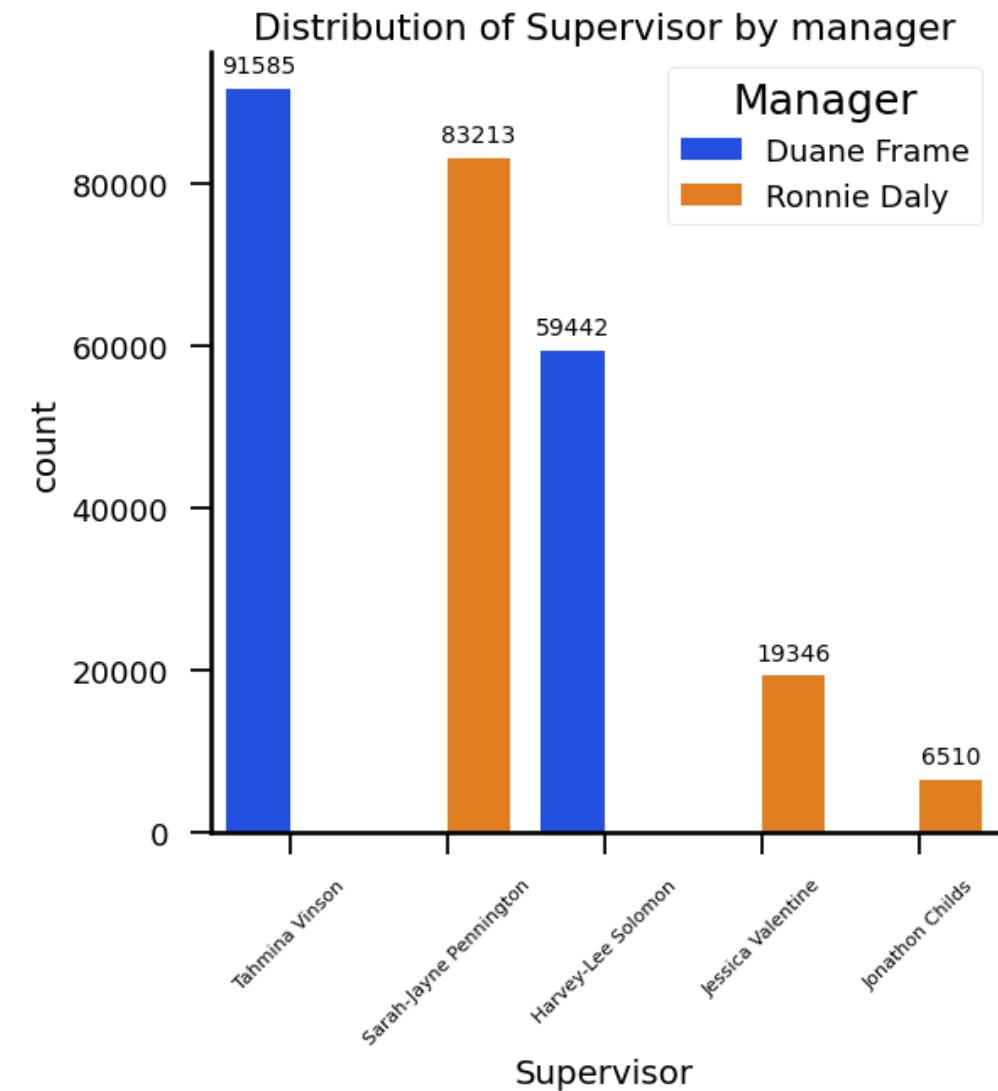
2. Order percentage of Salesperson under Ronnie Daly:

- Ayaana 2.5%
- Gillian 8.6%
- Hywel 2.7%
- Sahil 23.31%
- serenity 4.65%
- Tess 0

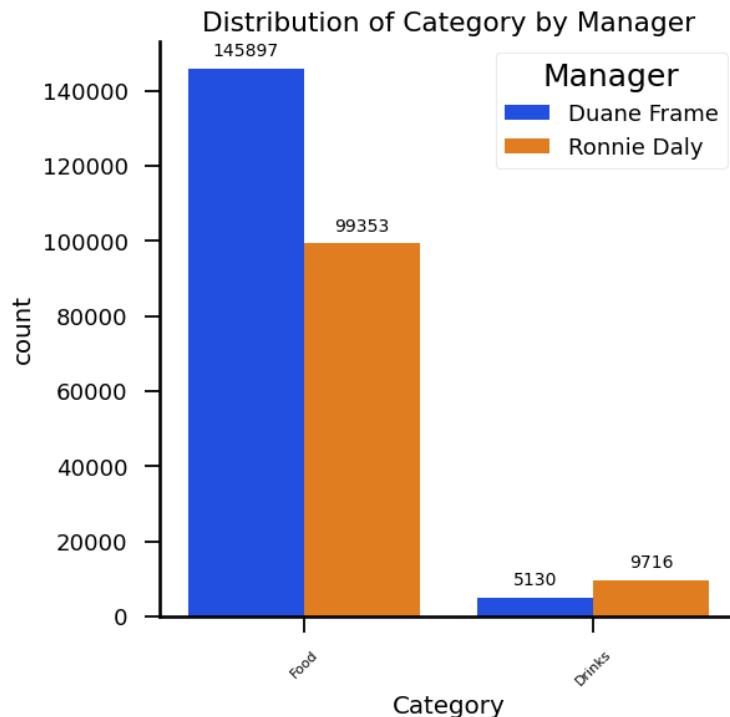


BIVARIATE ANALYSIS WRT MANAGER

1. Duane frame has supervisors Tahmina vinson, Harvey-Lee Solomon
2. Ronie Daly has got three supervisor sarah, Jessica and jonathon

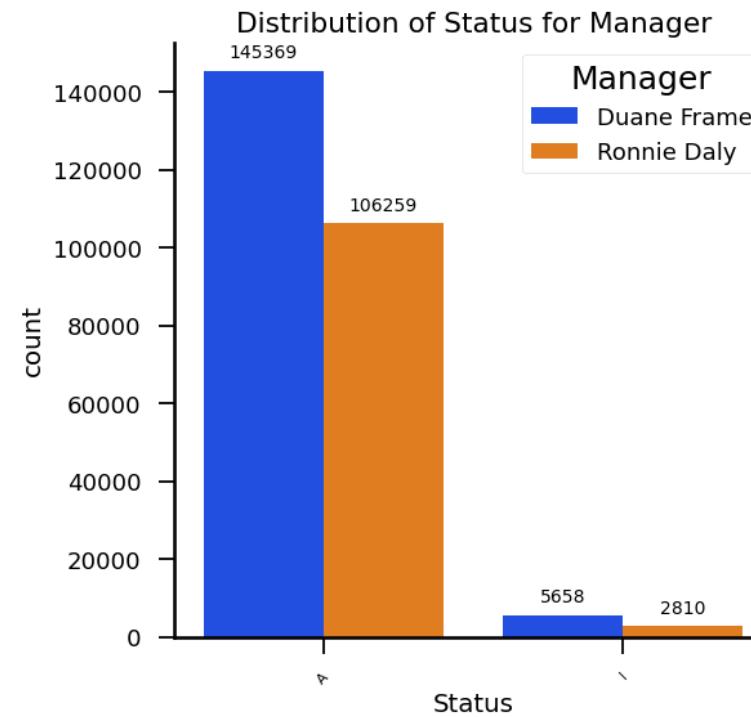


BIVARIATE ANALYSIS WRT MANAGER



A breakdown of managerial categories highlights distinctive operational emphases:

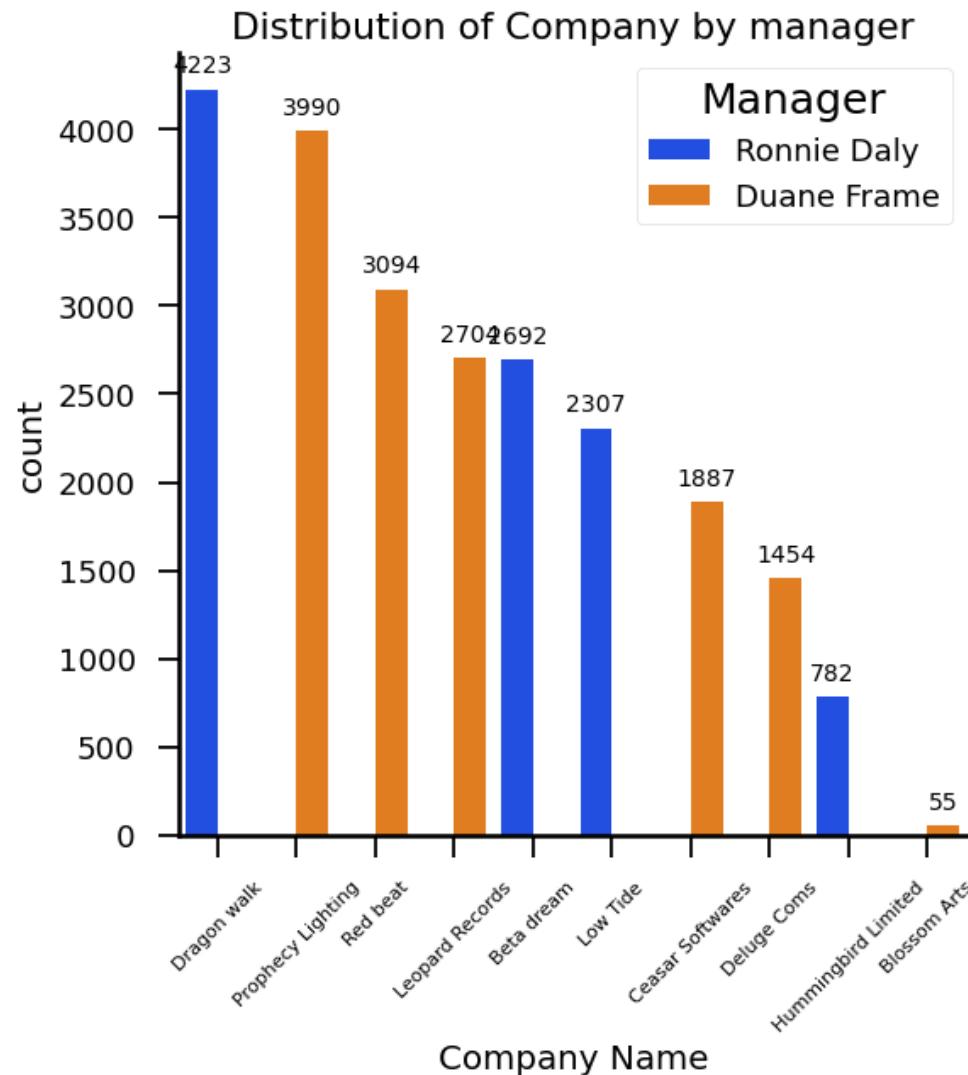
1. Duane Frame's managerial domain predominantly encompasses food-related sectors (56%), with a minor representation in the drinks category (1.9%).
2. Ronnie Daly Performs better in the Drinks Category.



1. the status of Duane Frame managers 55% belongs to status - A and 2% belong to status - I
2. the status of Ronnie Daly managers 40% belongs to status-A and 1% belongs to status-I

BIVARIATE ANALYSIS WRT MANAGER

1. Duane frame has 6 of the Top 10 Companies like Prophecy Lighting, Red Beat, Leopard Records , Caesar Softwares etc. The Best being Prophecy Lighting(4k).
2. Ronnie Daly has 6 4 of the Top 10 Companies like Dragon Walk, Beta Dream, Low Tide, Deluge Coms. The Best being Dragon Walk(4.2k).



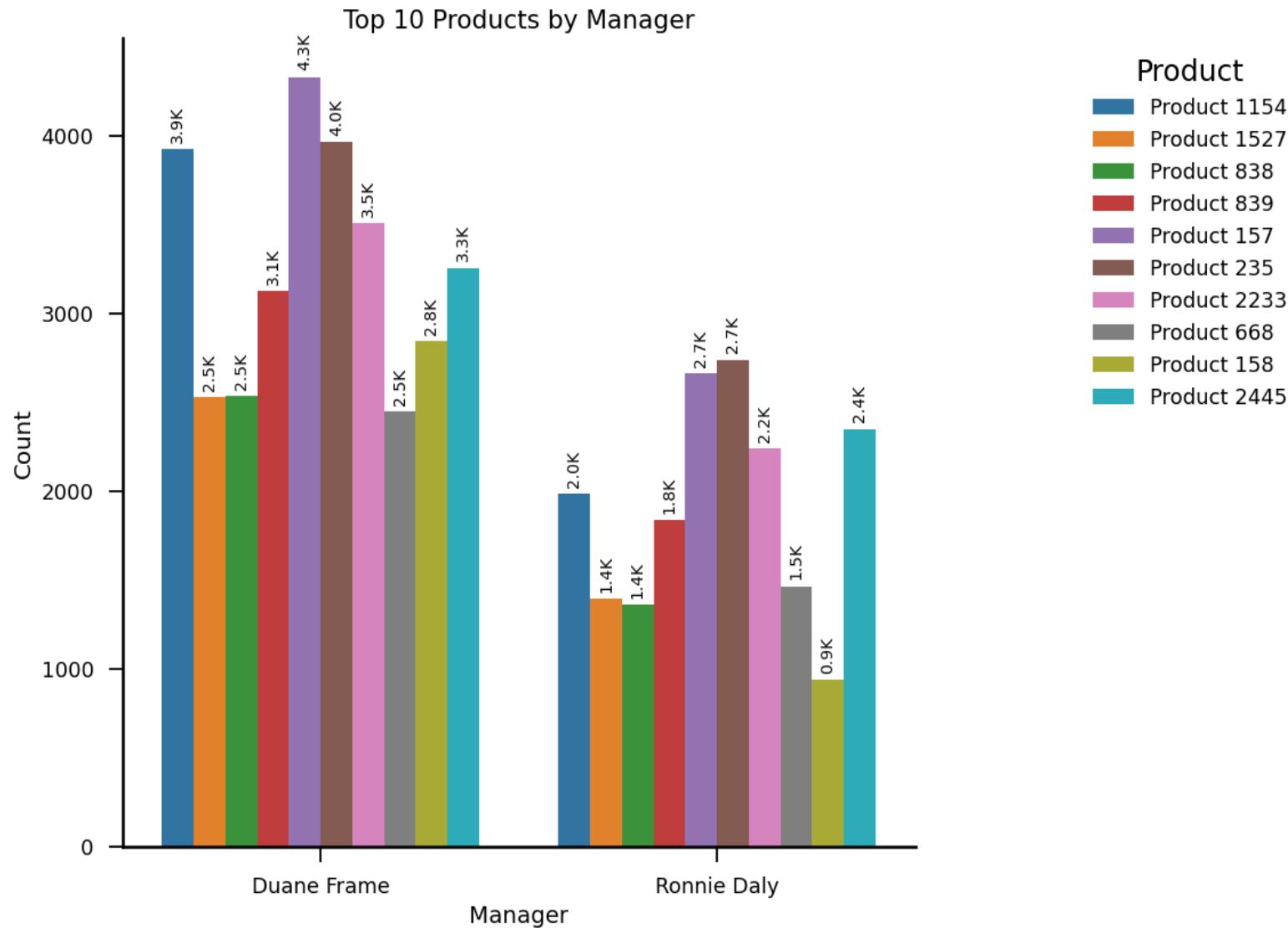
BIVARIATE ANALYSIS WRT MANAGER

Conversely, Ronnie Daly's managerial portfolio demonstrates a significant presence in sectors like B&Bs, distributors, and supermarkets(20-22K), suggesting a targeted approach towards segments catering to diverse consumer needs and preferences. This strategic emphasis underscores a focus on operational agility and market responsiveness within Ronnie Daly's managerial purview with Bulk and Warehouses .



BIVARIATE ANALYSIS WRT MANAGER

- Under Duanne Frame, Product 157 is the most sold product followed by 235 and 1154.
- Under Ronnie Daly, Product 235 is the most sold product followed by 157 and 2445.



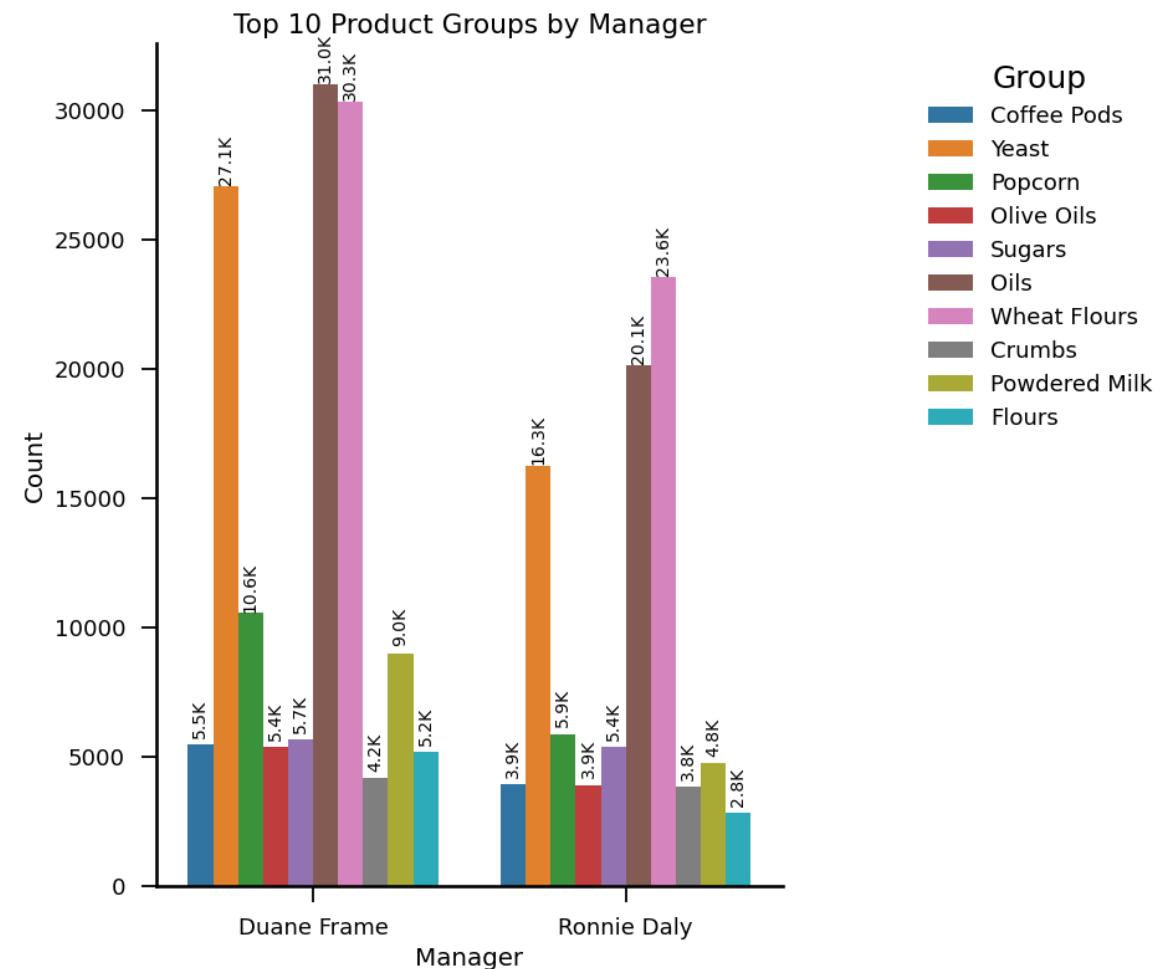
BIVARIATE ANALYSIS WRT MANAGER

1. Duane Frame has customers from Roslyn, Badger ,Winthrop etc.
2. Ronnie Daly has contributions from Yoman, Hatton , Winthrop etc.
3. Winthrop is the only city that is in top 3 performers for both managers.

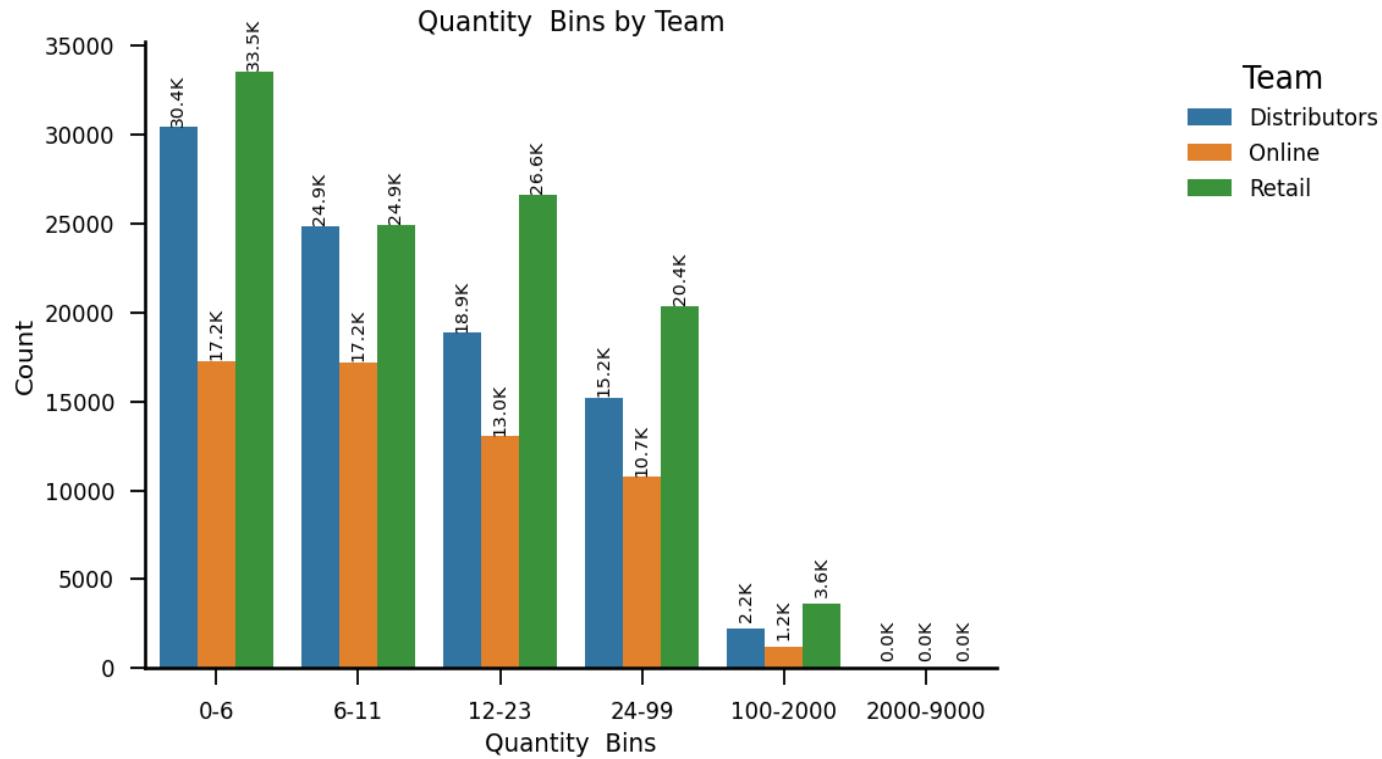


BIVARIATE ANALYSIS WRT MANAGER

1. For Duane Frame, the 3 most popular groups are Oils, Wheat, Yeast etc.
2. For Ronnie Daly , the 3 most popular groups are Wheat, Oils, Yeast etc.
3. Duanne Frame(31K) has performed more than Ronnie Daly(23K) among the popular groups..
4. The top 10 groups for them remain the same.

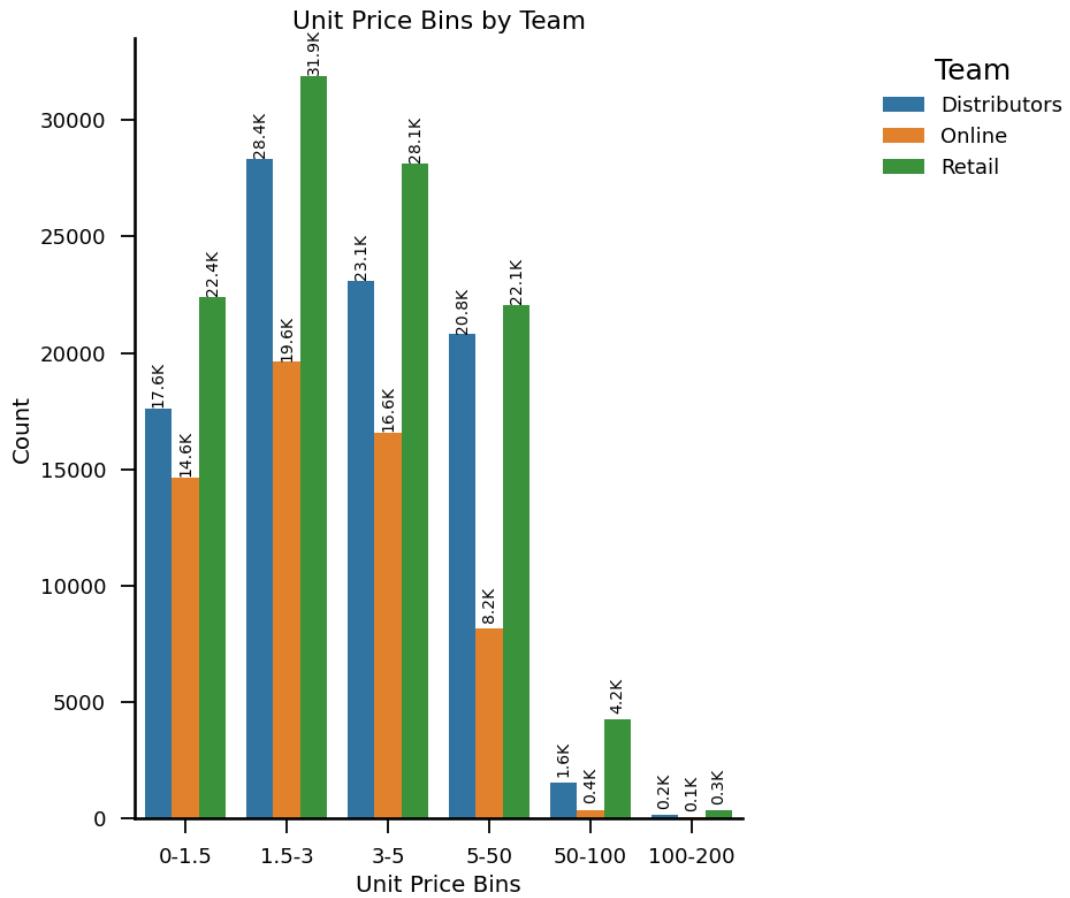


BIVARIATE ANALYSIS WRT TEAM



1. Across all qnty bins, Retail team has the highest orders, followed by Distributors then Online team.
2. Among the bins, 0-6 qnty range has the most orders for all teams

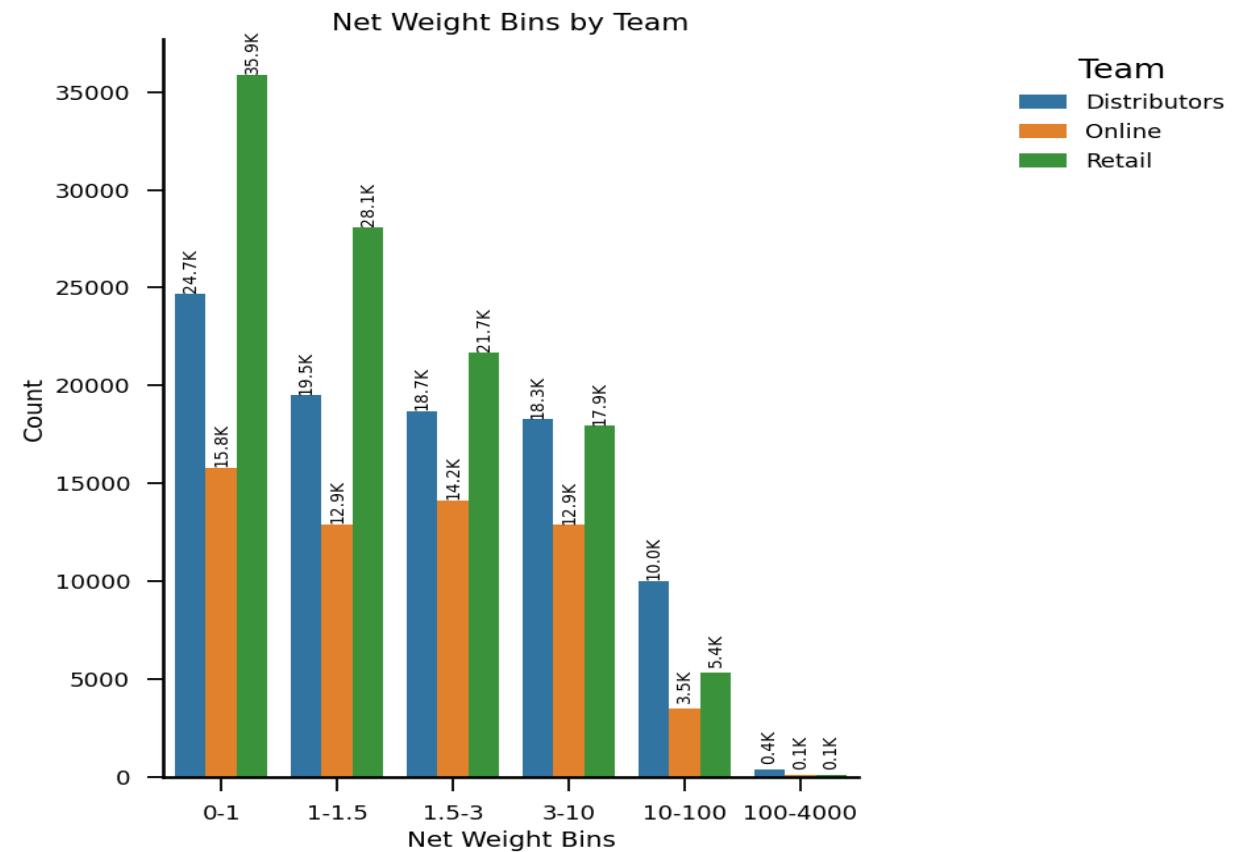
BIVARIATE ANALYSIS WRT TEAM



1. Across all price bins, Retail team has the highest orders, followed by Distributors then Online team.
2. Among the bins, 1.5-3 price range has the most orders for all teams

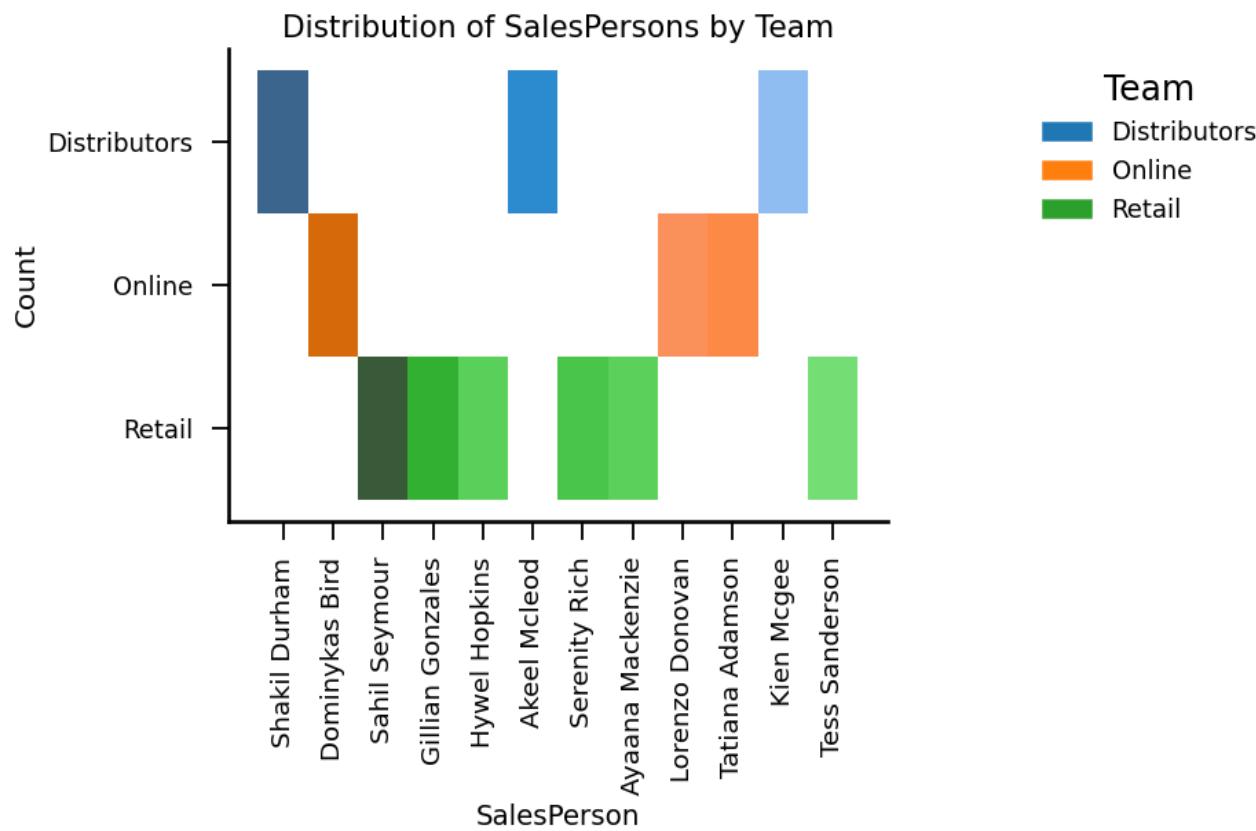
BIVARIATE ANALYSIS WRT TEAM

1. Across 0-10 net wt bins, Retail team has the highest orders, followed by Distributors then Online team.
2. For \$10-100, Distributors has the most orders(10K).
3. Around 400 orders of Distributors team is present in the \$100-4000
4. Among the bins, 0-1 net wt range has the most orders for all teams



BIVARIATE ANALYSIS WRT TEAM

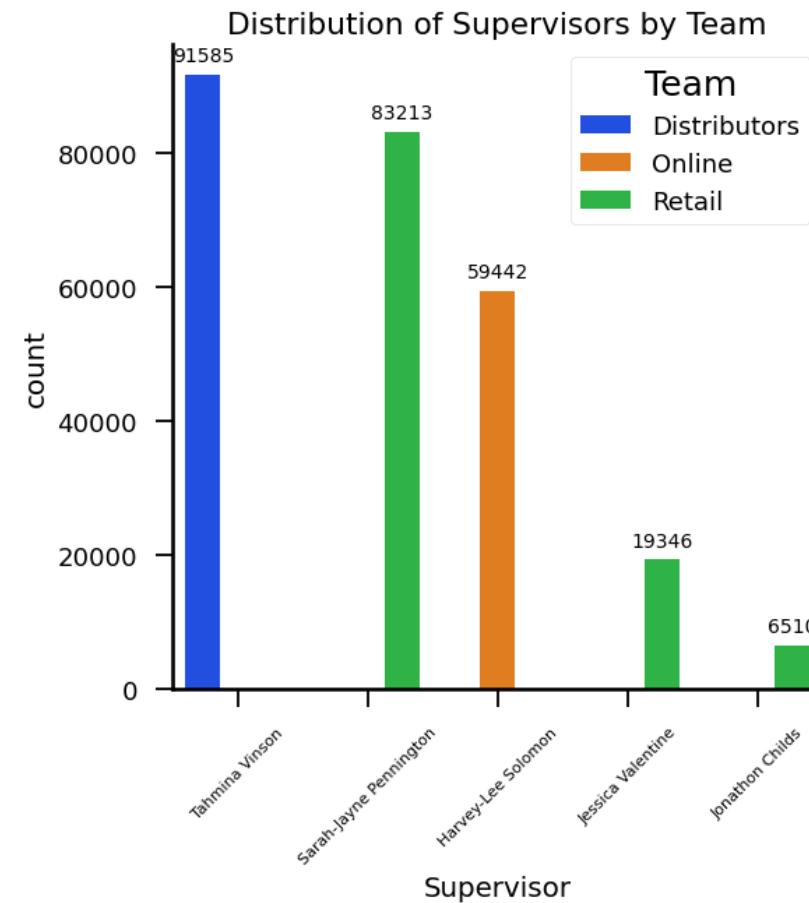
1. Distributors, constituting 35.21% of the teams, boast significant representation from key individuals like Akeel Mcleod, Shakeel Durham, and Kien Mcgee, underscoring their integral role in distribution channels.
2. Meanwhile, the Online team, representing 22.85% of the workforce, is led by prominent figures such as Dominykas Bird, Lorenzo Donovan, and Tatiana Adamson, showcasing their prowess in digital sales channels.
3. Retailors, comprising 41.93% of the teams, demonstrate diverse leadership from individuals like Ayaana Mackeenzie, Gillian Gonzales, Sahil Seymour, and Serenity Rich, highlighting their impact in traditional retail avenues



BIVARIATE ANALYSIS WRT TEAM

Supervisor by Team :

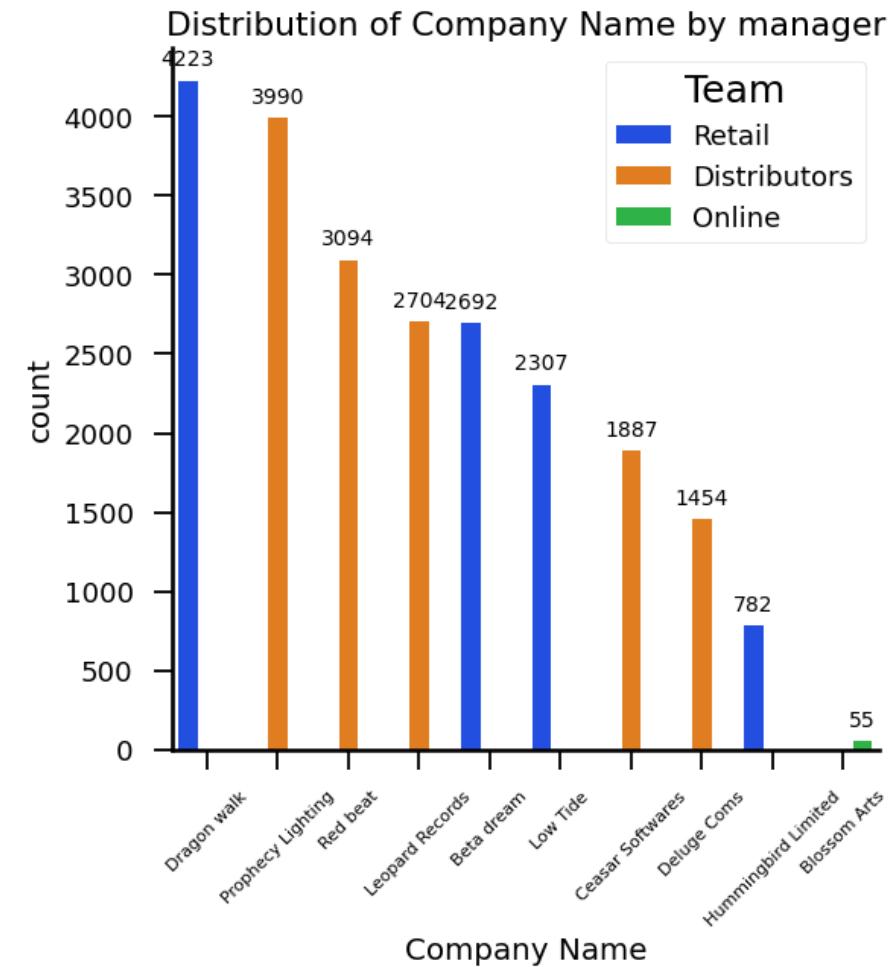
- Tahmina Vinson has 35.21% of distributors. -Harvey-Lee Solomon has 22.85% of online. -Retail is 7% with Jessica, 2.5% Jonathon, 31.9% Pennington



BIVARIATE ANALYSIS WRT TEAM

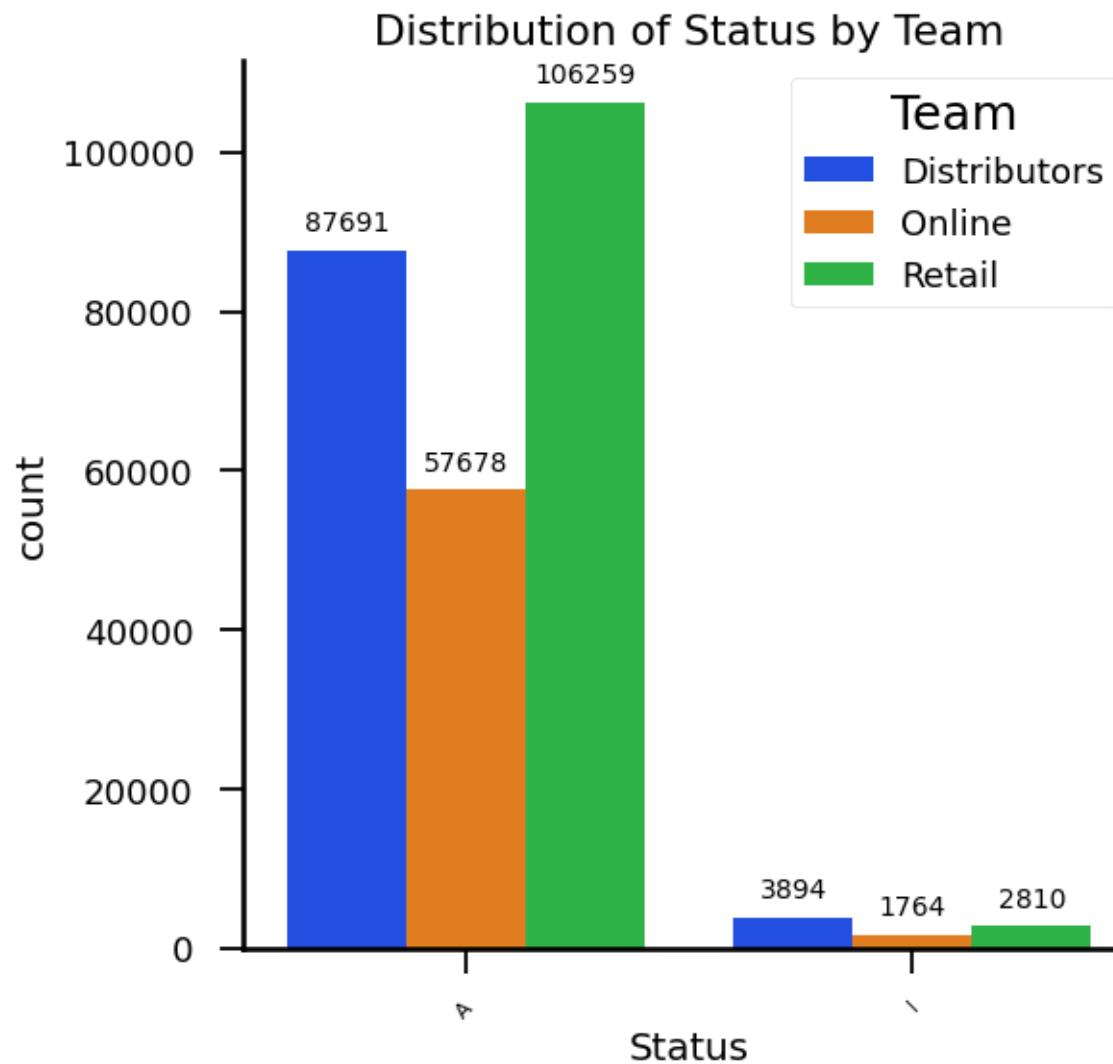
Of the all companies,

- 35.21% of companies belong to distributors
 - 22.85% belongs online
 - 41.93% belongs to retail
1. Dragon Walk is the best performing company for Retail.
 2. Prophecy Lighting is the best performing team for Distributors
 3. Blossom Arts is the top company for Online Team.

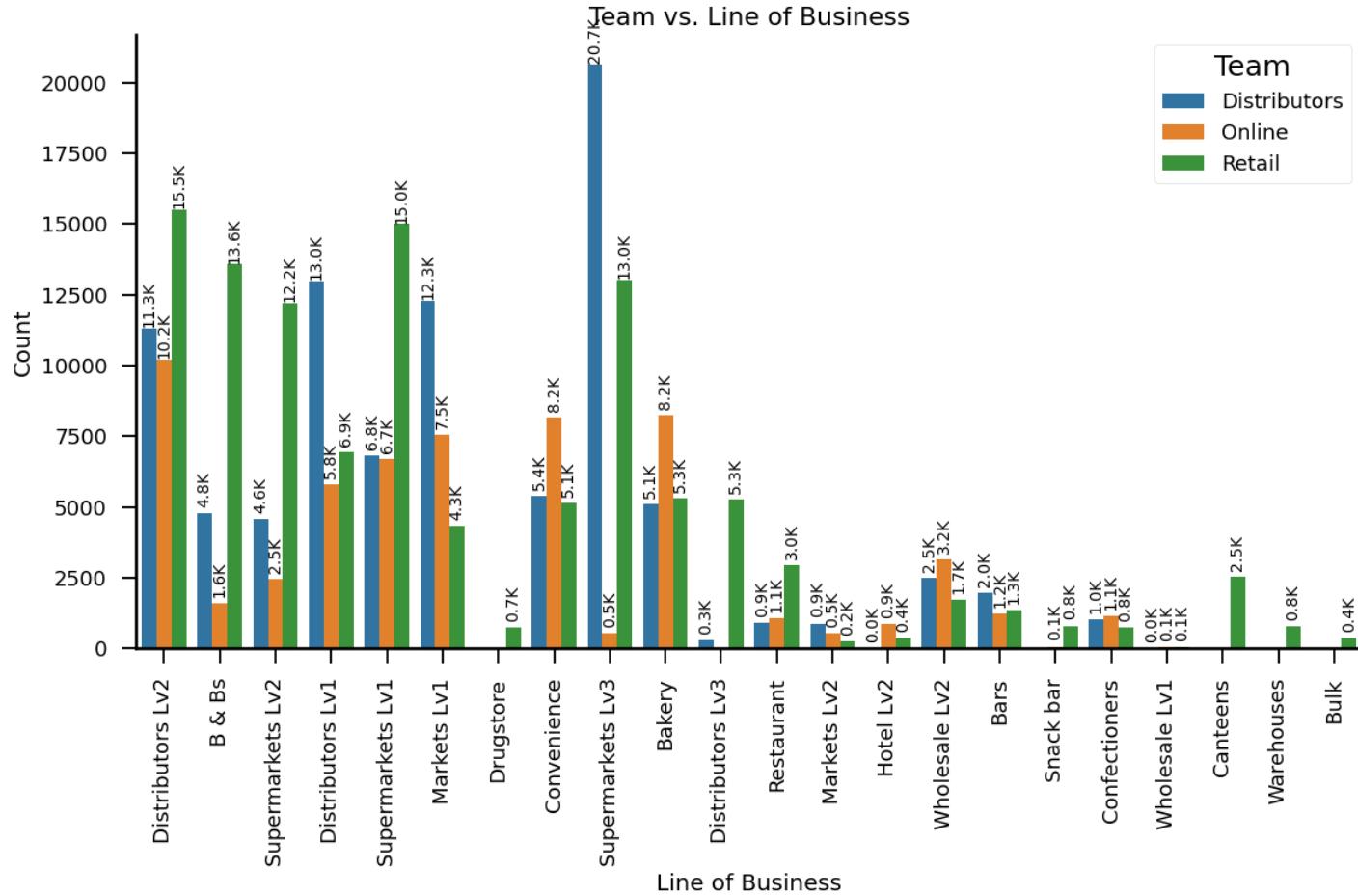


BIVARIATE ANALYSIS WRT TEAM

- A. Retail teams lead with the highest percentage within status A (40.85%), indicating a commitment to excellence in retail operations.



BIVARIATE ANALYSIS WRT TEAM

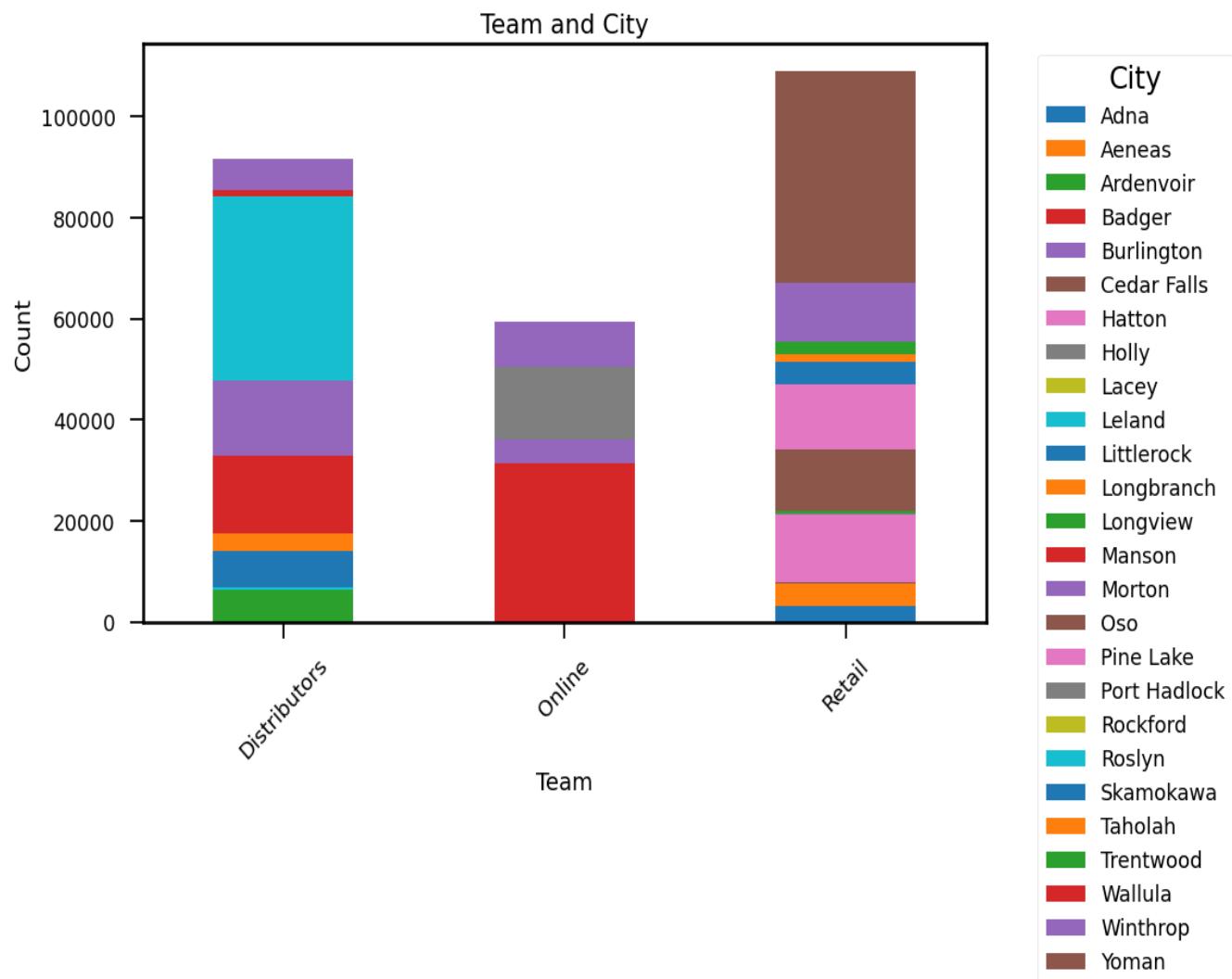


1. Online team has most orders from Convenience, Wholesale, Bakery and Confectioners
2. Distributor team has most orders from Distributors Lv1 and Supermarkets lv3.
3. Retail team has most orders from the rest of the business

BIVARIATE ANALYSIS WRT TEAM

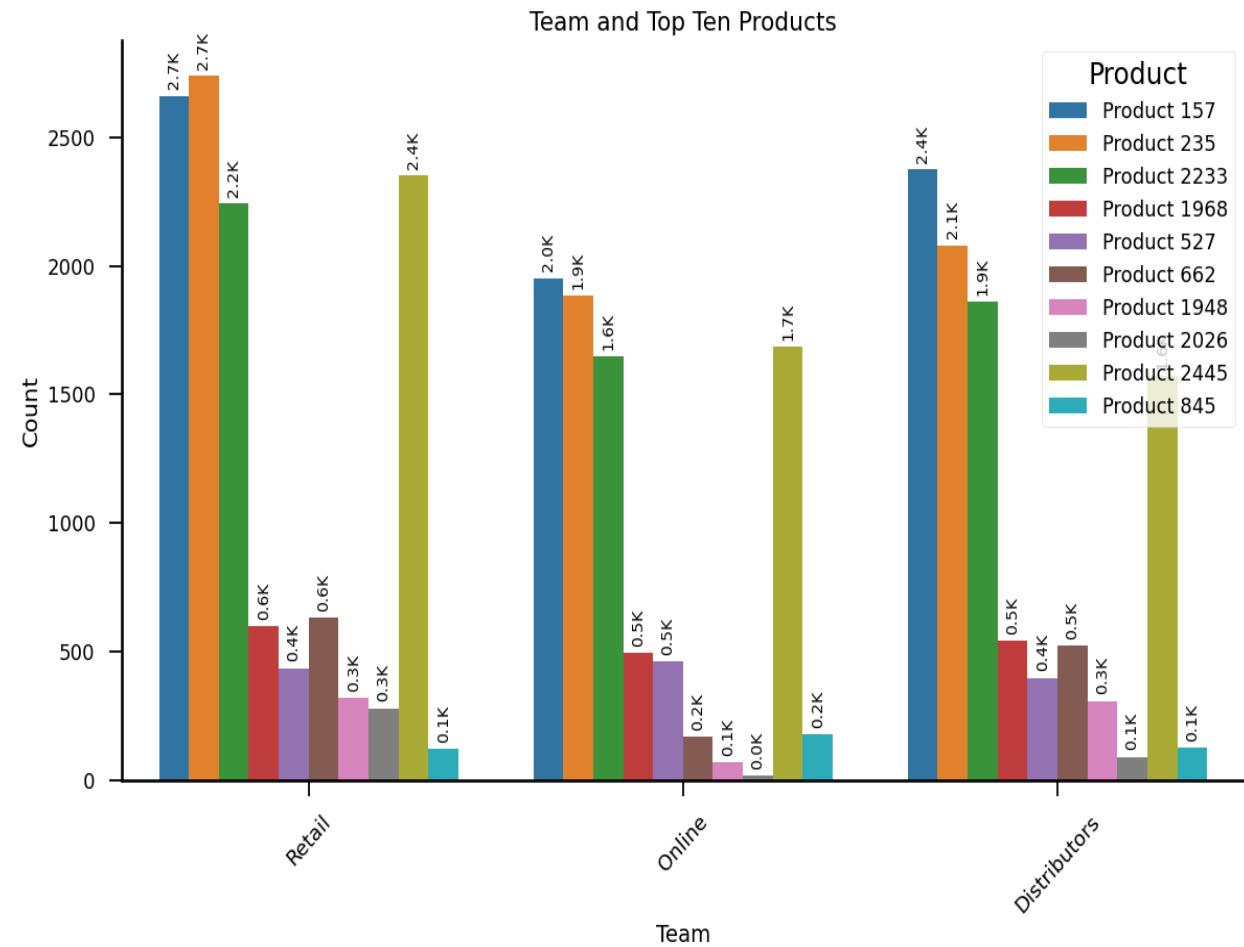
The geographic distribution of sales teams and operational centers in cities belong to

- Distributors 35.21%(Top being Winthrop),
- Online 22.85%%(Top being Winthrop),
- Retail 41.93%%(Top being Yoman)
- Winthrop being in the top 3 locations for all teams.



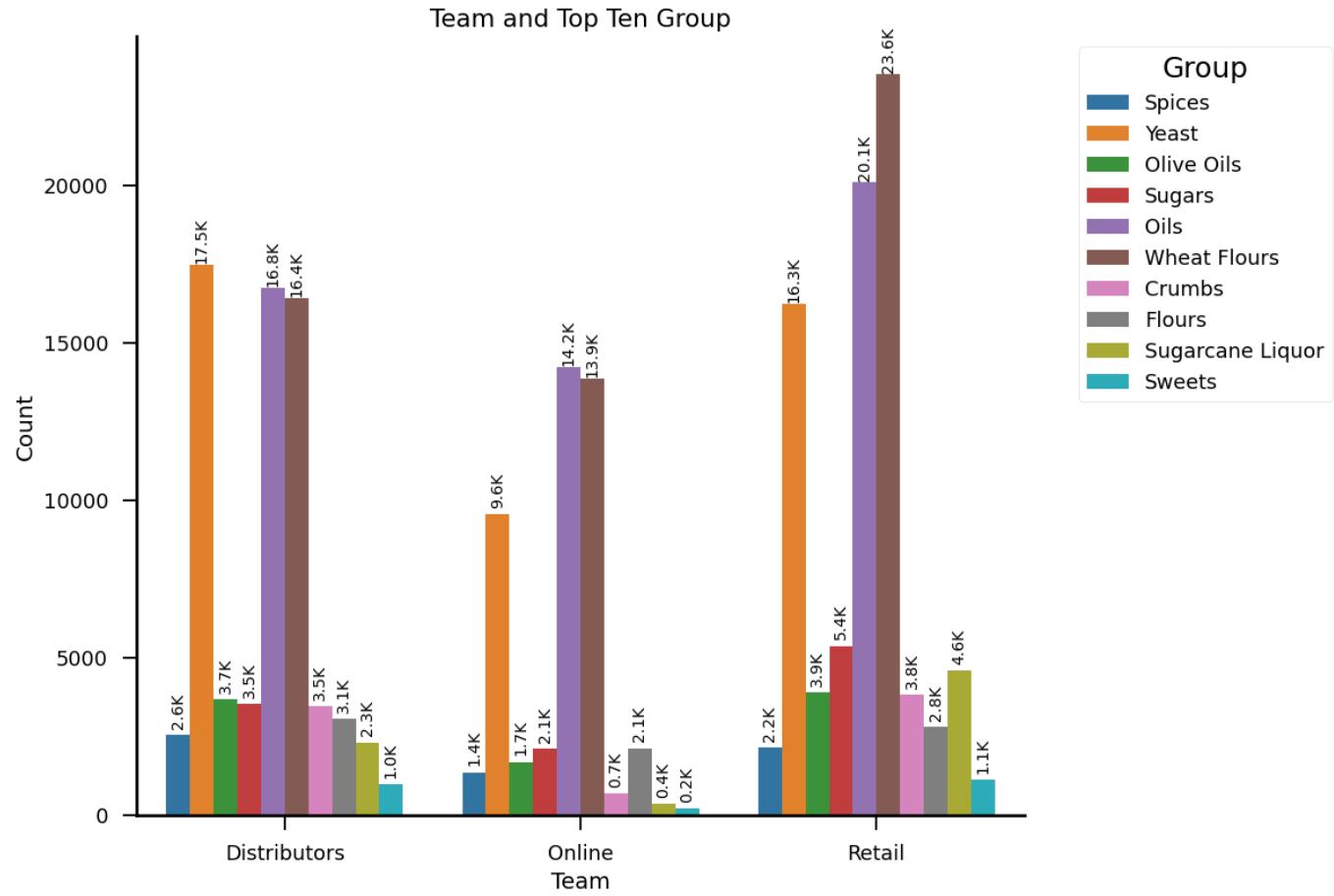
BIVARIATE ANALYSIS WRT TEAM

1. most products are sold by Retailors and distributor.
2. The products 157,235,2445,2233 constitute major portion of orders for all teams .
3. For Distributor team, Most ordered products are Product 157
4. For Online team, Most ordered products are Product 235 and 157.
5. For Retail team, Most ordered products are Product 235



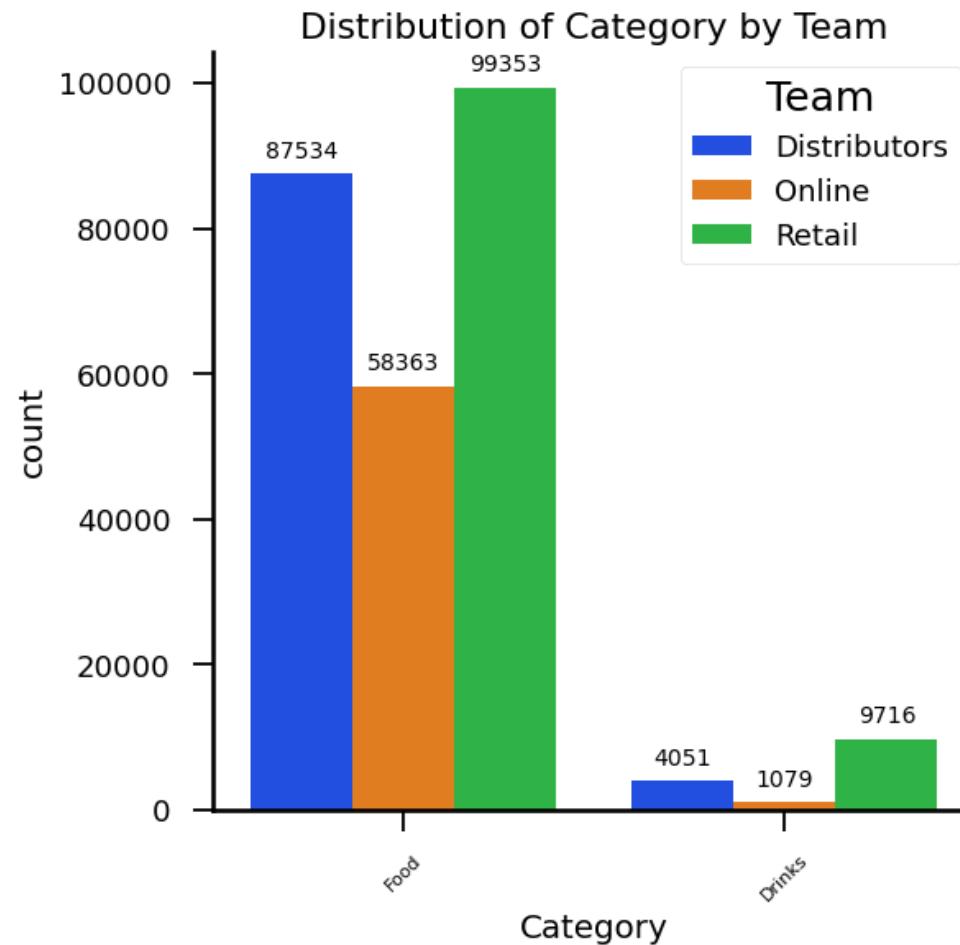
BIVARIATE ANALYSIS WRT TEAM

1. The best-selling items include wheat flours, oils and Yeast for all the Teams.
2. While teas and tomato sauces are among the least popular products.
3. All teams have the same 10 products in their top selling list.



BIVARIATE ANALYSIS WRT TEAM

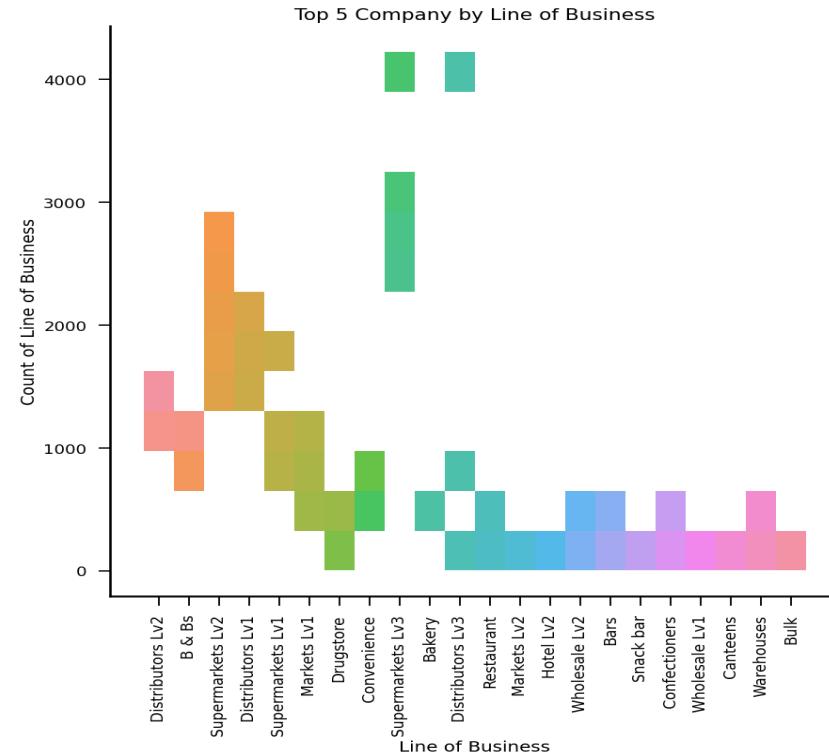
- Analysis of product sales reveals Retailers and Distributors as key contributors, particularly in the food and drinks categories, with 37% and 38% of drink sales, and 33% and 38% of food sales, respectively.
- Most orders for Category food coming for Retail team.
- Least orders for drinks category coming for Online Team.



BIVARIATE ANALYSIS WRT COMPANY

Inference:

- "Red beat" also emerges as a significant player within the "Distributors Lv2" category, indicating its strong presence and performance in distribution-related activities.
- Other companies like "Leopard bridge" and "Core wares" also exhibit notable presence across different line of business categories, showcasing their diversified business operations.

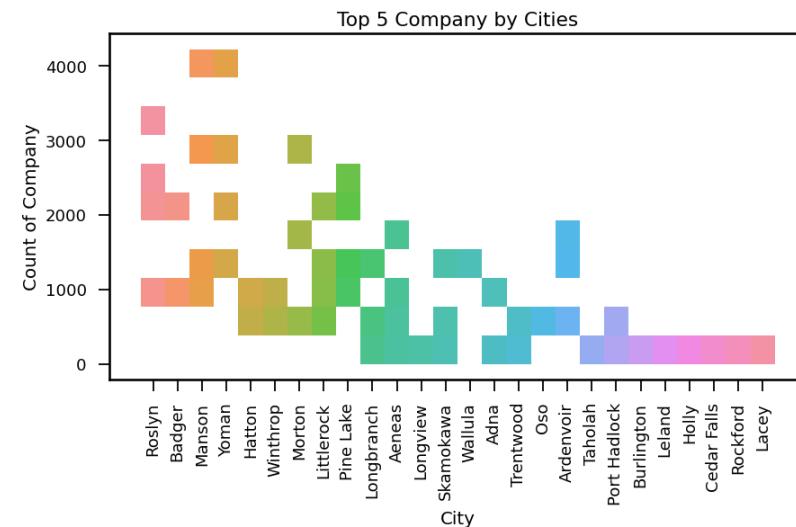


BIVARIATE ANALYSIS WRT COMPANY

Inferences:

In terms of geographical distribution, "Red beat" holds a prominent position in cities like Roslyn, indicating its strong market presence and potential dominance in those regions.

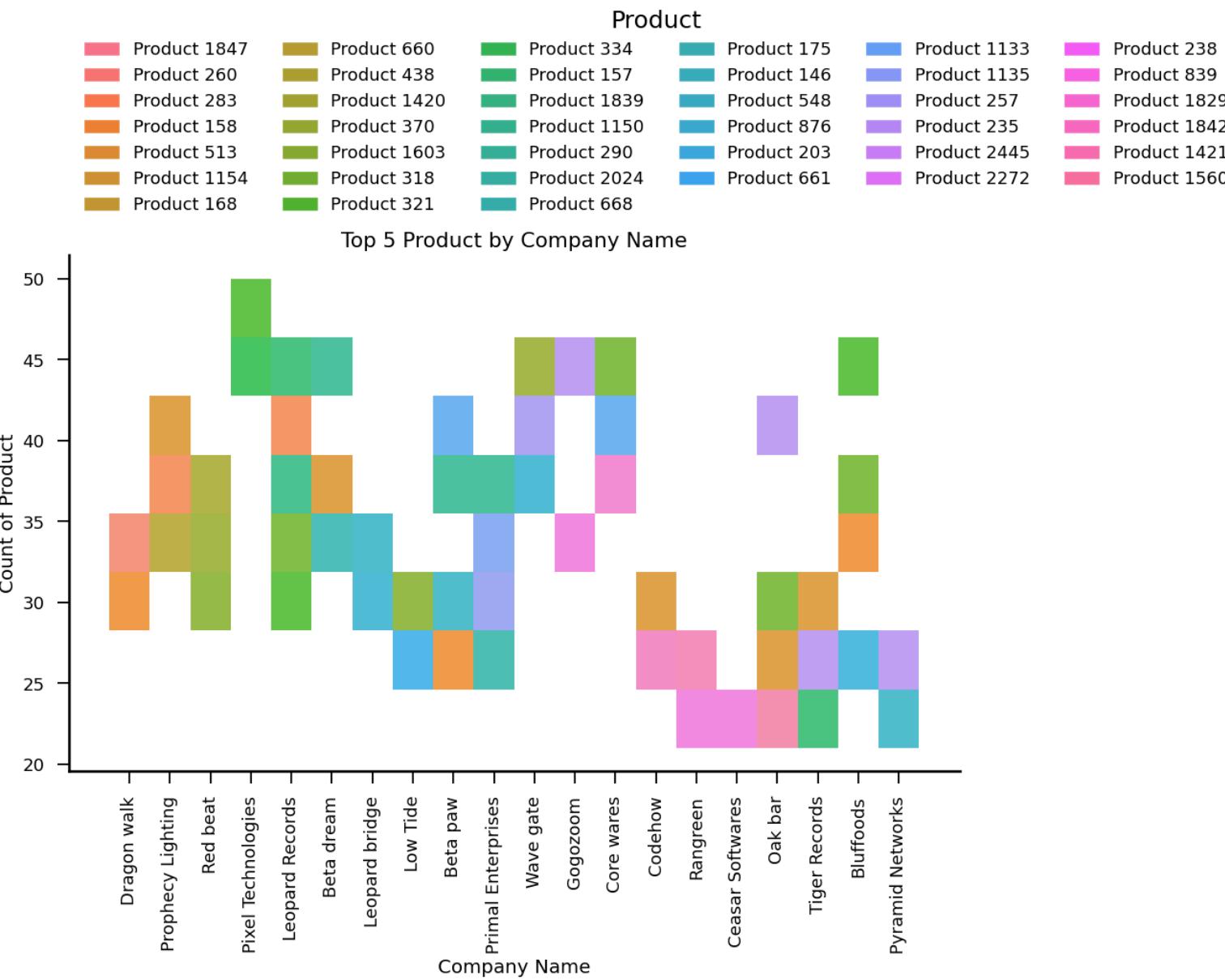
Similarly, "Leopard bridge" and "Primal Enterprises" demonstrate significant activity levels in Roslyn, suggesting strategic focus areas for these companies.



BIVARIATE ANALYSIS WRT COMPANY

Inference:

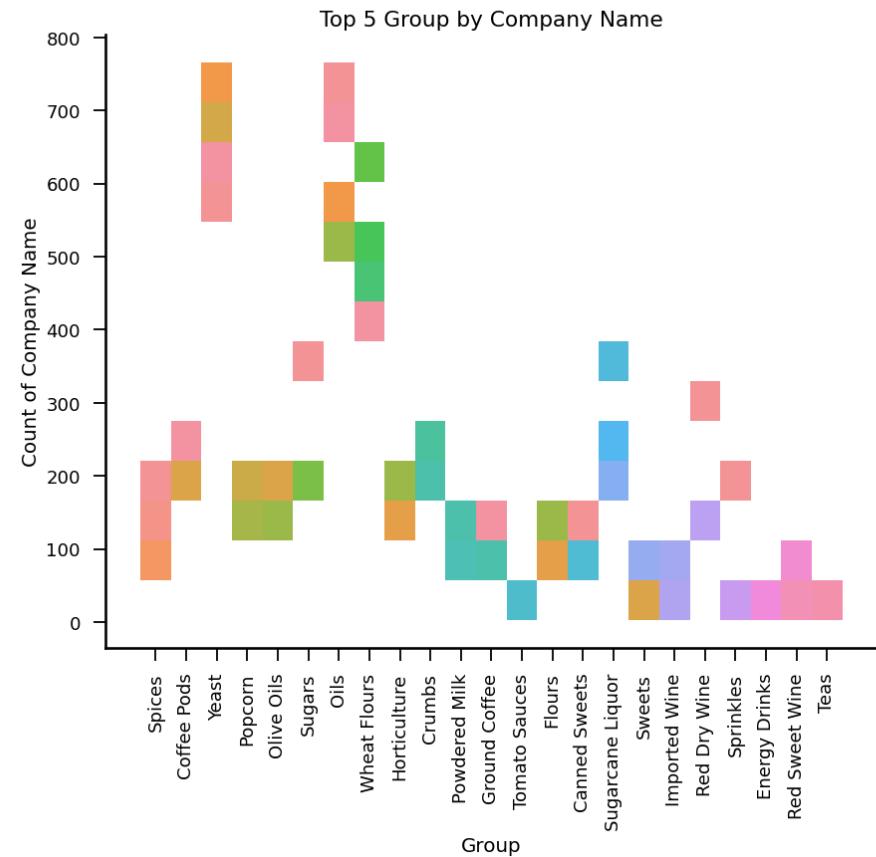
- Leopard records and Primal Enterprises have the widest variety of products.
 - Ceaser Softwares has just one type of product which indicates that it caters to a niche market only.
 - Companies like "Dragon walk" and "Prophecy Lighting" are notable for their extensive product portfolios, with a diverse range of products contributing to their overall performance. These companies exhibit high activity levels across various product categories, indicating a broad market reach and consumer



BIVARIATE ANALYSIS WRT COMPANY

Inference:

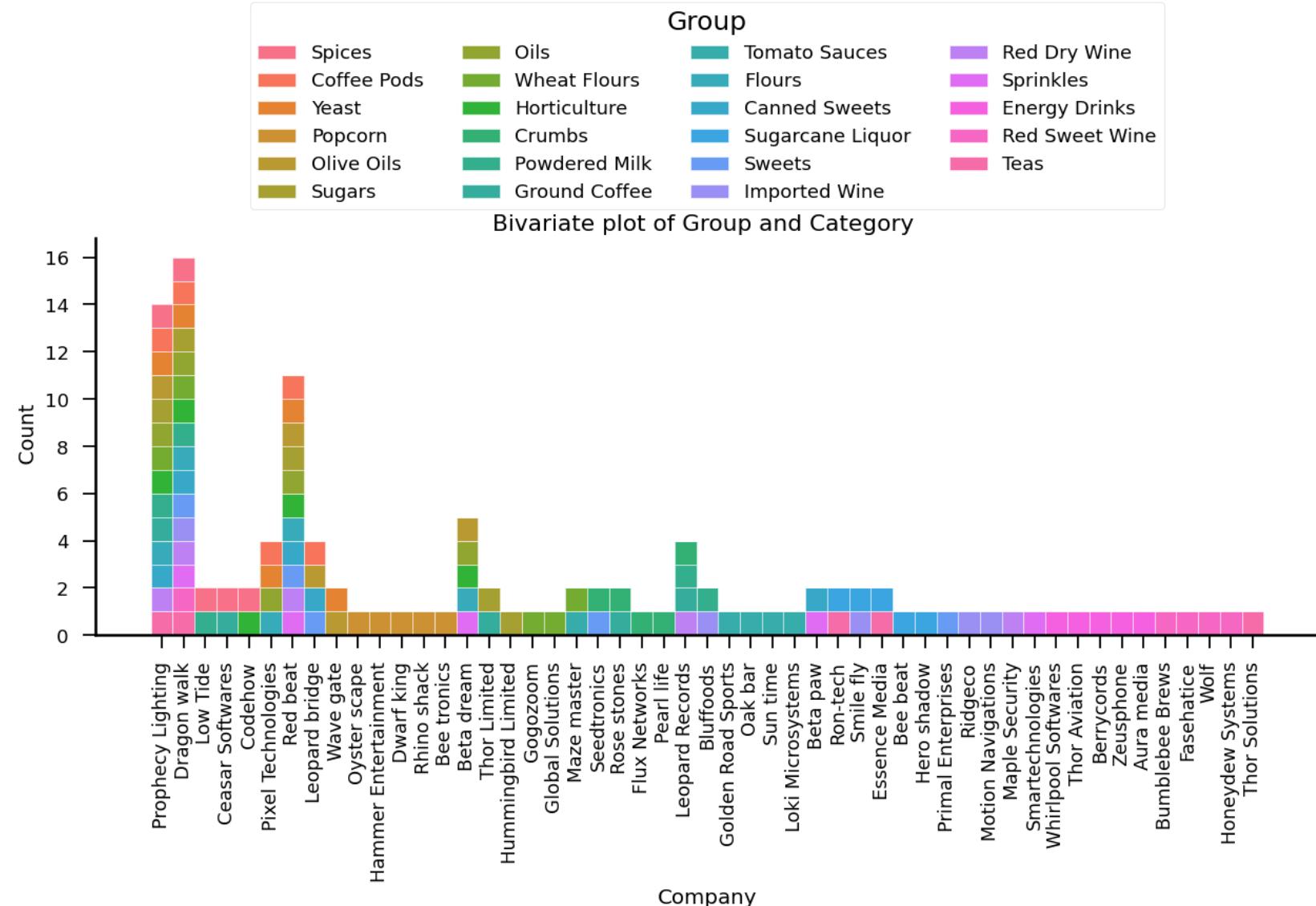
"Prophecy Lighting" and "Dragon walk" stand out as leaders in specific product groups such as Spices and Coffee Pods, respectively. This suggests a focused approach towards certain product categories, potentially leveraging their expertise or market opportunities in these segments.



BIVARIATE ANALYSIS WRT COMPANY

Inference:

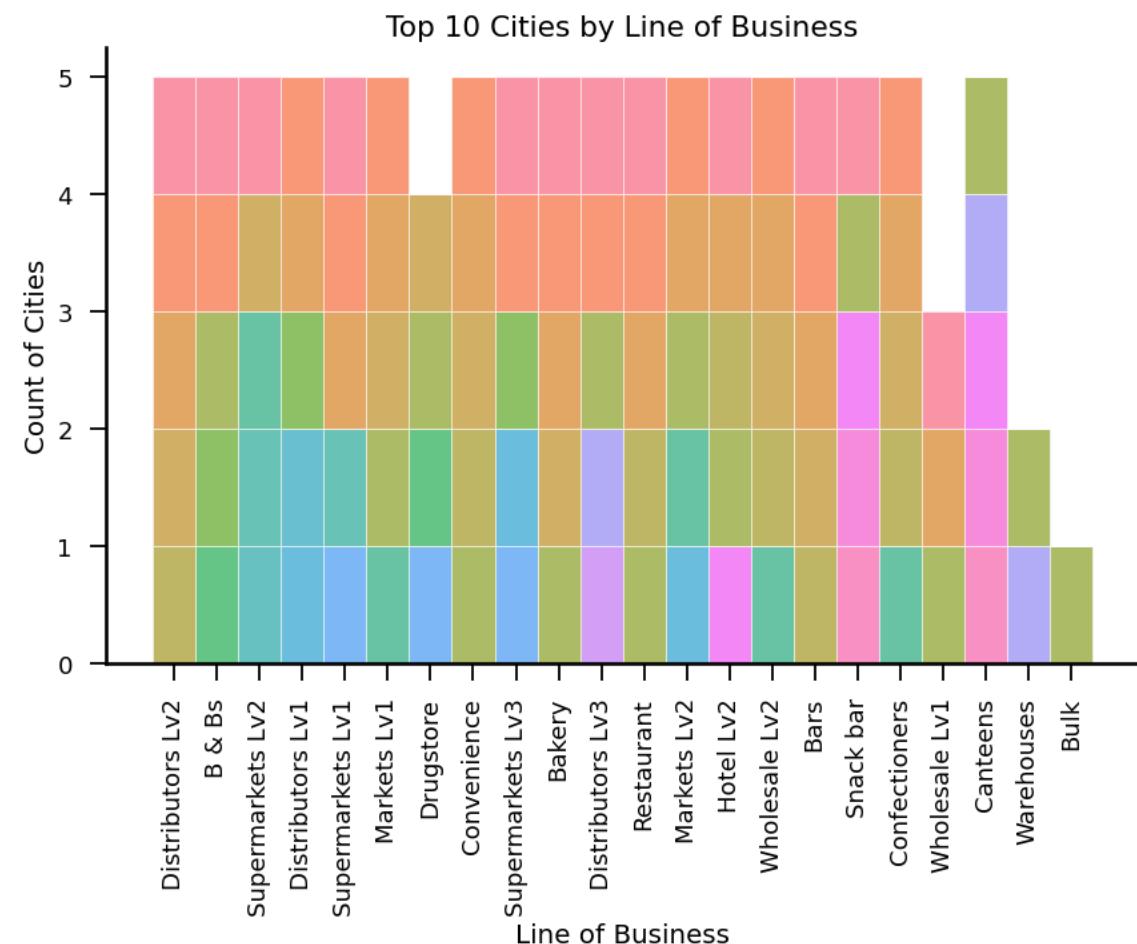
1. Prophecy Lighting" and "Dragon walk" stand out as leaders in specific product groups such as Spices and Coffee Pods, respectively.
 2. Red Beat too has significant no of groups. This suggests a focused approach towards certain product categories, potentially leveraging their expertise or market opportunities in these segments.
 3. Niche Markets are also present for Popcorn, Teas, Energy Drinks , Tomato Sauces, Powdered Milk etc.



BIVARIATE ANALYSIS WRT LINE OF BUSINESS

Inference:

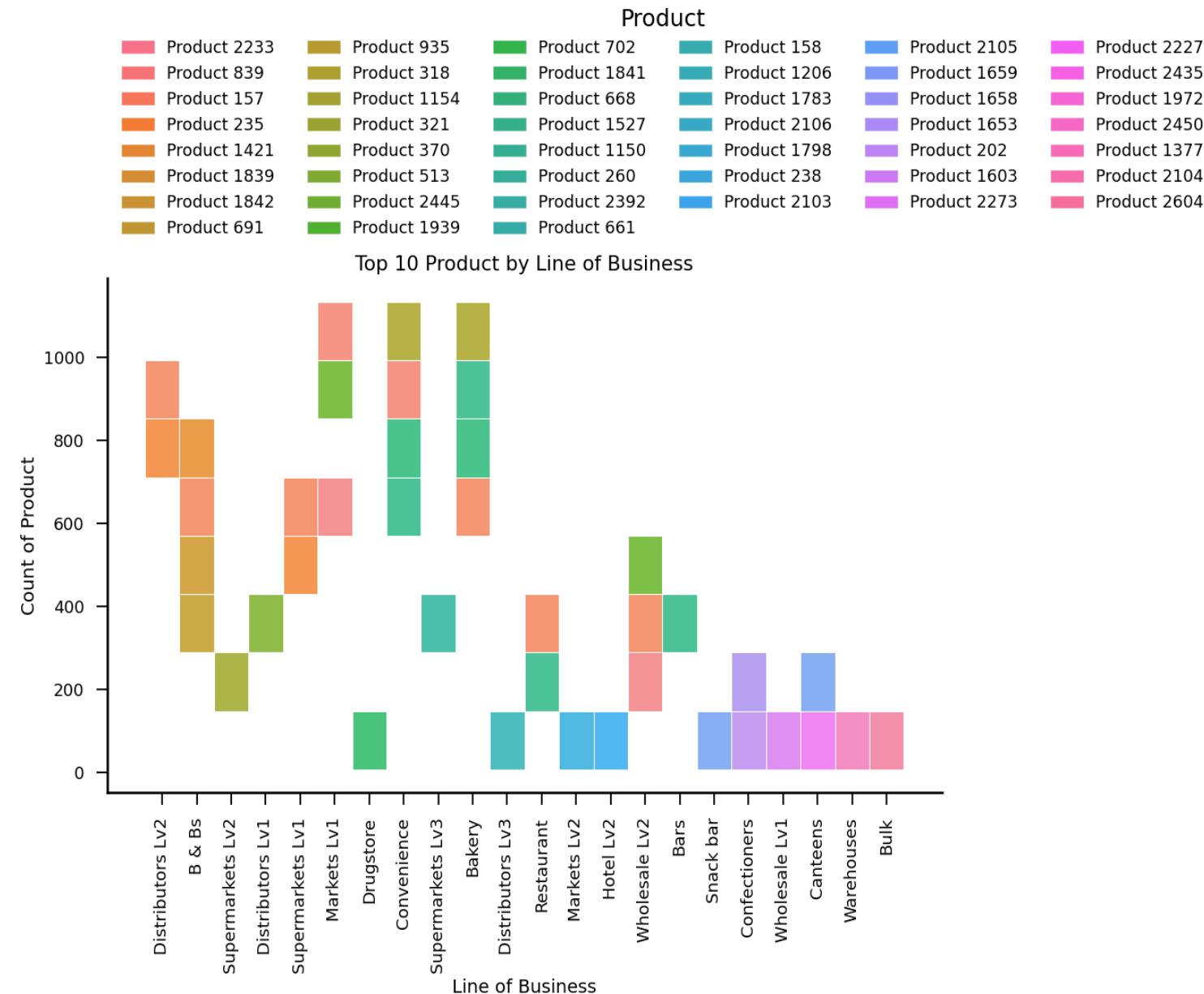
1. In the distributors Lv2 category, Yoman, Roslyn, and Badger emerge as the top cities with the highest transaction counts. This indicates significant distribution activity in these regions.
2. Wholesale Groups have Winthrop as the city with most demand.
3. The dominance of specific cities suggests potential hubs for distribution centers or strong consumer demand clusters



BIVARIATE ANALYSIS WRT LINE OF BUSINESS

Inference:

1. Distributors Lv2 predominantly sell Product 2233, Product 839, and Product 157, indicating high demand for these items.
2. Similarly, in the B & Bs category, Product 1839, Product 235, and Product 1842 are among the top-selling items, reflecting the preferences of consumers frequenting bed and breakfast establishments.
3. top-selling products allows businesses to optimize their inventory, focus on high-demand items, and tailor their product offerings to meet consumer preferences effectively.

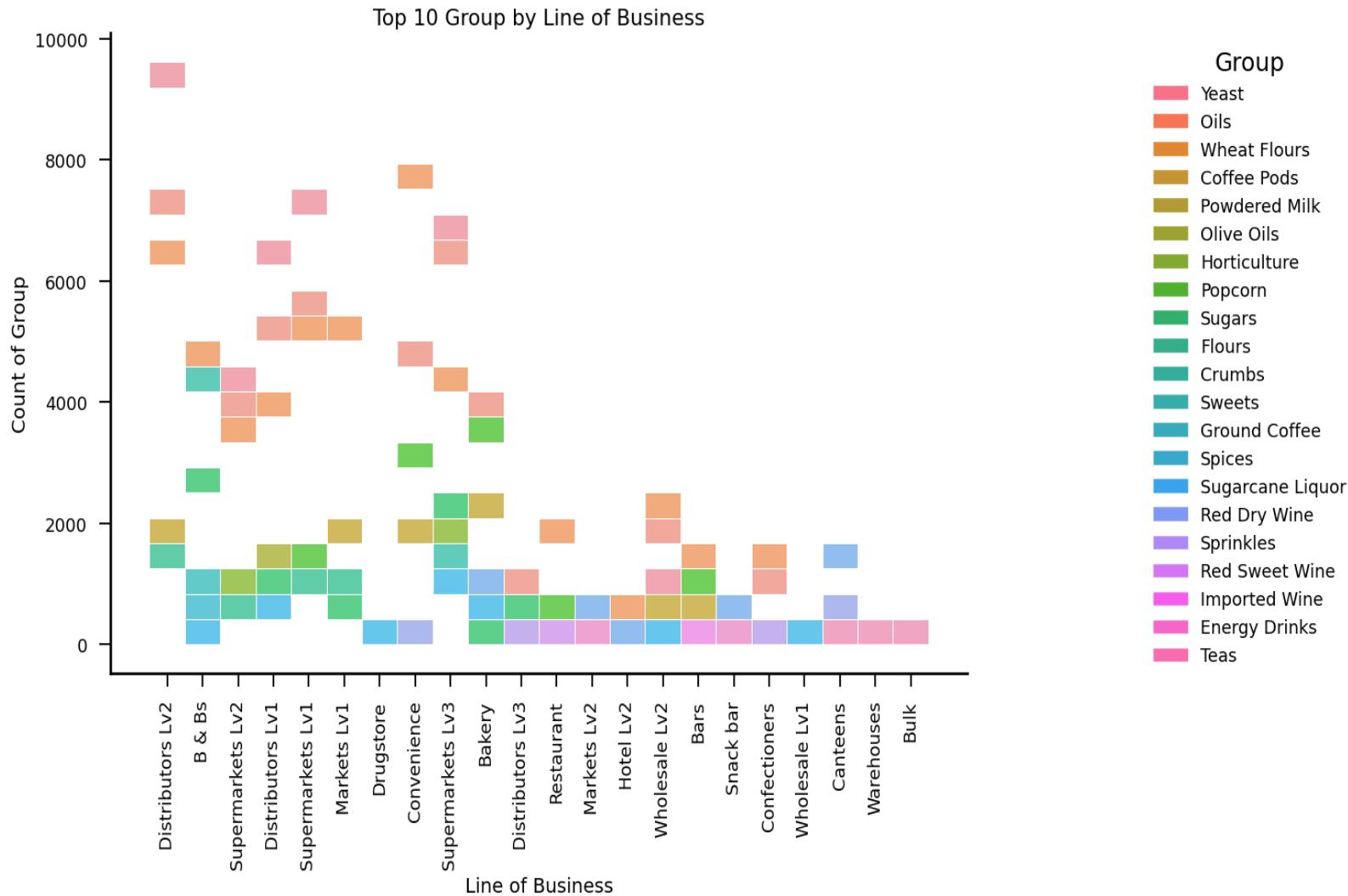


BIVARIATE ANALYSIS WRT LINE OF BUSINESS

Inference:

Within distributors Lv2, yeast, oils, and wheat flours emerge as the top-selling groups, indicating a strong demand for baking and cooking essentials.

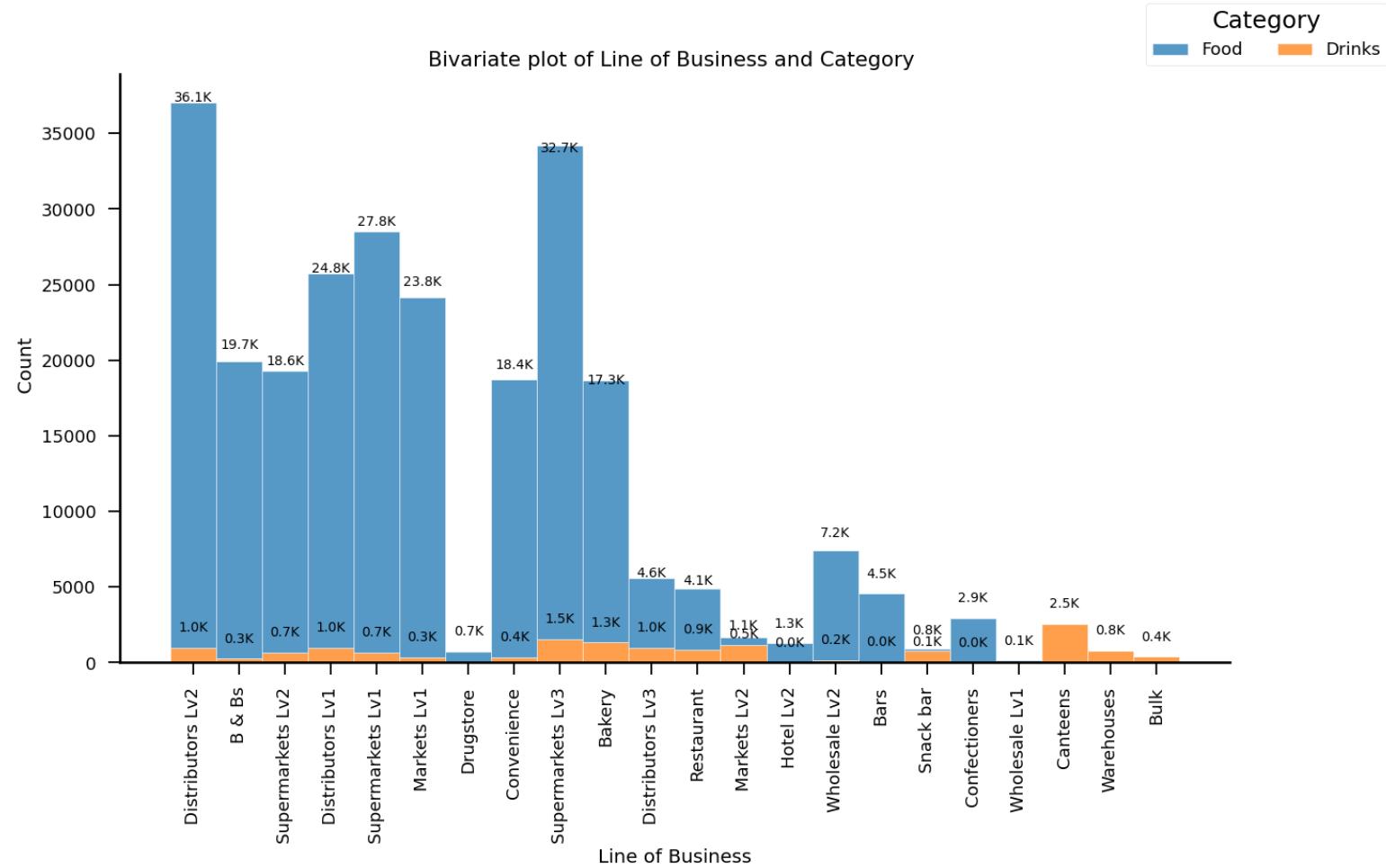
In contrast, in the B & Bs segment, horticulture, sugars, and flours are dominant, reflecting a focus on amenities and provisions catering to guests' comfort and culinary preferences.



BIVARIATE ANALYSIS WRT LINE OF BUSINESS

Inference:

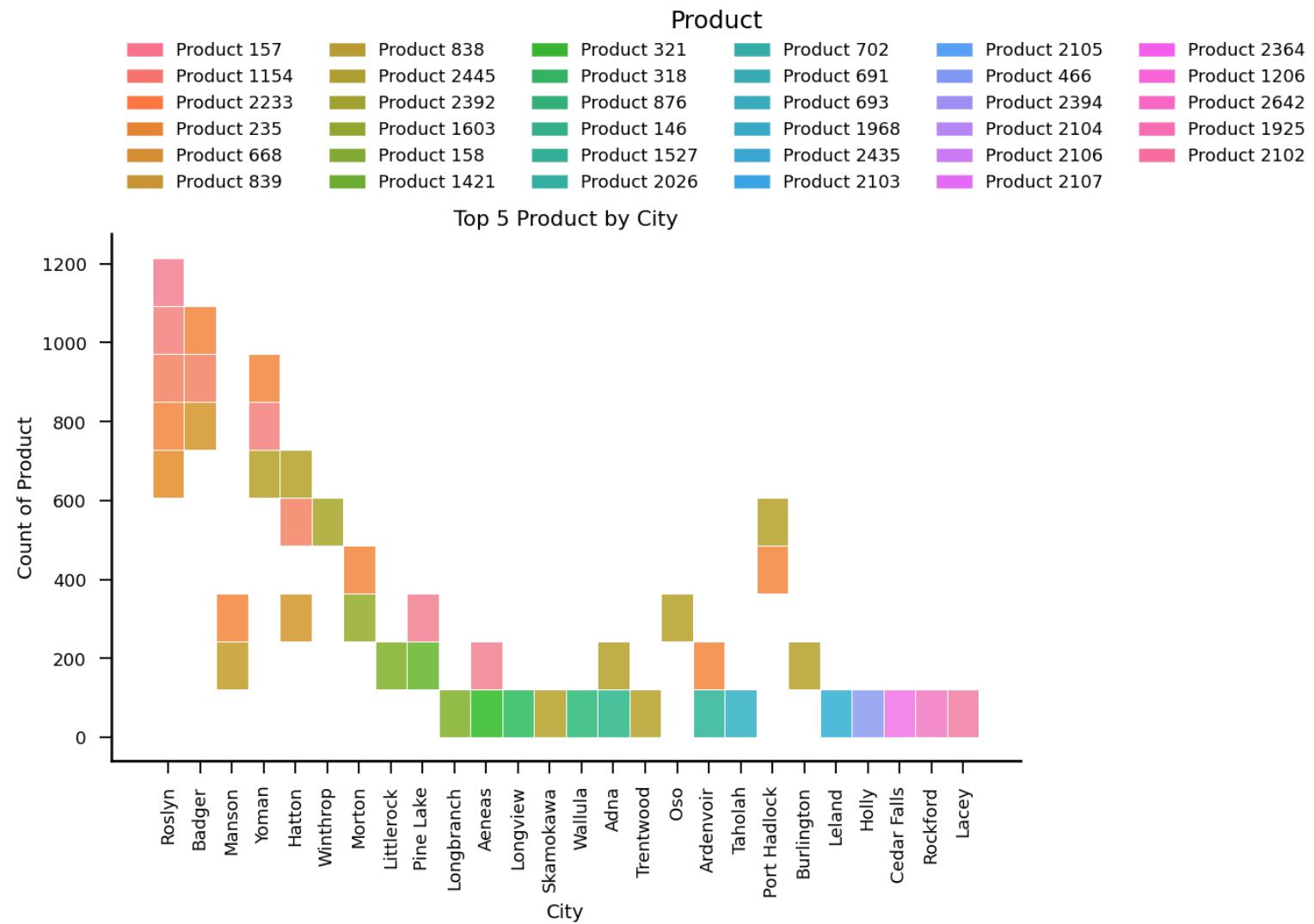
1. Canteens, Warehouses, Bakery and Supermarkets line of Businesses have products belonging to the Drinks Category.
2. Distributors and SuperMarkets have major products that belong to Food Category.



BIVARIATE ANALYSIS WRT CITY

Inference:

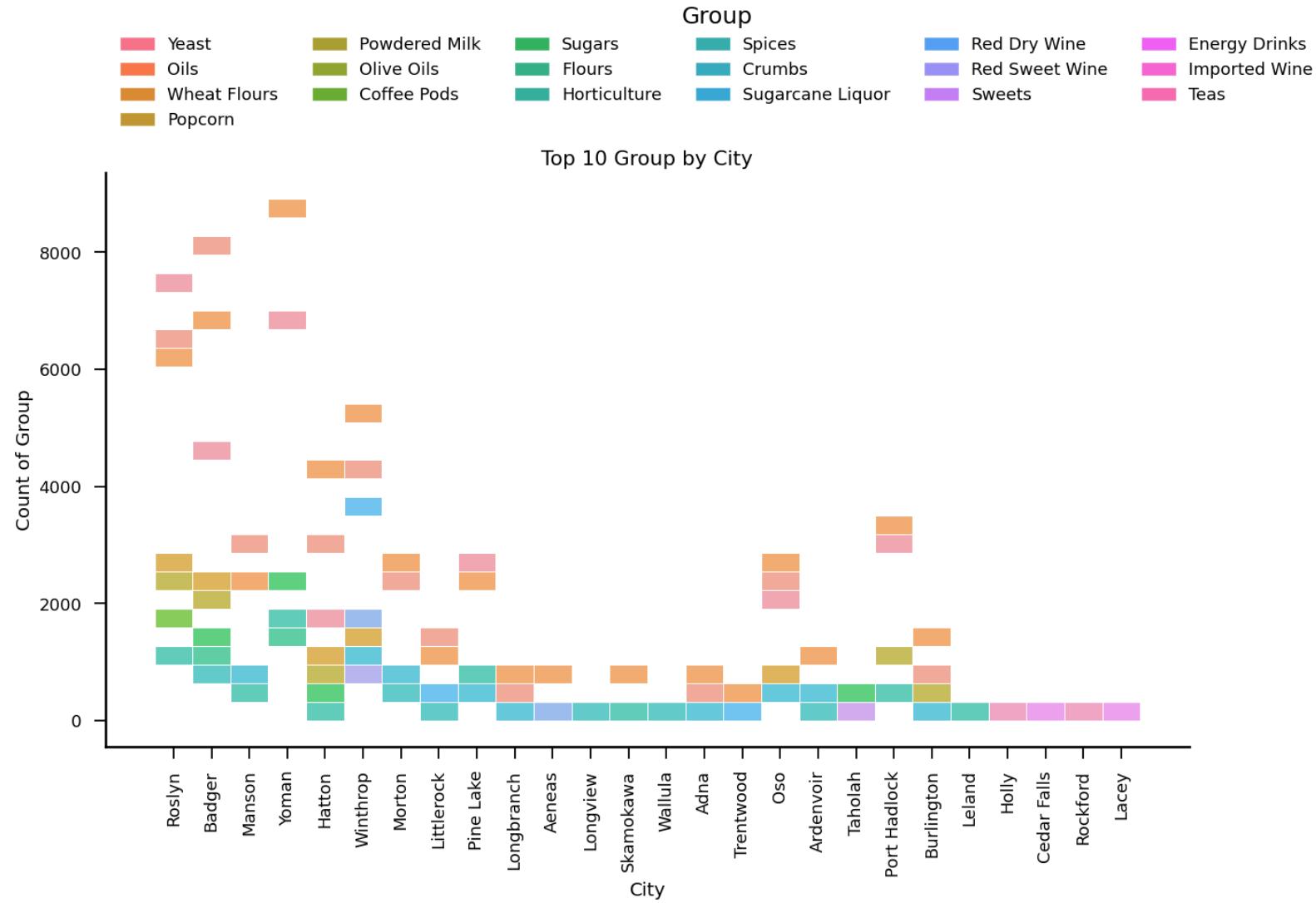
1. The top five products sold in Roslyn include Product 157, Product 1154, Product 2233, Product 235, and Product 668, with considerable quantities sold in each.
 2. Notably, Badger also demonstrates robust sales, with Product 235, Product 157, Product 1154, Product 2233, and Product 839 being the top-selling items.
 3. Holly, Cedar Falls, Rockford and Lacey have just one product ie Product 2364 to Product 1925. This shows specific product demand has a geographical influence



BIVARIATE ANALYSIS WRT CITY

Inference:

1. Roslyn exhibits a diverse range of product groups, showcasing its versatility in catering to various consumer needs. Key product groups dominating Roslyn's market include Oils, Wheat Flours, Popcorn, and Powdered Milk.
2. On the other hand, least sales cities include holly, cedar, rockford.



BIVARIATE ANALYSIS WRT CITY

Inferences:

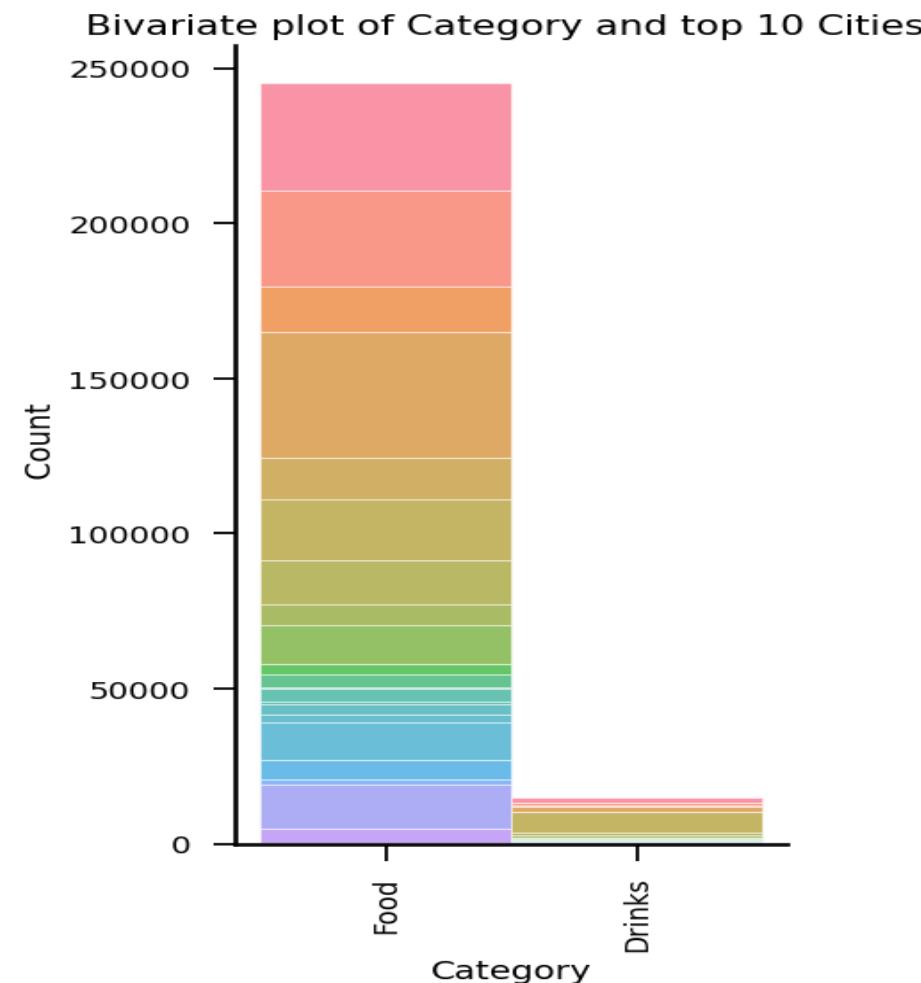
It's evident that Roslyn emerges as a significant hub for product distribution, particularly in the categories of food and beverages.

Food Sales:

1. Yoman has the highest sales of food products.
2. Roslyn follows Yoman in food sales.
3. Badger Lacey and Port Hadlock have equal sales, which is none, in the food category.

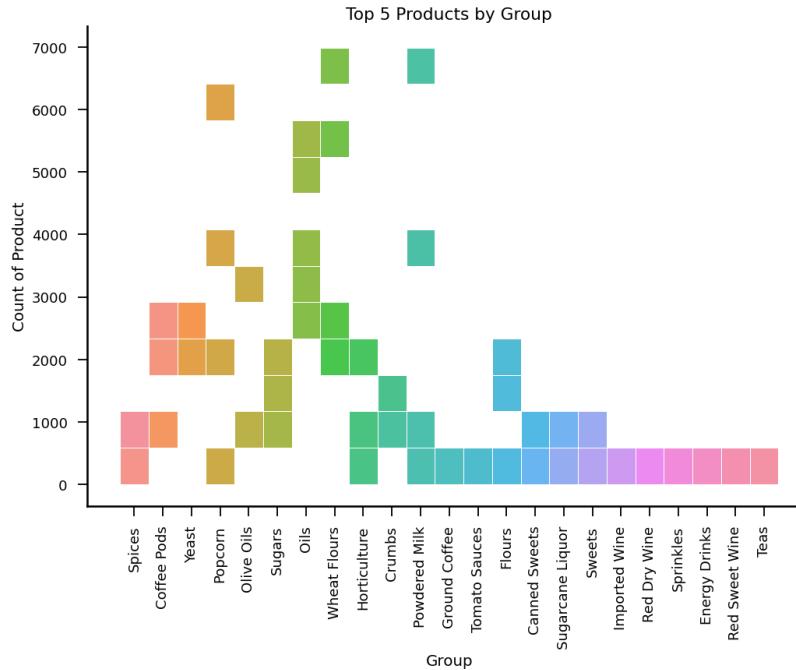
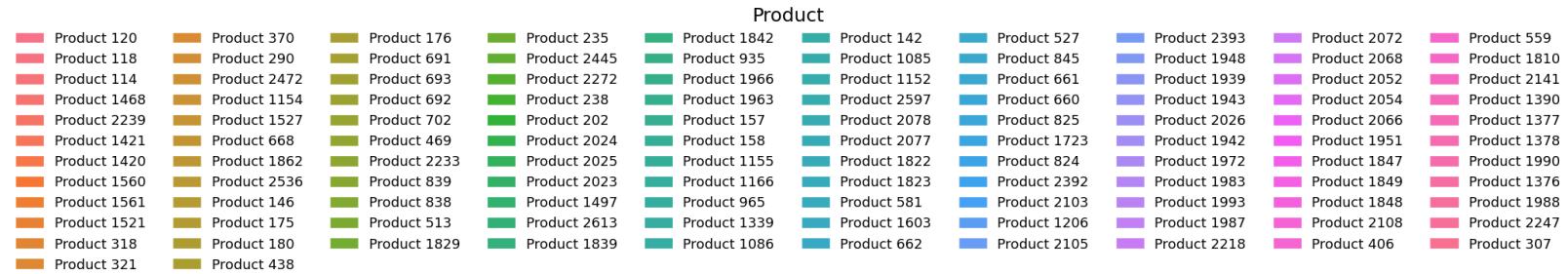
Drink Sales:

1. Winthrop has the highest sales of drinks.



BIVARIATE ANALYSIS WRT PRODUCT

- Wheat Flours, Powdered Milk, Oils, Popcorn and Horticulture have the most popular products among the various groups.
- Whereas Teas , Wines, Drinks, Tomato Sauces have just 1 product.

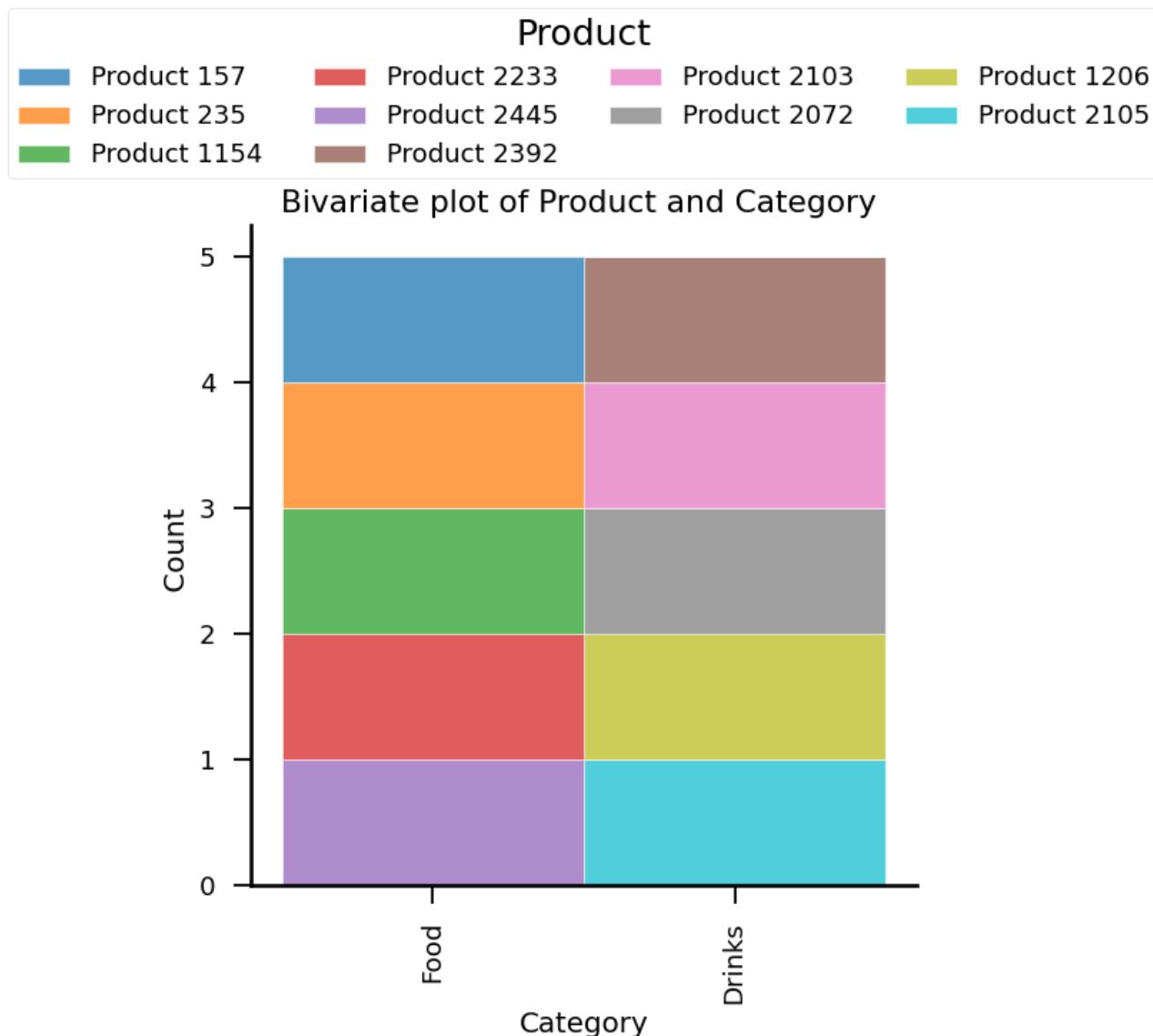


BIVARIATE ANALYSIS WRT PRODUCT

Inference:

Product 157 ,235,1154 are the most popular products in food category

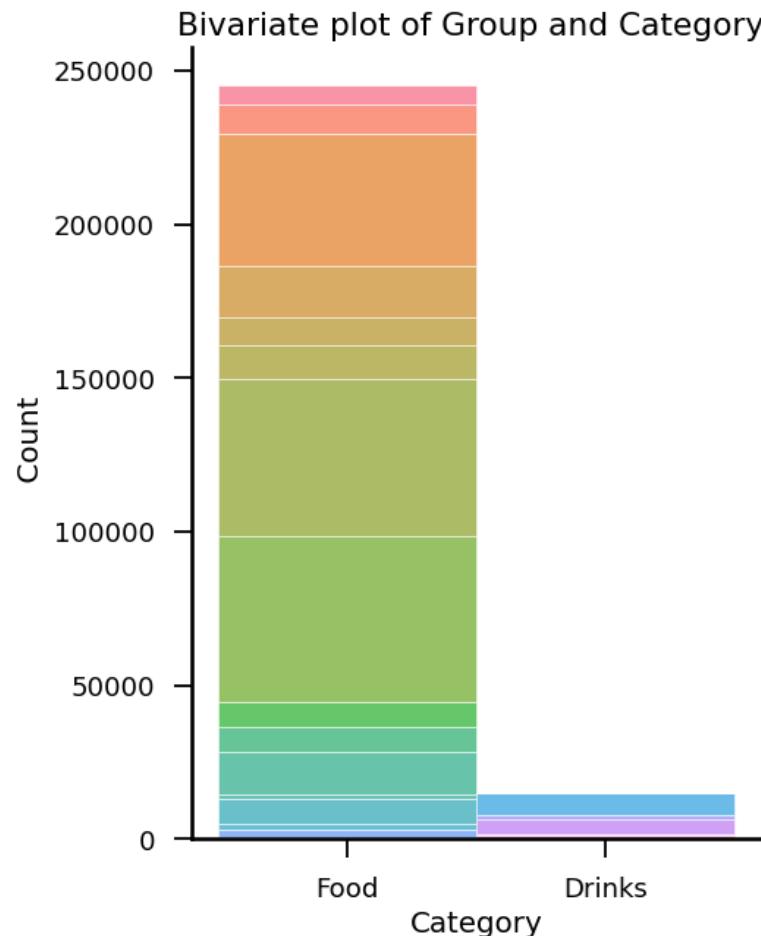
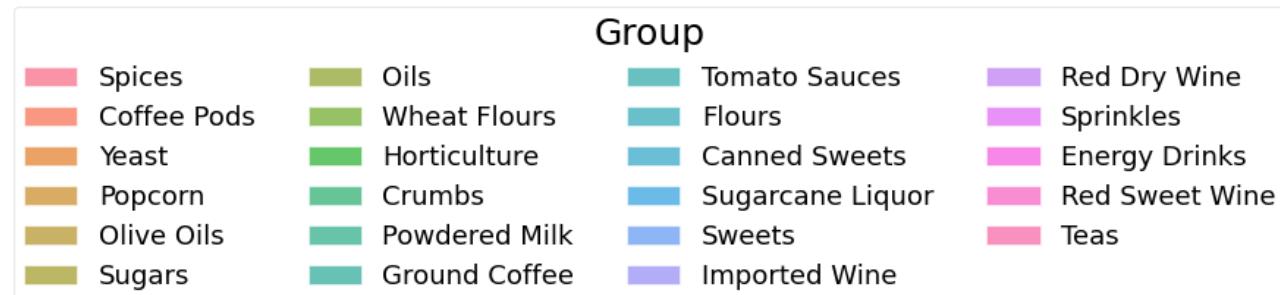
Product 2392 ,2103,2072 are the most popular products in drinks category



BIVARIATE ANALYSIS WRT GROUP

Inference:

1. Spices , Coffee Pods ,Oils , wheat flours and yeast are most sold items in food category
2. Sugarcane liquor , wines , followed by energy drinks and Teas are most selling item in drinks



Key Insights

Annual Performance

Trends:

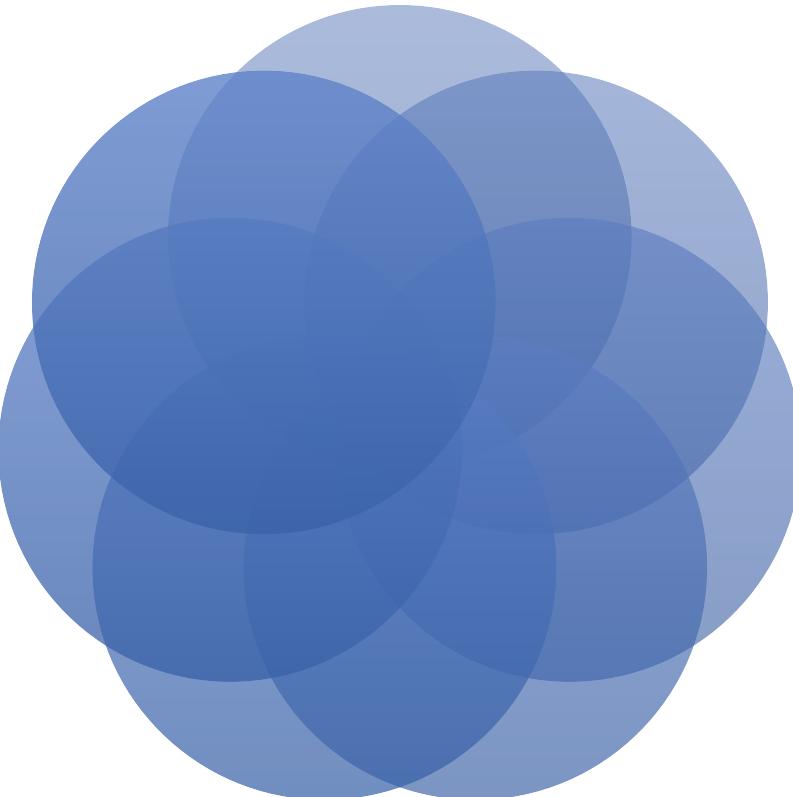
- Sales targets met:
 - 2017: 52%
 - 2018: 81% (significant improvement)

Sales vs. Target:

- Distributors excel, achieving up to 83% of their target sales.
- Online and retail teams reach 60% of their respective targets.

Geographical Analysis:

- Yoman ranks first with 3.3 million in sales.



Sales Performance:

- Duane Frame's team achieved an impressive 74% of the target sales.
- Ronnie Daly's team attained 60% of the target, showing solid performance with room for improvement.

Team Composition:

- Distributors constitute 35.21% of the workforce.
- Online team represents 22.85% of the workforce.
- Retailers comprise 41.93% of the teams.

Product Sales Analysis:

- Top-selling items include oils and wheat flours.
- Least popular products include teas and tomato sauces.

Recommendations

Leverage Strengths

- Duane Frame's team's effective management and strategy execution.
- Retail team's solid performance in sales.

Enhance Strategies

- Focus on improving sales performance for Ronnie Daly's team.
- Explore opportunities to boost sales in underperforming product categories.

Optimize Distribution

- Capitalize on the strong performance of distributors, especially in top cities like Yoman.

Continued Improvement

- Maintain the trend of gradual improvement in target achievement observed over the years.